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ebook

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Basics of Number System / संख्या पद्धति की मूल बातें

1) Face Value/ अंकित मूल्य:

It is nothing but the number itself about which it has been asked.

यह कुछ भी नहीं है, बल्कि वही संख्या है जिसके बारे में पूछा गया है|

Example: In the number 23576

Face value of 5 is 5 and face value of 7 is 7.

2) Place Value/ स्थान मूल्य: The place value of a number depends on its position in the number. Each position has a value 10 times the places to its right.

किसी संख्या का स्थान मूल्य, संख्या में उसकी स्थिति पर निर्भर करता है| प्रत्येक स्थान का मूल्य उसके दाएं तरफ की जगहों का 10 गुना होता है|

Example: In the number 23576

Place value of 5 is 500 and place value of 3 is 3000.

Types of Numbers/ संख्याओं के प्रकार

1) Natural Numbers / प्राकृतिक संख्या (N) :

All positive counting numbers. (0 is not included in it.)

सभी धनात्मक गणना संख्याएं| (0 इसमें शामिल नहीं है|)

Examples: 1, 2, 3, 4… etc.

2) Whole Numbers / पूर्ण संख्या (W): All non- negative numbers are all whole numbers.

सभी धनात्मक संख्याएं तथा 0 पूर्ण संख्याएं हैं|

Examples: 0, 1, 2, 3, 4… etc.

3) Integer Numbers/ पूर्णांक संख्या (I): All negative numbers and positive numbers. Positive numbers are called positive integers and negative numbers are called negative integers.

सभी धनात्मक संख्याएं और ऋणात्मक संख्याएं| धनात्मक संख्या को धनात्मक पूर्णांक कहा जाता है तथा ऋणात्मक संख्या को ऋणात्मक पूर्णांक कहा जाता है|

I =……., -4, -3, -2, -1, 0, 1, 2, 3, 4…….

4) Even Numbers/ सम संख्या:

2, 4, 6, 8, 10….. [Divisible by 2 completely]

5) Odd Numbers/ विषम संख्या: 1, 3, 5, 7, 9, 11….. [Not divisible by 2 completely]

Divisibility Test / विभाज्यता के नियम

By 2:- When last digit is 0 or an even number/जब अंतिम अंक 0 या एक सम संख्या है|

eg: 520, 588

By 3:- Sum of digits is divisible by 3/अंकों का योग 3 से भाज्य है|

eg: 1971, 1974

By 4:- When last two digits are divisible by 4 or, they are zeros/जब अंतिम दो अंक 4 से भाज्य हो या, वे शून्य हैं |

eg: 1528, 1700

By 5: When last digit is 0 or 5/ जब अंतिम अंक 0 या 5 हो |

eg: 1725, 1790

By 6:- When the number is divisible by 2 and 3 both/ जब संख्या 2 और 3 दोनों से भाज्य हो |

eg: 36, 72

By 8:- When last three digit is divisible by 8/ जब अंतिम तीन अंक 8 से विभाज्य हो |

eg: 2256

By 9:- When sum of digit is divisible by 9/अंकों का योग 9 से भाज्य है |

eg: 9216

By 10:- When last digit is 0/जब अंतिम अंक 0 है |

eg: 452600

By 11:- When sum of odd and even place digits difference is 0 or divisible by 11/ जब सम और विषम स्थान के अंको के योग का अंतर 0 हो या 11 से भाज्य हो |

eg: 217382

Sum of odd place digits = 2+7+8 = 17

Sum of even place digits = 1+3+2 = 6

17 – 6 = 11, hence 217382 is divisible by 11.

Important Formulas / महत्वपूर्ण सूत्र

1. Sum of first n natural numbers = $\frac{n(n+1)}{2}$

पहली n प्राकृतिक संख्या का योग = $\frac{n(n+1)}{2}$

2. Sum of first n odd numbers = n^2

पहली n विषम संख्या का योग = n^2

3. Sum of first n even numbers = $n(n+1)$

पहली n सम संख्या का योग = $n(n+1)$

4. Sum of square of first n natural numbers = $\frac{n(n+1)(2n+1)}{6}$

पहली n प्राकृतिक संख्याओं के वर्ग का योग = $\frac{n(n+1)(2n+1)}{6}$

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5. Sum of cubes of first n natural number = $(\frac{n(n+1)}{n})^2$
पहली n प्राकृतिक संख्याओं के घन का योग = $(\frac{n(n+1)}{n})^2$

6. $(x^m - a^m)$ is divisible by $(x - a)$ for all values of m.
$(x^m - a^m)$, m के सभी मूल्यों के लिए $(x - a)$ से भाज्य है|

7. $(x^m - a^m)$ is divisible by $(x + a)$ for even values of m.
$(x^m - a^m)$, m के सम मूल्यों के लिए $(x + a)$ से भाज्य है|

8. $(x^m + a^m)$ is divisible by $(x + a)$ for odd values of m.
$(x^m + a^m)$, m के विषम मूल्यों के लिए $(x + a)$ से भाज्य है|

9. Number of prime factors of a^p, b^q, c^r, d^s is $p + q + r + s$ when a, b, c, d are all prime numbers.
a^p, b^q, c^r, d^s के अभाज्य गुणनखंडो की संख्या $p + q + r + s$ होगी, जब a, b, c, d अभाज्य है|

Number of Zeros in an expression / किसी व्यंजक में शून्य की संख्या

We shall understand this concept with the help of an example. / हम एक उदाहरण की सहायता से इस विचार को समझेंगे।

Let's find the number of zeros in the following expression: / निम्नलिखित व्यंजक में शून्य की संख्या ढूँढ़ते हैं:

$24 \times 32 \times 17 \times 23 \times 19 = (2^3 \times 3^1)$

$\times 2^5 \times 17 \times 23 \times 19$

Notice that a zero is made only when there is a combination of 2 and 5. Since there is no '5' here there will be no zero in the above expression./ एक शून्य तब बनता है जब 2 और 5 के संयोजन होते हैं| चूंकि कोई '5' नहीं है इसलिए उपरोक्त व्यंजक में कोई शून्य नहीं होगा|

Example:

$8 \times 15 \times 23 \times 17 \times 25 \times 22 =$

$2^3 \times (3^1 \times 5^1) \times 23 \times 17 \times 5^2 \times 2^1 \times 11$

In this expression there are 4 twos and 3 fives. From this 3 pairs of 5×2 can be formed. Therefore, there will be 3 zeros in the final product.
इस व्यंजक में चार 2 तथा तीन 5 है| इससे 3 जोड़े 5×2 का गठन किया जा सकता है | इसलिए अंतिम गुणनफल में 3 शून्य होंगे।

Q. Find the number of zeros in the value of:

$2^2 \times 5^4 \times 4^6 \times 10^8 \times 6^{10} \times 15^{12} \times 8^{14}$

$\times 20^{16} \times 10^{18} \times 25^{20}$ ./

$2^2 \times 5^4 \times 4^6 \times 10^8 \times 6^{10} \times 15^{12} \times 8^{14}$

$\times 20^{16} \times 10^{18} \times 25^{20}$ के गुणनफल में शून्य की संख्या खोजें:

Ans.

$2^2 \times 5^4 \times 4^6 \times 10^8 \times 6^{10} \times 15^{12} \times 8^{14}$

$\times 20^{16} \times 10^{18} \times 25^{20} =$

$2^2 \times 5^4 \times 2^{12} \times 2^8 \times 5^8 \times 2^{10} \times 3^{10} \times 3^{12}$

$\times 5^{12} \times 2^{42} \times 2^{32} \times 5^{16} \times 2^{18} \times 5^{18} \times 5^{40}$

Zeros are possible with a combination of 2×5 ./ शून्य 2×5 के संयोजन के साथ संभव है|

Here number of 5's are less so number of zeros will be limited to the number of 5's.
यहां 5 की संख्या कम है इसीलिए 0 की संख्या 5 की संख्या तक सीमित होगी।

In this expression number of fives are: / इस व्यंजक में 5 की संख्या है:

$5^4 \times 5^8 \times 5^{12} \times 5^{16} \times 5^{18} \times 5^{40}$;
i.e. 4+8+12+16+18+40 = 98

Remainder Theorem / शेषफल प्रमेय

Q. What will be the remainder when 17×23 is divided by 12?
17×23 को 12 से विभाजित करते समय शेषफल क्या होगा?

Ans. We can write:/ हम लिख सकते है:

$17 \times 23 = (12 + 5) \times (12 + 11)$
$= 12 \times 12 + 12 \times 11 + 5 \times 12 + 11 \times 5$

In the above expression we will find that remainder will depend on the last term i.e. 11×5
उपरोक्त व्यंजक में हम पाएंगे कि शेष अंतिम टर्म पर निर्भर करेगा, जो है 11×5

Now, $rem\left(\frac{11 \times 5}{12}\right) = 7$.

So, $\frac{12 \times 12 + 12 \times 11 + 5 \times 12 + 11 \times 5}{12}$ and $\frac{11 \times 5}{12}$ remainder is same in both cases which is 7.
शेषफल दोनों ही स्थिति में 7 ही है|

Example: Remainder when $1421 \times 1423 \times 1425$ is divided by 12?
शेषफल जब $1421 \times 1423 \times 1425$ को 12 से विभाजित किया जाता है?

$rem\left(\frac{1421 \times 1423 \times 1425}{12}\right) = rem\left(\frac{5 \times 7 \times 9}{12}\right) = rem\left(\frac{35 \times 9}{12}\right) = rem\left(\frac{11 \times 9}{12}\right) = 3$

Negative Remainder / ऋणात्मक शेषफल

Taking negative remainder will make our calculation easier. / ऋणात्मक शेषफल हमारी गणना को आसान बना देगा|

Examples/ उदाहरण:

i)
$rem\left(\frac{7 \times 8}{9}\right) = rem\left(\frac{-2 \times -1}{9}\right) = -2 \times -1 = 2$

ii)
$rem\left(\frac{55 \times 56}{57}\right) = rem\left(\frac{-2 \times -1}{57}\right) = -2 \times -1 = 2$

iii)

$rem\left(\frac{7\times10}{9}\right) = rem\left(\frac{-2\times1}{9}\right) = -2\times1$

$= -2 \text{ or, } 7$

Large Power Concepts

Look at the following examples: / निम्नलिखित उदाहरण देखें:

i) $rem\left(\frac{28^{12345}}{9}\right) = rem\left(\frac{(27+1)^{12345}}{9}\right) = rem\left(\frac{1^{12345}}{9}\right) = 1^{12345} = 1$

ii) $rem\left(\frac{26^{12345}}{9}\right) = rem\left(\frac{(27-1)^{12345}}{9}\right) = rem\left(\frac{-1^{12345}}{9}\right) = -1^{12345}$

$= -1 \text{ or, } 8$

Application of Remainder Theorem / शेषफल प्रमेय के उपयोग

Find the last two digits of the expression / व्यंजक के अंतिम दो अंक ढूंढें:

$22 \times 31 \times 44 \times 27 \times 37 \times 43$

If we divide the above expression by 100, we will get the last two digits as remainder.

यदि हम उपरोक्त व्यंजक को 100 से विभाजित करते हैं, तो हम अंतिम दो अंक शेष के रूप में प्राप्त करेंगेI

$\Rightarrow rem\left(\frac{22\times31\times44\times27\times37\times43}{100}\right)$, dividing by 4 to make it simple / सरल बनाने के लिए 4 से विभाजित करें:

$= rem\left(\frac{22\times31\times11\times27\times37\times43}{25}\right) = rem\left(\frac{132\times22\times216}{25}\right) = rem\left(\frac{7\times22\times16}{25}\right)$

$= rem\left(\frac{4\times16}{25}\right) = rem\left(\frac{14}{25}\right) = 14$

Since we had divided by 4 initially now to get the correct answer, we need to multiply the remainder by 4.

चूंकि हमने 4 से विभाजित किया था इसलिए हमें 4 से शेष को गुणा करना होगा|

So remainder will be,/ तो शेषफल होगा,

$14 \times 4 = 56$, which will also be the last two digits of the expression. / जो व्यंजक के अंतिम दो अंक भी होंगे|

Varieties Questions

Q1. If a nine-digit number 985x3678y is divisible by 72, then the value of (4x - 3y) is :

यदि 9 अंकों की संख्या 985x3678y 72 से विभाजित है, तो (4x-3y) का मान ज्ञात करें |

SSC CGL 4 June 2019 (Morning)

(a) 5
(b) 4
(c) 6
(d) 3

Q2. If a 11 digit number 5y5884805x6 is divisible by 72, where x = y, then the value of $\sqrt{xy}$ is :

यदि 11 अंकों की एक संख्या 5y5884805x6 है जिसमें x = y और यह 72 से विभाजित है, तो $\sqrt{xy}$ का मान ज्ञात करें |

SSC CGL 10 June 2019 (Morning)

(a) $\sqrt{7}$
(b) 3
(c) 7
(d) $2\sqrt{7}$

Q3. If a 10 digit number 2094x843y2 is divisible by 88, then the value of (5x - 7y) for the largest possible value of x, is :

यदि 10 अंकों की एक संख्या 2094x843y2, 88 से विभाजित है, तो x का सबसे बड़ा संभव मान लेते हुए (5x - 7y) का मान ज्ञात करें |

SSC CGL 6 June 2019 (Evening)

(a) 3
(b) 5
(c) 2
(d) 6

Q4. What is the least value of x such that 517x324 is divisible by 12?

X का वह सबसे छोटा मान ज्ञात करें ताकि 517x324 12 से विभाजित हो जाए ?

SSC CGL 11 June 2019 (Morning)

(a) 3
(b) 1
(c) 0
(d) 2

Q5. When an integer n is divided by 8, the remainder is 3. What will be the remainder if 6n-1 is divided by 8?

जब पूर्णांक n को 8 से विभाजित किया जाता है, तो शेषफल 3 आता है | शेषफल क्या होगा जब 6n-1 को 8 से विभाजित किया जाता है ?

SSC CGL 13 June 2019 (Evening)

(a)4
(b)1
(c)0
(d)2

Q6. If a nine-digit number 43x1145y2 is divisible by 88, then the value of (3x-2y), for the smallest value of y, is:

यदि नौ अंकों की एक संख्या 43x1145y2 88 से विभाजित है, तो y के सबसे छोटे मान के लिए (3x - 2y) का मान ज्ञात करें |

SSC CHSL 1 July 2019(Evening)

(a) 22
(b) 18
(c) 20
(d) 9

Q7. If the eight-digit number 342x18y6 is divisible by 72, then what is the value of $\sqrt{9x+y}$, for the largest value of y ?

यदि आठ अंको की एक संख्या 342x18y6 72 से विभाजित है, तो y के सबसे बड़े मान के लिए $\sqrt{9x+y}$ का मान क्या होगा ?

SSC CHSL 2 July 2019(Morning)

(a) $2\sqrt{7}$
(b) $4\sqrt{7}$
(c) 8
(d) 6

Q8. The ten digit number 2x600000y8 is exactly divisible by 24. If $x \neq 0$ and $y \neq 0$, then the least value of (x + y) is

10 अंकों की संख्या 2x600000y8 24 से पूर्णतः विभाजित है | यदि $x \neq 0$ तथा $y \neq 0$ है, तो (x + y) का न्यूनतम मान ज्ञात करें |

SSC CHSL 11 July 2019(Morning)

(a) 5
(b) 8
(c) 9
(d) 2

Q 9. On dividing a number by 38, the quotient is 24 and the remainder is 13, then the number is:

किसी संख्या को 38 से भाग देने पर भागफल 38 तथा शेषफल 13 आता है | वह संख्या कौन सी है ?

SSC CPO 16 March 2019 (Morning)

(a) 925
(b) 975
(c) 904
(d) 956

Q10. What is the sum of the digits of the least number, which when divided by 12, 16 and 54, leaves the same remainder 7 in each case and is also completely divisible by 13?

उस सबसे छोटी संख्या के अंकों का योग ज्ञात करें जिसे 12, 16 और 24 से भाग देने पर हर बार 7 शेषफल आता है और यह 13 से भी पूर्णतः विभाजित है |

SSC CPO 12 March 2019 (Evening)

(a) 36
(b) 16
(c) 9
(d) 27

Q11. When the integer n is divided by 7, the remainder is 3. What is the remainder if 5n is divided by 7?

जब पूर्णांक n को 7 से विभाजित किया जाता है, तो शेषफल 3 आता है | जब 5n को 7 से विभाजित किया जाएगा तो शेषफल क्या आएगा ?

SSC CPO 16 March 2019 (Evening)

(a)3
(b)0
(c)1
(d)2

Q12. The number 23474 is exactly divisible by: / संख्या 23474 विभाज्य है:

SSC CPO 14 March 2019 (Morning)

(a)2 and 3 only / केवल 2 और 2
(b)2 and 4 only / केवल 2 और 4
(c)2 and 11 only / केवल 2 और 11
(d)2 only / केवल 2

Q13.The least number that should be added to 10000 so that it is exactly divisible by 327 is:

10000 में न्यूनतम कौन सी संख्या जोड़ी जानी चाहिए ताकि यह 327 से पूर्णतः विभाजित हो जाए ?

SSC CPO 15 March 2019 (Morning)

(a) 327
(b) 237
(c) 137
(d) 190

Q14. Which least number should be added to 1000 so that the number obtained is exactly divisible by 37?

1000 में कम से कम कौन सी संख्या जोड़ी जानी चाहिए ताकि प्राप्त होने वाली संख्या 37 से पूर्णतः विभाजित हो ?

SSC CPO 16 March 2019 (Afternoon)

(a)1
(b)25
(c)36
(d)13

Q15. In number 16008, The numeral 6 has a face value:

16008 में अंक 6 का जातीय मान (face value) है :

SSC CPO 15 March 2019 (Evening)

(a)6000
(b)6
(c)60
(d)600

Q16. What is the difference between the largest and smallest numbers of the four digits created using numbers 2, 9, 6, 5? | (Each number can be used only once)

अंक 2,9,6, और 5 का उपयोग करके बनी चार अंको की सबसे बड़ी और सबसे छोटी संख्यायों का अंतर क्या है ? |(प्रत्येक अंक केवल एक ही बार प्रयुक्त हो सकता है)

SSC CPO 14 March 2019 (Evening)

(a) 6993
(b) 7056
(c) 6606
(d) 7083

Q17. A gardener planted 1936 saplings in a garden such that there were as many rows of saplings as the columns. The number of rows planted is:

एक माली ने किसी उद्यान में 1936 पौधे इस प्रकार लगाए कि पौधों की पंक्तियाँ तथा कतार बराबर थे | पंक्तियों की संख्या ज्ञात करें |

SSC CPO 16 March 2019 (Afternoon)

(a) 46

Pinnacle

(b) 44
(c) 48
(d)42

Q18. The sum of all possible three digit numbers formed by digits 3, 0 and 7, using each digit only once is:
अंक 3, 0 और 7 में से प्रत्येक अंक का केवल एक ही बार प्रयोग करके बनने वाली सभी संभावित तीन अंकों की संख्याओं का योग ज्ञात करें |
SSC CPO 14 March 2019 (Morning)
(a)2010
(b)1990
(c)2220
(d)2110

Practice Questions

Q1. If the 8-digit number 789x531y is divisible by 72, then the value of (5x - 3y) is :
यदि आठ अंकों की संख्या 789x531y 72 से विभाज्य है, तो (5x - 3y) का मान ज्ञात करें |
SSC CGL 4 June 2019 (Afternoon)
(a) 0
(b) -1
(c) 2
(d) 1

Q2. If the 8-digit number 179x091y is divisible by 88. The value of (5x - 8y) is:
यदि 8 अंकों की संख्या 179x091y, 88 से विभाज्य है, तो (5x - 8y) का मान ज्ञात करें |
SSC CGL 4 June 2019 (Evening)
(a) 4
(b) 7
(c) 9
(d)5

Q3. If the 8-digit number 2074x4y2 is divisible by 88, then the value of (4x+3y) is:
यदि आठ अंकों की संख्या 2074x4y2 88 से विभाज्य है, तो (4x+ 3y) का मान ज्ञात करें |
SSC CGL 6 June 2019 (Morning)
(a) 49
(b) 36
(c) 42
(d) 45

Q4. If a 9-digit number 32x4115y2 is divisible by 88, then the value of (4x - y) from the smallest possible value of x is :
यदि 9 अंकों की संख्या 32x4115y2, 88 से विभाज्य है, x के सबसे छोटे संभव मान से (4x - y) का मान ज्ञात करें |
SSC CGL 6 June 2019 (Afternoon)
(a) 31
(b) 20
(c) -1
(d) 11

Q5. If a 10 digit number 1330x558y2 is divisible by 88, then the value of (x + y) is :
यदि 10 अंकों की एक संख्या 1330x558y2 88 से विभाजित है, तो (x + y) का मान क्या होगा ?
SSC CGL 7 June 2019 (Morning)
(a) 7
(b) 9
(c) 6
(d) 8

Q6. If a 10-digit number 897359y7x2 is divisible by 72, then what is the value of (3x - y), for the possible greatest value of y?
यदि 10 अंकों की एक संख्या 897359y7x2 72 से विभाजित है, तो y के सबसे बड़े संभव मान को लेते हुए (3x - y) का मान ज्ञात करें |
SSC CGL 7 June 2019 (Afternoon)
(a) 3
(b) 8
(c) 7
(d) 5

Q7. If a 10 digit number 67127y76x2 is divisible by 88, then the value of (7x - 2y) is :
यदि 10 अंकों की एक संख्या 67127y76x2 88 से विभाजित है, तो (7x - 2y) का मान ज्ञात करें |
SSC CGL 7 June 2019 (Evening)
(a) 10
(b) 7
(c) 3
(d) 5

Q8. If the six digit number 15x1y2 is divisible by 44, then (x + y) is equal to :
यदि छः अंकों की एक संख्या 15x1y2 44 से विभाजित है, तो (x + y) का मान किसके बराबर होगा ?
SSC CGL 10 June 2019 (Afternoon)
(a) 8
(b) 7
(c) 6
(d) 9

Q9. If the six digit number 6x2904 is divisible by 88, then the value of x is :
यदि छः अंकों की एक संख्या 6x2904 88 से विभाजित है, तो x का मान ज्ञात करें |
SSC CGL 10 June 2019 (Evening)
(a) 5
(b) 6
(c) 7
(d) 8

Q10. If a six digit number 4x573y is divisible by 72, then the value of (x + y) is:
यदि छः अंकों की एक संख्या 4x573y 72 से विभाजित है, तो (x + y) का मान क्या होगा ?
SSC CGL 11 June 2019 (Afternoon)
(a) 9

pinnacle

(b) 4
(c) 8
(d) 6

Q11. For what value of x is the seven digit number 46393x8 divisible by 11?
x का कौन सा मान रखने पर सात अंकों की संख्या 46393x8, 11 से विभाजित हो जायेगी ?
SSC CGL 11 June 2019 (Evening)
(a) 5
(b) 3
(c) 2
(d) 7

Q12. What is the value of x so that the seven digit number 91876x2 is divisible by 72?
X का वह मान ज्ञात करें जिससे सात अंकों की संख्या 91876x2, 72 से विभाजित हो जाए |
SSC CGL 12 June 2019 (Morning)
(a) 2
(b) 7
(c) 5
(d) 3

Q13. What is the value of x such that the seven digit number 6913x08 is divisible by 88?
x का मान ज्ञात करें जिससे सात अंकों की संख्या 6913x08, 88 से विभाजित हो जाए |
SSC CGL 12 June 2019 (Afternoon)
(a) 4
(b) 2
(c) 8
(d) 6

Q14. What is the value of x so that the seven digit number 5656x52 is divisible by 72?
x का मान क्या होना चाहिए ताकि सात अंकों की संख्या 5656x52 72 से विभाजित हो जाए ?
SSC CGL 12 June 2019 (Evening)
(a) 5
(b) 4
(c) 7
(d) 8

Q15. What is the value of x so that the seven digit number 55350x2 is divisible by 72?
x का मान क्या होना चाहिए ताकि सात अंकों की संख्या 55350x2 72 से विभाजित हो जाए ?
SSC CGL 13 June 2019 (Morning)
(a)1
(b)8
(c)7
(d)3

Q16. What is the value of x so that the seven digit number 8439x53 is divisible by 99?
x का मान क्या होना चाहिए ताकि सात अंकों की संख्या 8439x53, 99 से विभाजित हो जाए ?
SSC CGL 13 June 2019 (Afternoon)
(a) 9
(b) 4
(c) 3
(d) 6

Q17. If the nine-digit number 8175x45y2 is divisible by 72, then the value of $\sqrt{4x+y}$, for the largest value of y, is:
यदि नौ अंकों की संख्या 8175x45y2 72 से विभाजित है, तो y का सबसे बड़ा मान लेते हुए $\sqrt{4x+y}$ का मान ज्ञात करें |
SSC CHSL 2 July 2019(Afternoon)
(a) 8
(b) 4
(c) 5
(d) 6

Q18. If an eleven-digit number 5y5888406x6 is divisible by 72, then what is the value of (9x - 2y), for the least value of x?
यदि 11 अंकों की एक संख्या 5y5888406x6 72 से विभाजित है, तो x के सबसे छोटे मान के लिए (9x - 2y) का मान क्या होगा ?
SSC CHSL 3 July 2019(Morning)
(a) 5
(b) 3
(c) 4
(d) 7

Q19. If a 10-digit number 46789x531y is divisible by 72, then the value of (2x + 5y), for the largest value of x is:
यदि 10 अंकों की एक संख्या 46789x531y 72 से विभाजित है, तो x का सबसे बड़ा मान लेते हुए (2x + 5y) का मान ज्ञात करें |
SSC CHSL 3 July 2019(Evening)
(a) 28
(b) 16
(c) 10
(d) 38

Q20. If a 10-digit number 75y97405x2 is divisible by 72, then the value of (2x-y), for the greatest value of x, is:
यदि 10 अंकों की एक संख्या 75y97405x2, 72 से विभाजित है, तो (2x-y) का मान ज्ञात करें |
SSC CHSL 4 July 2019(Morning)
(a) 24
(b) 21
(c) 12
(d) 18

Q21. If a 10-digit number 1220x558y2 is divisible by 88, then the value of (x + y) is:
यदि 10 अंकों की एक संख्या 1220x558y2, 88 से विभाजित है, तो (x+y) का मान क्या होगा ?
SSC CHSL 4 July 2019(Afternoon)
(a) 9

Pinnacle

(b) 7
(c) 15
(d) 11

Q22. If a 10-digit number 6220x558y2 is divisible by 88, then the value of (5x+5y) is:
यदि 10 अंकों की एक संख्या 6220x558y2, 88 से विभाजित है, तो (5x+5y) का मान क्या होगा ?
SSC CHSL 5 July 2019(Morning)
(a) 20
(b) 55
(c) 25
(d) 45

Q23. If a 10-digit number 7220x558y2 is divisible by 88, then the value of (5x + 5y) is:
यदि 10 अंकों की एक संख्या 7220x558y2 88 से विभाजित है, तो (5x + 5y) का मान ज्ञात करें |
SSC CHSL 5 July 2019(Afternoon)
(a) 10
(b) 25
(c) 15
(d) 35

Q24. If a 10-digit number 1230x558y2 is divisible by 88, then the value of (5x + 5y) is:
यदि 10 अंकों की एक संख्या 1230x558y2 , 88 से विभाजित है, तो (5x + 5y) का मान ज्ञात करें|
SSC CHSL 5 July 2019(Evening)
(a) 20
(b) 40
(c) 30
(d) 50

Q25. If an 8-digit number 30x558y2 is divisible by 88, then the value of (6x + 6y) is:
यदि 8 अंकों की संख्या 30x558y2 88 से विभाजित है, तो (6x + 6y) का मान ज्ञात करें |
SSC CHSL 8 July 2019(Morning)
(a) 42
(b) 66
(c) 30
(d) 35

Q26. If the seven digit number 54x29y6 (x > y) is divisible by 72, what is the value of (2x + 3y)?
यदि सात अंकों की संख्या 54x29y6 (x > y) 72 से विभाजित है, तो (2x + 3y) का मान क्या होगा ?
SSC CHSL 8 July 2019(Evening)
(a) 32
(b) 13
(c) 38
(d) 23

Q27. If the seven digit number 64x29y6 (x > y) is divisible by 72, what is the value of (2x - 3y) ?
यदि सात अंकों की संख्या 64x29y6 (x > y) 72 से विभाजित है, तो (2x - 3y) का मान क्या होगा ?
SSC CHSL 9 July 2019(Morning)
(a) 13
(b) 3
(c) 9
(d) 7

Q28. If the seven digit number 64x29y6 (x > y) is divisible by 72, what is the value of (2x - y)?
यदि सात अंकों की संख्या 64x29y6 (x > y) 72 से विभाजित है, तो (2x - y) का मान क्या होगा ?
SSC CHSL 9 July 2019(Afternoon)
(a) 3
(b) 13
(c) 7
(d) 9

Q29. The seven digit number 78x1y68 is divisible by 88. The value of (x + y) is:
सात अंकों की संख्या 78x1y68 88 से विभाजित है | (x+y) का मान ज्ञात करें |
SSC CHSL 9 July 2019(Evening)
(a) 13
(b) 10
(c) 11
(d) 14

Q30. The 10-digit number 79x00001y6 is exactly divisible by 88. What is the value of (x + y)?
10 अंकों की संख्या 79x00001y6 88 से पूर्णतः विभाजित है | (x + y) का मान ज्ञात करें |
SSC CHSL 11 July 2019 (Afternoon)
(a) 5
(b) 9
(c) 6
(d) 7

Q31. The eight digit number 5x32465y is divisible by 88. What is the value of (2x + 3y)?
आठ अंकों की संख्या 5x32465y 88 से विभाजित है | (2x + 3y) का मान क्या होगा ?
SSC CHSL 11 July 2019 (Evening)
(a) 18
(b) 20
(c) 16
(d) 24

Q32. The number 45789 is divisible by which of the single digit number:
संख्या 45789 किस एक अंक वाली संख्या से विभाजित है ?
SSC CPO 16 March 2019 (Morning)

(a) Only by 3/ केवल 3
(b) Only by 9/ केवल 9
(c) Only by 3 and 7/ केवल 3 और 7
(d) Only by 3 and 9 / केवल 3 और 9

Pinnacle

Q33. If the seven digit number 74x29y6 is divisible by 72, then what will be the value of (2x + 3y)?
यदि सात अंकों की संख्या 74x29y6, 72 से विभाजित है, तो (2x + 3y) का मान क्या होगा ?
SSC CPO 12 March 2019 (Evening)
(a) 20
(b) 21
(c) 19
(d) 16

Q34. If the seven digit number 3x6349y is divisible by 88, then what will be the value of (2x + 3y)?
यदि सात अंकों की संख्या 3x6349y 88 से विभाजित है, तो (2x + 3y) का मान क्या होगा ?
SSC CPO 13 March 2019 (Evening)
(a) 32
(b) 30
(c) 28
(d) 35

Q35. If the six digit number 4x4y96 is divisible by 88, then what will be the value of (x+2y)?
यदि छः अंकों की संख्या 4x4y96, 88 से विभाज्य है, तो (x+2y) का मान क्या होगा ?
SSC CPO 12 March 2019 (Morning)
(a) 13
(b) 10
(c) 12
(d) 11

Q36. If the seven digit number 56x34y4 is divisible by 72, then what is the least value of (x + y)?
यदि सात अंकों की संख्या 56x34y4 72 से विभाजित है, तो (x+y) का न्यूनतम मान ज्ञात करें |
SSC CPO 13 March 2019 (Morning)
(a) 8
(b) 12
(c) 5
(d) 14

Q37. The number 66249 is divisible by which of the single digit numbers :
संख्या 66249 किस एक अंक वाली संख्या से विभाज्य है ?
SSC CPO 15 March 2019 (Morning)
(a)Only by 3 and 9
(b)Only by 3 and 7
(c)Only by 9
(d)Only by 3

Q38. 210102 can be divided exactly by:
210102 को पूर्णतः किसके द्वारा विभाजित किया जा सकता है :
SSC CPO 16 March 2019 (Afternoon)
(a)7
(b)3
(c)4
(d)8

Q 39. Number 30744, is divisible by which one digit number?
संख्यां 30744 ,एक अंक वाली किस संख्यां से विभाज्य है?
SSC CPO 14 March 2019 (Evening)
(a) All the other numbers except 5 and 7. / 5 और 7 को छोड़कर अन्य सभी संख्याएँ |
(b) Only 2,3 and 6 / केवल 2, 3 और 6 से
(c) Only 2,3,6 and 9 / केवल 2, 3, 6 और 9 से
(d) All the other numbers except 5 / / 5 को छोड़कर अन्य सभी संख्याएँ |

Q40. Number 106974 is divisible by which one digit number ?
संख्या 106974 एक अंक वाली किस संख्या से विभाज्य है ?
SSC CPO 15 March 2019 (Evening)
(a) Only 2,3,6 and 7 / केवल 2,3,6 और 7 से
(b) Only 2 and 3 / केवल 2 और 3 से
(c) Only 2,3 and 4 / केवल 2,3 और 4 से
(d) Only 2,3 and 7 / केवल 2,3 और 7 से

Q41. If $\frac{a}{b} = \frac{3}{4}$, $\frac{b}{c} = \frac{4}{5}$ and $\frac{c}{d} = \frac{5}{6}$, then the sum of the numerator and the denominator (which are coprimes) of $(\frac{a}{d})^{10}$ is:
यदि $\frac{a}{b} = \frac{3}{4}$, $\frac{b}{c} = \frac{4}{5}$ और $\frac{c}{d} = \frac{5}{6}$ है, तो $(\frac{a}{d})^{10}$ के अंश एवं हर (जो सह-अभाज्य हैं) का जोड़ क्या होगा ?
SSC MTS 2 August 2019 (Morning)
(a) 1025
(b) 4097
(c) 2049
(d) 513

Q42. A fraction is such that the numerator is five less than the denominator. Also four times the numerator is one more than the denominator. The fraction is:
एक भिन्न इस प्रकार है कि अंश , हर से 5 कम है | साथ ही, अंश का चार गुना हर से एक अधिक है | यह भिन्न है :
SSC MTS 9 August 2019 (Afternoon)
(a) $\frac{4}{7}$
(b) $\frac{3}{8}$
(c) $\frac{7}{12}$
(d) $\frac{2}{7}$

Q43. Which number should be subtracted from the numerator and denominator of the fraction $\frac{4}{9}$ so that the fraction could be made equal to $\frac{1}{6}$?
भिन्न $\frac{4}{9}$ के अंश तथा हर प्रत्येक में कौन सी संख्या घटाई जानी चाहिए

जिससे भिन्न को $\frac{1}{6}$ के बराबर बनाया जा सके?

SSC MTS 20 August 2019 (Evening)

(a) 3
(b) 7
(c) 2
(d) 5

Q44. Three times a number is 24 more than the one-third of this number. This number is :

किसी संख्या का तीन गुना उसकी एक-तिहाई से 24 अधिक है | संख्या क्या है:

SSC MTS 21 August 2019 (Afternoon)

(a) 9
(b) 15
(c) 12
(d) 8

Q45. Let x be the greatest number which when divides 6475, 4984 and 4132, the remainder in each case is the same. What is the sum of digits of x?

मान लीजिये कि x सबसे बड़ी संख्या है जो 6475, 4984 और 4132 को विभाजित करने पर हर मामले में समान शेषफल छोड़ती है | x के अंकों का जोड़ क्या है ?

SSC MTS 22 August 2019 (Morning)

(a) 4
(b) 7
(c) 5
(d) 6

Q46. When 6892, 7105 and 7531 are divided by the greatest number x, then the remainder in each case is y. What is the value of (x-y) ?

जब 6892, 7105 और 7531 को सबसे बड़ी संख्या x से विभाजित किया जाता है, तो प्रत्येक मामले में शेषफल y आता है | (x-y) का मान ज्ञात करें |

SSC MTS 22 August 2019 (Afternoon)

(a) 123
(b) 137
(c) 147
(d) 113

Q47. x is the greatest number by which, when 2460, 2633 and 2806 are divided, the remainder in each case is the same. What is the sum of digits of x?

x वह सबसे बड़ी संख्या है जिससे 2460, 2633 तथा 2806 को विभाजित करने पर, हर मामले में शेषफल समान आता है | x के अंकों का योग क्या है ?

SSC MTS 22 August 2019 (Evening)

(a) 11
(b) 1
(c) 13
(d) 9

Q 48. Given n is an integer, what is the remainder when $(6n+3)^2$ is divided by 9?

दिया गया n एक पूर्णांक है | जब $(6n+3)^2$ को 9 से भाग दिया जाता है, तब शेषफल क्या आएगा ?

SSC CGL 8 July 2019 (Afternoon)

(a) 3
(b) 2
(c) 1
(d) 0

Q 49. The students of a class donated Rs. 3,481 towards relief fund. Each student donated an amount equal to the number of students in the class. The number of students in the class are:

कक्षा के छात्रों ने राहत निधि में 3481 रुपये का दान दिया | प्रत्येक छात्र ने कक्षा में छात्रों की संख्या के बराबर राशि का योगदान दिया | इस कक्षा में छात्रों की संख्या है |

SSC CPO 16 March 2019 (Morning)

(a) 49
(b) 51
(c) 59
(d) 61

Q 50. The square root of which of the following is a rational number?

निम्न में से किसका वर्ग मूल एक परिमेय संख्या है ?

SSC CPO 12 March 2019 (Morning)

(a) 1250.49
(b) 6250.49
(c) 1354.24
(d) 5768.28

Q 51. The square root of which of the following is a rational number ? निम्न में से किसका वर्गमूल एक परिमेय संख्या है ?

SSC CPO 12 March 2019 (Evening)

(a) 5823.82
(b) 22504.9
(c) 2460.14
(d) 1489.96

Q 52. What is the sum of digits of the least number, which when divided by 15, 18 and 42 leaves the same remainder 8 in each case and is also divisible by 13?

उस न्यूनतम संख्या के अंकों का योग क्या होगा, जो 15, 18 और 42 से विभाजित होने पर प्रत्येक स्थिति में एक ही शेष 8 रहता है और 13 से विभाज्य भी है?

SSC CPO 13 March 2019 (Evening)

(a) 25
(b) 24
(c) 22
(d) 26

Q 53. The square root which of the following is a rational number?

निम्न में से किसका वर्गमूल एक परिमेय संख्या है ?

Pinnacle

SSC CPO 13 March 2019 (Evening)
(a) 5535.36
(b) 3152.88
(c) 72905.2
(d) 67508.5

Q54. To what power -3 should be raised to get -2187?
-2187 प्राप्त करने के लिए -3 को किस घात तक बढ़ाना होगा ?
SSC CPO 14 March 2019 (Morning)
(a) 5
(b) 7
(c) -7
(d) -5

Q55.The cube root of 3375 is equal to:
3375 का घन मूल ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a) 35
(b) 25
(c) 55
(d) 15

Q56.To get a perfect square, what should the minimum number be added to 8212.
एक पूर्ण वर्ग (perfect square) प्राप्त करने के लिए, में 8212 कौन सी सबसे छोटी संख्या जोड़ी जानी चाहिए:
SSC CPO 15 March 2019 (Evening)
(a) 123
(b) 69
(c) 112
(d)54

Q57. The ratio of square of a number and the reciprocal of its cube is $\frac{243}{16807}$. What is the number?
किसी संख्या के वर्ग तथा इसके घन के पारस्परिक (reciprocal) का अनुपात $\frac{243}{16807}$ है | यह संख्या कौन सी है ?
SSC CHSL 11 July 2019 (Morning)
(a) $\frac{2}{7}$
(b) $\frac{7}{3}$
(c) $\frac{3}{7}$
(d) $\frac{5}{7}$

SSC CGL TIER II

Q1. If a nine-digit number 389x6378y is divisible by 72, then the value of $\sqrt{6x+7y}$ will be :
यदि नौ अंकों की एक संख्या 389x6378y , 72 से विभाजित है, तो $\sqrt{6x+7y}$ का मान होगा :
SSC CGL Tier II- 11 September 2019
(a) 6
(b) $\sqrt{13}$
(c) $\sqrt{46}$
(d) 8

Q2. When 12,16,18,20 and 25 divide the least number x, the remainder in each case is 4 but x is divisible by 7. What is the digit at the thousands' place in x ?
जब 12, 16, 18, 20 और 25 न्यूनतम संख्या x को विभाजित करते हैं, तो हर मामले में शेषफल 4 आता है लेकिन x, 7 से विभाजित है | x के हजारवें स्थान पर कौन सा अंक है ?
SSC CGL Tier II- 11 September 2019
(a) 5
(b) 8
(c) 4
(d) 3

Q3. When 7897, 8110 and 8536 are divided by the greatest number x, then the remainder in each case is the same. The sum of the digits of x is :
जब 7897, 8110 और 8536 को सबसे बड़ी संख्या x से विभाजित किया जाता है, तो प्रत्येक मामले में शेषफल समान आता है | x के अंकों का जोड़ है :
SSC CGL Tier II- 11 September 2019
(a) 14
(b) 5
(c) 9
(d) 6

Q4. One of the factors of ($8^{2k}+5^{2k}$), where k is an odd number, is :
($8^{2k}+5^{2k}$) का एक गुणक ज्ञात करें, जहाँ k एक विषम संख्या है |
SSC CGL Tier II- 11 September 2019
(a) 86
(b) 88
(c) 84
(d) 89

Q5. Let x = $(633)^{24}-(277)^{38}+$ $+(266)^{54}$. what is the unit digit of x ?
मान लीजिये कि x = $(633)^{24}-$ $-(277)^{38}+(266)^{54}$ है | x का इकाई अंक क्या है ?
SSC CGL Tier II- 11 September 2019
(a) 7
(b) 6
(c) 4
(d) 8

Q6. The sum of the digits of a two-digit number is $\frac{1}{7}$ of the number. The units digit is 4 less than the tens digit. If the number obtained on reversing its digit is divided by 7, the remainder will be :
दो अंकों की एक संख्या के अंकों का जोड़ संख्या का $\frac{1}{7}$ है | इकाई अंक दहाईं के अंक से 4 कम है | यदि इसके अंकों को पलटने से बनी संख्या को 7 से भाग दिया जाए, तो शेषफल होगा :
SSC CGL Tier II- 11 September 2019

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(a) 4
(b) 5
(c) 1
(d) 6

Q7. If the 11-digit number 5678x43267y is divisible by 72, then the value of $\sqrt{5x+8y}$ is :
यदि 11-अंकों की संख्या 5678x43267y , 72 से विभाजित है, तो $\sqrt{5x+8y}$ का मान क्या होगा ?
SSC CGL Tier II- 12 September 2019
(a) 6
(b) 4
(c) 7
(d) 8

Q8. The number of factors of 3600 is : / 3600 के गुणकों की संख्या है :
SSC CGL Tier II- 12 September 2019
(a) 45
(b) 44
(c) 43
(d) 42

Q9. If x = $(164)^{169}+(333)^{337}-(727)^{726}$, then what is the unit digit of x ?
यदि x = $(164)^{169}+(333)^{337}-(727)^{726}$ है, तो x का इकाई अंक क्या है ?
SSC CGL Tier II- 12 September 2019
(a) 5
(b) 7
(c) 8
(d) 9

Q 10. Let x be the least number which when divided by 15,18,20 and 27, the remainder in each case is 10 and x is a multiple of 31. What least number should be added to x to make it a perfect square ?
मान लीजिये कि x वह सबसे छोटी संख्या है जिसे 15, 18, 20 और 27 से विभाजित करने पर प्रत्येक स्थिति में शेषफल 10 आता है और x, 31 का एक गुणज है | x में न्यूनतम कौन सी संख्या जोड़ी जानी चाहिए ताकि यह पूर्ण वर्ग बन जाए ?
SSC CGL Tier II- 12 September 2019
(a) 39
(b) 37
(c) 43
(d) 36

Q11. When a two-digit number is multiplied by the sum of its digits, the product is 424. When the number obtained by interchanging its digits is multiplied by the sum of the digits, the result is 280. The sum of the digits of the given number is :
दो अंकों की एक संख्या को जब इसके अंकों के योग से गुना किया जाता है, तो गुणनफल 424 आता है | जब इसके अंकों को पलटने से बनी संख्या को अंकों के जोड़ से गुना किया जाता है, तो परिणाम 280 आता है | दी गयी संख्या के अंकों का योग है -
SSC CGL Tier II- 12 September 2019
(a) 6
(b) 9
(c) 8
(d) 7

Q12. If x is the remainder when 3^{61284} is divided by 5 and y is the remainder when 4^{96} is divided by 6, then what is the value of (2x-y) ?
यदि x, 3^{61284} को 5 से विभाजित करने पर आने वाला शेषफल है तथा y, 4^{96} को 6 से विभाजित करने पर आने वाला शेषफल है, तो (2x-y) का मान क्या है ?
SSC CGL Tier II- 13 September 2019
(a) -4
(b) 4
(c) -2
(d) 2

Q13. In finding the HCF of two numbers by division method, the last divisor is 17 and the quotients are 1, 11 and 2, respectively. What is the sum of the two numbers ?
विभाजन विधि से दो संख्याओं का HCF निकालने के दौरान अंतिम भाजक 17 है तथा शेषफल क्रमशः 1, 11 तथा 2 हैं | दोनों संख्याओं का योग क्या है ?
SSC CGL Tier II- 13 September 2019
(a) 833
(b) 867
(c) 816
(d) 901

Q14. If a 10-digit number 5432y1749x is divisible by 72, then what is the value of (5x-4y) ?
यदि 10 अंकों की एक संख्या 5432y1749x, 72 से विभाजित है, तो (5x-4y) का मान क्या है ?
SSC CGL Tier II- 13 September 2019
(a) 14
(b) 15
(c) 10
(d) 9

Q15. What is the remainder when $(127^{97}+97^{97})$ is divided by 32 ?
जब $(127^{97}+97^{97})$ को 32 से भाग दिया जाता है, तो शेषफल क्या आएगा ?
SSC CGL Tier II- 13 September 2019
(a) 4
(b) 2
(c) 7
(d) 0

Q16. Two positive numbers differ by 2001. When the larger number is divided by the smaller number,

the quotient is 9 and the remainder is 41. The sum of the digits of the larger number is :
दो धनात्मक संख्याओं में 2001 का अंतर है | जब बड़ी संख्या को छोटी संख्या से भाग दिया जाता है, तो भागफल 9 आता है तथा शेषफल 41 आता है | बड़ी संख्या के अंकों का योग है :
SSC CGL Tier II- 13 September 2019
(a) 15
(b) 11
(c) 10
(d) 14

SSC CGL TIER I

Q1. If the number 1005x4 is completely divisible by 8, then the smallest integer in place of x will be:
यदि संख्या 1005x4 , 8 से पूर्णतः विभाजित है, तो x के स्थान पर सबसे छोटा पूर्णांक क्या आएगा ?
SSC CGL 3 March 2020 (Morning)
(a) 2
(b) 4
(c) 1
(d) 0

Q2. When 200 is divided by a positive integer x, the remainder is 8. How many values of x are there?
जब 200 को किसी धनात्मक पूर्णांक x से भाग दिया जाता है, तो शेषफल 8 आता है | x के कितने मान हैं ?
SSC CGL 3 March 2020 (Afternoon)
(a) 7
(b) 5
(c) 8
(d) 6

Q3. What should replace * in the number 94*2357, so that the number is divisible by 11?
संख्या 94*2357 में * के स्थान पर कौन सी संख्या आनी चाहिए ताकि यह संख्या 11 से विभाजित हो जाए |
SSC CGL 3 March 2020 (Evening)
(a) 3
(b) 7
(c) 1
(d) 8

Q4. When 732 is divided by a positive integer x, the remainder is 12. How many values of x are there? /
जब 732 को एक धनात्मक पूर्णांक x से भाग दिया जाता है, तो शेषफल 12 आता है | x के कितने मान हैं ?
SSC CGL 4 March 2020 (Morning)
(a) 19
(b) 20
(c) 18
(d) 16

Q5. If the 6-digit numbers x35624 and 1257y4 are divisible by 11 and 72, respectively, then what is the value of (5x-2y)?
यदि 6 अंकों की संख्या x35624 तथा 1257y4 क्रमशः 11 और 72 से विभाज्य है, तो (5x-2y) का मान क्या होगा ?
SSC CGL 4 March 2020 (Afternoon)
(a) 14
(b) 12
(c) 10
(d) 13

Q6. How many numbers are there from 200 to 800 which are neither divisible by 5 nor by 7?
200 से 800 तक ऐसी कितनी संख्याएँ हैं जो ना तो 5 से ना ही 7 से विभाज्य हैं ?
SSC CGL 4 March 2020 (Evening)
(a) 407
(b) 410
(c) 413
(d) 411

Q7. If the nine-digit number 708x6y8z9 is divisible by 99, then what is the value of x+y+z?
यदि नौ अंकों की संख्या 708x6y8z9 , 99 से विभाज्य है, तो x+y+z का मान क्या है ?
SSC CGL 5 March 2020 (Morning)
(a) 9
(b) 16
(c) 5
(d) 27

Q8. When a positive integer is divided by d, the remainder is 15. When ten times of the same number is divided by d, the remainder is 6. The least possible value of d is:
जब एक धनात्मक पूर्णांक को d से भाग दिया जाता है, तो शेषफल 15 आता है | जब इसी संख्या के 10 गुना को d से भाग दिया जाता है, तो शेषफल 6 आता है | d का न्यूनतम संभव मान हो सकता है :
SSC CGL 5 March 2020 (Afternoon)
(a) 9
(b) 12
(c) 16
(d) 18

Q9. The greatest number which should be replace '*' in the number 146*48 to make it divisible by 8 is:
146*48 को 8 से विभाज्य बनाने के लिए * के स्थान पर सबसे बड़ी किस संख्या को रखा जाना चाहिए ?
SSC CGL 5 March 2020 (Evening)
(a) 9
(b) 2
(c) 8
(d) 0

Q10. If the number 687x29 is divisible by 9, then the value of 2x is:
यदि संख्या 687x29 , 9 से विभाज्य है, तो 2x का मान क्या होगा ?

SSC CGL 6 March 2020 (Morning)
(a) 8
(b) 3
(c) 2
(d) 4

Q11. The largest number which could replace * in the 2365*4 to make the number divisible by 4 is :
2365*4 को 4 से विभाज्य बनाने के लिए * के स्थान पर सबसे बड़ी कौन सी संख्या आ सकती है ?
SSC CGL 6 March 2020 (Afternoon)

(a) 8
(b) 9
(c) 2
(d) 0

Q12. If the given number 925x85 is divisible by 11, then the smallest value of x is:
यदि दी गयी संख्या 925x85 , 11 से विभाज्य है, तो x का सबसे छोटा मान कितना होगा ?
SSC CGL 7 March 2020 (Morning)
(a) 4
(b) 2
(c) 1
(d) 3

Q13. If 7 divided a positive integer n, the remainder is 2. Which of the following numbers gives a remainder of 0 when divided by 7?
यदि किसी धनात्मक पूर्णांक n को 7 से भाग देने पर शेषफल 2 आता है, तो निम्नलिखित में से किस संख्या को 7 से भाग देने पर शेषफल 0 आएगा ?
SSC CGL 7 March 2020 (Afternoon)
(a) n-5
(b) n+5
(c) n+2
(d) n+1

Q14. What is the remainder when we divide $5^{70}+7^{70}$ by 74?
जब हम $5^{70}+7^{70}$ में 74 से भाग देते हैं, तो शेषफल क्या आएगा ?
SSC CGL 7 March 2020 (Evening)
(a) 7
(b) 1
(c) 0
(d) 5

Q15. If 5 divided the integer n, the remainder is 2. What will be the remainder if 7n is divided by 5?
यदि 5 से पूर्णांक n में भाग दिया जाए, तो शेषफल 2 आता है | यदि 7n में 5 से भाग दिया जाए, तो शेषफल कितना आएगा ?
SSC CGL 9 March 2020 (Afternoon)

(a) 1
(b) 4
(c) 3
(d) 2

Q16. The greatest number which may replace * in the number 1190*6 to make the number divisible by 9 is:
संख्या 1190*6 में * के स्थान पर सबसे बड़ी कौन सी संख्या आ सकती है, जिससे यह 9 से विभाज्य हो जाएगी ?
SSC CGL 9 March 2020 (Evening)
(a) 1
(b) 9
(c) 3
(d) 0

Q1. Which of the following options is completely divisible by 11
निम्नलिखित में से कौन सा विकल्प 11 से पूर्णतः विभाजित है ?
CHSL 2019 12-10-2020 (Morning Shift)
(a) 809781
(b) 116571
(c) 963391
(d) 107611

Q2. When (77^{77} + 77) is divided by 78, the remainder is:
जब (77^{77} + 77) को 78 से विभाजित किया जाता है, तो शेषफल कितना आएगा?
CHSL 2019 12-10-2020 (Afternoon shift)
(a) 75
(b) 77
(c) 76
(d) 74

Q3. When an integer n is divided by 5, the remainder is 3. What is the remainder if 8n is divided by 5?
जब किसी पूर्णांक n को 5 से भाग दिया जाता है, तो शेषफल 3 आता है। जब 8n को 5 से भाग दिया जाएगा, तो शेषफल कितना आएगा?
CHSL 2019 12-10-2020 (Evening shift)
(a) 1
(b) 4
(c) 2
(d) 3

Q4. Which of the following numbers is divisible by 6?
निम्न में से कौन सा संख्या 6 से विभाजय है
CHSL 2019 13-10-2020 (Morning Shift)
(a)23,408
(b)43,923
(c)1,00,246
(d)3,49,722

Q5. The value of $(a^{\frac{2}{3}}+2a^{\frac{1}{2}}+3a^{\frac{1}{3}}+2a^{\frac{1}{6}}+1)(a^{\frac{1}{3}}-2a^{\frac{1}{6}}+1)-a^{\frac{1}{2}}(a^{\frac{1}{2}}-2)$, when a = 7, is:
$(a^{\frac{2}{3}}+2a^{\frac{1}{2}}+3a^{\frac{1}{3}}+2a^{\frac{1}{6}}+1)(a^{\frac{1}{3}}-2a^{\frac{1}{6}}+1)-a^{\frac{1}{2}}(a^{\frac{1}{2}}-2)$ का मान ज्ञात कीजिए, जब a = 7 है:
CHSL 2019 13-10-2020 (Morning Shift)
(a)7

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(b)0
(c)1
(d) $\sqrt{7}$

Q6. If the number 59a44b is divisible by 36, then the maximum value of a + b is:
यदि संख्या 59a44b, 36 से विभाज्य है, तो a+b का अधिकतम मान कितना होगा ?
CHSL 2019 13-10-2020 (Afternoon shift)
(a) 16
(b) 12
(c) 14
(d) 10

Q7. Find the factors of the expression $3x^2$- 5x - 8.
व्यंजक $3x^2$- 5x - 8 के गुणनखण्ड का पता लगाएं
CHSL 2019 13-10-2020 (Evening shift)
(a) (x - 1) and (3x - 8)
(b) (x + 1) and (3x - 8)
(c) (x + 1) and (3x + 8)
(d) (x - 1) and (3x + 8)

Q8. Which are the two nearest numbers to 19,596, divisible by 9?
19,596 से कौन सी दो निकटतम संख्याएँ हैं, जो 9 से विभाज्य?
CHSL 2019 14-10-2020 (Morning Shift)
(a) 19,564; 19,620
(b) 19,611; 19,575
(c) 19,509; 19,611
(d) 19,593; 19,602

Q9. If the 8-digit number 1a765b12 is to be divisible by 72, the least value of (2a + 3b) is:
यदि 8-अंकीय संख्या 1a765b12 को 72 से विभाज्य करना है, तो (2a + 3b) का कम से कम मान क्या है ज्ञात करे:
CHSL 2019 14-10-2020 (Afternoon shift)
(a) 10
(b) 9
(c) 12
(d) 11

Q10. The largest five-digit number that is exactly divisible by 81 is:
पाँच अंकों की सबसे बड़ी संख्या, जो 81 से पूर्णतः विभाजित है:
CHSL 2019 14-10-2020 (Evening shift)
(a) 99989
(b) 99991
(c) 99954
(d) 99876

Q11.The factors of the expression $2x^2$ - 5x - 12 are:
व्यंजक $2x^2$ - 5x - 12 के गुणनखण्ड क्या है ज्ञात करे:
CHSL 2019 15-10-2020 (Morning Shift)
(a)(x - 4) and (2x - 3)
(b)(x + 4) and (2x + 3)
(c)(x - 4) and (2x + 3)
(d)(x + 4) and (2x - 3)

Q12.If 7129p465 is divisible by 9, then the value of p is:
यदि 7129p465 , 9 से विभाज्य है, तो p का मान है:
CHSL 2019 15-10-2020 (Morning Shift)
(a)3
(b)0
(c)4
(d)2

Q13. What is the least 5-digit number that is divisible 91?
कम से कम 5-अंकीय संख्या क्या है जो 91 से विभाज्य है?
CHSL 2019 15-10-2020 (Afternoon shift)
(a) 10283
(b) 10101
(c) 10010
(d) 10192

Q14. Which of the following numbers is divided by 3?
निम्नलिखित में से कौन सी संख्या 3 से विभाजित है?
CHSL 2019 15-10-2020 (Evening shift)
(a) 8703572
(b) 8703541
(c) 8703593
(d) 8765001

Q15. If 'a' is a natural number, then $(7a^2 + 7a)$ is always divisible by:
अगर 'a' एक प्राकृतिक संख्या है ,तो $(7a^2 + 7a)$ हमेसा विभाजित होगी:
CHSL 2019 16-10-2020 (Morning Shift)
(a) 7 and 14 both
(b) 7 only
(c) 14 only
(d) 21 only

Q16. (ax + by) is a factor of:
(ax + by) किसका एक गुणनखण्ड है:
CHSL 2019 16-10-2020 (Afternoon shift)
(a) $a^2x^2 + 2ab - b^2y^2$
(b) $a^2x^2 + 2abxy + b^2y^2$
(c) $a^2x^3 + 2abx + b^2y^2x$
(d) $a^2x^2 + 2ab + b^2y^2$

Q17. 2x-3y is a factor of:
2x-3y किसका एक गुणनखण्ड है:
CHSL 2019 16-10-2020 (Afternoon shift)
(a) $4x^2 + 2x - 3y + 9y^2 - 12xy$
(b) $8x^3 + 27y^3$
(c) $4x^2 + 9y^2 + 12xy$
(d) $4x^2 + 2x - 3y + 36y^2 + 12xy$

Q18. Given that $2^{20}+1$ is completely divisible by a whole number. Which of the following is completely divisible by the same number?
यह दिया गया है, $2^{20}+1$ एक पूरी संख्या से विभाजित है। निम्नलिखित में से कौन उसी संख्या से पूरी तरह से विभाज्य है?
CHSL 2019 16-10-2020 (Afternoon shift)

(a) $2^{15}+1$
(b) 5×2^{30}
(c) $2^{90}+1$
(d) $2^{60}+1$

Q19. If a positive integer 'n' is divisible by 3, 5, and 7, then what is the next larger integer divisible by all these numbers?
यदि एक सकारात्मक पूर्णांक 'n' 3, 5, और 7 से विभाज्य है, तो सभी संख्याओं के द्वारा अगले कौन सा बड़ा पूर्णांक विभाज्य होगा ?
CHSL 2019 16-10-2020 (Evening shift)
(a) n + 21
(b) n + 35
(c) n + 105
(d) n + 110

Q20. How many numbers between 800 and 2000 are divisible by 13?
800 और 2000 के बीच की कितनी संख्याएँ 13 से विभाज्य हैं?
CHSL 2019 19-10-2020 (Morning Shift)
(a) 90
(b) 92
(c) 91
(d) 93

Q21. What should be the value of N to make 396258N divisible by 8?
8 से 396258N को विभाज्य बनाने के लिए N का मान क्या होना चाहिए?
CHSL 2019 19-10-2020 (Evening shift)
(a) 2
(b) 8
(c) 4
(d) 6

Q22. If 4M37094267N is divisible by both 8 and 11, where M and N are single digit integers, then the values of M and N are:
यदि 4M37094267N 8 और 11 दोनों से विभाज्य है, जहाँ M और N एकल अंक पूर्णांक हैं, तो M और N के मान हैं
CHSL 2019 20-10-2020 (Morning Shift)
(a) M = 5, N = 6
(b) M = 2, N = 5
(c) M = 5, N = 2
(d) M = 5, N = 4

Q.23. If the 8-digit number 43A5325B is divisible by 8 and 9, then the sum of A and B is equal to:
यदि 8-अंकीय संख्या 43A5325B, 8 और 9 से विभाज्य है, तो A और B का योग ज्ञात करे |
CHSL 2019 20-10-2020 (Afternoon shift)
(a) 12
(b) 18
(c) 14
(d) 15

Q.24. $2^{25} + 2^{26} + 2^{27}$ is divisible by / किसके द्वारा विभाज्य है
CHSL 2019 19-10-2020 (Evening shift)
(a) 6
(b) 7
(c) 5
(d) 9

Q.25. If 8- digit number 4432A43B is divisible by 9 and 5, then the sum of A and B is equal to:
यदि 8- अंक संख्या 4432A43B, 9 और 5 से विभाज्य है, तो A और B का योग ज्ञात करे |
CHSL 2019 21-10-2020 (Morning Shift)
(a) 12
(b) 5
(c) 7
(d) 8

Q.26. When a number is divided by 14, the remainder is 9. If the square of the same number is divided by 14, then the remainder will be:
जब एक संख्या को 14 से विभाजित किया जाता है, तो शेष 9 बचता है| यदि उसी संख्या का वर्ग 14 से विभाजित किया जाता है, तो शेष होगा |
CHSL 2019 21-10-2020 (Afternoon shift)
(a) 11
(b) 9
(c) 10
(d) 8

Q.27. $2^{18} - 1$ is divisible by:
$2^{18} - 1$ किसके द्वारा विभाज्य है
CHSL 2019 21-10-2020 (Evening shift)
(a) 11
(b) 17
(c) 13
(d) 7

Q.28. If a number is divided by 899, the remainder is 63. If the same number is divided by 29, the remainder will be:
यदि एक संख्या को 899 से विभाजित किया जाता है, तो शेष 63 बचता है। यदि उसी संख्या को 29 से विभाजित किया जाता है, तो शेष संख्या क्या बचेगा
CHSL 2019 26-10-2020 (Morning Shift)
(a) 10
(b) 2
(c) 4
(d) 5

Q.29. If the number 62783xy is divisible by both 8 and 5, then the smallest possible value of x and y is:
यदि संख्या 62783xy 8 और 5 दोनों से विभाज्य है, तो x और y का सबसे छोटा संभावित मान है
CHSL 2019 21-10-2020 (Afternoon shift)
(a) x = 2, y = 2
(b) x = 6, y = 0

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(c) x = 2, y = 0
(d) x = 2, y = 5

Q.30. If $x^3 + 2x^2 - ax - b$ is exactly divisible by $(x^2 - 1)$, then the values of a and b are:
यदि $x^3 + 2x^2 - ax - b$, $(x^2 - 1)$ से संपूर्ण विभाज्य है, तो a और b के मान ज्ञात करें |
CHSL 2019 21-10-2020 (Afternoon shift)
(a) a = -1, and b = 2
(b) a = 1 and b = -2
(c) a = 1 and b = 2
(d) a = 2 and b = 2

Q.31. The divisor is 24 times the quotient and 8 times the remainder. If the quotient is 18, then the dividend is:
भाजक भागफल का 24 गुना और शेष 8 गुना है। यदि भागफल 18 है, तो लाभांश है:
CHSL 2019 26-10-2020 (Evening Shift)
(a) 7830
(b) 7630
(c) 7840
(d) 7450

Q.32. Which of the following numbers will completely divide $7^{81} + 7^{82} + 7^{83}$?
निम्नलिखित में से कौन सी संख्या $7^{81} + 7^{82} + 7^{83}$ को पूरी तरह से विभाजित करेगी?
CHSL 2019 17-03-2020 (Morning Shift)
(a) 399
(b) 389
(c) 387
(d) 397

Q.33. If a number is divided by 3, the remainder will be 2. If the number is added by 5 and then divided by 3, then what will be the remainder?
यदि एक संख्या को 3 से विभाजित किया जाता है, तो शेष 2 होगा। यदि संख्या को 5 से जोड़ा जाता है और फिर 3 से विभाजित किया जाता है, तो शेष क्या होगा?
CHSL 2019 17-03-2020 (Afternoon shift)
(a) 3
(b) 1
(c) 2
(d) 0

Q34. Which of the following numbers is divisible by 9?
निम्नलिखित में से कौन सी संख्या 9 से विभाज्य है?
CHSL 2019 17-03-2020 (Evening Shift)
(a) 897342
(b) 594327
(c) 346217
(d) 734895

Q35. Which of the following numbers is divisible by 2, 5 and 10?
निम्नलिखित में से कौन सी संख्या 2, 5 और 10 से विभाज्य है?
CHSL 2019 18-03-2020 (Morning Shift)
(a) 7,20,345
(b) 1,25,372
(c) 19,400
(d) 149

Q36. If a positive integer n is divided by 7, the remainder is 2. Which of the numbers in the options yields a remainder of 0 when it is divided by 7?
यदि एक धनात्मक पूर्णांक n को 7 से विभाजित किया जाता है, तो शेष 2 है। विकल्पों में से कौन सी संख्या 7 से विभाजित होने पर शेष 0 देता है ?
CHSL 2019 18-03-2020 (Afternoon shift)
(a) n + 3
(b) n + 1
(c) n + 2
(d) n + 5

Q37. The value of 1 + 3 + 5 + 7 + ……. (2n - 1) is:
1 + 3 + 5 + 7 + ……. (2n - 1) का मान है:
CHSL 2019 18-03-2020 (Evening Shift)
(a) (2n - 1) × (2n - 1)
(b) $\frac{n}{2}$
(c) $n \times n$
(d) $\frac{n(n+1)}{2}$

Q:38. Which of the following options is divisible by 3?
निम्नलिखित में से कौन सा विकल्प 3 से विभाज्य है?
CHSL 2019 18-03-2020 (Evening Shift)
(a) 2362735
(b) 6342589
(c) 3745932
(d) 4539763

Q:39. Which of the following numbers is divisible by both 7 and 11?
निम्नलिखित में से कौन सी संख्या 7 और 11 दोनों से विभाज्य है?
CHSL 2019 19-03-2020 (Morning Shift)
(a) 16,324
(b) 12,335
(c) 16,257
(d) 16,425

Q.40. Which number is divisible by both 9 and 11?
कौन सी संख्या 9 और 11 दोनों से विभाज्य है?
CHSL 2019 19-03-2020 (Evening Shift)
(a) 10,089
(b) 10,098
(c) 10,108
(d) 10,087

SSC CGL 2019 TIER II
Q41. Two positive numbers differ by 1280. When the greater number is divided by the smaller number, the quotient is 7 and the remainder is 50.The greater number is:

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दो सकारात्मक संख्याएँ 1280 से भिन्न होती हैं। जब बड़ी संख्या को छोटी संख्या से विभाजित किया जाता है, तो भागफल 7 होता है और शेष 50 होता है। अधिक संख्या का मान ज्ञात कीजिए |

CGL 2019 Tier-II (15-11-2020)

(a) 1458
(b) 1485
(c) 1585
(d) 1558

Q42. When positive numbers x, y and z are divided by 31, the reminders are 17, 24 and 27 respectively. When (4x - 2y + 3z) is divided by 31, the reminder will be:

जब सकारात्मक संख्या x, y और z को 31 से विभाजित किया जाता है, तो शेषफल क्रमशः 17, 24 और 27 होते हैं। जब (4x - 2y 3z) को 31 से विभाजित किया जाता है, तो शेषफल क्या होगा |

CGL 2019 Tier-II (15-11-2020)

(a) 9
(b) 8
(c) 16
(d) 19

Q43: If the 5-digit number 535ab is divisible by 3, 7 and 11, then what is the value of ($a^2 - b^2 + ab$)?

यदि 5-अंकीय संख्या 535ab 3, 7 और 11 से विभाज्य है, तो ($a^2 - b^2 + ab$) का मान क्या है?

CGL 2019 Tier-II (15-11-2020)

(a) 95
(b) 83
(c) 89
(d) 77

Q44. If the five digit number 235xy is divisible by 3, 7 and 11 then what is the value of (3x-4y)?

यदि पाँच-संख्या वाली संख्या 235xy 3, 7 और 11 से विभाज्य है तो मान क्या है (3x-4y) ?

CGL 2019 Tier-II (16-11-2020)

(a) 8
(b) 9
(c) 5
(d) 10

Q45. Let ab, $a \neq b$, is a 2-digit prime number such that ba is also a prime number. The sum of all such number is:

ab,($a \neq b$) एक 2-अंकीय अभाज्य संख्या है जैसे कि ba भी एक अभाज्य संख्या है। ऐसी सभी संख्याओं का योग है

CGL 2019 Tier-II (16-11-2020)

(a) 374
(b) 418
(c) 407
(d) 396

Q46. Let x be the least number which subtracted from 10424 gives a perfect square number. What is the least number by which x should be multiplied to get a perfect square?

मान लें कि x सबसे कम संख्या है जो 10424 से घटाया गया है, एक पूर्ण वर्ग संख्या देता है। एक पूर्ण वर्ग प्राप्त करने के लिए किस संख्या को x से गुणा किया जाना चाहिए|

CGL 2019 Tier-II (16-11-2020)

(a) 3
(b) 6
(c) 5
(d) 2

Q47. When positive number a, b and c are divided by 13, the remainder are 9, 7 and 10, respectively. What will be the remainder when (a + 2b + 5c) is divided by 13?

जब सकारात्मक संख्या A, B और C को 13 से विभाजित किया जाता है, तो शेष क्रमश 9, 7 और 10 होते हैं। जब (a + 2b + 5c) को 13 से विभाजित किया जाता है तो शेषफल क्या होगा?

CGL 2019 Tier-II (16-11-2020)

(a) 10
(b) 5
(c) 9
(d) 8

Q48. Find the sum of 6+8+10+12+14……..+40.

6+8+10+12+14……..+40 का योग ज्ञात करे |

CGL 2019 Tier-II (18-11-2020)

(a) 400
(b) 424
(c) 1600
(d) 414

Q49. Find the number of prime factors in the product $(30)^5 \times (24)^5$.

$(30)^5 \times (24)^5$ उत्पाद में अभाज्य गुणनखण्ड की संख्या ज्ञात कीजिए

CGL 2019 Tier-II (18-11-2020)

(a) 45
(b) 35
(c) 10
(d) 30

SSC CPO 2019

Q50. If 14331433 × 1422 × 1425 is divided by 12, then what is the remainder?

यदि 14331433 × 1422 × 1425 को 12 से विभाजित किया जाता है, तो शेषफल ज्ञात करे |

CPO 2019 23-11-2020(Morning Shift)

(a) 3
(b) 9
(c) 8
(d) 6

Q51. If a nine-digit number 785x3678y is divisible by 72, then the value of (x - y) is:

यदि एक नौ अंकों की संख्या 785x3678y, 72 से विभाज्य है, तो (x - y) का मान ज्ञात करे |

CPO 2019 23-11-2020(Morning Shift)

(a) 0
(b) -2
(c) -1

(d) 2

Q52. The remainder when 75 × 73 × 78 × 76 is divided by 34 is:
शेष 75 × 73 × 78 × 76 को 34 से विभाजित किया गया है:
CPO 2019 23-11-2020(Evening Shift)
(a) 18
(b) 12
(c) 22
(d) 15

Q53. If six-digit number 5x2y6z is divisible by 7, 11 and 13, then the value of (x - y + 3z) is:
यदि छह अंकों की संख्या 5x2y6z 7, 11 और 13 से विभाज्य है, तो (x - y +3z) का मान ज्ञात करे |
CPO 2019 24-11-2020(Morning Shift)
(a) 4
(b) 0
(c) 7
(d) 9

Q54. The remainder when 72 × 73 × 78 × 76 is divided by 35 is :
72 × 73 × 78 × 76 को 35 से विभाजित किया गया है तो शेष ज्ञात करे |
CPO 2019 24-11-2020(Morning Shift)
(a) 8
(b) 15
(c) 22
(d) 12

Q55. When a number is successively divided by 3, 4 and 7, the remainder obtained are 2, 3 and 5 respectively. What will be the remainder when 84 divides the same number?
जब कोई संख्या क्रमिक रूप से 3, 4 और 7 से विभाजित होती है, तो प्राप्त शेष क्रमशः 2, 3 और 5 होते हैं। जब उसी संख्या को 84 से विभाजित करते हैं तो शेष क्या होगा ?
CPO 2019 24-11-2020(Evening Shift)
(a) 71
(b) 53
(c) 30
(d) 48

Q56. What is the least number of soldiers that can be drawn up in troops of 10, 12, 15, 18 and 20 soldiers, and also in form of a solid square?
सैनिकों की वह काम से काम संख्या क्या है जिससे 10, 12, 15, 18 और 20 सैनिकों की टुकड़िया बनाई जा सकती है| और एक वर्ग भी बनाया जा सकता है |
CPO 2019 24-11-2020(Evening Shift)
(a) 180
(b) 625
(c) 900
(d) 400

Q57. How many numbers between 400 and 700 are divisible by 5, 6 and 7?
400 और 700 के बीच कितनी संख्या 5, 6 और 7 से विभाज्य है
CPO 2019 24-11-2020(Evening Shift)
(a) 2
(b) 5
(c) 10
(d) 20

Q58. The remainder when 14331433 × 1422 × 1425 is divided by 10 is :
14331433 × 1422 × 1425 को 10 से विभाजित किया गया है तो शेष ज्ञात करे |
CPO 2019 25-11-2020(Morning Shift)
(a) 0
(b) 9
(c) 3
(d) 8

Q59. If a nine digit number 785x3678y is divisible by 72, then the value of (x + y) is:
यदि एक नौ अंकों की संख्या 785x3678y 72 से विभाज्य है, तो (x y) का मान क्या है ज्ञात करे |
CPO 2019 25-11-2020(Morning Shift)
(a) 10
(b) 20
(c) 5
(d) 12

Q60. How many numbers between 300 and 700 are divisible by 5, 6 and 8?
300 और 700 के बीच कितनी संख्या 5, 6 और 8 से विभाज्य है |
CPO 2019 25-11-2020(Evening Shift)
(a) 20
(b) 2
(c) 5
(d) 3

Q61. When a number is successively divided by 3, 4 and 7 , the remainder obtained is 2,3 and 5, respectively. What will be the remainder when 42 divides the same number?
जब कोई संख्या क्रमिक रूप से 3, 4 और 7 से विभाजित होती है, तो प्राप्त शेष क्रमशः 2,3 और 5 होती है। जब 42 एक ही संख्या को विभाजित करते हैं तो शेष क्या होगा |
CPO 2019 25-11-2020(Evening Shift)
(a) 31
(b) 41
(c) 30
(d) 29

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SOLUTION:

Variety Questions

Sol 1. (b)
Since, 985x3678y is divisible by 72 it must be divisible by 9 and 8 (coprime factors of 72) and y must be an even number. So the sum of digits of this number must be divisible by 9 and last three digits by 8.
9+8+5+x+3+6+7+8+y= 46 + x + y
x+y must be 8 as after 46 nearest multiple of 9 is 54.
Pairs for 8 = (0,8)(1,7), (2,6), (3,5), (4,4), (5,3)(6,2)(7,1)(8,0)
Only pair which satisfies these conditions is (4,4). So the required value is 4(4)-3(4) = 4

Sol 2. (c)
Since 5y5884805x6 is divisible by 72, it must be divisible by 9 and 8 (coprime factors of 72). So the sum of digits of this number must be divisible by 9 and last three digits by 8.
5+y+5+8+8+4+8+0+5+x+6 ⇒ 49+x+y,
Possible values of x+y = 5, 14
For x+y = 5
Possible values of x,y = (1,4), (2,3), (3,2),(4,1)
For x+y = 14
Possible values of x,y = (5,9), (6,8),(7,7), (8,6),(9,5)
Among these values last three digits of the number are divisible by 8 only when x=3 or 7
But for x=3, y = 2…...($x \neq y$)
Clearly the desired values of x and y are 7 and 7 respectively.
$\sqrt{xy} = \sqrt{7 \times 7} = 7$

Sol 3. (b)
2094x843y2 is divisible by 88, it must be divisible by 11 and 8(coprime factors of 88).
So, (2+9+x+4+y)-(0+4+8+3+2) = 0 or 11
⇒ x+y-2 = 0 or 11
For x+y-2 = 0
x+y = 2
Possible values of x,y = (0,2),(1,1),(2,0)
For x+y-2 = 11
x+y = 13
Possible values of x,y = (4,9), (5,8), (6,7), (7,6), (8,5), (9,4)
Last three digits of the number are divisible by 8 only for y = 1,5, 9
For y=1,9 (5x-7y) gives negative results which are not given in the option.
So the desired values of x and y are 8 and 5 respectively.
(5x-7y) ⇒ 5(8)-7(5) = 5 ans

Sol 4. (d)
Since, 517x324 is divisible by 12 it must be divisible by 3 and 4(coprime factors of 12).
For a number to be divisible by 3 sum of its digits must be divisible by 3.
So, 5+1+7+x+3+2+4 ⇒ 22+x must be divisible by 3
Possible values of x = 2,5,8
Cleary the smallest value of x = 2

Sol 5. (b) Let the quotient is x.
So, n = 8x+3
6n-1 ⇒ 6(8x+3)-1
= 48x+17
48 is multiple of 8 so 48 will be exactly divisible by 8. But when we divide 17 by 8 the remainder is 1. Ans

Alternate

choose the smallest value of n for which remainder is 3 when the number is divided by 8.
Let n = 11
6n-1 = 6(11)-1 = 65
Remainder when 65 is divided by 8 = 1

Sol 6. (a) Since, the number 43x1145y2 is divisible by 88, it must be divisible by 11 and 8.
For the number to be divisible by 11,
[(4+x+1+5+2)-(3+1+4+y) = 0 or 11
So, 4+x-y = 0 or 11
4+x-y =0 is possible for x=0,1,2,3,4,5 and y=5,6,7,8,9
4+x-y = 11 is possible for x = 7,8,9 and y = 0,1,2
Also a number is divisible by 8 if its last three digits are divisible by 8.
We will check for minimum value of y
For y=0 , the last three digits of the number are not divisible by 8.
For y = 1, the last three digits are 512 which is divisible by 8.
So the desired values of x and y are 8 and 1 respectively.
(3x - 2y) = 3(8)-2(1) = 22 ans

Sol 7. (d) Since, the number 342x18y6 is divisible by 72, it must be divisible by 9 and 8.
We know that the sum of the digits of a number must be divisible by 9 if the number is divisible by 9.
Clearly, 3+4+2+x+1+8+y+6 ⇒ 24+x+y must be multiple of 9.
Possible values of x+y = 3, 12 …….[45 ≻ (24+x+y) ≻ 24, as values of x and y can't be more than 9]
Also a number is divisible by 8 if its last three digits are divisible by 8.
We will check for maximum value of y
For x+y = 12
(x,y) = (3,9),(4,8),(5,7), (6,6), (7,5), (8,4),(9,3)

Pinnacle

For y=9, the last three digits of the number are 896 which is divisible by 8.
So the values of x and y are 3 and 9 respectively.
$\sqrt{9x+y} = \sqrt{9(3)+9} = 6$

Sol 8. (a)
Since 2x600000y8 is exactly divisible by 24, it must be divisible by 3 and 8.
We know that the sum of the digits of a number must be divisible by 3 if the number is divisible by 3.
Clearly, 2+x+6+y+8 ⇒(16+x+y)must be the multiple of 3.
Possible values of x+y = 2,5,8,11,14
[(16+x+y) ≻ 16]
Numbers more than 9 get automatically eliminated as not given in the options.
So x+y must be 2,5 or 8.
Also a number is divisible by 8 if its last three digits are divisible by 8.
For x+y = 2
x=y=1 ...(x and y is not equal to zero)
Last three digits = 018 clearly it is not divisible by 8.

For x+y=5
x,y = (1,4), (2,3), (3,2) and (4,1)

For y=3,2,1 last three digits of the number are not divisible by 8 so these three values get eliminated.
For y=4 last three digits are 048 which is divisible by 8. Hence x=1 and y=4 are the desired values.

Sol 9. (a) Required number = Divisor x Quotient + Remainder
= 38 x 24 + 13 = 925

Sol 10. (b) LCM of (12, 16 and 54) = 432
Let the number be (432k + 7)
ATQ: For (432k+7) to be exactly divisible by 13. {429k+(3k+7)} should also be divisible by 13.
Putting the value of k=1,2,3,... in (3k+7), k=2 satisfies the equation.
Therefore, Least possible number = 871
Sum of digits = 8+7+1 = 16

Sol 11. (c) Let n be the any number that gives remainder 3 when divided by 7.
For example 10.
5n = 50
Required remainder = $\frac{50}{7} = 1$

Sol 12. (c) The number 23474 is exactly divisible by both 2 and 11.

Sol 13. (c)

327) 10000 (3
981
190

Required number = 327-190 = 137

Sol 14. (c)

37) 1000 (27
74
260
259
1

Least number to be needed = 37-1 = 36

Sol 15. (b) Face value of 6 in 16008 is 6. As it is the value itself.

Sol 16. (d) Difference between the largest and the smallest
9652-2569 = 7083

Sol 17. (b) 44

4	1936
× 4	16
84	336
× 4	336
	0

Sol 18.(d) Possible numbers are: 307, 370, 703 and 730.
Therefore, Their Sum = 2110

Practice Questions

Sol 1. (b)
For 8-digit number 789x531y to be divisible by 72. It must be divisible by 8 and 9.
For 789x531y to be divisible by 8. Value of y = 2
Again, for 789x5312 to be divisible by 9. Value of x = 1
Therefore, 5x - 3y = -1

Sol 2. (a) 4
179x091y is divisible by 88, it must be divisible by 11 and 8.
This number to be divisible by 11 ⇒ (7+x+9+y) - (1+9+0+1) = 0 or 11
5+x+y = 0 or 11
x+y = -5 or 6
(x+y can't be negative)
Possible values of x,y for x+y = 6
(0,6), (1,5), (2,4), (3,3), (4,2), (5,1), (6,0)
Last three digits of the number will be divisible by 8 only in case y = 2
Clearly x=4 and y=2 are the desired values
5x-8y = 5(4)-8(2) = 4

Sol 3. (d) 45
Since the number is divisible by 88 it must be divisible by 11 and 8.
This number to be divisible by 11 ⇒
2+7+x+y - (0+4+4+2) = 0 or 11

Pinnacle

Case 1:
For the difference = 0
x+y = 1
Clearly y is either 0 or 1.
The number to be divisible by 8 also last three digits must be divisible by 8.
For y =1
Last three digits are 412 and this is not divisible by 8.
For Y = 0
Last three digits are 402 and this is also not divisible by 8

Case 2:
For the difference = 11
x+y = 12

So, x and y must be (3,9),(4,8),(5,7),(6,6),(7,5),(8,4) and (9,3)
The number to be divisible by 8 also last three digits must be divisible by 8 this is only possible when y = 7 and 3
When y =7, x =5
4x+3y = 4(5)+3(7) = 41
When y=3, x=9
4x+3y = 4(9)+3(3) = 45
Clearly **option d** is the right answer.

Sol 4. (c) -1
Since the number 32x4115y2 is divisible by 88, it must be divisible by 11 and 8.
For the number to be divisible by 11
(3+x+1+5+2)-(2+4+1+y) = 0 or 11
So, 4+x-y = 0 or 11
4+x-y =0 is possible for x=0,1,2,3,4,5 and y=4,5,6,7,8,9
4+x-y = 11 is possible for x = 7,8,9 and y = 0,1,2
Also a number is divisible by 8 if its last three digits are divisible by 8.
We will check for minimum value of x
For x=0 , the last three digits of the number are not divisible by 8.
For x = 1, the last three digits are 552 which is divisible by 8.
So the desired values of x and y are 1 and 5 respectively.
4x-y = 4(1)-5 = -1

Sol 5. (b)
Since the number 1330x558y2 is divisible by 88, it must be divisible by 11 and 8.
For the number to be divisible by 11
(1+3+x+5+y)-(3+0+5+8+2) = 0 or 11
x+y-9 = 0 or 11
For
x+y-9 = 0
x+y=9
For
x+y-9 = 11
x+y=20

Sol 6. (c) 7
Since the number is divisible by 72 it must be divisible by 9 and 8.
This number to be divisible by 9
⇒ (8+9+7+3+5+9+y+7+x+2) must be divisible by 9.
For this x+y = 4 or x+y = 13

Case 1:
For the sum = 4
x,y ⇒ (0,4) , (1,3), (2,2), (3,1), (4,0)
The number to be divisible by 8 also last three digits must be divisible by 8.
For x =4,3,2,0
Last three digits are not divisible by 8.
For x = 1
Last three digits are divisible by 8
Clearly, y = 3
3x-y = 3(1)-3 = 0 (which is not in the given options)

Case 2:
For the sum = 13
So, x and y must be (4,9),(5,8),(6,7),(7,6),(8,5) and (9,4)
The number to be divisible by 8 also last three digits must be divisible by 8 this is only possible when x = 5 and 9
When x =5, y =8
3x-y = 3(5)-8 = 7
When x=9, y = 4
3x-y = 3(9)-4 = 23

Clearly **option c** is the right answer.

Sol 7. (b)
Since the number is divisible by 88 it must be divisible by 11 and 8.
This number to be divisible by 11 ⇒ (6+1+7+7+x) - (7+2+y+6+2) = 0 or 11
4+x-y = 0 or 11

Case 1:
For 4+x-y = 0
(x,y) is (0,4), (1,5), (2,6), (3,7), (4,8), (5,9)
The number to be divisible by 8 also last three digits must be divisible by 8.
For x =0,1,2,4,5
Last three digits are not divisible by 8.
For x = 3
Last three digits are 632 and this is divisible by 8
Clearly, y = 7 …...(4+x-y)

Case 2 :
For 4+x-y = 11
(x,y) is (9,2), (8,1), (7,0)
For x =9,7 the last three digits of the number are not divisible by 8.
For x=8 last three digits are divisible by 8 and y = 1
For x=8 and y=1
(7x-2y) = 7(8)-2(1) = 54

Pinnacle

For x=3 and y=7
(7x-2y) = 7(3)-2(7) = 7

Sol 8. (b)
Number 15x1y2 is divisible by 44, clearly it will also be divisible by 11 and 4 .
A number to be divisible by 11
(1+x+y)-(5+1+2) = 0 or 11
For the difference = 0
x+y = 7
For the difference = 11
x+y = 18
But 18 is not given in the options so option b is the right answer.

Sol 9. (b) 6
6x2904 is divisible by 88, It will also be divisible by 11 and 8.
For a number to be divisible by 11
(x+9+4)-(6+2+0) = 0 or 11
x = -5 or 6

Sol 10. (c) 8
4x573y is divisible by 72, clearly it will also be divisible by 9 and 8.
For a number to be divisible by 9, sum of its digits must be divisible by 9
(4+x+5+7+3+y) ⇒ 19+x+y must be divisible by 9.
Possible values of x+y = 8 or 17
…..(x and y can't be greater than 9)
17 is not given in the options clearly correct option is c .

Sol 11. (b) 3
number 46393x8 divisible by 11,
For the number to be divisible by 11
(4+3+3+8)-(6+9+x) = 0 or 11
For the difference being 0
x = 3
For the difference being 11
x = 14 which is not possible.

Sol 12. (d) Number 91876x2 is divisible by 72, clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, the sum of its digits must be divisible by 9.
9+1+8+7+6+x+2 ⇒ 33+x must be divisible by 9
Cleary x = 3
…….(36 is multiple of 9 and next multiple is 45 and for that x =12 which is not possible)
632 are the last three digits of the number which is divisible by 8 so x =3 is the correct answer.

Sol 13. (c)
Number 6913x08 is divisible by 88, clearly it will also be divisible by 11 and 8.
For the number to be divisible by 11
(6+1+x+8)-(9+3+0) = 0 or 11
x= -3 or 8 (but x cannot be negative)
So, x=8
808 are the last three digits of the number which is divisible by 8 so x =8 is the correct answer.

Sol 14. (c)
5656x52 is divisible by 72, clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, sum of its digits must be divisible by 9.
5+6+5+6+x+5+2 ⇒ 29+x must be divisible by 9
Cleary x = 7
…….(36 is multiple of 9 and next multiple is 45 and for that x =16 which is not possible)
752 are the last three digits of the number which is divisible by 8 so x =7 is the correct answer.

Sol 15. (c) 55350x2 is divisible by 72, clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, sum of its digits must be divisible by 9.
5+5+3+5+0+x+2 ⇒ 20+x must be divisible by 9
Cleary x = 7
…….(27 is multiple of 9 and next multiple is 36 and for that x =16 which is not possible)
072 are the last three digits of the number which is divisible by 8 so x =7 is the correct answer.

Sol 16. (b) 4
8439x53 is divisible by 99, clearly it will also be divisible by 11 and 9.
For a number to be divisible by 9, sum of its digits must be divisible by 9.
8+4+3+9+x+5+3 ⇒ 32+x must be divisible by 9
Cleary x = 4
…….(36 is multiple of 9 and next multiple is 45 and for that x =13 which is not possible)

Also, (8+3+4+3)-(4+9+5) = 0, so the number is divisible by 11 also clearly x=4 will be the right answer.

Sol 17. (c) 8175x45y2 is divisible by 72, clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, sum of its digits must be divisible by 9.
8+1+7+5+x+4+5+y+2 ⇒ 32+x+y must be divisible by 9
So x+y = 4 or 13
..(as x and y can't be greater than 9)
For x+y = 4
(x,y) = (0,4), (1,3), (2,2), (3,1), (4,0)
For x+y = 13
(x,y) = (4,9), (5,8), (6,7), (7,6), (8,5), (9,4)

We will check for the largest values of y which is 9.

Pinnacle

Last three digits of the number are 592 which is divisible by 8. Clearly x=4 and y=9 are the desired numbers.

$\sqrt{4x+y} = \sqrt{4(4)+9} = 5$

Sol 18. (b) 5y5888406x6 is divisible by 72, clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, sum of its digits must be divisible by 9.

5+y+5+8+8+8+4+0+6+x+6 ⇒

50+x+y must be divisible by 9

So x+y = 4 or 13

..(as x and y can't be greater than 9)

For x+y = 4

(x,y) = (0,4), (1,3), (2,2), (3,1), (4,0)

For x+y = 13

(x,y) = (4,9), (5,8), (6,7), (7,6), (8,5), (9,4)

We will check for the smallest value of x which is 0

Last three digits of the number are 606 which is not divisible by 8.

Now we will check for the second smallest value of x which is 1

Last three digits of the number are 616 which is divisible by 8. Clearly x=1 and y=3 are the desired values.

9x-2y ⇒ 9(1)-2(3) = 3

Sol 19.(a) 28

46789x531y is divisible by 72,clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, sum of its digits must be divisible by 9.

4+6+7+8+9+x+5+3+1+y ⇒

43+x+y must be divisible by 9

So x+y = 11

..(as x and y can't be greater than 9)

Possible values of x,y = (2,9), (3,8), (4,7), (5,6), (6,5),(7,4),(8,3) and (9,2)

We will check for the maximum value of x which is 9.

Last three digits of the number is 312 which is divisible by 8 clearly x=9 and y=2 are the desired values.

2x+5y = 2(9)+5(2) = 28

Sol 20. (c) 12

75y97405x2 is divisible by 72, clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, sum of its digits must be divisible by 9.

7+5+y+9+7+4+0+5+x+2 ⇒

39+x+y must be divisible by 9

So x+y = 6 or 15

..(as x and y can't be greater than 9)

For x+y = 6

Possible values of x and y = (0,6), (1,5), (2,4), (3,3), (4,2), (5,1), (6,0)

For x+y = 15

Possible values of x and y = (6,9), (7,8), (8,7), (9,6)

We will check for the maximum value of x which is 9.

Last three digits of the number is 592 which is divisible by 8 clearly x=9 and y=6 are the desired values.

2x-y = 2(9)-6 = 12

Sol 21. (a)

1220x558y2 is divisible by 88, clearly it will also be divisible by 11 and 8. For a number to be divisible by 11

(1+2+x+5+y)-(2+0+5+8+2) = 0 or 11

x+y-9 = 0 or 11

So,

x+y = 9 or 20

(but x and y can't be more than 9 so their sum can't be more than 18)

Clearly 9 is the correct answer.

Sol 22. (a)

6220x558y2 is divisible by 88, clearly it will also be divisible by 11 and 8. For a number to be divisible by 11

(6+2+x+5+y)-(2+0+5+8+2) = 0 or 11

x+y-4 = 0 or 11

x+y = 4 or 15

Multiplying both sides by 5

5x+5y = 20 or 75

75 is not given in the options so 20 is the correct answer.

Sol 23. (c)

7220x558y2 is divisible by 88, clearly it will also be divisible by 11 and 8. For a number to be divisible by 11

(7+2+x+5+y)-(2+0+5+8+2) = 0 or 11

x+y-3 = 0 or 11

x+y = 3 or 14

Multiplying both sides by 5

5x+5y = 15 or 70

70 is not given in the options so 15 is the correct answer.

Sol 24. (b)

1230x558y2 is divisible by 88, clearly it will also be divisible by 11 and 8. For a number to be divisible by 11

(1+3+x+5+y)-(2+0+5+8+2) = 0 or 11

x+y-8 = 0 or 11

x+y = 8 or 19

(but x+y can't be greater than 18)

Multiplying both sides by 5

5x+5y = 40

Sol 25. (a)

30x558y2 is divisible by 88, clearly it will also be divisible by 11 and 8. For a number to be divisible by 11

(3+x+5+y)-(0+5+8+2) = 0 or 11

x+y-7 = 0 or 11

x+y = 7 or 18

Multiplying both sides by 6

6x+6y = 42 or 108

Pinnacle

108 is not given in the options clearly 42 is the right answer.

Sol 26.(d) 54x29y6 is divisible by 72, clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, sum of its digits must be divisible by 9.
5+4+x+2+9+y+6 ⇒ 26+x+y must be divisible by 9
Possible values of x+y = 1 or 10 …..(27 and 36 are multiples of 9)
For x+y =1, possible values of x and y are 1 and 0 respectively.
$..(x \succ y)$
For x+y =7, possible values of x and y are (9,1), (8,2), (7,3), (6,4)
$…(x \succ y)$
Only for y=3 last three digits of the number are divisible by 8. Clearly x=7 and y=3 are the desired values.
2x+3y = 2(7)+3(3) = 23

Sol 27.(b) 64x29y6 is divisible by 72, clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, sum of its digits must be divisible by 9.
6+4+x+2+9+y+6 ⇒ 27+x+y must be divisible by 9
Possible values of x+y = 0 or 9 or 18 (27,36 and 45 are multiples of 9)
$x+y \neq 0, \quad ..(x \succ y)$
For x+y =9, possible values of x and y are (9,0),(8,1),(7,2),(6,3),(5,4)
$…(x \succ y)$
$x+y \neq 18$, ….(x+y =18 possible only if x=y=9 but as per instructions x must be greater than y)
Only for y=3 last three digits of the number are divisible by 8. Clearly x=6 and y=3 are the desired values.
(2x - 3y) = 2(6)-3(3) = 3

Sol 28. (d) 64x29y6 is divisible by 72, clearly it will also be divisible by 9 and 8. For a number to be divisible by 9, sum of its digits must be divisible by 9.
6+4+x+2+9+y+6 ⇒ 27+x+y must be divisible by 9
Possible values of x+y = 0 or 9 or 18 (27,36 and 45 are multiples of 9)
$x+y \neq 0, \quad ..(x \succ y)$
For x+y =9, possible values of x and y are (9,0),(8,1),(7,2),(6,3),(5,4)
$…(x \succ y)$
$x+y \neq 18$, ….(x+y =18 possible only if x=y=9 but as per instructions x must be greater than y)
Only for y=3 last three digits of the number are divisible by 8. Clearly x=6 and y=3 are the desired values.
(2x - y) = 2(6)-3 = 9
Sol 29. (c) 78x1y68 is divisible by 88, clearly it will also be divisible by 11 and 8.
For a number to be divisible by 11
(7+x+y+8)-(8+1+6) = 0 or 11
x+y = 0 or 11
For x+y = 0, x=y=0
But for y=0 last three digits of the number are not divisible by 8. Clearly x+y = 11 is the desired answer.

Sol 30.(b) 79x00001y6 is divisible by 88, clearly it will also be divisible by 11 and 8.
For a number to be divisible by 11
(7+x+0+0+y)-(9+0+0+1+6) = 0 or 11
x+y -9 = 0 or 11
x+y = 9 or 20 (but x+y can't be 20 as x and y can't exceed 9)
Clearly x+y = 9 is the desired answer.

Sol 31.(d) 5x32465y is divisible by 88, clearly it will also be divisible by 11 and 8.
For a number to be divisible by 11
(x+2+6+y)-(5+3+4+5) = 0 or 11
x+y -9 = 0 or 11
x+y = 9 or 20 (but x+y can't be 20 as x and y can't exceed 9)
Clearly x+y = 9
Possible values of (x,y) = (9,0),(8,1),(7,2),(6,3),(5,4),(4,5),(3,6),(2,7),(1,8),(0,9)
Last three digits of the number are divisible by 8 only if y=6, clearly x=3 and y=6 are the desired values.
2x+3y = 2(3)+3(6) = 24

Sol 32. (a) only by 3

Sol 33. (c) 74x29y6 to be divisible by 72. It should also be divisible by 8 and 9.
So, the value of 74x29y6 to be divisible by 8. It should have y = 3
For 74x29y6 to be divisible by 9, sum of digits should be 9. So, x = 5
Therefore, 2x+3y = 2(5)+3(3) = 10+9 = 19

Sol 34. (a) Given number: 3x6349y
On factorizing 88 we get 8 and 11 as the factors.
For 3x6349y to be divisible by 8. Value of y = 6
For 3x6349y to be divisible by 11, Value of x = 7
Therefore, 2x+3y = 2(7) + 3 (6) = 14 + 18 = 32

Sol 35. (a) On factorizing 88 we get 8x11.

Pinnacle

The number 4x4y96, to be divisible by 8, y96 should also be divisible by 8.
Therefore, possible value of y = 2, 4, 6, 8
For 4x4296 to be divisible by 11, x=9
Therefore, x+2y = 9+4 = 13

Sol 36. (c) 72 = 9 x 8
For 56x34y4 to be divisible by 8. y = 2
For 56x34y4 to be divisible by 9. x = 3
Therefore, x+y = 3+2 = 5

Sol 37. (a) Only by 3 and 9
A number is divisible by 3 and 9 if sum of digits is divisible by 3 and 9.
66249 = 6+6+2+4+9 = 27
Clearly only option A satisfies the given condition.

Sol 38. (b)
Sum of digits of 210102 = 2+1+0+1+0+2 = 6
6 is divisible by 3. Clearly this number is divisible by 3.

Sol 39. (d) Number 30744 is divisible by 2, 3, 6 and 7. Except 5.

Sol 40. (a) Number 106974 is divisible by 2, 3, 6 and 7.

Sol 41. (a)
a : b : c : d
3 : 4
4 : 5
5 : 6
$\Rightarrow$ a : b : c : d = 3 : 4 : 5 : 6
$\Rightarrow \frac{a}{d} = \frac{3}{6} = \frac{1}{2}$
$(\frac{a}{d})^{10} = (\frac{1}{2})^{10} = \frac{1}{1024}$
Required sum = 1024 + 1 = 1025

Sol 42. (d)
Let the denominator = d
$\Rightarrow$ numerator = d-5
According to the question
4(d-5) = d+1
4d-20=d+1
$\Rightarrow$ d= 7
Desired fraction = $\frac{7-5}{7} = \frac{2}{7}$

Sol 43. (a)
Let the desired number = k
According to the question
$\frac{4-k}{9-k} = \frac{1}{6}$
24-6k=9-k
$\Rightarrow$ k = 3

Sol 44. (a)
Let the number = 3k
According to the question
9k-k = 24
$\Rightarrow$ k=3
Desired number = 3k = 3x3 = 9

Sol 45. (d)
x will be the HCF of the differences of the three numbers.
6475-4984 = 1491
4984-4132 = 852
6475-4132 = 2343
1491 = 3 x 7 x 71
852 = 2 x 2 x 3 x 71
2343 = 3 x 11 x 71
So, HCF of 2343, 1491 and 852 = 3 x 71 = 213

Sol 46.(b)
If a number 'a' and a number 'b' are divisible by a number 'n' then, a+b and a-b is also divisible by n.
Here the numbers are 7531, 7105 and 6892
the required number then becomes H.C.F of 7531-y, 6892-y and 7105-y or the HCF of (7531-y)-(7105-y) and (7105-y)-(6892-y)
(7531-y)-(7105-y) = 426
(7105-y)-(6892-y) = 213
213 = 3 x 71
426 = 2 x 3 x 71
So, HCF of 426 and 213 =x= 3 x 71 = 213
The remainder = $\frac{7531}{213} = \frac{7105}{213} = \frac{6892}{213}$ =y= 76
$\Rightarrow (x - y) = 213 - 76 = 137$

Sol 47.(a)
If a number 'a' and a number 'b' are divisible by a number 'n' then, a+b and a-b is also divisible by n.
Here the numbers are 2460, 2633 and 2806 and let the remainder = y
the required number then becomes H.C.F of 2460-y, 2633-y and 2806-y or the HCF of (2633-y)-(2460-y) and (2806-y)-(2633-y)
(2633-y)-(2460-y) = 173
(2806-y)-(2633-y) = 173
So, HCF of 173 and 173 =x= 173
Desired sum = 1+7+3 = 11

Sol 48. (d)
Given, $(6n + 3)^2$
On expanding the given polynomial, we get $36n^2 + 36n + 9$
Since, 36 and 9 are divisible by 9.
Therefore, On dividing $(6n + 3)^2$ by 9. We get 0 as remainder.
Alternate :
Put any integer value of n for example 1.
$(6n + 3)^2 \Rightarrow \{6(1) + 3\}^2 = 81$
Since 81 is divisible by 9 the remainder will be 0.

Sol 49. (c)
Let the number of students = s, so amount donated by each student = s
According to the question
$s \times s = 3481$
$\Rightarrow s = \sqrt{3481} = 59$

Sol 50. (c) Since, $\sqrt{1354.24} = 36.8$

Sol 51. (d) Going through the options:

Option (d) $\sqrt{1489.96} = 38.6$
Hence required rational number is 1489.96

Sol 52. (d) LCM of (15, 18 and 42) = 630
Let the number be (630k+8).
Minimum value of k for which (630k+8) is divisible by 13, is equal to 3.
Hence the number (630k+8) = {630(3)+8} = 1898.
Sum of digits = 1+8+9+8 = 26

Sol 53. (a)
Going through the options:
Option (a) $\sqrt{5535.36} = 74.4$
Hence required answer rational number is 5535.36 .

Sol 54. (b) let the required power = n
According to the question,
$(-3)^n = -2187$
$= (-3)^7$
Therefore, Required power will be 7.

Sol 55. (d)
$\sqrt[3]{3375} = \sqrt[3]{3 \times 3 \times 3 \times 5 \times 5 \times 5}$
= 15

Sol 56. (b) closest square to 8212 is 8281.
Therefore, 69 is to be added to 8212 to make it a perfect square.

Sol 57. (c)
Let the number = x
$\frac{x^2}{\frac{1}{x^3}} = \frac{243}{16807}$
$\Rightarrow x^5 = \frac{3^5}{7^5}$
$\Rightarrow x = \frac{3}{7}$

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Sol 1. (d)
Since, 389x6378y is divisible by 72 it must be divisible by 9 and 8 (coprime factors of 72) and y must be an even number. So sum of digits of this number must be divisible by 9 and last three digits by 8. 3+8+9+x+6+3+7+8+y = 44+x+y
x+y must be 1 or 10 as after 45 nearest multiple of 9 is 45 and 54.
For x+y =1 x must be 1 as y can't be odd number. And 780 is not divisible by 8 so it will get neglected.
Pairs for 10 = (1,9)(2,8), (3,7), (4,6), (5,5), (6,4)(7,3)(8,2)(9,1)
Only pair which satisfies these conditions is (6,4). So the required value is $\sqrt{6x+7y} = \sqrt{6(6)+7(4)} = 8$

Sol 2. (b)
12 = 2x2x3
16 = 2x2x2x2
18 = 2x3x3
20=2x2x5
25 = 5x5
LCM of 12,16,18,20 and 25 = 2x2x2x2x3x3x5x5 = 3600
$\Rightarrow x$ *must be* $= 3600k + 4$
Where 3600k+4 is multiple of 7
The condition gets satisfied when k=5
Required number = 3600(5)+4 = 18004

$\Rightarrow$ *digit at the thousands' place in* $x = 8$

Sol 3.(d)
$\Rightarrow$ let the number be n which divides 7897, 8110 and 8536 leaving a reminder r
$\Rightarrow$ the required number then becomes H.C.F of (7897-r), (8110-r) and (8536-r)
$\Rightarrow$ it could also be the H.C.F of (8536 - r) - (8110 - r) and (8110-r)-(7897-r)
i.e. 426 and 213
$\Rightarrow$ H.C.F of 426 and 213 = 213
the required sum = 2+1+3 = 6

Sol 4.(d)
Put any odd value of k. For example k=1
$(8^{2k} + 5^{2k}) \Rightarrow (8^{2(1)} + 5^{2(1)}) = 89$
Clearly 89 will be the factor.

Sol 5.(d)
Given, x = $(633)^{24} - (277)^{38} + (266)^{54}$
Unit digit of $(633)^{24} = 3^4 = 1$
Unit digit of $(277)^{38} = 7^2 = 9$
Unit digit of $(266)^{54} = 6^2 = 6$
Unit digit of x = 1-9+6 = -2
But unit digit can't be negative so, required unit digit = 10 + (-2) = 8

Sol 6.(d)
Let the number = 10x+y
According to the question
$(x+y) = \frac{1}{7}(10x+y)$ ……..(1)
And
y = x-4
Put this value in equation (1)
$(x+x-4) = \frac{1}{7}(10x+x-4)$
$\Rightarrow$ 14x-28 = 11x-4
$\Rightarrow x = 8$ and y = 8-4 = 4
the number obtained on reversing the digit = 10y+x = 10(4)+8 = 48
Required remainder = $\frac{48}{7} = 6$

Sol 7. (a) Since, 5678x43267y is divisible by 72 it must be divisible by 9 and 8 (coprime factors of 72) and y must be an even number. So sum of digits of this number must be divisible by 9 and last three digits by 8. 5+6+7+8+x+4+3+2+6+7+y = 48+x+y
x+y must be 6 or 15 as after 48 nearest multiples of 9 are 54 and 63.
Pairs for 6 = (1,5)(2,4), (3,3), (4,2), (5,1), (6,0)
y can't be an odd number. Only pair that satisfies all the condition is (4,2)
Pairs for 15 = (6,9), (7,8), (8,7), (9,6)

Pinnacle

None of the pairs of 15 satisfies the given conditions.
So the required value is $\sqrt{5x+8y} = \sqrt{5(4)+8(2)} = 6$

Sol 8. (a)
$3600 = 2^4 \times 3^2 \times 5^2$
$\Rightarrow$ *Number of factors of* $3600 = (4+1)(2+1)(2+1) = 45$

Sol 9. (c)
Given,
$x = (164)^{169} + (333)^{337} - (727)^{726}$
Unit digit of $(164)^{169} = 4^1 = 4$
Unit digit of $(333)^{337} = 3^1 = 3$
Unit digit of $(727)^{726} = 7^2 = 9$
Unit digit of x = 4+3-9 = -2
But unit digit can't be negative so, required unit digit = 10 + (-2) = 8

Sol 10. (a)
15 = 3x5
18 = 2x3x3
20 = 2x2x5
27 = 3x3x3
LCM of 15,18,20 and 27 = 2x2x3x3x3x5 = 540
$\Rightarrow x$ *must be* $= 540k + 10$
Where 540k+10 is multiple of 31
The condition gets satisfied when k=4
Required number = 540 (4)+10 = 2170
Nearest square to 2170 = 2209
Required number = 2209-2170 = 39

Sol 11. (c)
Let the number = 10x+y
According to the question
(10x+y)(x+y)=424 …(1)
And
(10y+x)(x+y)=280 ……..(2)
Divide equation (1) by (2)
$\Rightarrow \frac{(10x+y)=424}{(10y+x)=280}$
$\Rightarrow \frac{(10x+y)=53}{(10y+x)=35}$
$\Rightarrow 350x+35y = 530y + 53x$
$\Rightarrow 297x = 495y$
$\Rightarrow \frac{x}{y} = \frac{5}{3}$
Put this value in any of the equations
(10x+y)(x+y)=[{10(5)+3}(5+3)] = 424
Or
(10y+x)(x+y)=[{10(3)+5}(5+3)] = 280
Clearly 5 and 3 are the desired values and the sum of the digits = 5+3 = 8

Sol 12. (c)
$3^{61284} = (3^4)^{15321}$
Now, $3^4 = 81$. 81 divided by 5 gives remainder 1.
$\Rightarrow (1)^{15321} = 1$
So, remainder when 3^{61284} is divided by 5= x = 1
When 4 raised to any power is divided by 6 it will give the remainder 4.
$\Rightarrow y = 4$
$\Rightarrow (2x - y) = 2(1) - 4 = -2$

Sol 13. (c)
Since the last divisor is 17 and the quotient is 2, we have the dividend = 17x2 = 34.(Because the last divisor will not leave any remainder)
Now, 34 will become the divisor and 11 will become the quotient and 17 will be the remainder. Therefore the dividend will be 34 x 11 + 17 = 391
Now, 391 will become the divisor and 1 will be the quotient and 34 will be the remainder. Therefore the dividend will be 391 x 1 + 34 = 425
So, the numbers are 391 and 425
Required sum = 391+425 = 816

Sol 14. (a)
Since, 5432y1749x is divisible by 72 it must be divisible by 9 and 8 (coprime factors of 72) and x must be an even number. So sum of digits of this number must be divisible by 9 and last three digits by 8. 5+4+3+2+y+1+7+4+9+x = 35+x+y
x+y must be 1 or 10 as after 35 nearest multiples of 9 are 36 and 45.
Pairs for 1 = (1,0)
x can't be an odd number. Condition not satisfied.
Pairs for 10 = (1,9), (2,8), (3,7), (4,6), (5,5), (6,4), (7,3), (8,2), (9,1)
Only (6,4) satisfies the given conditions.
$\Rightarrow (5x - 4y) = 5(6) - 4(4) = 14$

Sol 15. (d)
$(127^{97} + 97^{97}) \Rightarrow (128 - 1)^{97} + (96 + 1)^{97}$
Remainder from $(128 - 1)^{97} = (-1)^{97} = -1$
Remainder from $(96 + 1)^{97} = (1)^{97} = 1$
Final remainder = -1+1 = 0

Sol 16. (d)
Let the numbers are x and y.
According to the question
x-y = 2001 ……(1)
And
9y+41 = x ……(2)
Put the value of x in eq (1)
9y+41-y=2001
8y = 1960
y=245
x = 9(245)+41 = 2246
Required sum = 2+2+4+6 = 14

SSC CGL TIER I

Sol 1. (d) For any number to be divisible by 8, its last 3 digits must be divisible by 8
By putting x=0 in 1005x4 , we see that 504 will be divisible by 8.

Sol 2. (c) When 200 is divided by x remainder is 8. So, the number exactly divisible by x is 192.

Multiples of 192 = 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 64, 96, 192
The remainder is always less than the divisor , so :x > 8
⇒ Desired values are 12, 16, 24, 32, 48, 64, 96, 192.

Sol 3. (a) For a number to be divisible by 11, the difference of sum of alternative numbers is divisible by 11.
Hence, (7+3+*+9)-(5+2+4)
=(19+*)-(11)
=8+*
* must be 3 for 94*2357 to be divisible by 11.

Sol 4. (b) When 732 is divided by x remainder is 12. So, the number exactly divisible by x is 720.
The remainder is always less than the divisor , so :x > 12
Now, the factors of 720 which are more than 12 are possible values of x, i.e. (15,16,18,20,24,30,36, 40,45, 48,60, 72, 80, 90, 120, 144, 180, 240, 360, 720).

Sol 5. (a) In such questions directly check divisibility by 11, 9 and 8.
For a number to be divisible by 11, the difference of the sum of digits at odd or even places must be divisible by 11.
For a number to be divisible by 9, the sum of numbers must be divisible by 9.
For divisibility by 8, the last 3 numbers must be divisible by 8.
Accordingly, For x35624 divisible by 11
(x+5+2)-(3+6+4) = 0 or 11
⇒ x=6
And For 1257y4 divisible by 72, 1+2+5+7+y+4 must be divisible by 9 and the only possible value of y is 9, here.
also 784 is divisible by 8 so desired value of y = 8
Then, 5x-2y = 30-16 = 14

Sol 6. (d) From 200 to 800, numbers which are divisible by
(i) 5 : $\frac{800}{5} - \frac{200}{5} = 120$
(ii) 7 : $\frac{800}{7} - \frac{200}{7} = 114 - 28 = 86$
(iii) 35 : $\frac{800}{35} - \frac{200}{35} = 22 - 5 = 17$
Total number = 120+86 - 17 = 189
Numbers from 200 to 800 which are neither divisible by 5 nor by 7= (800-200)- 189 = 411

Sol 7. (b) It is given that 708x6y8z9 is divisible by 99.
Thus, 708x6y8z9 is divisible by both 11 and 9
For divisibility by 9, sum of digits are divisible by 9 (7+0+8+x+6+y+8+z+9 = 38+x+y+z. We get 2 as remainder when 38 ÷ 9. Thus, 2+x+y+z must be divisible by 9)
Possible values of (z+y+x) = 7,**16**,25, etc.
For divisibility by 11, the difference of sum of digits at odd and even place is divisible by 11 (i.e. in 708x6y8z9 : (9 + 8 + 6 + 8 + 7) - (z + y + x + 0) = 38 - (z + y + x) is divisible by 11)
Possible values of (z+y+x) =38,5,**16** etc.

In such questions, we must directly verify options.

Sol 8. (c) Let N be the number which gives Q as quotient and 15 as remainder when divided by d.
Thus, d > 15
N = d × Q+ 15
10N = 10(d × Q)+ 144 + 6
clearly d is a multiple of 144 which are: 2, 3, 4, 6, 8, 9, 12, 16, 18, 24 and so on.
The least possible value of d is 16.(d > 15)

Sol 9. (c) For 146*48 to be divisible by 8, *48 must be divisible by 8.
Check options: * = 2,8 satisfies the condition. But 8>2. option c is the correct answer.

Sol 10. (a) For 687x29 to be divisible by 9, the sum of digits of 687x29 must be divisible by 9.
Thus, x = 4 and 2x = 4

Sol 11. (a) For a number to be divisible by 4, the last two digits must be divisible by 4. Among the given options 8 is maximum number to replace * .

Sol 12. (a) For a number to be divisible by 11, the difference of the sum of digits at odd and even places must be divisible by 11.
(9+5+8)-(2+x+5) = 15-x
For x = 4, the number is divisible by 11.

Sol 13. (b) n = 7Q+2
For remainder 0, add 5 both sides, we get: n+5 = 7Q+7

Sol 14. (c) $\frac{5^{70}+7^{70}}{74} = \frac{25^{35}+49^{35}}{74}$
⇒ $25^{35} + 49^{35}$ =
(25+49)(x) = (74)(x)
Remainder = 0

Sol 15. (b) n = 5Q+2
7n = 35Q+14
7*n* = 5 × 7Q+10+4
Remainder = 4

Sol 16. (a) For a number to be divisible by 9, the sum of its digits must be divisible by 9.
In 1190*6, 1+1+9+0+*+6 = 17+*
By replacing * by 1, 1190*6 is divisible by 9.

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SSC CHSL 2019

Sol:1. (c)
For divisibility of 11, The difference of alternate digits sum should be equal to 0 or 11
(8+9+8)-(0+7+1) = 12
(1+6+7)-(1+5+1) = 7
(9+3+9)-(6+3+1) = 11
(1+7+1)-(0+6+1) = 2
so, option C is the answer.

Sol:2. (c)
$(77^{77} + 77)/78$
$= (-1)^{77} + (-1)$
$= -2$
So, remainder will 78-2 = 76

Sol:3.(b)
When an integer n is divided by 5, the remainder is 3 and let quotient is x, then
n = 5x +3
Now, 8n = 40x + 24, when it is divided by 5 , we get remainder 4. (By remainder theorem)
Alternate solution
Consider the least value of integer n, which is divided by 5, the remainder is 3, that is 8.
When 8n (8 × 8) is divided by 5, we get remainder 4.

Sol:4.(d)
When the number is divisible by 2 and 3 both, then numbers are divisible by 6.
By 2:- When the last digit is 0 or an even number.
By 3:- Sum of digits is divisible by
Now,
(a)23,408 = not divisible by 3.
(b)43,923 = not divisible by 2.
(c)1,00,246 = not divisible by 3.
(d)3,49,722 = divisible by both 2 and 3, so it is divisible by 6.

Sol:5.(c)
$(a^{\frac{2}{3}} + 2a^{\frac{1}{2}} + 3a^{\frac{1}{3}} + 2a^{\frac{1}{6}} + 1)(a^{\frac{1}{3}} - 2a^{\frac{1}{6}} + 1) - a^{\frac{1}{2}}\ (a^{\frac{1}{2}} - 2)$
Let $a^{\frac{1}{6}} = p$ then,
$(p^4 + 2p^3 + 3p^2 + 2p + 1)(p^2 - 2p + 1) - p^3(p^3 - 2)$
$p^6 - 2p^5 + p^4 + 2p^5 - 4p^4 + 2p^3 + 3p^4 - 6p^3 + 3p^2 + 2p^3 - 4p^2 + 2p + p^2 - 2p + 1 - p^6 + 2p^3$
$= 1$

ALTERNATE SOLUTION
As the equation is independent of a, so you can put a = 0 for the solution
Which gives 1 as answer

Sol:6.(c)
36 will be divisible by 4 and 9.
4 divisibility of 4 last two digits should be divisible by 4.
For maximum value b=8 and a=6
a+b=8+6=14

Sol:7.(b)
$3x^2 - 5x - 8$
$3x^2 - 8x + 3x - 8 = 0$
$x(3x-8)+1(3x-8)=0$
$(x+1)(3x-8)$

Sol:8. (d)
For divisibility of 9, we check digit sum
sum of digits of 19,596 = 1+9+5+9+6 = 30 it means sum of digits should be 27 or 36
it means numbers are = (19,596-3) or (19,596+6)
so, numbers are = 19,593 and 19,602

Sol:9. (d)
for divisibility of 8, check last 3 digits
$\frac{b12}{8}$ = so least value of b = 1
for divisibility of 9, check digits sum
1+a+7+6+5+1+1+2 = 9 or its multiple
a = 4
(2a + 3b) = 2(4)+3(1) = 11

Sol:10. (c)
The largest five-digit number = 99999
When 99999 is divisible by 81 then remainder = 46
Required number = 99999-46 = 99954

Sol:11. (c)
$2x^2 - 5x - 12$
$2x^2 - 8x + 3x - 12$
$2x(x-4)+3(x-4)$
$(2x+3)(x-4)$

Sol:12. (d)
We know,
For divisibility of 9, apply digit sum
7+1+2+9+p+4+6+5 = 9 or its multiple
34+p = 9 or its multiple
p = 2

Sol:13. (c)
The least number which is completely divisible by 91 is 10010

Sol:14. (d)
For divisibility of 3, the sum of digits of the number should be divisible by 3.
so, only the sum of option D is divisible by 3

Sol:15.(a)
$7a^2 + 7a = 7a(a+1)$ is clearly divisible by 7
a(a +1), are two consecutive digit and out of them one is divisible by 2
So, the number is divisible by 7 and 14 both
ALTERNATE SOLUTION
Put the value of a = 1
$7a^2 + 7a = 7(1)^2 + 7(1) = 14$
So, number is divisible by 7 and 14 both

Pinnacle

Sol:16. (b)
(ax + by), on squaring it,
$(ax + by)^2 = a^2x^2 + 2abxy + b^2y^2$
So, (ax + by) is a factor of $a^2x^2 + 2abxy + b^2y^2$

Sol:17. (a)
Go through option (a)
$4x^2 + 2x - 3y + 9y^2 - 12xy$
$(2x - 3y)^2 + (2x-3y)$
So, (2x-3y) is a factor of $4x^2 + 2x - 3y + 9y^2 - 12xy$

Sol:18. (d)
$2^{20}+1 = 0$
$2^{20} = -1$
After cubing both sides
$2^{60} = -1$
$2^{60}+1 = 0$
So, answer is $2^{60}+1$

Sol:19. (c)
LCM of 3,5 and 7 = 105
so, next larger integer divisible by all these numbers = n+105

Sol:20. (b)
Numbers which are divisible by 13 between 800 and 1300 = 806; 819…….1989
Required number = $\frac{1989-806}{13} + 1$ = 92

Sol:21. (c)
for divisibility of 8, we check last 3 digits
$\frac{58N}{8}$, so value of N = 4

Sol:22. (c)
for divisibility of 8, we check last 3 digit
$\frac{67N}{8}$ = N = 2
There is only one option where value of N = 2
so, option (c) is correct.

Sol:23.(c)
For divisibility of 8, check 3 digits.
$\frac{25B}{8}$ =B=6
For divisibility of 9, check sum of digits
4+3+A+5+3+2+5+6=9 or its multiple
28+A=9 or its multiple
A=8
A+B=8+6=14

Sol:24. (b)
$2^{25} + 2^{26} + 2^{27}$
$2^{25}(1 + 2^1 + 2^2)$
$2^{25} \times 7$
So, number is divisible by 7

Sol:25. (c)
For divisibility of 5, last digit should be 5 or 0
and for divisibility of 9, check digit sum
4+4+3+2+A+4+3+B =20 + A + B
20+A + B = 27 (nearest multiple greater than 20)
A + B = 7

Sol:26. (a)
Let the number is N and x is the quotient when N is divided by 14.
N = 14x + 9
When square of (14x + 9) is divided by 14
$\frac{(14x+9)^2}{14} = \frac{81}{14}$ (by remainder theorem)
We get remainder 11

Sol:27. (d)
$2^{18} - 1 = 8^6 - 1$
If n is even number then ,
$(a^n - b^n)$ is divisible by (a+b) and (a-b)
So, $8^6 - 1$ is divisible by 7.

Sol:28. (d)
a number is divided by 899, the remainder is 63
the same number is divided by 29, the remainder = $\frac{63}{29}$ = 5 (by remainder theorem)

Sol:29. (c)
Divisibility by 5 condition:- Unit digit of a number must be either 0 or 5
Divisibility by 8 condition:- Last 3 digits of a number must be divisible by 8.
For a number to be divisible by both 8 and 5, above condition must satisfy.
Therefore, in 62783xy, y = 0 or 5
Also , 3xy must be divisible by 8.
Case I:- x = 1 and y = 0, 310 is not divisible by 8.
Case II:- x = 2 and y = 0, It is divisible by both 8 and 5.

Sol:30. (c)
Given:- $x^3 + 2x^2 - ax - b$ is divisible by $x^2 - 1$.
Therefore, $x^2 = 1$ satisfies the equation and $x^3 + 2x^2 - ax - b = 0$ at $x^2 = 1$
Or x = +1 or -1
At x = 1, $x^3 + 2x^2 - ax - b = 0$
$\Rightarrow 1 + 2 - a - b = 0 \Rightarrow$ 3 -a - b = 0 $\Rightarrow$ a + b = 3 … (i)
At x = -1, $x^3 + 2x^2 - ax - b = 0$
$\Rightarrow -1 + 2 + a - b = 0 \Rightarrow 1 +$ a - b = 0 $\Rightarrow$ a - b = -1 … (ii)
From (i) and (ii):- a = 1 and b = 2

Sol:31. (a)
Divisor = 24 × Quotient = 8 × Remainder
Given:- Quotient = 18, Divisor = 24 × 18 = 432
Remainder = 3 × 18 = 54
Dividend = Divisor × Quotient + Remainder = 432 × 18 + 54 = 7830

Sol:32. (a)
$7^{81} + 7^{82} + 7^{83} \Rightarrow$
$7^{81} \times (1 + 7 + 7^2) \Rightarrow$
$7^{81} \times (1 + 7 + 49) \Rightarrow 7^{81} \times (57)$
$\Rightarrow 7^{80} \times (7 \times 57) = 7^{80} \times (399)$
Option (a) follows.

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Sol:33. (b)
when a number is divided by 3 and gives remainder 2 it means minimum number will be 5
when 5 more is added to it then the new number = 10
when 10 is divided by 3 then remainder will be 1

Sol:34. (d)
For divisibility of 9, check digit sum
(i) 897342 = 8+9+7+3+4+2 = 33
(ii) 594327 = 5+9+4+3+2+7 = 30
(iii) 346217 = 3+4+6+2+1+7 = 23
(iv) 734895 = 7+3+4+8+9+5 = 36
Only option (d) is divisible by 9

Sol 35. (c)
for divisibility for 2, last digit should be divisible by 2
for divisibility for 5, last digit should be 0 and 5
for divisibility for 10, last digit should be 0
Option (a) and (d) are not divisible by 2 and option (b) are not divisible by 5
so, option C is answer.

Sol:36. (d)
n = 7 × Quotient + 2
For remainder to become 0, we must add such a number to 2 so that it becomes divisible by 7.
n + 5 = 7 × Quotient + 2 + 5 = 7 × Quotient + 7
Now, n + 5 is divisible by 7.

Sol:37. (c)
We know, The sum of odd numbers = (no. of terms)^2
In 1 + 3 + 5 + 7 + ……. (2n - 1); let the no. of terms = x
2n - 1 = 1 + (x -1)2
2n - 2 = (x - 1)2
n - 1 = x - 1
x = n
Therefore, no. of terms, x = n
1 + 3 + 5 + 7 + ……. (2n - 1) = $n^2 = n \times n$

Sol:38. (c)
For a number to be divisible by 3; sum of its digits must be divisible by 3.
Option (a):-sum of digits of 2362735 = 28
Option (b):-sum of digits of 6342589 = 37
Option (c):-sum of digits of 3745932 = 33
Option (d):-sum of digits of 4539763 = 37

Sol:39. (a)
Condition (i) for a number to be divisible by 11:-
Difference between the sum of digits at odd and even place must be divisible by 11.
Condition (ii) for a number to be divisible by 7:-
Subtract twice the last digit from the remaining digits, the result must be divisible by 7. Repeat the process until you get the smallest digit.
Check options:
Option (a) :-
16324 :- (1+3+4)-(6+2) = 0….
Condition (i) follows
Condition (ii) :- 1632 - 8 = 1624
162-8 = 154; 154 is divisible by 7.
Thus, condition (ii) follows.

Sol:40. (b)
For divisibility of 9, check digit sum
For divisibility of 11, difference of alternate digits sum should be equal to 0 or 11
(a) 10089 = (1+0+9)-(0+8) = 2 (not divisible by 11)
(b) 10098 = (1+0+8)-(0+9) = 0 (it is divisible by 11) now, check digits sum
1+0+0+9+8 = 18 (it is also divisible by 9)
So, answer (b) is correct.

SSC CGL 2019
Sol:41.(b)
Let larger number = a
Smaller number = b
a - b =1280
(1)
a = 7b + 50
a - 7b = 50
(2)
Multiplying eq 1 by 7
7a - 7b = 8960
(3)
Subtracting eq 2 from eq 3
6a = 8910
a = 1485

Sol:42.(b)
(4x - 2y 3z) =
$4 \times 17 - 24 \times 2 + 27 \times 3$
(4x - 2y 3z) = 101
When 101 is divided by 31 we get reminder = 8

HCF of 72 and 48 = 24
When 1062 is divided by 24 we get reminder as = 6
24 - 6 = 18

Sol:43.(a)
$3 \times 7 \times 11 = 231$
Let a and b = 9 and 9
When 53599 is divided by 231 reminder = 7
Means 53599 - 7 = 53592 is that number
a = 9
b = 2
$a^2 - b^2 + ab$ = 81 - 4 + 18 = 95

Sol:44.(d)
LCM of 3,7,11 is = 231
Let the number be 23599
When 23599 is divided by 231 we get remainder as 37
So the number is = 23599 - 37 = 23562

Pinnacle

x = 6
y =2
(3x-4y) = 18 - 8 = 10

Sol:45.(b)
HINT: ab and ba both can be prime only and only when both are odd number
Such numbers are 13,31,17,71,37,73,79,97
Sum = 13 + 31 + 17 + 71 + 37 + 73 + 79 + 97 = 418

Sol:46.(c)
As 10404 is a perfect square
So x = 20
Prime factorization of 20 = 2 × 2 × 5
So, when 20 is multiplied by 5 it become a perfect square

Sol:47.(d)
a = 9
b = 7
c= 10
(a + 2b + 5c) =(9 + 14 + 50) = 73
When 73 is divided by 13 remainder is 8

Sol:48.(d)
Number of terms in the series = 18
Sum = (number of terms/2) (first term + last term)
Sum = $\frac{18}{2}(6 + 40) = 414$

Sol:49.(b)
$(30)^5 \times (24)^5$
$(2 \times 3 \times 5)^5 \times (2^3 \times 3)^5$
$2^{20} \times 3^{10} \times 5^5$
Number of prime factors = (20+10+5)
Number of prime factors = 35

SSC CPO 2019
Sol:50.(d)
$\frac{1432 \times 14331433 \times 1425}{12}$
$\frac{1432 \times 1431 \times 1001 \times 1425}{12}$
$\frac{(-7) \times (-7) \times (-6) \times (-3)}{12}$
$\frac{49 \times 18}{12}$ leaves remainder as
=6

Sol:51.(d)
Co-prime factors of 72 are 8 and 9
Divisibility rule of 9 says that sum of numbers should be divisible by 9
Divisibility of 8 says last 3 digits should be divisible by 8
In 785X3678Y
Y should be 4 to be divisible by 8.
X should be 6 to make digit sum divisible by 9
So X-Y will be 6-4=2.

Sol:52.(b)
$75 \times 73 \times 78 \times 76$ when individual is divided by 34 we get ,
$7 \times 5 \times 10 \times 8$
2800 when divided by 34 gives remainder as 12

Sol:53.(c)
Product of 7, 11 and 13 = 1001
If a number is divisible by 7, 11 and 13 then it is divisible by 1001
If 5x2y6z is divisible by 1001 then its starting three digits should repeat
Which means that the number is 562562
So, x = 6 , y = 5 and z = 2
So, x - y + 3z = 6 - 5 + 6 = 7

Sol:54.(b)
$72 \times 73 \times 78 \times 76$ when individual is divided by 35 we get ,
$2 \times 3 \times 8 \times 6$
288 when divided by 35 gives remainder as 8

Sol:55.(a)
Smallest number which leaves remainder 5 when divided by 7 is 5
Smallest number which give quietent as 5 and remainder as 3 is $4 \times 5 + 3 = 23$
Smallest number which give quietent as 23 and remainder as 2 is $3 \times 23 + 2 = 71$
71 when divided by 84 gives remainder as 71

Sol:56.(c)
LCM of 10, 12, 15, 18 and 20 is 900

Sol:57.(a)
LCM of 5, 6 and 7 is 150
Least number above 400 which is a multiple of 150 is 450
After 450 is 600
So , there are 2 numbers

Sol:58.(a)
Divisibility by 10 totally depend upon last digit
Product of last digit = $3 \times 2 \times 5$ =30
So, last digit is 0

Sol:59.(d)
Co-prime factors of 72 are 8 and 9
Divisibility rule of 9 says that sum of numbers should be divisible by 9
Divisibility of 8 says last 3 digits should be divisible by 8
In 785X3678Y
Y should be 4 to be divisible by 8.
X should be 6 to make digit sum divisible by 9
So X+Y will be 6+4=10.

Sol:60.(d)
LCM of 5, 6 and 8 is 120
Least number above 300 which is a multiple of 120 is 360
After 360 is 480 and 600

Pinnacle

So , there are 3 numbers

Sol:61.(d)
Smallest number which leaves remainder 5 when divided by 7 is 5
Smallest number which give quietent as 5 and remainder as 3 is $4 \times 5 + 3 = 23$
Smallest number which give quietent as 23 and remainder as 2 is $3 \times 23 + 2 = 71$
71 when divided by 42 gives remainder as 29

Pinnacle

What are HCF and LCM? / महत्तम समापवर्तक और लघुत्तम समापवर्त्य क्या है?

1. LCM (Least common multiple) of two or more given numbers is the least number which is exactly divisible by each of them.
दो या अधिक दिए गए नंबरों की एलसीएम (लघुत्तम समापवर्त्य) कम से कम संख्या है जो उनमें से प्रत्येक के द्वारा बिल्कुल विभाजित है।

2. HCF (Highest common factor) of two or more number is the greatest number which divides each of them exactly. HCF is also known as 'Highest common Divisor' (HCD) and Greatest common Measure' (GCM).
दो या दो से अधिक संख्या के एचसीएफ (उच्चतम सामान्य कारक) सबसे बड़ी संख्या है जो उनमें से प्रत्येक को पूरी तरह विभाजित करता है|

Finding LCM and HCF/ एलसीएम और एचसीएफ खोजना

Example/ उदाहरण: LCM of 6, 12, 8

2	6, 12, 8
2	3, 6, 4
3	3, 3, 2
2	1, 1, 2
	1, 1, 1

LCM = 2×2×3×2 = 24

HCF of 6, 12, 18

Firstly find out the factors of 6, 12, 18 and the multiply the common factors.

सबसे पहले 6, 12, 18 के गुणक का पता लगाएं और आम गुणक को गुणा करें|

2	6	2	12	2	18
3	3	2	6	3	9
	1	3	3	3	3
			1		1

6 = 2×3, 12 = 2×2×3, 18 = 2×3×3

HCF = 2×3 = 6

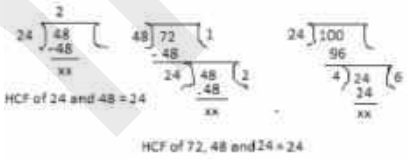
Try finding HCF and LCM of 3, 6, 9, 12 yourself./ 3, 6, 9, 12 के एचसीएफ और एलसीएम स्वयं खोजने का प्रयास करें।

HCF can also be found by Division method. It is useful when the numbers are bigger.
एचसीएफ डिवीजन विधि द्वारा भी पाया जा सकता है। यह उपयोगी है जब संख्या बड़ी हो।

HCF by Division Method/ विभाजन विधि द्वारा एचसीएफ

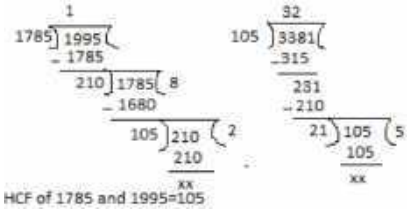
Example/ उदाहरण: HCF of 24, 48, 72, and 100.

To start the division method select the smallest two numbers./ विभाजन विधि को शुरू करने के लिए सबसे छोटी संख्या दो चुनें।



HCF of 24, 48, 72, and 100 = 4.

Example/ उदाहरण: HCF of 1785, 1995, 3381.



HCF of 1785, 1995 and 3381 = 21

Important Concepts:

1) LCM × HCF = First number × Second number

Example: For numbers 8 and 12, LCM = 24 and HCF = 4
Now, LCM × HCF = 24 × 4 = 96 also, 8 × 12 = 96

2) HCF, of some numbers, is always a factor of LCM of the numbers.
कुछ संख्याओं का एचसीएफ, हमेशा संख्याओं के एलसीएम का एक गुणक है।

3) LCM of Fraction/भिन्न = $\frac{LCM\ of\ numerator}{HCF\ of\ denominator}$

4) HCF of Fraction/भिन्न = $\frac{HCF\ of\ numerator}{LCM\ of\ denominator}$

Example: LCM and HCF of $\frac{1}{2}, \frac{2}{3}\ and\ \frac{3}{4}$

LCM = $\frac{LCM\ of\ numerator}{HCF\ of\ denominator} = \frac{LCM\ of\ 1,2,\ 3}{HCF\ of\ 2,3,4} = \frac{6}{1}$

HCF = $\frac{HCF\ of\ numerator}{LCM\ of\ denominator} = \frac{HCF\ of\ 1,2,\ 3}{LCM\ of\ 2,3,4} = \frac{1}{12}$

5) Co- Prime numbers / सह अभाज्य संख्या: If the HCF of two numbers is 1 then they are called co-prime numbers./ यदि दो नंबरों का एचसीएफ 1 है तो उन्हें सह-प्रधान संख्या कहा जाता है।

6) $\frac{LCM}{HCF} = Product$; where LCM and HCF are of two numbers $N_1\ and\ N_2$ ./ जहां एलसीएम और एचसीएफ दो नंबरों N_1 और N_2 के हैं|

If we find two co-prime factors, $F_1 and\ F_2$, of the Product as obtained above then:
अगर हमें Product के दो सह अभाज्य गुणक, F_1 और F_2, खोजते है, तब:

HCF $\times F_1 = N_1$ **and HCF** $\times F_2 = N_2$

Varieties Questions

Q1. The product of HCF and LCM of two numbers is 3321. If one of the numbers is 369. The HCF of the number is
यदि दो संख्याओं के HCF और LCM का गुणनफल 3321 है।यदि इनमे से एक संख्या 369 है।तो HCF ज्ञात कीजिये?
SSC CPO 16 March 2019 (Morning)
(a) 21
(b) 9
(c) 3
(d) 27

Q2.Two numbers are in the ratio 4:7, If the HCF is 26, then the sum of the numbers will be:
दो संख्याएं 4 : 7 के अनुपात में हैं | यदि उनका महत्तम समापवर्तक 26 है, तो इन संख्याओं का योग क्या होगा ?
SSC CPO 12 March 2019 (Evening)
(a) 312
(b) 364
(c) 338
(d) 286

Q3. What is the sum of the digits of the least number, which when divided by 12, 16 and 54, leaves the same remainder 7 in each case and is also completely divisible by 13?
उस सबसे छोटी संख्या के अंकों का योग ज्ञात करें जिसे 12, 16 और 24 से भाग देने पर हर बार 7 शेषफल आता है और यह 13 से भी पूर्णतः विभाजित है |
SSC CPO 12 March 2019 (Evening)
(a) 36
(b) 16
(c) 9
(d) 27

Q4. The HCF and LCM of two numbers is 6 and 5040 respectively. If one of the numbers is 210, then the other number is:
दो संख्याओं का महत्तम समापवर्तक और लघुत्तम समापवर्त्य क्रमशः 6 और 5040 है | यदि इनमें से एक संख्या 210 है, तो दूसरी संख्या ज्ञात करें |
SSC CPO 14 March 2019 (Morning)
(a)256
(b)144
(c)30
(d)630

Q5. Which of the following statements is true ?
निम्नलिखित में से कौन सा कथन सत्य है?
SSC CPO 14 March 2019 (Morning)
(a) LCM of two natural numbers is divisible by their HCF. / दो प्राकृतिक संख्याओं का LCM उनके HCF द्वारा विभाज्य है।
(b) HCF + LCM of two numbers = Product of the two numbers. / दो संख्याओं का HCF + LCM = दो संख्याओं का गुणनफल |
(c) Two prime numbers are co-prime numbers if their LCM is 1. / यदि दो अभाज्य संख्याएँ सह अभाज्य हैं तो उनके LCM 1 हैं।
(d) HCF of two numbers is the smallest common divisor of both numbers. / दो संख्याओं का HCF दोनों संख्याओं का सबसे छोटा भाजक है।

Q6. The LCM of two numbers is 168 and their HCF is 12. If the difference between the numbers is 60, what is the sum of the numbers?
दो संख्याओं का लघुत्तम समापवर्त्य 168 है तथा उनका महत्तम समापवर्तक 12 है | यदि संख्याओं के बीच 60 का अंतर है, तो इन संख्याओं का योग ज्ञात करें |
SSC CPO 16 March 2019 (Evening)
(a)112
(b)116
(c)108
(d)122

Q7. The product of two numbers is 6760 and their HCF is 13. How many such pair of numbers can be formed?
दो संख्याओं का गुणनफल 6760 है तथा उनका महत्तम समापवर्तक 13 है | संख्याओं के ऐसे कितने युग्मों का निर्माण किया जा सकता है ?
SSC CPO 16 March 2019 (Evening)
(a)2
(b)3
(c)1
(d)4

Q8. The product of two numbers is 45360; if the HCF of the numbers is 36, then their LCM is :
दो संख्याओं का गुणनफल 45360 है | यदि इन संख्याओं का महत्तम समापवर्तक 36 है, तो उनका लघुत्तम समापवर्त्य ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a) 252
(b) 630
(c) 126
(d) 1260

Q9.The greatest number of four digits which is exactly divisible by 24, 36 and 54 is:
चार अंकों की सबसे बड़ी संख्या जो 24, 36 तथा 54 से पूर्णतः विभाजित है :
SSC CPO 15 March 2019 (Morning)
(a) 9990
(b) 9924
(c) 9936
(d) 9960

Q10. An oil merchant has 3 varieties of oil of volumes 432, 594 and 702 respectively. The number of cans of equal size that would be required to fill the oil separately is:
किसी तेल व्यापारी के पास तीन किस्म के तेल की 432, 594 एवं 702 की मात्रा में हैं | तेल को अलग-अलग भरने के लिए आवश्यक बराबर आकार के पात्रों की संख्या ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)13, 15, 17
(b)8, 11, 13
(c)8, 13, 15
(d)6, 9, 11

Q11. The length, breadth and height of a box is 506 cm, 345 cm and 230 cm respectively, give the length of the longest scale, so that the three dimensions of the box can be measured
एक डिब्बे की लम्बाई चौड़ाई और ऊंचाई क्रमश : 506 cm, 345 cm और 230 cm है| सबसे लम्बे पैमाने की लम्बाई बताये जिससे बॉक्स के तीनो आयामों को मापा जा सकता है
SSC CPO 14 March 2019 (Evening)
(a) 23 cm
(b) 15 cm
(c) 30 cm
(d) 46 cm

Practice Questions

Q1. Two numbers are in ratio 6 : 11, If there HCF is 28, then the sum of these two numbers is:
दो संख्याएं 6 : 11 के अनुपात में हैं | यदि उनका महत्तम समापवर्तक 28 है, तो इन दो संख्याओं का योग क्या है ?
SSC CPO 13 March 2019 (Evening)
(a) 476
(b) 448
(c) 392
(d) 420

Q2. What is the sum of digits of the least number, which when divided by 15, 18 and 42 leaves the same remainder 8 in each case and is also divisible by 13?
उस न्यूनतम संख्या के अंकों का योग क्या होगा, जो 15, 18 और 42 से विभाजित होने पर प्रत्येक स्थिति में एक ही शेष 8 रहता है और 13 से विभाज्य भी है?
SSC CPO 13 March 2019 (Evening)
(a) 25
(b) 24
(c) 22
(d) 26

Q3. What is the sum of digits of the least number, which when divided by 15, 18 and 24 leaves the remainder 8 in each case and is also divisible by 13?
उस सबसे छोटी संख्या के अंकों का योग ज्ञात करें जिसे 15, 18 तथा 24 से भाग देने पर हर बार शेषफल 8 आता है तथा यह 13 से भी विभाजित है |
SSC CPO 12 March 2019 (Morning)
(a) 17
(b) 16
(c) 15
(d) 18

Q4. Two numbers are in the ratio 4:5. If their HCF is 16, then the sum of these two numbers is:
दो संख्याएं 4 : 5 के अनुपात में हैं | यदि उनका महत्तम समापवर्तक 16 है, तो इन दो संख्याओं का योग क्या होगा ?
SSC CPO 12 March 2019 (Morning)
(a) 144
(b) 124
(c) 160
(d) 150

Q5. Two numbers are in the ratio 5 : 11. If their HCF is 24, then the sum of two these numbers is:
दो संख्याएं 5 : 11 के अनुपात में हैं | यदि उनका महत्तम समापवर्तक 24 है, तो इन दो संख्याओं का योग क्या होगा ?
SSC CPO 13 March 2019 (Morning)
(a) 384
(b) 408
(c) 120
(d) 264

Q6. What is the sum of the digits of the least number, which when divided by 15, 25 and 27 leaves the same remainder 9 in each case and is also completely divisible by 11?
उस सबसे छोटी संख्या के अंकों का योग ज्ञात करें जिसे 15, 25 और 27 से भाग देने पर हर बार शेषफल 9 आता है तथा यह 11 से भी पूर्णतया विभाजित है |
SSC CPO 13 March 2019 (Morning)
(a) 20
(b) 17
(c) 18
(d) 19

Q7. The largest number of four digits that is exactly divisible by 15, 21 and 30 is:
चार अंकों की सबसे बड़ी संख्या ज्ञात करें जो 15, 21 एवं 30 से पूर्णतः विभाजित है |
SSC CPO 16 March 2019 (Afternoon)
(a)9840
(b)9910
(c)9830
(d)9870

Q8. Four bells ring together at a certain time. After this, they rang at intervals of 6, 8, 10 and 12 seconds, respectively. After how

many minutes will they be rang together for the first time?
चार घंटियाँ एक निश्चित समय पर एक साथ बजती हैं | इसके बाद वे क्रमश : 6, 8, 10 और 12 सेकंड के अंतराल पर बजती हैं | कितने मिनटों के बाद वे फिर से पहली बार एक साथ बजेगी ?
SSC CPO 15 March 2019 (Evening)
(a) 1 Minute / मिनट
(b) $1\frac{1}{2}$ Minute / मिनट
(c) $2\frac{1}{4}$ Minute / मिनट
(d) 2 Minute / मिनट

Q9. The greatest number of 5 digits that is exactly divisible by each of 8,12,15 and 20 is:/5 अंकों की सबसे बड़ी संख्या कौन सी है जो 8, 12, 15 और 20 में से प्रत्येक से पूर्णत : विभाज्य है :
SSC CPO 15 March 2019 (Evening)
(a)99960
(b)99940
(c)99980
(d)99950

Q10. What is the HCF of $2^3 \times 3^4$ and $2^5 \times 3^2$?
$2^3 \times 3^4$ तथा $2^5 \times 3^2$ का महत्तम समापवर्तक क्या है ?
SSC MTS 2 August 2019 (Morning)
(a) $2^5 \times 3^3$
(b) $2^3 \times 3^4$
(c) $2^3 \times 3^2$
(d) $2^5 \times 3^4$

Q11. A = HCF of $\frac{3}{4}$ and $\frac{9}{16}$ and B = LCM of $\frac{16}{5}$ and $\frac{4}{25}$, then the value of A+B will be :
A $\frac{3}{4}$ तथा $\frac{9}{16}$ का महत्तम समापवर्तक (HCF) है, B $\frac{16}{5}$ तथा $\frac{4}{25}$ का लघुतम समापवर्तक (LCM) है, A + B का मान कितना है?
SSC MTS 2 August 2019 (Afternoon)
(a) $\frac{250}{81}$
(b) $\frac{70}{23}$
(c) $\frac{271}{80}$
(d) $\frac{260}{71}$

Q12. What is the largest two digit number which when divided by 6 and 5 leaves remainder 1 in each case?
दो अंकों की सबसे बड़ी संख्या ज्ञात करें जिसे 6 और 5 से विभाजित करने पर हर स्थिति में शेष फल 1 आता है |
SSC MTS 5 August 2019 (Morning)
(a) 61
(b) 93
(c) 91
(d) 97

Q13. A is the smallest three-digit number which when divided by 3,4 and 5 gives remainder 1,2 and 3 respectively. What is the sum of the digits of A ?
A वह तीन अंको की सबसे छोटी संख्या है, जो 3, 4 और 5 से विभाजित करने पर क्रमसः 1, 2 तथा 3 शेषफल देती है | A के अंको का योग कितना है?
SSC MTS 5 August 2019 (Afternoon)
(a) 11
(b) 10
(c) 6
(d) 8

Q14. What is the Highest Common Factor (H.C.F) of $\frac{7}{16}$, $\frac{21}{32}$ and $\frac{49}{8}$?
$\frac{7}{16}$, $\frac{21}{32}$ तथा $\frac{49}{8}$ का महत्तम समापवर्तक (H. C. F.) कितना है?
SSC MTS 6 August 2019 (Morning)
(a) $\frac{7}{64}$
(b) $\frac{147}{32}$
(c) $\frac{147}{8}$
(d) $\frac{7}{32}$

Q15. What is the largest number that divides 460, 491 and 553 and leaves remainder 26 in each case ?
वह सबसे बड़ी संख्या कौन सी है जो 460, 491 तथा 553 को विभाजित करती है तो प्रत्येक मामले में 26 शेष रहता है?
SSC MTS 6 August 2019 (Afternoon)
(a) 27
(b) 35
(c) 33
(d) 31

Q16. What is the least number of four digits which is exactly divisible by 2, 4, 6 and 8?
चार अंकों की वह सबसे छोटी संख्या कौन सी है जो 2, 4, 6 और 8 से पूर्णतः विभाजित है ?
SSC MTS 6 August 2019 (Evening)
(a) 1016
(b) 1024
(c) 1008
(d) 1006

Q17. What is the Least Common Multiple of all the even numbers between 5 and 13?
5 और 13 के बीच की सबसे सम संख्याओं का लघुत्तम समापवर्त्य क्या होगा ?
SSC MTS 7 August 2019 (Morning)
(a) 120
(b) 90
(c) 180
(d) 60

Q18. If the Least Common Multiple of 56, 57 and 58 is K, then what will be the Least Common Multiple of 56, 57, 58 and 59?
यदि 56, 57 और 58 का लघुत्तम समापवर्त्य K है, तो 56, 57, 58 और 59 का लघुत्तम समापवर्त्य क्या होगा ?

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SSC MTS 7 August 2019 (Afternoon)
(a) 177 K
(b) 59 K
(c) 56 K
(d) 57 K

Q19. If Least Common Multiple of 23 and 24 is A and Highest Common Factor of 23 and 24 is B, then what is the value of A+B?
यदि 23 और 24 का लघुत्तम समापवर्त्य A है और 23 तथा 24 का महत्तम समापवर्तक B है, तो A+B का मान ज्ञात करें |
SSC MTS 7 August 2019 (Evening)
(a) 451
(b) 551
(c) 553
(d) 452

Q20. What is the Highest Common Factor of 42, 168 and 210?
42, 168 तथा 210 का महत्तम समापवर्तक क्या होगा ?
SSC MTS 8 August 2019 (Afternoon)
(a) 14
(b) 21
(c) 42
(d) 7

Q21. The product of two numbers is 6845, if the HCF of the number is 37, then the greater number is:
दो संख्याओं का गुणनफल 6845 है | यदि संख्याओं का H.C.F 37 है, तो बड़ी संख्या ज्ञात करें |
SSC MTS 9 August 2019 (Morning)
(a) 111
(b) 37
(c) 148
(d) 185

Q22. If $x \times y$ denotes HCF of x and y and $x @ y$ denotes LCM of x and y, then the value of $(72 \times 84) @ 144$ is:
यदि $x \times y$, x तथा y का महत्तम समापवर्तक है और $x @ y$, x तथा y का लघुत्तम समापवर्त्य है, तो $(72 \times 84) @ 144$ का मान होगा :
SSC MTS 9 August 2019 (Afternoon)
(a) 144
(b) 504
(c) 210
(d) 420

Q23. The Highest Common Factor and Lowest Common Multiple of two numbers p and q are A and B respectively. IF A+B = p+q, then the value of $A^3 + B^3$ is :
दो संख्याओं p तथा q का महत्तम समापवर्तक (HCF) एवं लघुत्तम समापवर्तक (LCM) क्रमसः A तथा B है, यदि A+B=p+q है, तो $A^3 + B^3$ का मान है:
SSC MTS 9 August 2019 (Evening)
(a) p^3
(b) q^3
(c) $p^3 + q^3$
(d) $p^3 - q^3$

Q24. If LCM of two numbers is 231, HCF of these two numbers is 11 and the first number is 77, then find the second number.
यदि दो संख्याओं का लघुतम समापवर्तक 231 है, दोनों संख्याओं का महत्तम समापवर्तक 11 है तथा पहली संख्या 77 है, तो दूसरी संख्या है:
SSC MTS 13 August 2019 (Morning)
(a) 47
(b) 37
(c) 57
(d) 33

Q25. What is the least number of square tiles required to pave the floor of a room 15m 17 cm long and 9 m 43 cm broad?
15 मी 17 सेमी लंबे तथा 9 मी 43 सेमी चौड़े कमरे की फर्श पर बिछाने के लिए आवश्यक वर्गाकार टाइलों की न्यूनतम संख्या ज्ञात करें |
SSC MTS 13 August 2019 (Evening)
(a) 851
(b) 841
(c) 840
(d) 830

Q26. The Highest Common Factor and Lowest Common Factor of two numbers are 20 and 120. If one number is 50% more than the other number, then what is the smaller number ?
दो संख्याओं का महत्तम समापवर्तक और लघुतम समापवर्तक क्रमसः 20 और 120 है | यदि एक संख्या दूसरी संख्या से 50 % अधिक है, तो छोटी संख्या कौन सी है |
SSC MTS 14 August 2019 (Morning)
(a) 2
(b) 60
(c) 40
(d) 80

Q27. If the LCM of two numbers 390 and 420 is 5460, then the HCF of two numbers is:
यदि दो संख्याओं 390 तथा 420 का लघुत्तम समापवर्त्य 5460 है, तो इन दोनों संख्याओं का महत्तम समापवर्तक क्या होगा ?
SSC MTS 14 August 2019 (Evening)
(a) 35
(b) 45
(c) 30
(d) 42

Q28. A temple has five bells which ring at intervals of 12, 15, 16, 20 and 25 minutes respectively. If they ring together

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at midnight, then at what time next will they ring together?
.एक मंदिर में 5 घंटियाँ हैं जो क्रमशः 12, 15, 16, 20 और 25 मिनट के अंतराल पर बजती हैं | यदि वे आधी रात में एक साथ बजती हैं, तो अगली बार वे किस समय एक साथ बजेंगी ?
SSC MTS 16 August 2019 (Morning)
(a) 8:00 PM
(b) 7:00 PM
(c) 7:30 PM
(d) 8:30 PM

Q29. What is the HCF of 20, 250 and 120 ?
20, 250 तथा 120 का महत्तम समापवर्तक (HCF) कितना है?
SSC MTS 19 August 2019 (Afternoon)
(a) 15
(b) 10
(c) 25
(d) 20

Q30. What is the LCM of the HCF of $\frac{2}{3}$, $\frac{3}{4}$ and LCM of $\frac{5}{6}$, $\frac{7}{8}$?
$\frac{2}{3}$, $\frac{3}{4}$ के म. स. तथा $\frac{5}{6}$, $\frac{7}{8}$ के ल. स. का ल. स. क्या है?
SSC MTS 20 August 2019 (Evening)
(a) $\frac{1}{2}$
(b) $\frac{35}{2}$
(c) $\frac{1}{12}$
(d) $\frac{35}{12}$

Q31. If two numbers are in the ratio of 7 : 11, and their HCF is 13 then find their LCM.
यदि दो संख्याओं का अनुपात 7:11 है और उनका म. स. 13 है, तो उसका ल. स. है:
SSC MTS 21 August 2019 (Morning)
(a) 101
(b) 1001
(c) 143
(d) 234

Q32. The H.C.F and L.C.M of two numbers are 37 and 444 respectively. If the first number is 111, then the other number will be :
दो संख्याओं का महत्तम और लघुतम समापवर्तक क्रमसः 37 और 444 है | यदि पहली संख्या 111 है तो दूसरी संख्या है:
SSC MTS 21 August 2019 (Afternoon)
(a) 333
(b) 74
(c) 148
(d) 111

Q 33. What is the smallest number which when increased by 5 is divisible by 12, 18 and 30?
वह सबसे छोटी संख्या कौन सी है जिसमें 5 की वृद्धि करने पर वह 12, 18 और 30 से विभाजित हो जाती है ?
SSC MTS 2 August 2019 (Evening)
(a) 175
(b) 115
(c) 235
(d) 195

Q34. What is the largest 4-digit number that is divisible by 32, 40, 36 and 48 ?
4 अंकों की सबसे बड़ी संख्या कौन सी है, जो 32, 40, 36 तथा 48 से विभाज्य है?
SSC MTS 5 August 2019 (Evening)
(a) 9220
(b) 8820
(c) 8640
(d) 9120

Q 35. What is the largest two digit number which when divided by 6 and 7 gives remainder 3 and 4 respectively?
दो अंकों की वह सबसे बड़ी संख्या कौन सी है जिसे 6 और 7 से विभाजित करने पर शेष-फल क्रमशः 3 और 4 आता है |
SSC MTS 8 August 2019 (Morning)
(a) 81
(b) 94
(c) 83
(d) 84

Q36. If A is the smallest three digit number divisible by both 6 and 7 and B is the largest four digit number divisible by both 6 and 7, then what is the value of B-A?
यदि A , 6 और 7 दोनों से विभाजित होने वाली तीन अंकों की सबसे छोटी संख्या है तथा B , 6 और 7 दोनों से विभाजित होने वाली चार अंकों की सबसे बड़ी संख्या है, तो B-A का मान क्या होगा ?
SSC MTS 8 August 2019 (Evening)
(a) 9912
(b) 9870
(c) 9996
(d) 9954

Q37. The largest three digit number that is exactly divisible by 6, 7 and 8 is:
6,7 और 8 से विभाज्य तीन अंकों की सबसे बड़ी संख्या है :
SSC MTS 13 August 2019 (Afternoon)
(a) 999
(b) 168
(c) 358
(d) 840

Q38. What is the highest number which when divides the numbers 1026, 2052 and 4102, leaves remainders 2, 4 and 6 respectively.
वह सबसे बड़ी संख्या कौन सी है जो संख्याओं 1026, 2052 और 4102 को विभाजित करने पर शेषफल क्रमशः 2, 4 और 6 छोड़ती है ?

SSC MTS 14 August 2019 (Afternoon)
(a) 512
(b) 1024
(c) 128
(d) 256

Q39. Find the sum of digits of the largest 6-digit number that is divisible by 3, 4, 5 and 6.
3, 4, 5 और 6 द्वारा विभाजित होने वाली सबसे बड़ी 6-अंकीय संख्या के अंकों का योग कितना है?
SSC MTS 16 August 2019 (Afternoon)
(a) 45
(b) 39
(c) 48
(d) 42

Q40. Let x be the smallest number greater than 600 which gives the remainders 2, 3 and 4, when divided by 5, 6 and 7 respectively. The sum of digits of x is:
मान लीजिये कि x, 600 से बड़ी सबसे छोटी संख्या है जो 5, 6 और 7 से विभाजित होने पर शेषफल क्रमशः 2, 3 और 4 छोड़ती है | x के अंकों का जोड़ है -
SSC MTS 19 August 2019 (Evening)

(a) 14
(b) 15
(c) 13
(d) 16

Q41. When the smallest number x is divided by 5,6,8,9 and 12, it gives remainder 1 in each case. But x is divisible by 13. What will be the remainder when x will be divided by 31 ?
जब 5, 6, 8, 9 और 12 से सबसे छोटी संख्या x को विभाजित किया जाता है, तो प्रत्येक मामले में 1 शेष प्राप्त होता है, किन्तु x, 13 से विभाज्य है | जब x को 31 से विभाजित किया जाएगा तो प्राप्त शेष कितना होगा?
SSC MTS 20 August 2019 (Afternoon)
(a) 1
(b) 5
(c) 3
(d) 0

Q42. Let x be the largest 4-digit number which when divided by 7, 8 and 11 leaves remainders 4, 5 and 8 respectively. When x is divided by (7+8+11), then the remainder will be :
मान लिजिएं की x, 4 अंकों की सबसे बड़ी संख्या है, जिसे 7, 8 और 11 से विभाजित करने पर क्रमशः 4, 5 और 8 शेष बचता है | जब x को (7+8+11) से विभाजित किया जाता है, तब शेष होगा:
SSC MTS 21 August 2019 (Evening)
(a) 23
(b) 25
(c) 21
(d) 19

Q43. The difference between the two numbers is 15 and their HCF and LCM are 3 and 108 respectively. Find the difference between their inverses?
दो संख्याओं के बीच का अंतर 15 है और उनका महत्तम समापवर्तक (एच सी एफ) और लघुतम समापवर्तक (एल सी एम) क्रमश : 3 और 108 है | उनके व्युत्कर्मो के बीच अंतर ज्ञात कीजिए |
SSC MTS 16 August 2019 (Evening)
(a) $\frac{5}{54}$
(b) $\frac{5}{108}$
(c) $\frac{5}{81}$
(d) $\frac{5}{112}$

Q44. What is the greatest number which can exactly divide 192, 1056 and 1584 ?
वह सबसे बड़ी संख्या कौन सी है जो 192, 1056 तथा 1584 को पूर्णतः विभाजित कर सकती है ?
SSC MTS 19 August 2019 (Morning)
(a) 48
(b) 56
(c) 44
(d) 36

Q45. Let x and y be the 3-digit numbers such that their difference is 729 and HCF is 81. Find the value of (x+y) ? / मान लीजिए एक x और y, 3-अंको की ऐसी संख्याएँ है कि उनका अंतर 729 और महत्तम समापवर्तक 81 है | (x+y) का मान ज्ञात कीजिए ?
SSC MTS 20 August 2019 (Morning)
(a) 1053
(b) 891
(c) 1539
(d) 1377

Q 46. A, B and C are started walking from a point, Their step measure 42 cm, 56 cm, and 64 cm respectively. What is the minimum distance they should walk so that each takes exact number of steps?
A ,B और C एक बिंदु से चलना शुरू करते हैं, उनका कदम क्रमशः 42 सेमी, 56 सेमी और 64 सेमी के है। न्यूनतम दूरी क्या है जो उन्हें चलना चाहिए ताकि वे प्रत्येक सटीक संख्या में कदम उठाए?
SSC CPO 16 March 2019 (Morning)
(a) 14.58 m
(b) 15.60 m
(c) 13.44 m
(d) 14.06 m

Q47. A and B begin to move simultaneously from one point. The measurements of their cards are 72cm and 84cm respectively. The minimum distance they

travel so that the numbers of each of them are the same number :
A और B एक बिंदु से एक साथ चलना शुरू करते है | उनके कदमो की माप क्रमश : 72cm और 84cm कम है | वे न्यूनतम कितनी दूरी चले ताकि प्रत्येक के कदमो की संख्यां एक सामान संख्या हो :
SSC CPO 14 March 2019 (Evening)
(a) 6.3 m
(b) 2.7 m
(c) 3.54 m
(d) 5.04 m

SSC CGL TIER II

Q1. The HCF of two numbers is 21 and their LCM is 221 times the HCF. If one of the numbers lies between 200 and 300, then the sum of the digits of the other number is :
दो संख्याओं का HCF 21 है तथा उनका LCM, HCF से 221 गुना है | यदि उनमें से एक संख्या 200 से 300 के बीच आती है, तो दूसरी संख्या क्या है ?
SSC CGL Tier II- 12 September 2019
(a) 14
(b) 17
(c) 18
(d) 15

Q2. The LCM of two numbers x and y is 204 times their HCF. If their HCF is 12 and the difference between the numbers is 60, then x+y = ?
दो संख्याओं x और y का LCM उनके HCF से 204 गुना है | यदि उनका HCF 12 है तथा संख्याओं के बीच का अंतर 60 है, तो x+y का मान है :
SSC CGL Tier II- 13 September 2019
(a) 660
(b) 426
(c) 852
(d) 348

SSC CGL TIER I

Q1. What is the smallest integer that is divisible by 3,7 and 18?/ 3, 7 और 18 से विभाजित सबसे छोटा पूर्णांक कौन सा है ?
SSC CGL 6 March 2020 (Evening)

(a) 72
(b) 63
(c) 252
(d) 126

Q2. What is the smallest integer that is a multiple of 5,8 and 15?
वह सबसे छोटा पूर्णांक कौन सा है जो 5, 8 तथा 15 का एक गुणज है ?
SSC CGL 9 March 2020 (Morning)
(a) 40
(b) 60
(c) 600
(d) 120

SSC CGL 2019 Tier-II
Q1. When 1062, 1134 and 1182 are divided by the greatest number x, the reminder in case is y. What is the value of (x-y)?
जब 1062, 1134 और 1182 को सबसे बड़ी संख्या x से विभाजित किया जाता है, तो हर बार शेषफल y होता है। (x-y) का मान क्या ज्ञात कीजिए ?
CGL 2019 Tier-II (15-11-2020)
(a) 19
(b) 17
(c) 16
(d) 18

Q2. Let x be the greatest number which when divides 955, 1027, 1075, the remainder in each case is the same. Which of the following is NOT a factor of x?
मन ले कि x सबसे बड़ी संख्या है जो 955, 1027, 1075 को विभाजित करती है,तो प्रत्येक मामले में शेष समान है। निम्नलिखित में से कौन x का गुणनखंड नहीं है?
CGL 2019 Tier-II 16-11-2020
(a) 6
(b) 16
(c) 4
(d) 8

Q3. Find the least number which when divided by 12,18,24and 30 leaves 4 as remainder in each case, but when divided by 7 leaves no remainder.
वह सबसे कम संख्या ज्ञात करें जिसे 12,18,24 और 30 से विभाजित करने पर शेष 4 आता है , लेकिन 7 से विभाजित करने पर कोई शेष नहीं बचता है|
CGL 2019 Tier-II (18-11-2020)
(a) 634
(b) 366
(c) 364
(d) 384

SSC CPO 2019
Q4. What is the least number which when divided by 15, 18 and 36 leaves the same remainder 9 in each case and is divisible by 11?
सबसे कम संख्या क्या है जो 15, 18 और 36 से विभाजित होने पर प्रत्येक मामले में 9 शेष बचे हैं और 11 से विभाज्य हैं |
CPO 2019
23-11-2020(Morning Shift)
(a) 1269
(b) 1089
(c) 1080
(d) 1071

Q5. The least number which is exactly divisible by 5, 6, 8, 10 and 12 is :
सबसे कम संख्या जो 5, 6, 8, 10 और 12 से पूर्ण विभाज्य है:

CPO 2019 23-11-2020(Evening Shift)
(a) 240
(b) 180
(c) 150
(d) 120

Q6. The least number which is exactly divisible by 4, 5, 8, 10 and 12 is:
सबसे कम संख्या जो 4, 5, 8, 10 और 12 से पूर्ण विभाज्य है
CPO 2019
24-11-2020(Morning Shift)
(a) 240
(b) 180
(c) 120
(d) 150

Q7. The HCF of two numbers is 29, and the other two factors of their LCM are 15 and 13. The larger of two number is :
दो संख्याओं का HCF 29 है, और उनके LCM के अन्य दो गुणनखंड 15 और 13 है| दो संख्याओं में से बड़ी संख्या ज्ञात करे |
CPO 2019 24-11-2020(Evening Shift)
(a) 406
(b) 435
(c) 377
(d) 464

Q8. What is the sum of the digits of the least number which when divided by 15, 18 and 36 leaves the same reminder 9 in each case and is divisible by 11?
सबसे कम संख्या के अंकों का योग क्या है जो 15, 18 और 36 से विभाजित करने पर प्रत्येक बार में 9 ही शेष देता है और 11 से विभाजित है
CPO 2019
25-11-2020(Morning Shift)
(a) 18
(b) 16
(c) 17
(d) 15

Q9.The HCF of two numbers is 29, and the other two factors of their LCM are 15 and 13. The smaller of the two number is :
दो संख्याओं का HCF 29 है, और उनके LCM के अन्य दो गुणनखंड 15 और 13. दो संख्याओं में से छोटी संख्या ज्ञात करें |
CPO 2019 25-11-2020(Evening Shift)
(a) 406
(b) 377
(c) 435
(d) 464
SOLUTION:

Varieties Questions
Sol 1. (b)
Let the other number is n.
We know that
Product of H.C.F. and L.C.M = Product of two numbers.
$\Rightarrow 3321 = 369 \times n$
$n = 9$
$369 = 3 \times 3 \times 41$
$9 = 3 \times 3$
Clearly the HCF $= 3 \times 3 = 9$

Sol 2. (d) Ratio = 4:7
HCF = 26
Therefore, Sum = 26x(4+7) = 26x11 = 286

Sol 3. (b) LCM of (12, 16 and 54) = 432
Let the number be (432k + 7)
ATQ: For (432k+7) to be exactly divisible by 13. {429k+(3k+7)} should also be divisible by 13.
Putting the value of k=1,2,3,... in (3k+7), k=2 satisfies the equation.
Therefore, Least possible number = 871
Sum of digits = 8+7+1 = 16

Sol 4. (b) Other number = $\frac{6\times5040}{210}$ = 144

Sol 5. (a) From the given statements only option (a) is true. As LCM of two numbers is divisible by their HCF.

Sol 6. (c)
Let one number =x so other number = x+60
We know that
$168 \times 12 = x\,(x+60)$
$2016 = x^2 + 60x$
$x^2 + 60x - 2016 = 0$
$x^2 + 84x - 24x - 2016 = 0$
$(x+84)(x-24) = 0$
$x=24$
2nd number = 24+60 = 84
Required sum = 84+24 = 108
Sol 7. (a)
Let the numbers are 13x and 13y.
According to question
$13x \times 13y = 6760$
$xy = 40$
Required number of pairs are 1,40 and 5,8

Sol 8. (d)
$45360 = 36 \times LCM$
LCM = 1260

Sol 9.(c)
$24 = 2 \times 2 \times 2 \times 3$
$36 = 2 \times 2 \times 3 \times 3$
$54 = 2 \times 3 \times 3 \times 3$
LCM of these numbers $= 2 \times 2 \times 2 \times 3 \times 3 \times 3 = 216$

```
216 ) 9999 ( 46
      864
      ----
      1359
      1296
      ----
        63
```

Required number = 9999-63 = 9936

Sol 10. (b)
$432 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3$
$594 = 2 \times 3 \times 3 \times 3 \times 11$
$702 = 2 \times 3 \times 3 \times 3 \times 13$
HCF $= 2 \times 3 \times 3 \times 3 = 54$
Cans for first variety of oil = $\frac{432}{54}$ = 8

Cans for 2nd variety of oil = $\frac{594}{54}$ = 11

Cans for 3rd variety of oil = $\frac{702}{54}$ = 13

Sol 11. (a) Longest scale = HCF of (506, 345, 230) = 23cm

Practice Questions

Sol 1. (a) Sum of the numbers = 28x(6+11) = 28x17 = 476

Sol 2. (d) LCM of (15, 18 and 42) = 630
Let the number be (630k+8).
For (630k+8) to be divisible by 13, (6k+8) should be divisible by 13.
Therefore, for k=3, (6k+8) is divisible by 13.
Hence the number is 1898.
Sum of digits = 1+8+9+8 = 26

Sol 3. (a) LCM of (15, 18 and 24) = 360
Required number = 360k+8
For it to be divisible by 13.
(9k+8) should also be divisible by 13.
Therefore, for k=2, (9k+8) is divisible by 13.
Therefore, required number = 728
Sum of digits = 7+2+8 = 17

Sol4. (a) Sum of the numbers = 16x(4+5) = 16x9 =144

Sol5. (a) Sum of number = 24x(5+11) = 24x16 = 384

Sol6. (c) LCM of (15, 25 and 27) = 675
Required number = 675k+9
For (675k+9) to be divisible by 11. (4k+9) should also be divisible by 11.
At k=6, (4k+9) is divisible by 11.
Therefore, Required number = 4059
Sum of digits = 4+0+5+9 = 18

Sol 7. (d) Largest number of 4 digits = 9999
15 = 3 × 5
21 = 3 × 7
30 = 2 × 3 × 5
LCM = 2 × 3 × 5 × 7 = 210

$$\begin{array}{r|l} 210 & 9999 \;\big|\; 47 \\ & 840 \\ \hline & 1599 \\ & 1470 \\ \hline & 129 \end{array}$$

Required four digit number = 9999-129 = 9870

Sol 8. (d) LCM of (6, 8, 10, 12) = 120
Therefore, Required time = 120 s = 2 min

Sol 9. (a) LCM of (8, 12, 15 & 20) = 120
Largest number of 5 digits = 99999

$$\begin{array}{r|l} 120 & 99999 \;\big|\; 833 \\ & 960 \\ \hline & 399 \\ & 360 \\ \hline & 399 \\ & 360 \\ \hline & 39 \end{array}$$

Clearly, On dividing 99999 by 120 we get remainder 39.
Therefore, Desired number = 99999-39 = 99960

Sol 10. (c)
Lowest power of 2 is 3 and lowest power of 3 is 2 so, the highest common factor $2^3 \times 3^4$ and $2^5 \times 3^2$ is $2^3 \times 3^2$.

Sol 11. (c)
HCF of $\frac{3}{4}$ and $\frac{9}{16}$ = HCF of 3 and 9 divided by LCM of 4 and 16
HCF of 3 and 9 = 3 and LCM of 4 and 16 = 16
HCF of $\frac{3}{4}$ and $\frac{9}{16}$ = A = $\frac{3}{16}$
LCM of $\frac{16}{5}$ and $\frac{4}{25}$ = LCM of 16 and 4 divided by HCF of 5 and 25
LCM of 16 and 4 = 16
HCF of 5 and 25 = 5
LCM of $\frac{16}{5}$ and $\frac{4}{25}$ = B = $\frac{16}{5}$
⇒ A+B = $\frac{3}{16} + \frac{16}{5} = \frac{15+256}{80} = \frac{271}{80}$

Sol 12. (c)
Largest number of two digits = 99
HCF of 6 and 5 = 30

$$\begin{array}{r|l} 30 & 99 \;\big|\; 3 \\ & 90 \\ \hline & 9 \end{array}$$

⇒ Largest two digit number divisible by 30 = 99-9
Required number = 99-9+1 = 91

Sol 13. (b)
3-1 = 2, 4-2 = 2 and 5-3 = 2
Smallest number of 3 digit = 100
HCF of 3,4 and 5 = 60

$$\begin{array}{r|l} 60 & 100 \;\big|\; 1 \\ & 60 \\ \hline & 40 \end{array}$$

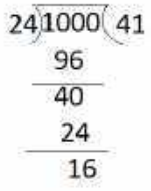
Required number = 100 + (60-40) - 2 = 118
Sum of the digits = 1+1+8 = 10

Sol 14. (d)
HCF of $\frac{7}{16}$, $\frac{21}{32}$ and $\frac{49}{8}$ = HCF of 7,21 and 49 divided by LCM of 16,32 and 8.
HCF of 7,21 and 49 = 7
LCM of 16,32 and 8 = 32
Required HCF = $\frac{7}{32}$

Sol 15.(d)
Let the required number = k
According to the question
kx + 26 = 460
⇒ kx = 434
ky + 26 = 491
⇒ ky = 465

kz + 26 = 553
⇒ kz = 527
So, k will be the HCF of 434, 465 and 527
434 = 2x7x31
465 = 3x5x31
527 = 17x31
⇒ k = 31

Sol 16. (c)
Least number of 4 digits = 1000
HCF of 2,4,6 and 8 = 24



Required number = 1000 + (24-16) = 1008

Sol 17. (a)
all the even numbers between 5 and 13 are 6,8,10 and 12.
6 = 3x2
8 = 2x2x2
10 = 2x5
12 = 2x2x3
Required LCM = 2x2x2x3x5 = 120

Sol 18. (b)
LCM of 56, 57 and 58 = K
59 is a prime number and have nothing common to 56,57 and 58.
⇒ Required LCM = 59 x k = 59k

Sol 19. (c)
LCM of 23 and 24 =A = 23 x 24 = 552
HCF of 23 and 24 = B = 1
...(23 is a prime number)
⇒ A+B = 552+1 = 553

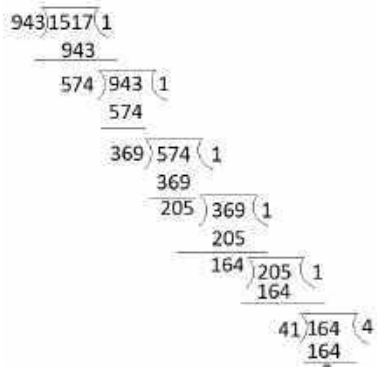
Sol 20. (c)
42 = 2x3x7
168 = 2x2x2x3x7
210 = 2x3x5x7
HCF of 42, 168 and 210 = 2x3x7 = 42
Sol 21.(d)
Let the numbers are 37x and 37y
According to the question
6845 = $37x$ x 37y
⇒ x × y = 5
Only possible factors of x and y are 1 and 5.
⇒ Greatest number = 37 x 5 = 185

Sol 22.(a)
72 = 2x2x2x3x3
84 = 2x2x3x7
HCF of 72 and 84 = 2x2x3 = 12
Now,
12 = 2x2x3
144 = 2x2x2x2x3x3
LCM of 12 and 144
=2x2x2x2x3x3 = 144

Sol 23. (c)
We know that
$A^3 + B^3 = (A+B)(A^2 + B^2 - AB)$
=
$(A+B)\{(A+B)^2 - 2AB - AB\}$
=
$(A+B)\{(A+B)^2 - 3AB\}$
……..(1)
We know that ,
HCF × LCM = $Number_1$ × $Number_2$
⇒ A × B = $p \times q$
Put the values of AB and (A+B) in equation (1)
$A^3 + B^3 = (p+q)\{(p+q)^2 - 3pq\}$
= (p+q)(
$p^2 + q^2 + 2pq - 3pq$)
= (p+q)($p^2 + q^2 - pq$)
= $p^3 + q^3$

Sol 24. (d)
Let the required number = k
According to the question
231 x 11 = 77 x k
⇒ k = $\frac{231 \times 11}{77}$ = 33

Sol 25.(a)
Length of the room = 1517 cm
Breadth of the room = 943 cm



HCF of 1517 and 943 = 41
Required number of tiles = $\frac{1517 \times 943}{41 \times 41}$ = 851

Sol 26.(c)
50% = $\frac{1}{2}$
Let the smaller number = 2x and the bigger number = 3x
According to the question
20 x 120 = $2x \times 3x$
⇒ x = 20
So, the smaller number = 2 x 20 = 40

Sol 27. (c)
Let HCF of the numbers = h
According to the question
5460 x h = 390 x 420
⇒ h = 30

Sol 28. (a)
12 = 2x2x3
15 = 3x5
16 = 2x2x2x2
20 = 2x2x5
25 = 5x5
LCM of the numbers = 2x2x2x2x3x5x5 = 1200 minutes = 20 hours
Required time = 12:00 AM + 20 hours = 8:00 PM

Sol 29.(b)
20 = 2x2x5
250 = 2x5x5x5
120 = 2x2x2x3x5
Required HCF = 2x5 = 10

Pinnacle

Sol 30. (b)
HCF of $\frac{2}{3}$, $\frac{3}{4}$ = HCF of 2 and 3 divided by LCM of 3 and 4.
HCF of 2 and 3 = 1
LCM of 3 and 4 = 12
⇒ HCF of $\frac{2}{3}$, $\frac{3}{4}$ = $\frac{1}{12}$
LCM of $\frac{5}{6}$, $\frac{7}{8}$ = LCM of 5 and 7 divided by HCF of 6 and 8.
LCM of 5 and 7 = 35
HCF of 6 and 8 = 2
⇒ LCM of $\frac{5}{6}$, $\frac{7}{8}$ = $\frac{35}{2}$
Now,
LCM of $\frac{1}{12}$, $\frac{35}{2}$ = LCM of 1 and 35 divided by HCF of 12 and 2.
LCM of 1 and 35 = 35
HCF of 12 and 2 = 2
⇒ LCM of $\frac{1}{12}$, $\frac{35}{2}$ = $\frac{35}{2}$

Sol 31.(b)
Ratio of two numbers = 7:11
HCF = 13
Required LCM = 7 x 11 x 13 = 1001

Sol 32. (c)
Let the second number = y
According to the question
37 x 444 = 111 x y
⇒ y = 148

Sol 33. (a)
12 = 2x2x3
18 = 2x3x3
30 = 2x3x5
LCM of 12, 18 and 30
=2x2x3x3x5 = 180
⇒ Required number = 180-5 = 175

Sol 34. (c)
Largest number of four digits = 9999
32 = 2x2x2x2x2
40 = 2x2x2x5
36 = 2x2x3x3
48 = 2x2x2x2x3
LCM of 32, 40, 36 and 48 = 2x2x2x2x2x3x3x5 = 1440

1440) 9999 (6
8640
1359

Required number = 9999-1359 = 8640

Sol 35. (a)
6-3 = 3 and 7-4 = 3
Largest number of two digit = 99
LCM of 6 and 7 = 6x7 = 42

42) 99 (2
84
15

Required number = 99-15-3 = 81

Sol 36. (b)
LCM of 6 and 7 = 7 x 6 = 42
Smallest number of three digits = 100

42) 100 (2
84
16

Smallest number of three digits divisible by 6 and 7 = A = 100 + (42-16) = 126
LCM of 6 and 7 = 7 x 6 = 42
Largest number of four digits = 9999

42) 9999 (238
84
159
126
339
336
3

Largest number of four digits divisible by 6 and 7 = A = 9999-3 = 9996
Required difference = B-A = 9996-126 = 9870

Sol 37.(d)
Largest three digit number = 999
6 = 2x3
7 = 1x7
8 = 2x2x2
LCM of 6, 7 and 8 = 2x2x2x3x7 = 168

168) 999 (5
840
159

The largest three digit number divisible by 6,7 and 8 = 999-159 = 840

Sol 38. (b)
Let the required number = k
According to the question
kx + 2 = 1026
⇒ kx = 1024
ky + 4 = 2052
⇒ ky = 2048
kz + 6 = 4102
⇒ kz = 4096
So, k will be the HCF of 1024, 2048 and 4096
1024 = 2^{10}
2048 = 2^{11}
4096 = 2^{12}
⇒ k = 2^{10} =1024

Sol 39. (d)
Biggest number of 6 digits = 999999
LCM of ,3,4,5,6 = 60

60) 999999 (16666
60
399
360
399
360
399
360
399
360
39

Required number = 999999-39 = 999960
Desired sum = 9+9+9+9+6+0 = 42

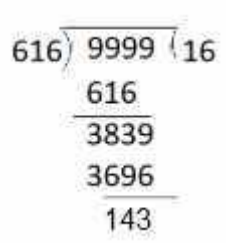
Sol 40. (b)
5-2 = 3, 6-3 = 3 and 7-4=3
LCM of 5, 6 and 7 = 210
Smallest number greater than 600 which is divisible by 5,6 and 7 = 210 x 3 = 630
Desired number = 630-3 = 627

Pinnacle

Desired sum = 6+2+7 = 15

Sol 41. (b)
LCM of 5,6,8,9,12 = 360
⇒ x = 360k+1
360k+1 will be divisible by 31 for the minimum value of k = 10
Desired number = 3601
When 3601 is divided by 31 the remainder will be 5.

Sol 42.(b)
7-4 = 3, 8-5 = 3 and 11-8 = 3
Largest number of 4 digit = 9999
LCM of 7,8 and 11 = 616



Desired number = x = 9999-143-3 = 9853
Divisor = 7+8+11 = 26
Desired remainder = $\frac{9853}{26}$ = 25

Sol 43. (b)
Let the numbers are 3k and 3m
According to the question
3k-3m = 15
⇒ $k - m = 5$ or k = 5+m
And
3 x 108 = 3k x 3m
⇒ $k.m = 36$
⇒ $m(5 + m) = 36$
⇒ $5m + m^2 - 36 = 0$
⇒ $m^2 + 9m - 4m - 36 = 0$
⇒ $m = 4$
…….$(m \neq -9)$
So, k=5+4 = 9
The two numbers will be 3(4) = 12 and 3(9) = 27
Desired difference = $\frac{1}{12} - \frac{1}{27} = \frac{5}{108}$

Sol 44. (a)
192 = 2x2x2x2x2x2x3
1056 = 2x2x2x2x2x3x11
1584 = 2x2x2x2x3x3x11
Required HCF = 2x2x2x3 = 48

Sol 45. (a)
According to the question
x-y = 729
HCF= 81
Let the numbers be 81a and 81b.
Now, 81a - 81b = 729
⇒ a - b = 9
Since, 81a < 1000
⇒ a < 12.34
a could be 10, 11 and 12
So, b could be 1, 2 and 3

If 81b > 100
⇒ b > 1.23
Hence, b could be 2 and 3.
and a could be 11 and 12.
Possible pairs of x and y = (891, 162) or (972, 243)
Since, HCF of (972, 243) = 243
Therefore, the required pair is (891, 162)
Hence, x + y = 891+162 = 1053

Sol 46. (c)
42 = 2x3x7
56 = 2x2x2x7
64 = 2x2x2x2x2
Required distance = LCM of 42,56 and 64 = 2x2x2x2x2x3x7 = 1344 cm or 13.44 meters

Sol 47. (d)
72=2x2x2x3x3
84=2x2x3x7
Required distance = LCM of (72 and 84) = 2x2x2x3x3x7 = 5.04 m

SSC CGL TIER II

Sol 1. (d)
HCF = 21
LCM = 21 x 221
Let the numbers are 21a and 21b
⇒ 21a x 21b = 21 x (21 x 221)
⇒ $a \times b = 221$
Only possible pairs of a,b are 13 and 17.
So, the numbers will be 13x21 = 273 and 17x21 = 357
Required sum = 3+5+7 = 15

Sol 2. (d)
HCF = 12
LCM = 12 x 204
According to the question
x-y = 60
And
$x \times y = 12 \text{ x } (12 \text{ x } 204)$
⇒ $(60 + y) \times y = 12 \times (12 \times 204)$
⇒ $60y + y^2 - 144 \times 204 = 0$
⇒ $y^2 + 204y - 144y - 144 \times 204 = 0$
⇒ $(y + 204)(y - 144) = 0$
⇒ $y = 144$ *and* $x = 144 + 60 = 204$
Required sum = x+y = 204+144 = 348

SSC CGL TIER I

Sol 1. (d) LCM (3,7,18) = 18 × 7 = 126

Sol 2. (d) LCM(5,8,15) = 15 × 8 = 120

SSC CGL 2019 TIER-II
Sol:1.(d)
Difference 1134-1062=72

1182-1134= 48
HCF of 72 and 48 = 24
When 1062 is divided by 24 we get reminder as = 6
24 - 6 = 18

Sol:2.(b)
Difference between 955 and 1027 = 72
Difference between 1027 and 1075 = 48
LCM of 48 and 72 = 24
When 955 is divided by 24 remainder is = 19
Multiples of 24 = 1, 2, 3, 4, 6, 8, 12, 24
So, 16 is the answer

Sol:3.(c)

LCM of 12, 18, 24 and 30 = 360
To get reminder as 4
Number = 360x + 4
Now by value putting
Starting from 1
Number = 364 (divisible by 7)
So, 364 is the answer

SSC CPO 2019

Sol:4.(b)
Least number divisible by 15 18 and 36 leaving remainder 9 will be of the form
LCM (15,18,36)×K+9 (where K can be 0,1,2,3……)
LCM will be 180 so the number will be of the form 180k+9
We have to find the number divisible by 11 so dividing (180k+9) by 11 we get
Remainder 4k+9 which should be divisible by 11
By using trial and error we found out that by putting K=6 we get 33 which is divisible by 11
So the number will be 180×6+9
1089.

Sol:5.(d)
LCM of 5, 6, 8, 10 and 12 is 120

Sol:6.(d)
LCM of 4, 5, 8, 10 and 12 is 120

Sol:7.(b)
Let the number be 29x and 29y
If, the larger factor is 15 then the number will be = 29 × 15= 435

Sol:8.(a)
Least number divisible by 15 18 and 36 leaving remainder 9 will be of the form
LCM (15,18,36)K+9 (where K can be 0,1,2,3……)
LCM will be 180 so the number will be of the form 180k+9
We have to find the number divisible by 11 so dividing (180k+9) by 11 we get
Remainder 4k+9 which should be divisible by 11
By using trial and error we found out that by putting K=6 we get 33 which is divisible by 11
So the number will be 180×6+9
1089.
Sum of digit = 18

Sol:9.(b)
Let the number be 29x and 29y
If, the smaller factor is 15 then the number will be = 29 × 13= 377

Pinnacle

SIMPLIFICATION / सरलीकरण

SQUARE ROOT / वर्गमूल

KEY POINTS / प्रमुख बिंदु :

1) $(a+b)^2 = a^2 + b^2 + 2ab$

2) $(a-b)^2 = a^2 + b^2 - 2ab$

3) $a^2 - b^2 = (a+b)(a-b)$

4) Square root of a number is a value that, when multiplied by itself, gives the given number.
किसी संख्या का वर्गमूल एक ऐसा मान होता है, जो अपने आप से गुणा करने पर, दी गयी संख्या प्रदान करता है |

Example / उदाहरण:

36 has two square roots 6 and -6; $6^2 = 36$ *and* $-6^2 = 36$, hence we write $\sqrt{36} = \pm 6$

36 के दो वर्गमूल है, 6 और -6; $6^2 = 36$ और $-6^2 = 36$, इसलिये हम लिखते हैं $\sqrt{36} = \pm 6$

5) Square root by Factorization method/ फैक्टोराइज़ेशन विधि द्वारा वर्गमूल:

Find square root of 1089./1089 का वर्गमूल खोजें|

First find the factors of 1089./ सबसे पहले 1089 के गुणांकों का पता लगाएं

3	1089
3	363
11	121
	11

$1089 = \overline{3x3}x\overline{11x11}$

$\sqrt{1089} = 3 \times 11 = 33$

6) Square root by Division method/ भाग विधि द्वारा वर्गमूल:

Find square root of 2304.

	4 8	
4	2304	Note: make group of two digits from right.
+4	16	
88	704	
	704	
	xxx	

$\sqrt{2304} = 48$

7) If $\sqrt{?} = x$, then the required number will be $= x^2$ / यदि $\sqrt{?} = x$, तो आवश्यक संख्या $= x^2$ होगी|

8) $\sqrt{a^4 \times b^4 \times c^4} = a^2b^2c^2$

9) $\sqrt{a^n \times b^m} = a^{\frac{n}{2}} \times b^{\frac{m}{2}}$

10) $\frac{\sqrt{x}}{\sqrt{y}} = \sqrt{\frac{x}{y}}$

11) $\sqrt{x} \times \sqrt{y} = \sqrt{xy}$

10) If any number ends with 1, its square root will end with 1 or, 9, given that the number is a perfect square.
अगर कोई संख्या 1 के साथ समाप्त होती है, तो इसका वर्गमूल 1 या 9 के साथ समाप्त होगा, यह देखते हुए कि संख्या एक पूर्ण वर्ग है|

Example: $\sqrt{81} = 9$, $\sqrt{121} = 11$

11) If any number ends with 4, its square root will end with 2 or, 8, given that the number is a perfect square.
अगर कोई संख्या 4 के साथ समाप्त होती है, तो इसका वर्गमूल 2 या 8 के साथ समाप्त होगा, यह देखते हुए कि संख्या एक पूर्ण वर्ग है|

Example: $\sqrt{324} = 18$, $\sqrt{124} = 12$

12) If any number ends with 5, its square root will end with 5, given that the number is a perfect square.
अगर कोई संख्या 5 के साथ समाप्त होती है, तो इसका वर्गमूल 5 के साथ समाप्त होगा, यह देखते हुए कि संख्या एक पूर्ण वर्ग है|

Example: $\sqrt{225} = 15$, $\sqrt{625} = 25$

13) If any number ends with 6, its square root will end with 6, given that the number is a perfect square.
अगर कोई संख्या 6 के साथ समाप्त होती है, तो इसका वर्गमूल 6 के साथ समाप्त होगा, यह देखते हुए कि संख्या एक पूर्ण वर्ग है|

Example: $\sqrt{256} = 16$, $\sqrt{676} = 26$

14) If any number ends with 9, its square root will end with 3 or 7, given that the number is a perfect square.
अगर कोई संख्या 9 के साथ समाप्त होती है, तो इसका वर्गमूल 3 या 7 के साथ समाप्त होगा, यह देखते हुए कि संख्या एक पूर्ण वर्ग है|

Example: $\sqrt{49} = 7$, $\sqrt{169} = 13$

15) The square of any number always ends with 0, 1, 4, 5, 6 or, 9 but will never end with 2, 3, 7 or, 8.
किसी भी संख्या का वर्ग हमेशा 0, 1, 4, 5, 6 या 9 के साथ समाप्त होता है, लेकिन 2, 3, 7 या 8 के साथ कभी खत्म नहीं होगा।

16) If in a given number, the total number of digits are n and if n is even, the square root of that number will have $\frac{n}{2}$ digits and if n is odd, then the number of digits will be $\frac{n+1}{2}$.अगर किसी दिए गए संख्या में, अंकों की कुल संख्या n है और यदि n सम है, तो उस संख्या के वर्गमूल में $\frac{n}{2}$ अंक होंगे और यदि n विषम है, तो अंकों की संख्या $\frac{n+1}{2}$ होगी|

17) $\sqrt{x\sqrt{x\sqrt{x\ldots n}}} = x^{\frac{2n-1}{2^n}}$

Example/उदाहरण:

Find the value of

$$\sqrt{2\sqrt{2\sqrt{2\sqrt{2\sqrt{2}}}}}$$

Here, n = 5, ∴

$$\sqrt{2\sqrt{2\sqrt{2\sqrt{2\sqrt{2}}}}} = 2^{\frac{2^5-1}{2^5}} = 2^{\frac{31}{32}}$$

18) $\sqrt{x\sqrt{x\sqrt{x\ldots\infty}}} = x$;

Example/उदाहरण:

$$\sqrt{7\sqrt{7\sqrt{7\ldots\infty}}} = 7$$

19) To find the value of $\sqrt{x+\sqrt{x+\sqrt{x+\ldots\infty}}}$, find the factors of x, such that the difference between the factors is 1, then the larger factor will be the result.

$\sqrt{x+\sqrt{x+\sqrt{x+\ldots\infty}}}$ के मूल्य का पता लगाने के लिए, x के गुणांकों का पता लगाएं, ऐसा कि गुणांकों के बीच का अंतर 1 है, तो बड़ा गुणांक परिणाम होगा|

20) To find the value of $\sqrt{x-\sqrt{x-\sqrt{x-\ldots\infty}}}$, find the factors of x, such that the difference between the factors is 1, then the smaller factor will be the result.

$\sqrt{x-\sqrt{x-\sqrt{x-\ldots\infty}}}$ के मूल्य का पता लगाने के लिए, x के गुणांकों का पता लगाएं, ऐसा कि गुणांकों के बीच का अंतर 1 है, तो छोटा गुणांक परिणाम होगा|

Example/उदाहरण: Find the value of $\sqrt{12+\sqrt{12+\sqrt{12+\ldots\infty}}}$

The factors of 12 with a difference of 1 are 4, 3. Here, 4 is the larger number. ∴ Value will be 4.

1 के अंतर के साथ 12 के गुणांक हैं 4, 3. यहां, 4 बड़ी संख्या है. अतः मूल्य 4 होगा|

Conventional method/ पारम्परिक विधि:

Let

$$\sqrt{12+\sqrt{12+\sqrt{12+\ldots\infty}}} = x$$

$\Rightarrow \sqrt{12+x} = x$

$\Rightarrow 12+x = x^2 \Rightarrow$

$x^2 - x - 12 = 0 \Rightarrow$

$x^2 - 4x + 3x - 12 = 0$

$\Rightarrow (x-4)(x+3) = 0 \Rightarrow$

$x = 4$ *and* $x = -3$

$\therefore x = 4$

Example/ उदाहरण:

Find the value of

$$\sqrt{30-\sqrt{30-\sqrt{30-\ldots\infty}}}$$

The factors of 30 with a difference of 1 are 5, 6. Here, 5 is the smaller number. ∴ Value will be 5.

1 के अंतर के साथ 30 के गुणांक हैं 5, 6. यहां, 5 छोटी संख्या है. अतः मूल्य 5 होगा|

21) If any number is in $\frac{1}{\sqrt{a}\pm\sqrt{b}}$ form, then we multiply by its rationalization factor $\sqrt{a}\mp\sqrt{b}$ in both numerator and denominator.

यदि कोई संख्या $\frac{1}{\sqrt{a}\pm\sqrt{b}}$ रूप में है, तब हम उसे उसके परिमेयकरण गुणांक $\sqrt{a}\mp\sqrt{b}$ से गुणा करते है|

Example / उदाहरण: Find the value of $\frac{1}{\sqrt{9}-\sqrt{8}}$;

$$\frac{1}{\sqrt{9}-\sqrt{8}} = \frac{1}{\sqrt{9}-\sqrt{8}} \times \frac{\sqrt{9}+\sqrt{8}}{\sqrt{9}+\sqrt{8}} = \frac{\sqrt{9}+\sqrt{8}}{\sqrt{9}^2-\sqrt{8}^2}$$

$$= \frac{3+2\sqrt{2}}{1} = 3+2\sqrt{2}$$

Cube and Cube Root / घन और घनमूल

KEY POINTS:/ प्रमुख बिंदु:

1) If a number is multiplied two times with itself, then the result of this multiplication is called the cube of that number.

यदि एक संख्या में दो बार अपने आप से गुणा किया जाता है, तो इस गुणन के परिणाम को उस संख्या के घन कहा जाता है।

Example/उदाहरण: $2 \times 2 \times 2 = 2^3$

Cube root of $2^3 = \sqrt[3]{2^3} = 2^{3\times\frac{1}{3}} = 2$

2) Algebraic method to calculate cube: / घन की गणना करने के लिए बीजीय विधि:

$(a+b)^3 = a^3 + 3ab(a+b) + b^3$

$(a-b)^3 = a^3 - 3ab(a-b) - b^3$

Indices and Surds/ घातांक और करणी

Key Points:/ प्रमुख बिंदु:

1) $p^m \times p^n = p^{m+n}$

2) $(p^m)^n = p^{mn}$

3) $\frac{p^m}{p^n} = p^{m-n}$

4) $(\frac{p}{q})^n = \frac{p^n}{p^n}$

5) $p^0 = 1$

6) $p^{-n} = \frac{1}{p^n}$

7) $p^{\frac{1}{m}} = \sqrt[m]{p}$

8) $\sqrt[m]{p} = p^{\frac{1}{m}}$

9) $\sqrt[m]{pq} = \sqrt[m]{p} \times \sqrt[m]{q}$

10) $\sqrt[m]{\frac{p}{q}} = \frac{\sqrt[m]{p}}{\sqrt[m]{q}}$

11) $(\sqrt[m]{p})^m = p$

Simplification / सरलीकरण

KEY POINTS:/ प्रमुख बिंदु:

1). Conversion of complex arithmetic expression into simple one is called simplification.

जटिल अंकगणितीय व्यंजक का सरल रूप में रूपांतरण सरलीकरण कहलाता है|

2). VBODMAS Rule: Vinculum > Brackets > Of > division > multiply > addition > subtraction

- First solve vinculum/ रेखाकोष्ठक i.e. bar.

  Eg: $\left(7-\overline{5-4}\right)$ =?

  First solve 5 – 4 i.e. 1 then 7 -1 = 6.
- For brackets/कोष्ठक open first small brackets (….), then {…} and then […].
- For modulus e.g. |-3| we write magnitude only not sign i.e. 3 in this case.मापांक, जैसे |-3| के लिए, हम केवल अंक लिखेंगे, ना कि उसका चिन्ह | इस स्थिति में केवल 3 लिखा जाएगा |

Important Formulas/ महत्वपूर्ण सूत्र:

1). $(a+b)^2 = a^2 + 2ab + b^2$

2). $(a-b)^2 = a^2 - 2ab + b^2$

3). $(a^2 - b^2) = (a+b)(a-b)$

4). $(a+b)^3 = a^3 + b^3 + 3ab(a+b)$

5). $(a-b)^3 = a^3 - b^3 - 3ab(a-b)$

6). $(a^3 + b^3) = (a+b)(a^2 - ab + b^2)$

7). $(a^3 - b^3) = (a-b)(a^2 + ab + b^2)$

8). $a^3 + b^3 + c^3 - 3abc$

$= (a+b+c)\left(a^2 + b^2 + c^2 - ab - bc - ca\right)$

$= \frac{1}{2}(a+b+c)[(a-b)^2 + (b-c)^2 + (c-a)^2]$

Here, if $(a+b+c) = 0$,

then $a^3 + b^3 + c^3 - 3abc = 0 \Rightarrow a^3 + b^3 + c^3 = 3abc$

9). $(a+b+c)^2$

$= \left(a^2 + b^2 + c^2\right) + 2(ab + bc + ca)$

Varieties Questions

Q1. The value of $2\times3\div2$ of $3\times2\div(4+4\times4\div4$ of $4\text{-}4\div4\times4)$ is:

$2\times3\div2$ of $3\times2\div(4+4\times4\div4$ of $4\text{-}4\div4\times4)$ का मान ज्ञात करें |

SSC CGL 4 June 2019 (Morning)

(a) 8

(b) 1

(c) 4

(d) 2

Q2. The value of

$2\frac{7}{8}\div(3\frac{5}{6}\div\frac{2}{7}of\,2\frac{1}{3})\times\left[\left(2\frac{6}{7}of\,4\frac{1}{5}\div\frac{2}{3}\right)\times\frac{5}{9}\right]$ is : /

$2\frac{7}{8}\div(3\frac{5}{6}\div\frac{2}{7}of\,2\frac{1}{3})\times\left[\left(2\frac{6}{7}of\,4\frac{1}{5}\div\frac{2}{3}\right)\times\frac{5}{9}\right]$ का मान ज्ञात करें |

SSC CGL 4 June 2019 (Evening)

(a) $\frac{1}{4}$

(b) 4

(c) $\frac{1}{23}$

(d) 5

Q3. The value of $(5+3\div5\times5)\,/\,(3\div3$ of $6)$ of $(4\times4\div4$ of $4+4\div4\times4)$ is $(5+3\div5\times5)\,/\,(3\div3$ of $6)$ of $(4\times4\div4$ of $4+4\div4\times4)$ का मान ज्ञात करें |

SSC CGL 6 June 2019 (Morning)

(a) $8\frac{1}{5}$

(b) $7\frac{1}{3}$

(c) $9\frac{3}{5}$

(d) $6\frac{2}{3}$

Q4. The simplified value of $\frac{1.0025+6.25\times10^{-6}}{0.0025+0.95}$ is:

$\frac{1.0025+6.25\times10^{-6}}{0.0025+0.95}$ सरलीकृत मान है

SSC CHSL 9 June 2019 (Evening)

(a) 1.0025

(b) 1.0525

(c) 1.0005

(d) 1.0505

Q5. The value of $5\div5$ of $5\times2+2\div2$ of 2×5 - $(5\text{-}2)\div6\times2$ is:

$5\div5$ of $5\times2+2\div2$ of 2×5 - $(5\text{-}2)\div6\times2$ का मान ज्ञात करें |

SSC CGL 4 June 2019 (Afternoon)

(a) $\frac{9}{5}$

(b) $\frac{19}{10}$

(c) 19

(d) $\frac{23}{2}$

Q6. The value of $\frac{9}{15}$ of $(\frac{2}{3}\div\frac{2}{3}\,of\,\frac{3}{2})\div(\frac{3}{4}\times\frac{3}{4}\div\frac{3}{4}\,of\,\frac{4}{3})$ of $(\frac{5}{4}\div\frac{5}{2}\times\frac{2}{5}\,of\,\frac{4}{5})$ is :

$\frac{9}{15}$ of $(\frac{2}{3}\div\frac{2}{3}\,of\,\frac{3}{2})\div(\frac{3}{4}\times\frac{3}{4}\div\frac{3}{4}\,of\,\frac{4}{3})$ of $(\frac{5}{4}\div\frac{5}{2}\times\frac{2}{5}\,of\,\frac{4}{5})$ का मान ज्ञात करें |

SSC CGL 6 June 2019 (Afternoon)

(a) $\frac{20}{9}$

(b) $\frac{4}{25}$

(c) $\frac{18}{125}$

(d) $\frac{40}{9}$

Q7. The value of $16\div4$ of $4\times[3\div4$ of $\{4\times3\div(3+3)\}]\div(2\div4$ of $8)$ is :

$16\div4$ of $4\times[3\div4$ of $\{4\times3\div(3+3)\}]\div(2\div4$ of $8)$ का मान ज्ञात करें |

SSC CGL 6 June 2019 (Evening)

(a) 6

(b) 9

(c) 48

(d) 16

Q8. The value of $\frac{8}{9}\,of\,(5\frac{1}{4}\div2\frac{1}{3}\,of\,4)\div(8\div\frac{2}{3}\,of\,\frac{4}{5})$ of $(8\times\frac{2}{3}\div\frac{4}{5})$ is

Pinnacle

$\frac{8}{9}$ *of* $(5\frac{1}{4} \div 2\frac{1}{3}$ *of* $4) \div (8 \div \frac{2}{3}$ *of* $\frac{4}{5})$ of $(8 \times \frac{2}{3} \div \frac{4}{5})$ का मान ज्ञात करें |

SSC CGL 7 June 2019 (Morning)

(a) $1\frac{1}{8}$
(b) $\frac{4}{15}$
(c) $\frac{1}{200}$
(d) $\frac{1}{100}$

Q9. The value of 4.5 - (3.2 ÷ 0.8 × 5) + 3 × 4 ÷ 6 is

4.5 - (3.2 ÷ 0.8 × 5) + 3 × 4 ÷ 6 का मान ज्ञात करें |

SSC CGL 10 June 2019 (Afternoon)

(a) -13.5
(b) 4.2
(c) -8.5
(d) 5.7

Q10. What is the simplified value of

$5 \div 10$ *of* $10 \times 4 + 4 \div 4$ *of* $4 \times 10 - (10 - 4) \div 16 \times 4$

$5 \div 10$ *of* $10 \times 4 + 4 \div 4$ *of* $4 \times 10 - (10 - 4) \div 16 \times 4$ का सरलीकृत मान है-

SSC CHSL 3 July 2019(Evening)

(a) 1.2
(b) 2.5
(c) 21
(d) 58.5

Q11. The simplified value of $\frac{(3\frac{1}{5} - \frac{3}{5}) \div \frac{8}{5}}{1\frac{1}{7} \div \{\frac{6}{7} - (\frac{1}{7} \div \frac{1}{5})\}}$ is:

$\frac{(3\frac{1}{5} - \frac{3}{5}) \div \frac{8}{5}}{1\frac{1}{7} \div \{\frac{6}{7} - (\frac{1}{7} \div \frac{1}{5})\}}$ का सरलीकृत मान है

SSC CHSL 5 July 2019(Afternoon)

(a) $\frac{13}{64}$
(b) $\frac{13}{16}$
(c) $\frac{13}{8}$
(d) $\frac{13}{7}$

Q12. $\frac{5.75 \times 5.75 \times 5.75 + 3.25 \times 3.25 \times 3.25}{57.5 \times 57.5 + 32.5 \times 32.5 - 57.5 \times 32.5}$ is equal to:

$\frac{5.75 \times 5.75 \times 5.75 + 3.25 \times 3.25 \times 3.25}{57.5 \times 57.5 + 32.5 \times 32.5 - 57.5 \times 32.5}$ किसके बराबर है ?

SSC CPO 12 March 2019 (Evening)

(a) 0.009
(b) 0.0009
(c) 0.9
(d) 0.09

Q13. Find the value of $\sqrt{4 + \sqrt{144}}$

$\sqrt{4 + \sqrt{144}}$ का मान क्या है ?

SSC CPO 14 March 2019 (Evening)

(a) 14
(b) 12.17
(c) 4
(d) 3.74

Practice Questions

Q1. The value of

$7\frac{1}{2} \times (3\frac{1}{5} \div 4\frac{1}{2}$ *of* $5\frac{1}{3}) + [11 - (\frac{5}{8} + 3 - 1\frac{1}{4})] \div 5\frac{3}{4} - 5 \div 5 \times 5$ of $5 \div 25$ is:

$7\frac{1}{2} \times (3\frac{1}{5} \div 4\frac{1}{2}$ *of* $5\frac{1}{3}) + [11 - (\frac{5}{8} + 3 - 1\frac{1}{4})] \div 5\frac{3}{4} - 5 \div 5 \times 5$ of $5 \div 25$ का मान ज्ञात करें |

SSC CGL 7 June 2019 (Afternoon)

(a) $\frac{1}{2}$
(b) $\frac{1}{10}$
(c) $\frac{3}{10}$
(d) $1\frac{1}{2}$

Q2. The value of $6 - 6 \div 6 \times 6 + (6 \div 6$ of $6) \times 6 - (3\frac{2}{3} \div \frac{11}{30}$ *of* $\frac{2}{3}) \div 5$ is :

$6 - 6 \div 6 \times 6 + (6 \div 6$ of $6) \times 6 - (3\frac{2}{3} \div \frac{11}{30}$ *of* $\frac{2}{3}) \div 5$ का मान ज्ञात करें |

SSC CGL 7 June 2019 (Evening)

(a) 0
(b) 2
(c) -1
(d) -2

Q3. The value of $\frac{3}{4} \times 2\frac{2}{3} \div \frac{5}{9}$ of $1\frac{1}{5} + \frac{2}{23} \times 3\frac{5}{6} \div \frac{2}{7}$ of $2\frac{1}{3}$ is :

$\frac{3}{4} \times 2\frac{2}{3} \div \frac{5}{9}$ of $1\frac{1}{5} + \frac{2}{23} \times 3\frac{5}{6} \div \frac{2}{7}$ of $2\frac{1}{3}$ का मान ज्ञात करें |

SSC CGL 10 June 2019 (Morning)

(a) $1\frac{5}{6}$
(b) $1\frac{2}{3}$
(c) $3\frac{1}{2}$
(d) $4\frac{5}{6}$

Q4. The value of 3.8 - (4.2 ÷ 0.7 × 3) + 5 × 2 ÷ 0.5 is

3.8 - (4.2 ÷ 0.7 × 3) + 5 × 2 ÷ 0.5 का मान ज्ञात करें |

SSC CGL 10 June 2019 (Evening)

(a) 5.8
(b) 18.4
(c) 21.8
(d) 15.6

Q5. The value of : 2.8 + (5.2 ÷ 1.3 × 2) - 6 × 3 ÷ 8 + 2

2.8 + (5.2 ÷ 1.3 × 2) - 6 × 3 ÷ 8 + 2 का मान ज्ञात करें |

SSC CGL 11 June 2019 (Morning)

(a) 6.45
(b) 4.55
(c) 8.45
(d) 10.55

Q6. The value of : 7.2 + (8.4 ÷ 0.12 × 0.2) - 5 × 3 ÷ 0.05 + 3

7.2 + (8.4 ÷ 0.12 × 0.2) - 5 × 3 ÷ 0.05 + 3 का मान ज्ञात करें |

SSC CGL 11 June 2019 (Afternoon)

(a) -75.8
(b) -275.8
(c) 21.2
(d) -175.8

Q7. The value of : 5.8 + (7.4 ÷ 3.7 × 5) - 6 × 2 ÷ 2.5

5.8 + (7.4 ÷ 3.7 × 5) - 6 × 2 ÷ 2.5 का मान ज्ञात करें |

Pinnacle

SSC CGL 11 June 2019 (Evening)
(a) 12
(b) 11
(c) 10
(d) 9

Q8. The value of: $3.8 + (8.2 \div 4.1 \times 2) - 4 \times 3 \div 1.2$
$3.8 + (8.2 \div 4.1 \times 2) - 4 \times 3 \div 1.2$ का मान ज्ञात करें |
SSC CGL 12 June 2019 (Morning)
(a) 2.2
(b) -1.2
(c) 1.2
(d) -2.2

Q9. The value of : $7.5 + (5.4 \div 4.5 \times 2) - 8 \times 4 \div 3.2$
$7.5 + (5.4 \div 4.5 \times 2) - 8 \times 4 \div 3.2$ का मान ज्ञात करें |
SSC CGL 12 June 2019 (Afternoon)
(a) 0.1
(b) -0.1
(c) -0.2
(d) 0.2

Q10. The value of : $108 \div 36 \times 4 + 2.5 \times 4 \div 0.5 - 10$
$108 \div 36 \times 4 + 2.5 \times 4 \div 0.5 - 10$ का मान ज्ञात करें |
SSC CGL 12 June 2019 (Evening)
(a) 18
(b) 16
(c) 22
(d) 20

Q11. $21.6 \div 3.6 \times 2 + 0.25 \times 16 \div 4 - 6$ is equal to:
$21.6 \div 3.6 \times 2 + 0.25 \times 16 \div 4 - 6$ का मान ज्ञात करें |
SSC CGL 13 June 2019 (Morning)
(a)6
(b)5
(c)8
(d)7

Q12. The value of $15.2 + 5.8 \div 2.9 \times 2 - 3.5 \times 2 \div 0.5$ is equal to :
$15.2 + 5.8 \div 2.9 \times 2 - 3.5 \times 2 \div 0.5$ का मान ज्ञात करें |
SSC CGL 13 June 2019 (Afternoon)
(a)4.8
(b)3.2
(c)5.2
(d)5.4

Q13. $9\frac{3}{4} \div [2\frac{1}{6} \div \{4\frac{1}{3} - (2\frac{1}{2} + \frac{3}{4})\}]$ is equal to:
$9\frac{3}{4} \div [2\frac{1}{6} \div \{4\frac{1}{3} - (2\frac{1}{2} + \frac{3}{4})\}]$ का मान ज्ञात करें |
SSC CGL 13 June 2019 (Evening)
(a) $\frac{15}{4}$
(b)3
(c) $\frac{39}{8}$
(d)4

Q14. The value of $\frac{3}{4} \div \frac{3}{4}$ of $\frac{3}{4} \times \frac{4}{3} + \frac{5}{2} \div \frac{2}{5}$ of $\frac{5}{4} - (\frac{2}{3} + \frac{2}{3}$ of $\frac{5}{6})$ is:
$\frac{3}{4} \div \frac{3}{4}$ of $\frac{3}{4} \times \frac{4}{3} + \frac{5}{2} \div \frac{2}{5}$ of $\frac{5}{4} - (\frac{2}{3} + \frac{2}{3}$ of $\frac{5}{6})$ का मान ज्ञात करें |
SSC CHSL 1 July 2019(Evening)
(a) $\frac{14}{3}$
(b) $\frac{41}{9}$
(c) $\frac{22}{3}$
(d) $\frac{50}{9}$

Q15. The value of $\frac{3\div\{5-5\div(6-7)\times8+9\}}{4+4\times4\div4 \text{ of } 4}$ is
$\frac{3\div\{5-5\div(6-7)\times8+9\}}{4+4\times4\div4 \text{ of } 4}$ का मान ज्ञात करें |
SSC CHSL 2 July 2019(Morning)
(a) $\frac{1}{45}$
(b) $\frac{1}{18}$
(c) $\frac{1}{90}$
(c) $\frac{1}{3}$

Q16. The value of $3 \times 2 \div 3$ of 12 - $3 \div 2 \times (2\text{-}3) \times 2 + 3 \div 2$ of 3 is
$3 \times 2 \div 3$ of 12 - $3 \div 2 \times (2\text{-}3) \times 2 + 3 \div 2$ of 3 का मान ज्ञात करें |
SSC CHSL 2 July 2019(Afternoon)
(a) $2\frac{1}{3}$
(b) $-2\frac{1}{3}$
(c) $-3\frac{2}{3}$
(d) $3\frac{2}{3}$

Q17. The simplified value of $3 \times 2 \div 3$ of $2 \times 3 \div (5 + 5 \times 5 \div 5$ *of* $5 - 5 \div 10$ *of* $\frac{1}{5}$ is:
$3 \times 2 \div 3$ of $2 \times 3 \div (5 + 5 \times 5 \div 5$ *of* $5 - 5 \div 10$ *of* $\frac{1}{5}$) का सरलीकृत मान है-
SSC CHSL 3 July 2019(Morning)
(a) $\frac{6}{7}$
(b) $\frac{17}{5}$
(c) $\frac{2}{3}$
(d) $\frac{30}{59}$

Q18. The simplified value of $(\frac{7}{5} \div \frac{7}{10}$ *of* $\frac{3}{4}) \div \frac{4}{9} - (\frac{7}{16} \div 10\frac{1}{2} \times 7\frac{1}{5}) \times \frac{5}{12}$ is: /
$(\frac{7}{5} \div \frac{7}{10}$ *of* $\frac{3}{4}) \div \frac{4}{9} - (\frac{7}{16} \div 10\frac{1}{2} \times 7\frac{1}{5}) \times \frac{5}{12}$ का सरलीकृत मान है-
SSC CHSL 3 July 2019(Afternoon)
(a) $\frac{47}{8}$
(b) $\frac{39}{4}$
(c) $\frac{49}{8}$
(d) $\frac{41}{4}$

Q19. The simplified value of $3 \times 6 \div 4$ *of* $6 - 6 \div 2 \times (4 - 6) + 4 - 2 \times 3 \div 6$ *of* $\frac{1}{3}$ is
$3 \times 6 \div 4$ *of* $6 - 6 \div 2 \times (4 - 6) + 4 - 2 \times 3 \div 6$ *of* $\frac{1}{3}$ का सरलीकृत मान है
SSC CHSL 4 July 2019(Morning)
(a) $1\frac{3}{4}$

(b) $7\frac{3}{4}$
(c) $13\frac{3}{4}$
(d) $8\frac{1}{3}$

Q20. The simplified value of 15 of 8 - 6 + [(27 - 3) ÷ 6 – 4] is:
15 of 8 - 6 + [(27 - 3) ÷ 6 – 4] का सरलीकृत मान है
SSC CHSL 4 July 2019(Afternoon)
(a) 114
(b) 120
(c) 124
(d) 116

Q21. The simplified value of 15 of 8 + 6 + [(27 - 3) ÷ 6 + 4] is:
15 of 8 + 6 + [(27 - 3) ÷ 6 + 4] का सरलीकृत मान है
SSC CHSL 5 July 2019(Morning)
(a) 128
(b) 134
(c) 130
(d) 136

Q22. The simplified value of $\frac{(3\frac{1}{5}+\frac{3}{5})\div\frac{8}{5}}{1\frac{1}{7}\div\{\frac{6}{7}-(\frac{1}{7}\div\frac{1}{5})\}}$ is:
$\frac{(3\frac{1}{5}+\frac{3}{5})\div\frac{8}{5}}{1\frac{1}{7}\div\{\frac{6}{7}-(\frac{1}{7}\div\frac{1}{5})\}}$ का सरलीकृत मान है
SSC CHSL 5 July 2019(Evening)
(a) $\frac{19}{7}$
(b) $\frac{19}{8}$
(c) $\frac{19}{16}$
(d) $\frac{19}{64}$

Q23. The simplified value of $\frac{(3\frac{1}{5}+\frac{3}{5})\div\frac{8}{5}}{1\frac{1}{7}\div\{\frac{5}{7}+(\frac{1}{7}\div\frac{1}{3})\}}$ is: /
$\frac{(3\frac{1}{5}+\frac{3}{5})\div\frac{8}{5}}{1\frac{1}{7}\div\{\frac{5}{7}+(\frac{1}{7}\div\frac{1}{3})\}}$ का सरलीकृत मान है
SSC CHSL 8 July 2019(Morning)
(a) $\frac{19}{8}$
(b) $\frac{19}{16}$
(c) $\frac{19}{64}$
(d) $\frac{19}{7}$

Q24. The value of $\frac{(3\frac{1}{5}+\frac{3}{5})\div\frac{8}{5}}{1\frac{1}{8}\div\{\frac{5}{8}+(\frac{1}{8}\div\frac{1}{3})\}}$ is:
$\frac{(3\frac{1}{5}+\frac{3}{5})\div\frac{8}{5}}{1\frac{1}{8}\div\{\frac{5}{8}+(\frac{1}{8}\div\frac{1}{3})\}}$ का सरलीकृत मान है
SSC CHSL 8 July 2019(Afternoon)
(a) $\frac{19}{16}$
(b) $\frac{19}{7}$
(c) $\frac{19}{9}$
(d) $\frac{19}{64}$

Q25. The simplified value of $\frac{46-\frac{3}{4}\ of\ 32-6}{37-\frac{3}{4}\ of\ (34-6)}$ is:
$\frac{46-\frac{3}{4}\ of\ 32-6}{37-\frac{3}{4}\ of\ (34-6)}$ का सरलीकृत मान है
SSC CHSL 8 July 2019(Evening)
(a) 2
(b) $\frac{19}{16}$
(c) $\frac{19}{64}$
(d) 1

Q26. The simplified value of $\frac{46-\frac{3}{4}\ of\ 32-6}{11+\frac{3}{4}\ of\ (34-6)}$ is:
$\frac{46-\frac{3}{4}\ of\ 32-6}{11+\frac{3}{4}\ of\ (34-6)}$ का सरलीकृत मान है
SSC CHSL 9 July 2019(Morning)
(a) $\frac{1}{7}$
(b) 1
(c) $\frac{1}{4}$
(d) $\frac{1}{2}$

Q27. The simplified value of $\frac{46+\frac{3}{4}\ of\ 32-6}{11+\frac{3}{4}\ of\ (34-6)}$ is:
$\frac{46+\frac{3}{4}\ of\ 32-6}{11+\frac{3}{4}\ of\ (34-6)}$ का सरलीकृत मान है
SSC CHSL 9 July 2019(Afternoon)
(a) 1
(b) $\frac{1}{4}$
(c) 2
(d) $\frac{1}{2}$

Q28. The simplified value of $2\frac{1}{3}$ of $(\frac{3}{5}\div\frac{2}{9})-(4\frac{2}{5}+\frac{19}{20}\div\frac{1}{2})$ is:
$2\frac{1}{3}$ of $(\frac{3}{5}\div\frac{2}{9})-(4\frac{2}{5}+\frac{19}{20}\div\frac{1}{2})$ का सरलीकृत मान है
SSC CHSL 9 July 2019(Evening)
(a) 0
(b) $\frac{1}{4}$
(c) $\frac{1}{2}$
(d) 1

Q29. The simplified value of $[1\frac{1}{5}\ of\ \{\frac{3}{7}-(1\frac{4}{15}-\frac{13}{15})\times\frac{5}{7}\}]\div(\frac{6}{7}\div5)$ is: /
$[1\frac{1}{5}\ of\ \{\frac{3}{7}-(1\frac{4}{15}-\frac{13}{15})\times\frac{5}{7}\}]\div(\frac{6}{7}\div5)$ का सरलीकृत मान है
SSC CHSL 10 July 2019(Morning)
(a) $\frac{2}{15}$
(b) $\frac{1}{5}$
(c) 1
(d) $\frac{4}{15}$

Q30. The simplified value of $\frac{1}{2}\ of\ \frac{8}{5}\div\{2\frac{1}{5}-(\frac{5}{16}+\frac{3}{5}\times1\frac{7}{8}\div\frac{2}{3})\}$ is:
$\frac{1}{2}\ of\ \frac{8}{5}\div\{2\frac{1}{5}-(\frac{5}{16}+\frac{3}{5}\times1\frac{7}{8}\div\frac{2}{3})\}$ का सरलीकृत मान है
SSC CHSL 10 July 2019(Afternoon)
(a) 1
(b) $\frac{2}{5}$
(c) $\frac{1}{5}$
(d) 4

Q31. The simplified value of $\frac{0.01404}{24^2+6^2-144}$ is:
$\frac{0.01404}{24^2+6^2-144}$ का सरलीकृत मान है
SSC CHSL 10 July 2019(Evening)
(a) 3×10^{-5}
(b) 6×10^{-5}
(c) 2.4×10^{-4}
(d) 3×10^{-4}

Q32. The simplified value of $\{1\frac{1}{4}$ of $(2\frac{1}{3}\div1\frac{2}{5})-1\frac{5}{12}\}+\frac{1}{9}\div2\frac{1}{3}+\frac{2}{7}+\frac{1}{6}$ is: /

Pinnacle

$\{1\frac{1}{4}$ of $(2\frac{1}{3} \div 1\frac{2}{5}) - 1\frac{5}{12}\} + \frac{1}{9} \div 2\frac{1}{3} + \frac{2}{7} + \frac{1}{6}$ का सरलीकृत मान है

SSC CHSL 11 July 2019(Morning)

(a) $\frac{7}{3}$
(b) $\frac{3}{2}$
(c) $\frac{7}{6}$
(d) 1

Q33. The value of $\frac{18.43\times18.43-6.57\times6.57}{11.86}$ is:
$\frac{18.43\times18.43-6.57\times6.57}{11.86}$ का सरलीकृत मान है |

SSC CHSL 11 July 2019 (Morning)

(a) 23.62
(b) 25
(c) 26
(d) 24.12

Q34. The simplified value of $\frac{2}{3} \div \{\frac{3}{7}\ of\ \frac{14}{5} \times 1\frac{2}{3} - (3\frac{1}{2} - 2\frac{1}{6})\}$ is:
$\frac{2}{3} \div \{\frac{3}{7}\ of\ \frac{14}{5} \times 1\frac{2}{3} - (3\frac{1}{2} - 2\frac{1}{6})\}$ का सरलीकृत मान है

SSC CHSL 11 July 2019 (Afternoon)

(a) $\frac{1}{3}$
(b) 1
(c) 2
(d) $\frac{2}{3}$

Q35. The simplified value of 20-[2.8 $\times 5 \div 0.7 - 3 \div 0.9 \times 1.5 + 2]$ is equal to:
20-[2.8 $\times 5 \div 0.7 - 3 \div 0.9 \times 1.5 + 2]$ का सरलीकृत मान है

SSC CHSL 11 July 2019(Evening)

(a) 3
(b) 3.4
(c) 3.8
(d) 3.6

Q36. $(24 \div 6 - 2) + (3 \times 2 + 4)$ is equal to-
$(24 \div 6 - 2) + (3 \times 2 + 4)$ किसके बराबर है ?

SSC CPO 16 March 2019 (Morning)

(a) 24
(b) 16
(c) 20
(d) 12

Q37. $\frac{14-6\times2}{15\div3+3}$ is equal to ?
$\frac{14-6\times2}{15\div3+3}$ का मान क्या होगा?

SSC CPO 16 March 2019 (Morning)

(a) $6\frac{2}{5}$
(b) $\frac{1}{4}$
(c) $\frac{4}{5}$
(d) 2

Q38. $5\frac{5}{6} + [2\frac{2}{3} - \{3\frac{3}{4}(3\frac{4}{5} \div 9\frac{1}{2})\}]$ is equal to:
$5\frac{5}{6} + [2\frac{2}{3} - \{3\frac{3}{4}(3\frac{4}{5} \div 9\frac{1}{2})\}]$ किसके बराबर है ?

SSC CPO 12 March 2019 (Evening)

(a) $\frac{44}{7}$
(b) 7
(c) $\frac{43}{6}$
(d) $\frac{22}{3}$

Q39. The value of $3\frac{1}{5}$ -$[2\frac{1}{2} - \{\frac{5}{6} - (\frac{2}{5} + \frac{3}{10} - \frac{4}{15})\}]$ is:
$3\frac{1}{5} - [2\frac{1}{2} - \{\frac{5}{6} - (\frac{2}{5} + \frac{3}{10} - \frac{4}{15})\}]$ का मान है :

SSC CPO 12 March 2019 (Evening)

(a) $\frac{6}{5}$
(b) $\frac{9}{10}$
(c) $\frac{11}{10}$
(d) $\frac{13}{5}$

Q40. $\frac{63.5\times63.5\times63.5+36.5\times36.5\times36.5}{6.35\times6.35+3.65\times3.65-6.35\times3.65}$ is equal to $\frac{63.5\times63.5\times63.5+36.5\times36.5\times36.5}{6.35\times6.35+3.65\times3.65-6.35\times3.65}$ किसके बराबर है ?

SSC CPO 13 March 2019 (Evening)

(a) 10,000
(b) 1,00,000
(c) 100
(d) 1,000

Q41. The value of $6\frac{1}{5}$ -$[4\frac{1}{2} - \{\frac{5}{6} - (\frac{3}{5} + \frac{3}{10} - \frac{7}{15})\}]$ is
$6\frac{1}{5}$ -$[4\frac{1}{2} - \{\frac{5}{6} - (\frac{3}{5} + \frac{3}{10} - \frac{7}{15})\}]$ का मान क्या है ?

SSC CPO 13 March 2019 (Evening)

(a) 2.5
(b) 1.8
(c) 2.1
(d) 2.8

Q42. $\frac{17}{30} + [3\frac{1}{5} - \{\frac{5}{6} - (3\frac{4}{5} \div 9\frac{1}{2})\}]$ is equal to:
$\frac{17}{30} + [3\frac{1}{5} - \{\frac{5}{6} - (3\frac{4}{5} \div 9\frac{1}{2})\}]$ किसके बराबर है ?

SSC CPO 13 March 2019 (Evening)

(a) $\frac{3}{5}$
(b) $\frac{1}{5}$
(c) $\frac{11}{3}$
(d) $\frac{10}{3}$

Q43. $\frac{675\times675\times675+325\times325\times325}{67.5\times67.5+32.5\times32.5-67.5\times32.5}$ is equal to: $\frac{675\times675\times675+325\times325\times325}{67.5\times67.5+32.5\times32.5-67.5\times32.5}$ किसके बराबर है ?

SSC CPO 12 March 2019 (Morning)

(a) 100
(b) 10,000
(c) 1,000
(d) 1,00,000

Q44. $9\frac{3}{4} \div [2\frac{1}{6} + \{4\frac{1}{3} - (2\frac{1}{2} + \frac{3}{4})\}]$ is equal to:
$9\frac{3}{4} \div [2\frac{1}{6} + \{4\frac{1}{3} - (2\frac{1}{2} + \frac{3}{4})\}]$ किसके बराबर है ?

SSC CPO 12 March 2019 (Morning)

(a) 3
(b) $\frac{15}{4}$
(c) 4
(d) $\frac{17}{4}$

Pinnacle

Q45. $4\frac{4}{5} \div \frac{3}{7}$ of $7 + \frac{4}{5} \times \frac{3}{10} - \frac{1}{5}$ is equal to:
$4\frac{4}{5} \div \frac{3}{7}$ of $7 + \frac{4}{5} \times \frac{3}{10} - \frac{1}{5}$ का मान किसके बराबर है ?
SSC CPO 12 March 2019 (Morning)
(a) $\frac{7}{5}$
(b) $\frac{8}{5}$
(c) $\frac{34}{25}$
(d) $\frac{41}{25}$

Q46. $\frac{6.75\times6.75\times6.75-4.25\times4.25\times4.25}{67.5\times67.5+42.5\times42.5+67.5\times42.5}$ is equal to :
$\frac{6.75\times6.75\times6.75-4.25\times4.25\times4.25}{67.5\times67.5+42.5\times42.5+67.5\times42.5}$ किसके बराबर है ?
SSC CPO 13 March 2019 (Morning)
(a) 2.5
(b) 0.25
(c) 0.0025
(d) 0.025

Q47. $5\frac{1}{5} - [3\frac{1}{2} - \{\frac{5}{6} - (\frac{3}{5} + \frac{1}{10} - \frac{4}{15})\}]$is equal to:
$5\frac{1}{5} - [3\frac{1}{2} - \{\frac{5}{6} - (\frac{3}{5} + \frac{1}{10} - \frac{4}{15})\}]$ का मान किसके बराबर है ?
SSC CPO 13 March 2019 (Morning)
(a) $\frac{21}{10}$
(b) $\frac{7}{5}$
(c) $\frac{7}{3}$
(d $\frac{8}{3}$

Q48. The value of $3\frac{5}{6} + [3\frac{2}{3} - \{\frac{15}{4}(5\frac{4}{5} \div 14\frac{1}{2})\}]$ is equal to:
$3\frac{5}{6} + [3\frac{2}{3} - \{\frac{15}{4}(5\frac{4}{5} \div 14\frac{1}{2})\}]$ का मान किसके बराबर है ?
SSC CPO 13 March 2019 (Morning)
(a) $\frac{37}{6}$
(b) $\frac{35}{6}$
(c) 6
(d) $\frac{19}{3}$

Q49. The value of $3 \times 3-[6-\{12+15 \div (7-2)\}]$ is equal to:
$3 \times 3-[6-\{12+15 \div (7-2)\}]$ का मान किसके बराबर है ?
SSC CPO 14 March 2019 (Morning)
(a)-15
(b)18
(c)0
(d)15

Q50. The value of $\frac{1}{3} \div \frac{5}{6} \times \frac{-5}{8}$ is equal to:
$\frac{1}{3} \div \frac{5}{6} \times \frac{-5}{8}$ का मान किसके बराबर है ?
SSC CPO 14 March 2019 (Morning)
(a)1
(b) $\frac{1}{4}$
(c) $\frac{-1}{4}$
(d)0

Q51. $3 \times 7+4-6 \div 3-7+45 \div 5 \times 4 + 49$ is equal to
$3 \times 7 + 4 - 6 \div 3 - 7 + 45 \div 5 \times 4 + 49$ किसके बराबर है ?
SSC CPO 16 March 2019 (Evening)
(a)99
(b)101
(c)103
(d)67

Q52. $(8+4-2) \times (17-12) \times 10 - 89$ is equal to:
$(8+4-2) \times (17-12) \times 10 - 89$ का मान किसके बराबर है ?
SSC CPO 16 March 2019 (Evening)
(a)413
(b)411
(c)4120
(d)4150

Q53. $\frac{0.72\times0.72\times0.72-0.39\times0.39\times0.39}{0.72\times0.72+0.72\times0.39+0.39\times0.39}$ is equal to:
$\frac{0.72\times0.72\times0.72-0.39\times0.39\times0.39}{0.72\times0.72+0.72\times0.39+0.39\times0.39}$ का मान किसके बराबर है ?
SSC CPO 16 March 2019 (Evening)
(a)0.39
(b)0.36
(c)0.33
(d)0.45

Q54. $(-4) \times (-8) \div (-2) + 3 \times 5$ is equal to:
$(-4) \times (-8) \div (-2) + 3 \times 5$ का मान किसके बराबर है ?
SSC CPO 15 March 2019 (Morning)
(a)-1
(b)1
(c) 31
(d)-31

Q55. $\frac{3}{4} + \frac{5}{2}[\frac{1}{4} \times (\frac{8}{5} - \frac{4}{3})$ is equal to: $\frac{3}{4} + \frac{5}{2}[\frac{1}{4} \times (\frac{8}{5} - \frac{4}{3})$ का मान ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a) $\frac{13}{24}$
(b) $\frac{3}{4}$
(c) $\frac{1}{4}$
(d) $\frac{11}{12}$

Q56. $15- \{5+24 \div (3 \times 9-15)\}$ is equal to:
$15- \{5+24 \div (3 \times 9-15)\}$ का मान ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a) -2
(b) $11\frac{1}{3}$
(c) $6\frac{1}{4}$
(d) 8

Q57. $(-4) \times (1020 \div 85 \times 3 - 22)$ is equal to:
$(-4) \times (1020 \div 85 \times 3 - 22)$ किसके बराबर है ?
SSC CPO 16 March 2019 (Afternoon)
(a)-402
(b)-56
(c)912
(d)72

Q58.Find the value of $\frac{3}{5} \times 4[7-\{\frac{2}{5} \times (13+2)\}]$

$\frac{3}{5} \times 4[7-\{\frac{2}{5} \times (13+2)\}]$ का मान क्या है ?

SSC CPO 14 March 2019 (Evening)

(a) 1
(b) $\frac{1}{5}$
(c) $2\frac{2}{5}$
(d) 0

Q59. Find the value of $7-\{4 \times 3 -(-10) \times 8 \div (-4)\}$
$7-\{4 \times 3 -(-10) \times 8 \div (-4)\}$ का मान क्या है ?

SSC CPO 14 March 2019 (Evening)

(a) -1
(b) 0
(c) 53
(d) 15

Q60. $10-\{17-12 \div (5+9 \times 2-17)\}$ is equal to:
$10-\{17-12 \div (5+9 \times 2-17)\}$ का मान क्या होगा ?

SSC CPO 15 March 2019 (Evening)

(a)-5
(b)5
(c)7
(d)-7

Q61. $13 \div \{4 \text{ of } 2 - 3 + 4 \times (6-4)\}$ is equal to:
$13 \div \{4 \text{ of } 2 - 3 + 4 \times (6-4)\}$ का मान क्या होगा ?

SSC CPO 15 March 2019 (Evening)

(a) $-2\frac{1}{13}$
(b)0
(c)1.3
(d)1

Q 62.Find is the value /मान ज्ञात करें :
$32 \div 4 \text{ of } 2 \times 3 + [5 \text{ of } 6 - \{7 \text{ of } 8(10 + 6 \text{ of } \frac{5}{6} \div 5 - 1) \div 80\}] - 7 \times 3 \div 2$

SSC MTS 2 August 2019 (Morning)

(a) 7.5
(b) 17.5
(c) 12.5
(d) 24.5

Q63. What is the value of / मान ज्ञात करें :
$\frac{72 \div 9 + 3 - 6 - (2 \times 3) + 5 \text{ of } 3 - (1 + 5 \times 2 - 2)}{8 \div 4 + 2 - (6 \times 8 \div 2) + (7 \times 4 - 2 \times 2)}$?

SSC MTS 2 August 2019 (Morning)

(a) $\frac{11}{4}$
(b) $\frac{5}{4}$
(c) 0
(d) $\frac{15}{4}$

Q64. What is the value of / मान ज्ञात करें:
$7 \div 2 - [3 \text{ of } 7 \div 4 \div \{(2 \div 5) \times (25 \div 8) \div (5 \div 2)\}]$

SSC MTS 2 August 2019 (Afternoon)

(a) -8
(b) -7
(c) -1
(d) -9

Q 65. Find the value / मान ज्ञात करें :
$\frac{3}{4} \text{ of } (\frac{1}{3} \div \frac{1}{2}) + (2 - \frac{2}{5}) \times \frac{3}{2} + \frac{2}{3}$

SSC MTS 2 August 2019 (Afternoon)

(a) $\frac{107}{30}$
(b) $\frac{101}{6}$
(c) $\frac{109}{17}$
(d) $\frac{103}{25}$

Q 66. What is the value of / मान ज्ञात करें : $\frac{\frac{2}{3} \text{ of } \frac{9}{4} + \frac{1}{2} \div \frac{5}{4}}{1 - \frac{1}{3} + \frac{1}{4} \times (1 + \frac{1}{3})}$?

SSC MTS 2 August 2019 (Evening)

(a) $\frac{7}{10}$
(b) $\frac{9}{19}$
(c) $\frac{19}{10}$
(d) $\frac{7}{11}$

Q67. Find the value / मान ज्ञात करें :
$\frac{3}{7} \div \frac{9}{21} + 2 - \frac{4}{3} + \frac{1}{2} \text{ of } \frac{12}{5} \times \frac{25}{18} \div \frac{5}{9}$?

SSC MTS 2 August 2019 (Evening)

(a) 2
(b) $\frac{17}{3}$
(c) $\frac{14}{3}$
(d) 4

Q68. What is the value of : $90 \times 3 \div 9 + 4 \div 2 \times 3 \text{ of } 4 \times 8 \div (18 \times 2$?
$90 \times 3 \div 9 + 4 \div 2 \times 3 \text{ of } 4 \times 8 \div (18 \times 2 - 4)$ का मान ज्ञात करें |

SSC MTS 5 August 2019 (Morning)

(a) 48
(b) 40
(c) 36
(d) 42

Q69. If $A = 40 \div 8 + 5 \times 2 - 4 + 5 \text{ of } 3$ and $B = 24 \div 4(4 + 2) + 19 \text{ of } 2$, then what is the value of A-B?
यदि $A = 40 \div 8 + 5 \times 2 - 4 + 5 \text{ of } 3$ तथा $B = 24 \div 4(4 + 2) + 19 \text{ of } 2$ है, तो A-B का मान क्या होगा ?

SSC MTS 5 August 2019 (Morning)

(a) -11
(b) 11
(c) 13
(d) -13

Q70. Find the value / मान ज्ञात करें :
$36 \div 8 \times 4 + 2 \div 4 - 1 + 5 \text{ of } 3 \div (4 \times 2 - 3) - 3$

SSC MTS 5 August 2019 (Afternoon)

(a) 18
(b) 16
(c) $\frac{35}{2}$
(d) $\frac{31}{2}$

Q71. If $A = 7 \times 3 \div (2 + 4) + 4 - 2$, $B = 3 \div 6 \times 4 + 2 - 2 \text{ of } 3$

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and $C=6\div2+4\times3-2$. Then the value of (A+B-C) is ?
यदि $A = 7\times3\div(2+4)+4-2$, $B=3\div6\times4+2-2\ of\ 3$ और $C=6\div2+4\times3-2$ है, तो (A+B+C) का मान क्या होगा ?
SSC MTS 5 August 2019 (Afternoon)
(a) $\frac{-16}{3}$
(b) $\frac{19}{2}$
(c) $\frac{-19}{2}$
(d) $\frac{16}{3}$

Q72. What is the value of : $\frac{3\ of\ 24\div8\times3+4\div2-4\times5}{36\div12\times4\div2+5\times(6-4)}$ / $\frac{3\ of\ 24\div8\times3+4\div2-4\times5}{36\div12\times4\div2+5\times(6-4)}$ का मान ज्ञात करें|
SSC MTS 5 August 2019 (Evening)
(a) $\frac{8}{15}$
(b) $\frac{9}{16}$
(c) $\frac{3}{10}$
(d) $\frac{3}{4}$

Q73. Find the value/ मान ज्ञात करें : $\frac{\frac{3}{4}\div\frac{9}{32}+\frac{4}{3}\times\frac{2}{3}\ of\ \frac{27}{16}}{\frac{1}{2}\times(\frac{8}{3}-2)\div\frac{4}{9}+(\frac{1}{3}+\frac{1}{6})}$
SSC MTS 5 August 2019 (Evening)
(a) $\frac{13}{2}$
(b) $\frac{10}{3}$
(c) $\frac{25}{2}$
(d) $\frac{31}{2}$

Q74.Find the value/ मान ज्ञात करें : $\frac{39\div26+22\div11\times2+4\times3}{2\ of\ 5-3(7+10\div2-3\times3)}$
SSC MTS 6 August 2019 (Morning)
(a) $\frac{61}{2}$
(b) $\frac{49}{2}$
(c) $\frac{39}{2}$
(d) $\frac{35}{2}$

Q75. What is the value of: $(24+16\times5-8\ of\ 4)\div84\times48\div24\times6+4+3$
$(24+16\times5-8\ of\ 4)\div84\times48\div24\times6+4+3$ का मान क्या होगा ?
SSC MTS 6 August 2019 (Morning)
(a) $\frac{139}{3}$
(b) $\frac{156}{5}$
(c) $\frac{121}{7}$
(d) $\frac{56}{3}$

Q76. What is the value of: $(3\times4\ of\ 12\div2)\div9\times4+4\div8+3\times2$
$(3\times4\ of\ 12\div2)\div9\times4+4\div8+3\times2$ का मान क्या होगा ?
SSC MTS 6 August 2019 (Afternoon)
(a) $\frac{89}{3}$
(b) $\frac{37}{2}$
(c) $\frac{94}{3}$
(d) $\frac{77}{2}$

Q77. If $A=8\div4\times(3-1)+6\times3\div2\ of\ 3$ and $B=4\div8\times2+7\times3$, then the value of A+B ?
यदि $A = 8\div4\times(3-1)+6\times3\div2\ of\ 3$ और $B=4\div8\times2+7\times3$ है, तो A+B का मान क्या होगा ?
SSC MTS 6 August 2019 (Afternoon)
(a) 29
(b) 31
(c) 33
(d) 35

Q78. What is the value of $(6\ of\ 4\div16\times48)\div8\times4+2\times3\div6+5(6-2)$?
$(6\ of\ 4\div16\times48)\div8\times4+2\times3\div6+5(6-2)$ का मान क्या होगा ?
SSC MTS 6 August 2019 (Evening)
(a) 63
(b) 79
(c) 67
(d) 57

Q79. What is the value of $\frac{3}{4}\div(\frac{1}{2}+\frac{1}{16})+\frac{2}{3}\ of\ \frac{4}{9}\div(\frac{1}{3}-\frac{11}{81})+\frac{1}{4}\times\frac{2}{3}$? /
$\frac{3}{4}\div(\frac{1}{2}+\frac{1}{16})+\frac{2}{3}\ of\ \frac{4}{9}\div(\frac{1}{3}-\frac{11}{81})+\frac{1}{4}\times\frac{2}{3}$ का मान क्या होगा ?
SSC MTS 6 August 2019 (Evening)
(a) 3
(b) 1
(c) 2
(d) 4

Q80. Find the value/ मान ज्ञात करें : $\{\frac{(0.7)^2\div0.14+(0.6)^2\div0.18+(0.5)^2\div0.05}{4(2.5\ of\ 4-13\times0.25\times3)}\}$?
SSC MTS 7 August 2019 (Morning)
(a) $\frac{25}{2}$
(b) $\frac{19}{2}$
(c) $\frac{23}{2}$
(d) $\frac{21}{2}$

Q81.Find the value/ मान ज्ञात करें : $\frac{(1-\frac{1}{4})+(\frac{1}{2}\ of\ \frac{1}{2})\div\frac{2}{5}}{\frac{2}{5}\div\frac{1}{4}+\frac{3}{2}(2-\frac{8}{5})}$?
SSC MTS 7 August 2019 (Morning)
(a) $\frac{2}{3}$
(b) $\frac{5}{8}$
(c) $\frac{4}{5}$
(d) $\frac{5}{11}$

Q82. Find the value/ मान ज्ञात करें : $(1+\frac{3}{4})\times\frac{3}{21}\ of\ 5\frac{1}{3}\div\frac{128}{49}+\frac{2}{3}\times\frac{7}{11}\times\frac{121}{49}\div(\frac{15}{14}-\frac{2}{7})$?
SSC MTS 7 August 2019 (Afternoon)
(a) $\frac{69}{25}$
(b) $\frac{62}{29}$
(c) $\frac{57}{41}$
(d) $\frac{59}{32}$

Q83. If $A=2\div3\times4$, $B=3\ of\ 4+(7-2)$ and $C=4+5-6$, then what is the value of A+B+C?
यदि $A = 2\div3\times4$, $B=3\ of\ 4+(7-2)$ और $C=4+5-6$ है, तो A+B+C का मान क्या होगा ?
SSC MTS 7 August 2019 (Afternoon)

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(a) $\frac{85}{3}$
(b) $\frac{79}{3}$
(c) $\frac{59}{3}$
(d) $\frac{68}{3}$

Q84. What is the value of/ मान ज्ञात करें : $\frac{(49-13)\times18\div9+4\times12\div6+5}{98\div14+7\times4\ of\ 6\div8+4}$?
SSC MTS 7 August 2019 (Evening)
(a) $\frac{45}{23}$
(b) $\frac{37}{18}$
(c) $\frac{85}{32}$
(d) $\frac{53}{17}$

Q85. What is the value of/ मान क्या होगा : $\frac{2\div3\times(1+3)+5-6}{2\ of\ 3\div5\times4+3-2}$?
SSC MTS 7 August 2019 (Evening)
(a) $\frac{36}{89}$
(b) $\frac{31}{73}$
(c) $\frac{25}{87}$
(d) $\frac{27}{92}$

Q86.Find the value / मान ज्ञात करें :
$2\ of\ 16\div48\times12+4\div8\times16+(7-2)\times25\div15$?
SSC MTS 8 August 2019 (Morning)
(a) $\frac{73}{3}$
(b) $\frac{59}{3}$
(c) $\frac{49}{3}$
(d) $\frac{56}{3}$

Q87. Find the value / मान ज्ञात करें :
$(\frac{1}{2}\div\frac{1}{2}\times\frac{1}{2}+\frac{1}{2}-\frac{1}{2}+\frac{1}{2}\times\frac{1}{2}\div\frac{1}{2})\ of\ (\frac{1}{2}+\frac{1}{2})$?
SSC MTS 8 August 2019 (Morning)
(a) $\frac{3}{2}$
(b) $\frac{1}{2}$
(c) 1
(d) $\frac{5}{2}$

Q88. Find the value / मान ज्ञात करें : $\frac{12\ of\ 3\div6+12\times2-(2\times4-5)}{12\div3\times4+(2\times4-5)}$?
SSC MTS 8 August 2019 (Afternoon)
(a) $\frac{27}{22}$
(b) $\frac{23}{17}$
(c) $\frac{27}{19}$
(d) $\frac{21}{9}$

Q89. Find the value / मान ज्ञात करें :
$5\ of\ 5\ of\ 5\div5+5-6\div3\times4+2+(3\div6\times2)$?
SSC MTS 8 August 2019 (Afternoon)
(a) 21
(b) 25
(c) 28
(d) 19

Q90. Find the value / मान ज्ञात करें :
$(9\div30)^2\times2.4+0.3\ of\ 12\times(1-0.3)^2+9\times(0.3)^2$?
SSC MTS 8 August 2019 (Evening)
(a) 3.43
(b) 3.69
(c) 2.79
(d) 2.17

Q91. Find the value / मान ज्ञात करें :
$2\ of\ 3\div3\times2+\{4\times3-(5\times2+3)\}$?
SSC MTS 8 August 2019 (Evening)
(a) 3
(b) -24
(c) 6
(d) -21

Q92. The value of
$99\frac{95}{99}\times99-95$ is: /
$99\frac{95}{99}\times99-95$ का मान है :
SSC MTS 9 August 2019 (Morning)
(a) 9897
(b) 9993
(c) 9999
(d) 9801

Q93. What is the value of/ मान ज्ञात करें : $\frac{0.56\times0.36+0.42\times0.32}{0.8\times0.21}$?
SSC MTS 9 August 2019 (Morning)
(a) 1
(b) $\frac{3}{2}$
(c) 3
(d) 2

Q94. Find the value of/ निम्नलिखित का मान ज्ञात करें :
$(3576+4286+6593)\div(201+105+107)$ is:
SSC MTS 9 August 2019 (Afternoon)
(a) 35
(b) 31
(c) 22
(d) 18

Q95. The value of x, $45\times x=25\%\ of\ 900$ is:
x का मान ज्ञात करें, जब $45\times x=25\%\ of\ 900$
SSC MTS 9 August 2019 (Afternoon)
(a) 16.2
(b) 4
(c) 500
(d) 5

Q96. $(x^5\div x^4)^3\div x^2=?$
SSC MTS 9 August 2019 (Evening)
(a) x^2
(b) x^3
(c) x^{-1}
(d) x

Q97. The value of x in the given equation:
दिए गए समीकरण में x का मान ज्ञात करें |
$23^2+\sqrt{x}=625$
SSC MTS 13 August 2019 (Morning)

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(a) 9576
(b) 9124
(c) 9216
(d) 9028

Q98. What is the value of: $(2\frac{1}{6} + 1\frac{13}{18} - \frac{1}{6}) \times 16 \div 4$
$(2\frac{1}{6} + 1\frac{13}{18} - \frac{1}{6}) \times 16 \div 4$ का मान क्या है ?
SSC MTS 13 August 2019 (Morning)
(a) 42
(b) $41\frac{1}{72}$
(c) $\frac{134}{9}$
(d) 63

Q99. The value of $[12 \times 5 - \{200 - (501 + 247 - 386)\}] \div 2$ is:
$[12 \times 5 - \{200 - (501 + 247 - 386)\}] \div 2$ का मान है :
SSC MTS 13 August 2019 (Afternoon)
(a) 162
(b) 161
(c) 111
(d) 82

Q100. The value of $5\frac{1}{3} \times 2\frac{1}{7} \times 9\frac{2}{5} \times 4\frac{3}{8} \times 2\frac{6}{47}$ is:
$5\frac{1}{3} \times 2\frac{1}{7} \times 9\frac{2}{5} \times 4\frac{3}{8} \times 2\frac{6}{47}$ का मान है :
SSC MTS 13 August 2019 (Afternoon)
(a) 1
(b) 1000
(c) 100
(d) 10

Q101. $\sqrt{\frac{25.60}{72.90}} + \sqrt{\frac{0.10}{8.10}} = ?$
SSC MTS 13 August 2019 (Evening)
(a) $\frac{27}{30}$
(b) $\frac{27}{20}$
(c) $\frac{19}{27}$
(d) $\frac{27}{28}$

Q102. Compute/ गणना करें :
$(15 + 3 \times 1.1) \div 0.0003$
SSC MTS 13 August 2019 (Evening)
(a) 61000
(b) 122000
(c) 16100
(d) 30500

Q103. If 7×7 *of* $3 \div 3 - 14 \times x = 7$, then x is equal to?
यदि 7×7 *of* $3 \div 3 - 14 \times x = 7$ है, तो x का मान किसके बराबर होगा ?
SSC MTS 14 August 2019 (Morning)
(a) 1
(b) 2
(c) 3
(d) 4

Q104. What is the value of (1x2+2x3-3x4+4x5-5x6+6x7)?
(1x2+2x3-3x4+4x5-5x6+6x7) का मान क्या होगा ?
SSC MTS 14 August 2019 (Afternoon)

(a) 28
(b) 25
(c) 20
(d) 24

Q105. The value of : 8 *of* $3 \div 6 + (10 + 2) \times 3 - 96 \div 3$ is:
8 *of* $3 \div 6 + (10 + 2) \times 3 - 96 \div 3$ का मान ज्ञात करें |
SSC MTS 14 August 2019 (Afternoon)
(a) 7
(b) 9
(c) 10
(d) 8

Q106. $12^2 + 16$ *of* $3 - 20 \div 4 = ?$
SSC MTS 14 August 2019 (Evening)
(a) 240
(b) 180
(c) 156
(d) 187

Q107. What is the value of the square root of:
निम्नलिखित के वर्ग मूल का मान क्या होगा ?
[{(100 *of* $0.9 \times 0.8 - 7 \times 1.2 \div 0.2 + 5 \times 4 - 3 \times 2)\} \div 10 + 1.85]$?
SSC MTS 16 August 2019 (Morning)
(a) 12.25
(b) 2.5
(c) 6.25
(d) 3.5

Q108. Find the value/ मान ज्ञात करें :
(1 x 2+3 x 4+5 x 6+7 x 8 - 9 x 10) ÷ 2 of 5 ?
SSC MTS 16 August 2019 (Morning)
(a) 1
(b) 3
(c) 2
(d) 4

Q109. If $(28 \div 4 \times 7) + (44 \div 4 \times 7) - (12 \times x) = 18$, then the value of x is:
यदि $(28 \div 4 \times 7) + (44 \div 4 \times 7) - (12 \times x) = 18$ है, तो x का मान होगा :
SSC MTS 16 August 2019 (Afternoon)
(a) 3
(b) 12
(c) 9
(d) 6

Q110. Find the value / मान ज्ञात करें:
$2 \times 2 + 4 \times 4 + 2$ *of* $3 \times 6 - 7 \times (5 + 4 \div 2)$
SSC MTS 16 August 2019 (Afternoon)
(a) 5
(b) 7
(c) 4
(d) 6

Q111.Find the value / मान ज्ञात करें:

$(0.4\ of\ 50 \times 6 \div 8) \div (12 \times 10 \div 16) + 5 \times 0.2 - 0.01 \times 10^2$

SSC MTS 16 August 2019 (Evening)

(a) 1
(b) 4
(c) 2
(d) 3

Q112. Find the value / मान ज्ञात करें:

$(2\ of\ 14 \div 7 \times 3) + (44 \div 11 \times 8) - (12 \times 9 \div 3)$

SSC MTS 16 August 2019 (Evening)

(a) 9
(b) 6
(c) 8
(d) 7

Q113. Find the value / मान ज्ञात करें:

$2 - 2 \div 2 \times 2 + 2(2\ of\ 2 - 2 - 2 \div 2)$?

SSC MTS 19 August 2019 (Morning)

(a) 4
(b) 0
(c) 2
(d) 1

Q114. Find the value / मान ज्ञात करें:

$3\frac{3}{4} - \frac{61}{122} + \frac{9}{2} \div \frac{1}{2}\ of\ \frac{4}{3}(1 + \frac{1}{3}) + \frac{1}{2} \times \frac{4}{3}$?

SSC MTS 19 August 2019 (Morning)

(a) $\frac{155}{12}$
(b) 3
(c) $\frac{163}{11}$
(d) 9

Q115. Find the value / मान ज्ञात करें: $\frac{(1-\frac{3}{4})+\frac{1}{2}\ of\ \frac{6}{10}}{\frac{2}{3} \div \frac{4}{10} + (1-\frac{1}{5})\ of\ \frac{25}{16}}$?

SSC MTS 19 August 2019 (Afternoon)

(a) $\frac{33}{175}$
(b) $\frac{49}{115}$
(c) $\frac{29}{175}$
(d) $\frac{47}{115}$

Q116. What is the value of :

$3 \div 3\ of\ 3 + 2 \div 4 + (4 \times 2 - 2) \div 12 + 4$

/

$3 \div 3\ of\ 3 + 2 \div 4 + (4 \times 2 - 2) \div 12 + 4$

का मान क्या होगा ?

SSC MTS 19 August 2019 (Afternoon)

(a) $\frac{12}{5}$
(b) $\frac{16}{3}$
(c) $\frac{14}{3}$
(d) $\frac{17}{6}$

Q117. The value of $(8 \div \frac{2}{3}\ of\ \frac{4}{5}) \div (8 \times \frac{2}{3} \div \frac{4}{5})\ of\ (8 \div \frac{2}{3} \times \frac{4}{5})$ is:

$(8 \div \frac{2}{3}\ of\ \frac{4}{5}) \div (8 \times \frac{2}{3} \div \frac{4}{5})\ of\ (8 \div \frac{2}{3} \times \frac{4}{5})$ का मान है :

SSC MTS 19 August 2019 (Evening)

(a) $21\frac{3}{5}$
(b) $7\frac{13}{16}$
(c) 1
(d) $\frac{15}{64}$

Q118. The value of $165 - [135 - \{84 \div 4\ of\ 3 - (16 - 18 \div 3)\}]$ is:

$165 - [135 - \{84 \div 4\ of\ 3 - (16 - 18 \div 3)\}]$ का मान है :

SSC MTS 19 August 2019 (Evening)

(a) 81
(b) $36\frac{1}{3}$
(c) 27
(d) 83

Q119. Find the value / मान ज्ञात करें :

$27 \times 6 \div 24 + 6 \div 2\ of\ 3 + 30 \div 24 \times 18 - 9 \div 54\ of\ 3 \times 216$

SSC MTS 20 August 2019 (Morning)

(a) -77.75
(b) 18.25
(c) -69.75
(d) 26.25

Q120.Find the value / मान ज्ञात करें :

$\frac{1}{7}\ of\ 1\frac{2}{5} \div \{5\frac{1}{2} - (\frac{5}{32} + \frac{3}{5} \times 1\frac{7}{8} \div 1\frac{1}{3}\ of\ \frac{3}{16})\}$

SSC MTS 20 August 2019 (Morning)

(a) $\frac{32}{135}$
(b) $\frac{27}{32}$
(c) $\frac{27}{160}$
(d) $\frac{6}{27}$

Q121. Find the value / मान ज्ञात करें :

$\frac{1}{4} \times \frac{3}{4} \div 1\frac{1}{4}\ of\ \frac{2}{5} - [\frac{1}{6} \div \{\frac{3}{7}\ of\ \frac{14}{5} \times 1\frac{2}{3} - (3\frac{1}{2} - 2\frac{1}{6})\}]$

SSC MTS 20 August 2019 (Afternoon)

(a) $\frac{3}{8}$
(b) $\frac{1}{8}$
(c) $\frac{2}{3}$
(d) $\frac{1}{3}$

Q122. Find the value / मान ज्ञात करें :

$4 \times 2 \div 4\ of\ (4 + 4 \div 4\ of\ 4) - (4 \div 4\ of\ 2 \times 4)$

SSC MTS 20 August 2019 (Afternoon)

(a) -1
(b) $6\frac{1}{2}$
(c) $\frac{-26}{17}$
(d) $4\frac{1}{4}$

Q123. Find the value / मान ज्ञात करें :

$26 - [(2\ of\ 6 \div 3) - 93 - \{17 - (14 - 2)\}]$

SSC MTS 20 August 2019 (Evening)

(a) 100
(b) 120
(c) 110
(d) 90

Q124. In the given equation, find the value of x?

दिए गए समीकरण में, x का मान ज्ञात करें।

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$(5)^2 + (6)^2 + (30)^2 = (x)^2$

SSC MTS 21 August 2019 (Morning)

(a) 53
(b) 37
(c) 41
(d) 31

Q125. Find the value / मान ज्ञात करें : $56 + (4)^3 - 3 \times (3)^2$

SSC MTS 21 August 2019 (Morning)

(a) 93
(b) 79
(c) 76
(d) 83

Q126. Find the value / मान ज्ञात करें : $\sqrt{3\frac{1}{16}} + \frac{1}{2} - \frac{3}{4}$

SSC MTS 21 August 2019 (Afternoon)

(a) $1\frac{3}{4}$
(b) 1
(c) $1\frac{1}{2}$
(d) $1\frac{1}{4}$

Q127. Approximate value of $(4488 \div 11.01 - 7.98) \div 15.99$ is:
$(4488 \div 11.01 - 7.98) \div 15.99$ का लगभग मान है :

SSC MTS 21 August 2019 (Afternoon)

(a) 2.5
(b) 26
(c) 25
(d) 2.6

Q128. Find the value / मान ज्ञात करें :
$7 \div 14 \text{ of } 2 - 7 \times 7 \div 49 + \frac{1}{3} \text{ of } (14 \div 7 + 7) + 7 - 14 \div 2$

SSC MTS 21 August 2019 (Evening)

(a) 3
(b) $2\frac{1}{4}$
(c) $-1\frac{1}{4}$
(d) $4\frac{1}{4}$

Q129. Simplify / सरलीकृत करें :
$6\frac{1}{8} \div (5\frac{1}{4} \div \frac{3}{7} \text{ of } \frac{1}{2}) - 8 \times \frac{2}{3} \div \frac{4}{5} \text{ of } 1\frac{2}{3}$

SSC MTS 21 August 2019 (Evening)

(a) $\frac{15}{4}$
(b) 3
(c) -3
(d) $-\frac{15}{4}$

Q130. The value of
$3 \div 21 \text{ of } 3 \times 7 + 24 \times 6 \div 18 - 3 \div 2 + 3 - 2 \times 3 \div 6$ is:
$3 \div 21 \text{ of } 3 \times 7 + 24 \times 6 \div 18 - 3 \div 2 + 3 - 2 \times 3 \div 6$ का मान है :

SSC MTS 22 August 2019 (Morning)

(a) $6\frac{1}{3}$
(b) $9\frac{1}{2}$
(c) $8\frac{5}{6}$
(d) $12\frac{1}{2}$

Q131. The value of
$3\frac{1}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3} - 2\frac{1}{3} \text{ of } \{\frac{3}{7} - (1\frac{4}{15} - \frac{13}{30}) \times 1\frac{1}{5}\}$ is:
$3\frac{1}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3} - 2\frac{1}{3} \text{ of } \{\frac{3}{7} - (1\frac{4}{15} - \frac{13}{30}) \times 1\frac{1}{5}\}$ का मान है :

SSC MTS 22 August 2019 (Morning)

(a) $1\frac{1}{3}$
(b) $1\frac{1}{6}$
(c) $1\frac{2}{15}$
(d) $1\frac{7}{15}$

Q132. The value of
$1\frac{2}{3} \div \{\frac{3}{7} \text{ of } \frac{14}{5} \times 1\frac{2}{3} - (3\frac{1}{2} - 2\frac{1}{6})\} + \frac{1}{2} \div \frac{3}{2} \text{ of } \frac{1}{2}$ is:
$1\frac{2}{3} \div \{\frac{3}{7} \text{ of } \frac{14}{5} \times 1\frac{2}{3} - (3\frac{1}{2} - 2\frac{1}{6})\} + \frac{1}{2} \div \frac{3}{2} \text{ of } \frac{1}{2}$ का मान है :

SSC MTS 22 August 2019 (Afternoon)

(a) $3\frac{1}{6}$
(b) $2\frac{1}{2}$
(c) 1
(d) $1\frac{2}{3}$

Q133. The value of
$72 \div 6 \text{ of } 12 + 4 \times (5 - 3) \text{ of } 2 \div 4 - 2$ is:
$72 \div 6 \text{ of } 12 + 4 \times (5 - 3) \text{ of } 2 \div 4 - 2$ का मान है :

SSC MTS 22 August 2019 (Afternoon)

(a) 5
(b) 4
(c) 0
(d) 3

Q134. The value of $\frac{5+2 \text{ of } 3 \div 3 \text{ of } 2 \times 3}{9+72 \div 3 - 2 \times (3-2) - 3}$ is $\frac{a}{b}$, where a and b are prime numbers. The value of (b-a) is:
$\frac{5+2 \text{ of } 3 \div 3 \text{ of } 2 \times 3}{9+72 \div 3 - 2 \times (3-2) - 3}$ का मान $\frac{a}{b}$ है, जहाँ a और b अभाज्य संख्याएँ हैं। (b-a) का मान है :

SSC MTS 22 August 2019 (Evening)

(a) 7
(b) 3
(c) 5
(d) 4

Q135. The value of
$(5\frac{1}{4} \div \frac{3}{7} \text{ of } \frac{1}{2}) \times (5\frac{1}{4} \times \frac{3}{7} \div \frac{1}{2}) \div (5\frac{1}{4} \div \frac{3}{7} \times \frac{1}{2})$ is:
$(5\frac{1}{4} \div \frac{3}{7} \text{ of } \frac{1}{2}) \times (5\frac{1}{4} \times \frac{3}{7} \div \frac{1}{2}) \div (5\frac{1}{4} \div \frac{3}{7} \times \frac{1}{2})$ का मान है :

SSC MTS 22 August 2019 (Evening)

(a) $\frac{9}{8}$
(b) $\frac{1}{18}$
(c) 18
(d) $\frac{8}{9}$

Q136. If $x = \frac{1}{12.13} + \frac{1}{13.14} + \frac{1}{14.15} \ldots + \frac{1}{23.24}$, $y = \frac{1}{36.37} + \frac{1}{37.38} + \frac{1}{38.39} \ldots + \frac{1}{71.72}$ then $\frac{x}{y}$ is equal to :
यदि $x = \frac{1}{12.13} + \frac{1}{13.14} + \frac{1}{14.15} \ldots + \frac{1}{23.24}$, $y = \frac{1}{36.37} + \frac{1}{37.38} + \frac{1}{38.39} \ldots + \frac{1}{71.72}$ है, तो $\frac{x}{y}$ का मान किसके बराबर है ?

SSC CHSL 10 July 2019 (Evening)

(a) $\frac{1}{3}$

(b) $\frac{1}{24}$

(c) $\frac{1}{72}$

(d) 3

Q137. If $(1.25)(1-6.4\times10^{-5}) = 1.2496 + a$, then a is equal to :

यदि $(1.25)(1-6.4\times10^{-5}) = 1.2496 + a$ है, तो a का मान किसके बराबर है ?

SSC CHSL 11 July 2019 (Afternoon)

(a) 0.0016

(b) 0.00016

(c) 0.0032

(d) 0.00032

SSC CGL TIER II

Q1. The value of $\frac{7+8\times8\div8\ of\ 8+8\div8\times4\ of\ 4}{4\div4\ of\ 4+4\times4\div4-4\div4\ of\ 2}$ is:

$\frac{7+8\times8\div8\ of\ 8+8\div8\times4\ of\ 4}{4\div4\ of\ 4+4\times4\div4-4\div4\ of\ 2}$ का मान है :

SSC CGL Tier II - 11 September 2019

(a) 7.8

(b) 4.6

(c) 8.7

(d) 6.4

Q2. The value of $22.\bar{4}+11.5\overline{67}-33.5\bar{9}$ is :

$22.\bar{4}+11.5\overline{67}-33.5\bar{9}$ का मान है :

SSC CGL Tier II - 11 September 2019

(a) $0.\overline{32}$

(b) $0.\overline{412}$

(c) $0.3\bar{1}$

(d) $0.4\overline{12}$

Q3. The Value of $(2\frac{6}{7}\ of 4\frac{1}{5}\div\frac{2}{3})\times1\frac{1}{9}\div(\frac{3}{4}\times2\frac{2}{3}\ of\ \frac{1}{2}\div\frac{1}{4})$ is:

$(2\frac{6}{7}\ of 4\frac{1}{5}\div\frac{2}{3})\times1\frac{1}{9}\div(\frac{3}{4}\times2\frac{2}{3}\ of\ \frac{1}{2}\div\frac{1}{4})$ का मान है :

SSC CGL Tier II - 11 September 2019

(a) 5

(b) 8

(c) $\frac{1}{8}$

(d) $\frac{1}{5}$

Q4. The value of $\frac{(253)^3+(247)^3}{25.3\times25.3-624.91+24.7\times24.7}$ is 50×10^k, where the value of k is :

$\frac{(253)^3+(247)^3}{25.3\times25.3-624.91+24.7\times24.7}$ का मान 50×10^k है, जहाँ k का मान है :

SSC CGL Tier II - 11 September 2019

(a) 3

(b) 4

(c) 2

(d) -3

Q5. If $(\sqrt{2}+\sqrt{5}-\sqrt{3})\times k = -12$, then what will be the value of k ?

यदि $(\sqrt{2}+\sqrt{5}-\sqrt{3})\times k = -12$ है, तो k का मान क्या होगा ?

SSC CGL Tier II - 11 September 2019

(a) $(\sqrt{2}+\sqrt{5}+\sqrt{3})$

(b) $(\sqrt{2}+\sqrt{5}+\sqrt{3})(2-\sqrt{10})$

(c) $(\sqrt{2}+\sqrt{5}-\sqrt{3})(2+\sqrt{5})$

(c) $(\sqrt{2}+\sqrt{5}+\sqrt{3})(2-\sqrt{5})$

Q6. The value of $(1\frac{1}{3}\div2\frac{6}{7}\ of\ 5\frac{3}{5})\div(6\frac{2}{5}\div4\frac{1}{2}\ of\ 5\frac{1}{3})\times(\frac{3}{4}\times2\frac{2}{3}\div\frac{5}{9}\ of\ 1\frac{1}{5}) = 1+k$, where k lies between:

$(1\frac{1}{3}\div2\frac{6}{7}\ of\ 5\frac{3}{5})\div(6\frac{2}{5}\div4\frac{1}{2}\ of\ 5\frac{1}{3})\times(\frac{3}{4}\times2\frac{2}{3}\div\frac{5}{9}\ of\ 1\frac{1}{5})$ का मान $1+k$ है, जहाँ k का मान किसके बीच है :

SSC CGL Tier II - 12 September 2019

(a) -0.07 and -0.06

(b) -0.08 and -0.07

(c) -0.06 and -0.05

(d) -0.05 and -0.04

Q7. The value of $\frac{(0.545)(0.081)(0.51)(5.2)}{(0.324)^3+(0.221)^3-(0.545)^3}$ is:

$\frac{(0.545)(0.081)(0.51)(5.2)}{(0.324)^3+(0.221)^3-(0.545)^3}$ का मान है :

SSC CGL Tier II - 12 September 2019

(a) -1

(b) 1

(c) 3

(d) -3

Q8. The expression $\sqrt{10+2(\sqrt{6}-\sqrt{15}-\sqrt{10})}$ is equal to :

व्यंजक $\sqrt{10+2(\sqrt{6}-\sqrt{15}-\sqrt{10})}$ किसके बराबर है ?

SSC CGL Tier II - 12 September 2019

(a) $\sqrt{3}+\sqrt{2}-\sqrt{5}$

(b) $\sqrt{3}-\sqrt{2}-\sqrt{5}$

(c) $\sqrt{3}-\sqrt{2}+\sqrt{5}$

(d) $\sqrt{2}-\sqrt{3}-\sqrt{5}$

Q9. The value of $0.5\bar{6}-0.7\overline{23}+0.3\bar{9}\times0.\bar{7}$ is :

$0.5\bar{6}-0.7\overline{23}+0.3\bar{9}\times0.\bar{7}$ का मान है :

SSC CGL Tier II - 12 September 2019

(a) $0.1\overline{54}$

(b) $0.\overline{154}$

(c) $0.\overline{158}$

(d) $0.1\overline{58}$

Q10. The value of $9\times6\div24+8\div2\ of\ 5-30\div4\ of\ 4+27\times5\div9$ is :

$9\times6\div24+8\div2\ of\ 5-30\div4\ of\ 4+27\times5\div9$ का मान है :

SSC CGL Tier II - 12 September 2019

(a) $\frac{647}{40}$

(b) $\frac{243}{8}$

Pinnacle

(c) $\frac{493}{8}$
(d) $\frac{259}{8}$

Q11. The value of $\sqrt{28+10\sqrt{3}}-\sqrt{7-4\sqrt{3}}$ is closest to:
$\sqrt{28+10\sqrt{3}}-\sqrt{7-4\sqrt{3}}$ का मान किसके निकटतम है ?
SSC CGL Tier II - 13 September 2019
(a) 7.2
(b) 6.1
(c) 6.5
(d) 5.8

Q12. The value of $0.4\overline{7}+0.5\overline{03}-0.3\overline{9}\times 0.\overline{8}$ is:
$0.4\overline{7}+0.5\overline{03}-0.3\overline{9}\times 0.\overline{8}$ का मान है :
SSC CGL Tier II - 13 September 2019
(a) $0.6\overline{15}$
(b) $0.\overline{615}$
(c) $0.62\overline{5}$
(d) $0.6\overline{25}$

Q13. The value of $\frac{2\sqrt{10}}{\sqrt{5}+\sqrt{2}-\sqrt{7}}-\sqrt{\frac{\sqrt{5}-2}{\sqrt{5}+2}}-\frac{3}{\sqrt{7}-2}$ is:
$\frac{2\sqrt{10}}{\sqrt{5}+\sqrt{2}-\sqrt{7}}-\sqrt{\frac{\sqrt{5}-2}{\sqrt{5}+2}}-\frac{3}{\sqrt{7}-2}$ का मान है :
SSC CGL Tier II - 13 September 2019
(a) $2+\sqrt{2}$
(b) $2\sqrt{5}$
(c) $\sqrt{2}$
(d) $\sqrt{7}$

Q14. Find the value / मान ज्ञात करें :
$24\times 2\div 12+12\div 6\ of\ 2\div(15\div 8\times 4)\times$ $of\ (28\div 7\ of\ 5)$ is:
SSC CGL Tier II - 13 September 2019
(a) $4\frac{1}{6}$
(b) $4\frac{8}{75}$
(c) $4\frac{2}{3}$
(d) $4\frac{32}{75}$

Q15. A student was asked to find the value of $9\frac{4}{9}\div 11\frac{1}{3}of\frac{1}{6}+(1\frac{1}{3}\times 1\frac{4}{5}\div\frac{3}{5})\times 2\frac{1}{6}of\frac{2}{3}\div\frac{4}{3}of\frac{2}{3}$. His answer was $19\frac{1}{4}$. What is the difference between his answer and the correct answer ?
किसी छात्र से $9\frac{4}{9}\div 11\frac{1}{3}of\frac{1}{6}+(1\frac{1}{3}\times 1\frac{4}{5}\div\frac{3}{5})\times 2\frac{1}{6}of\frac{2}{3}\div\frac{4}{3}of\frac{2}{3}$ का मान ज्ञात करने को कहा गया | उसका उत्तर $19\frac{1}{4}$ था | उसके उत्तर एवं सही उत्तर में क्या अंतर है ?
SSC CGL Tier II - 13 September 2019
(a) $7\frac{3}{4}$
(b) $6\frac{2}{3}$
(c) $7\frac{1}{2}$
(d) $6\frac{1}{3}$

Q16. The value of $\frac{(4.6)^4+(5.4)^4+(24.84)^2}{(4.6)^2+(5.4)^2+24.84}$ is:
$\frac{(4.6)^4+(5.4)^4+(24.84)^2}{(4.6)^2+(5.4)^2+24.84}$ का मान है :
SSC CGL Tier II - 13 September 2019
(a) 24.42
(b) 24.24
(c) 25.42
(d) 25.48

SSC CGL TIER I

Q1. If '+' means '-', '-' means '+', '×' means '÷' and '÷' means '×' then the value of $\frac{42-12\times 3+8\div 2+15}{8\times 2-4+9\div 3}$ is:
यदि '+' का अर्थ '-', '-' का अर्थ '+', '×' का अर्थ '÷' तथा '÷' का अर्थ '×' है, तो $\frac{42-12\times 3+8\div 2+15}{8\times 2-4+9\div 3}$ का मान होगा :
SSC CGL 3 March 2020 (Morning)
(a) $-\frac{5}{3}$
(b) $-\frac{15}{19}$
(c) $\frac{15}{19}$
(d) $\frac{5}{3}$

Q2. The value of $(18\div 2\ of\ \frac{1}{4})\times(\frac{2}{3}\div\frac{3}{4}\times\frac{5}{8})\div(\frac{2}{3}\div\frac{3}{4}\ of\ \frac{3}{4})$ is:
$(18\div 2\ of\ \frac{1}{4})\times(\frac{2}{3}\div\frac{3}{4}\times\frac{5}{8})\div(\frac{2}{3}\div\frac{3}{4}\ of\ \frac{3}{4})$ का मान है :
SSC CGL 3 March 2020 (Afternoon)
(a) $10\frac{2}{3}$
(b) $8\frac{5}{8}$
(c) $16\frac{7}{8}$
(d) $2\frac{7}{64}$

Q3. The value of $-\frac{5}{2}+\frac{3}{2}\div 6\times\frac{1}{2}$ is equal to:
$-\frac{5}{2}+\frac{3}{2}\div 6\times\frac{1}{2}$ का मान किसके बराबर है ?
SSC CGL 3 March 2020 (Evening)
(a) $-\frac{1}{12}$
(b) $-\frac{9}{8}$
(c) $-\frac{1}{3}$
(d) $-\frac{19}{8}$

Q4. The value of $\frac{36\div 42\ of\ 6\times 7+24\times 6\div 18+3\div(2-6)-(4+3\times 2)\div 8}{21\div 3\ of\ 7}$ is:
$\frac{36\div 42\ of\ 6\times 7+24\times 6\div 18+3\div(2-6)-(4+3\times 2)\div 8}{21\div 3\ of\ 7}$ का मान है :
SSC CGL 3 March 2020 (Evening)
(a) 7
(b) $\frac{1}{7}$
(c) $7\frac{1}{2}$
(d) $8\frac{1}{2}$

Q5. The value of $\frac{7-[4+3(2-2\times 2+5)-8]\div 5}{2\div 2\ of\ (4+4\div 4\ of\ 4)}$ is:
$\frac{7-[4+3(2-2\times 2+5)-8]\div 5}{2\div 2\ of\ (4+4\div 4\ of\ 4)}$ का मान है :
SSC CGL 4 March 2020 (Morning)
(a) 26
(b) $25\frac{1}{2}$

(c) $8\frac{1}{2}$
(d) 24

Q6. The value of $\frac{5\frac{1}{2}\div3\frac{2}{3}of\frac{1}{4}+(5\frac{1}{5}-7\frac{7}{8}\div9\frac{9}{20})\times\frac{9}{11}}{5\div5of\frac{1}{10}-10\times10\div20}$ is:
$\frac{5\frac{1}{2}\div3\frac{2}{3}of\frac{1}{4}+(5\frac{1}{5}-7\frac{7}{8}\div9\frac{9}{20})\times\frac{9}{11}}{5\div5of\frac{1}{10}-10\times10\div20}$ का मान है :
SSC CGL 4 March 2020 (Afternoon)
(a) $1\frac{4}{5}$
(b) $1\frac{9}{10}$
(c) $3\frac{4}{5}$
(d) $9\frac{1}{2}$

Q7. The value of $\frac{8\div[(8-3)\div\{(4\div4\ of\ 8)+4-4\times4\div8\}-2]}{8\times8\div4-8\div8\ of\ 2-7}$ is:
$\frac{8\div[(8-3)\div\{(4\div4\ of\ 8)+4-4\times4\div8\}-2]}{8\times8\div4-8\div8\ of\ 2-7}$ का मान है :
SSC CGL 4 March 2020 (Evening)
(a) $\frac{17}{8}$
(b) $\frac{8}{3}$
(c) $\frac{16}{170}$
(d) $\frac{2}{17}$

Q8. The value of $\frac{3\frac{2}{3}\div\frac{11}{30}of\frac{2}{3}-\frac{1}{4}of2\frac{1}{2}\div\frac{3}{5}\times4\frac{4}{5}}{\frac{2}{5}of7\frac{1}{2}\div\frac{3}{4}-\frac{3}{4}\times1\frac{1}{2}\div2\frac{1}{4}}$ is:
$\frac{3\frac{2}{3}\div\frac{11}{30}of\frac{2}{3}-\frac{1}{4}of2\frac{1}{2}\div\frac{3}{5}\times4\frac{4}{5}}{\frac{2}{5}of7\frac{1}{2}\div\frac{3}{4}-\frac{3}{4}\times1\frac{1}{2}\div2\frac{1}{4}}$ का मान है :
SSC CGL 5 March 2020 (Morning)
(a) $2\frac{6}{7}$
(b) $3\frac{4}{7}$
(c) $2\frac{2}{9}$
(d) $\frac{10}{21}$

Q9. The value of $\frac{3}{5}\times1\frac{7}{8}\div1\frac{1}{3}of\ \frac{3}{16}-(3\frac{1}{5}\div4\frac{1}{2}of\ 5\frac{1}{3})\times2\frac{1}{2}+\frac{1}{2}+\frac{1}{8}\div\frac{1}{4}$ is:
$\frac{3}{5}\times1\frac{7}{8}\div1\frac{1}{3}of\ \frac{3}{16}-(3\frac{1}{5}\div4\frac{1}{2}of\ 5\frac{1}{3})\times2\frac{1}{2}+\frac{1}{2}+\frac{1}{8}\div\frac{1}{4}$ का मान है :
SSC CGL 5 March 2020 (Afternoon)
(a) $4\frac{1}{3}$
(b) $5\frac{5}{6}$
(c) $5\frac{1}{6}$
(d) $4\frac{1}{8}$

Q10. The value of $-1+\frac{1}{4}\div\frac{1}{2}\times2+5$ is:
$-1+\frac{1}{4}\div\frac{1}{2}\times2+5$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Evening)
(a) 2
(b) 5
(c) $\frac{17}{4}$
(d) $-\frac{7}{2}$

Q11. If '+' means '-', '-' means '+', '×' means '÷' and '÷' means '×', then the value of $\frac{[(30\times5)+(84\times6)]\div5}{[\frac{2}{3}\div18]-[4\div2]}$ is:
यदि + का अर्थ '-' है, '-' का अर्थ '+' है, 'x' का अर्थ '÷' है तथा '÷' का अर्थ 'x' है, तो $\frac{[(30\times5)+(84\times6)]\div5}{[\frac{2}{3}\div18]-[4\div2]}$ का मान क्या होगा ?
SSC CGL 6 March 2020 (Morning)
(a) 1
(b) -2
(c) 2
(d) -1

Q12. Solve the following/ हल कीजिए :
$\frac{4}{3}\div\frac{1}{6}\times2-1=?$
SSC CGL 6 March 2020 (Afternoon)
(a) 8
(b) -2
(c) 3
(d) 15

Q13. Solve the following/ हल कीजिए :
$113\times87=?$
SSC CGL 6 March 2020 (Afternoon)
(a) 10000
(b) 10169
(c) 10026
(d) 9831

Q14. The value of $\frac{[54-(5\div2)\times8]+13}{48-4\div3\times8-2}$ is:
$\frac{[54-(5\div2)\times8]+13}{48-4\div3\times8-2}$ का मान क्या होगा ?
SSC CGL 6 March 2020 (Evening)
(a) $\frac{141}{106}$
(b) $\frac{141}{127}$
(c) $\frac{89}{106}$
(d) $\frac{89}{127}$

Q15. The value of 151^2-149^2 is:
151^2-149^2 का मान है :
SSC CGL 7 March 2020 (Morning)
(a) 300
(b) 400
(c) 2^2
(d) 600

Q16. The value of $3-(9-3\times8\div2)$ is:
$3-(9-3\times8\div2)$ का मान क्या होगा ?
SSC CGL 7 March 2020 (Morning)
(a) -21
(b) $\frac{21}{2}$
(c) 0
(d) 6

Q17. The value of $1\frac{1}{8}\div(4\frac{1}{4}\div\frac{3}{5}of\ 8\frac{1}{2})-\frac{2}{5}\times1\frac{1}{3}\div\frac{4}{5}$ of $1\frac{2}{3}+\frac{11}{20}$ is:
$1\frac{1}{8}\div(4\frac{1}{4}\div\frac{3}{5}of\ 8\frac{1}{2})-\frac{2}{5}\times1\frac{1}{3}\div\frac{4}{5}$ of $1\frac{2}{3}+\frac{11}{20}$ का मान होगा :
SSC CGL 7 March 2020 (Afternoon)
(a) $3\frac{1}{2}$
(b) $1\frac{1}{2}$
(c) $1\frac{1}{4}$
(d) $3\frac{1}{8}$

Q18. Solve the following expression/ निम्नलिखित व्यंजक को हल कीजिए :
$5.6-\{2+0.6\ of\ (2.1-2.6\times1.12)\}$
SSC CGL 7 March 2020 (Evening)

(a) 4.0871
(b) 4.0872
(c) 7.7112
(d) 7.7113

Q19. The value of $1800 \div 20 \times \{(12-6)+(24-12)\}$ is:
$1800 \div 20 \times \{(12-6)+(24-12)\}$ का मान क्या होगा ?
SSC CGL 9 March 2020 (Morning)
(a) 2720
(b) 1720
(c) 840
(d) 1620

Q20. Solve the following expression/ निम्नलिखित व्यंजक को हल कीजिए
$11+11 \times 11-11 \div 11$
SSC CGL 9 March 2020 (Afternoon)
(a) 121
(b) 22
(c) 11
(d) 131

Q21. The value of 515×485 is:
515×485 का मान है :
SSC CGL 9 March 2020 (Evening)
(a) 249775
(b) 250225
(c) 20825
(d) 200825

Q22. The value of $(26-13 \times 2) \div 2+1$ is:
$(26-13 \times 2) \div 2+1$ का मान है :
SSC CGL 9 March 2020 (Evening)
(a) 0
(b) 1
(c) $\frac{26}{3}$
(d) 14

SSC CHSL 2019

Q1. What is the value of the following?
निम्नलिखित का मान क्या है ?
$-15 + 90 \div [89 - \{9 \times 8 + (33 - 3 \times 7)\}]$
CHSL 12-10-2020 (morning shift)
(a) 3
(b) 2
(c) 4
(d) 5

Q2. Find the value of $2.1 + 2.25 \div [63 - \{7.5 \times 8 + (13 - 2.5 \times 5)\}]$.
$2.1 + 2.25 \div [63 - \{7.5 \times 8 + (13 - 2.5 \times 5)\}]$ का मान ज्ञात कीजिए।
CHSL 12-10-2020 (Afternoon shift)
(a) 2.8
(b) 2.9
(c) 3.0
(d) 3.1

Q3. The value of $[0.9-\{2.3-3.2-(7.1 - 5.4 - 3.5)\}]$ is:
$[0.9-\{2.3-3.2-(7.1 - 5.4 - 3.5)\}]$ का मान है:
CHSL 12-10-2020 (Evening shift)
(a) 0
(b) 1.8
(c) 2.6
(d) 0.18

Q4.If the following interchanges are made in signs and numbers, which equation would be correct? / चिन्हों और अंकों को बदलने पर निम्नलिखित में से कौन सा समीकरण सबसे उचित है ?
Interchanges:
Signs: ÷ and -
Numbers: 15 and 5
CHSL 13-10-2020 (Morning Shift)
(a) $4 \times 30 - 15 \div 5 + 12 = 21$
(b) $12 \times 30 - 15 \div 5 + 4 = 37$
(c) $4 \times 30 - 15 \div 5 + 12 = 27$
(d) $4 \times 30 - 5 \div 15 + 14 = 21$

Q5. Evaluate/ हल कीजिए:
$45 - 5$ of $(6.3 \div 9) + 7 \times 0.5$
CHSL 13-10-2020 (Afternoon Shift)
(a) 40
(b) 45
(c) 50
(d) 42

Q6.The value of $(72 + 34) \div 2 + [\{75 \div 15) + 6\} \times 2]$ is:
$(72 + 34) \div 2 + [\{75 \div 15) + 6\} \times 2]$ का मान क्या होगा ?
CHSL 13-10-2020 (Evening Shift)
(a)74
(b)75
(c)86
(d)78

Q7. If '+' means '÷'; '×' means '+'; '÷' means '-' and '-' means '×'. Then what will be the value of the following expression? / यदि '+' का अर्थ '÷', '÷' का अर्थ '-', '×' का अर्थ '+' और '-' का अर्थ '×' है ; तो निम्लिखित व्यंजक का क्या निष्कर्ष होगा ?
CHSL 14-10-2020 (Morning shift)
$18 + 3 - 5 \times 6 \div 4$
(a) 30
(b) 32
(c) 15.5
(d) 13.5

Q8. The value of $4 + [3\{35 + (42 + 10 \div 2 \times 3 - 40)\} + 7]$ is :
$4 + [3\{35 + (42 + 10 \div 2 \times 3 - 40)\} + 7]$ का मान है:
CHSL 14-10-2020 (Morning shift)
(a) 157
(b) 167
(c) 185
(d) 163

Pinnacle

Q9. The value of $5\sqrt{3}+7\sqrt{2}-\sqrt{6}-\frac{23}{\sqrt{2}+\sqrt{3}+\sqrt{6}}$ is:

$5\sqrt{3}+7\sqrt{2}-\sqrt{6}-\frac{23}{\sqrt{2}+\sqrt{3}+\sqrt{6}}$ का मान क्या होगा ?

CHSL 14-10-2020 (Afternoon shift)

(a) 0
(b) 16
(c) 12
(d) 10

Q10. The value of $[5\frac{4}{9}\div(\frac{11}{4}-\frac{13}{6})^2]\div[7\frac{3}{11}\,of\,8\frac{4}{5}\div1\frac{5}{7}-\frac{4}{3}]^2$ is:

$[5\frac{4}{9}\div(\frac{11}{4}-\frac{13}{6})^2]\div[7\frac{3}{11}\,of\,8\frac{4}{5}\div1\frac{5}{7}-\frac{4}{3}]^2$ का मान है:

CHSL 14-10-2020 (Afternoon shift)

(a) $\frac{1}{81}$
(b) $\frac{1}{61}$
(c) $\frac{1}{71}$
(d) $\frac{1}{91}$

Q11. Find the value of x in $\sqrt[3]{15625}-\sqrt{x}=4$

$\sqrt[3]{15625}-\sqrt{x}=4$ में x का मान ज्ञात कीजिए।

CHSL 14-10-2020 (Evening shift)

(a) 625
(b) 343
(c) 441
(d) 81

Q12.The value of 27 + [3(50 - 20) + 168 ÷ 4 + 2 - 11 × 2] is:

27 + [3(50 - 20) + 168 ÷ 4 + 2 - 11 × 2] का मान है:

CHSL 15-10-2020 (Morning shift)

(a)245
(b)139
(c)149
(d)239

Q13. Find the value of 225 - [42 - {25 - (18 - $\overline{18+13}$)}].

225 - [42 - {25 - (18 - $\overline{18+13}$)}] का मान ज्ञात कीजिये ?

CHSL 15-10-2020 (Evening shift)

(a) 222
(b) 221
(c) 223
(d) 244

Q14. The value of 72-3(2+24 ÷ 4 × 3-2 × 2) + 8 is:

72-3(2+24 ÷ 4 × 3-2 × 2) + 8 का मान है:

CHSL 16-10-2020 (Morning shift)

(a) 72
(b) 32
(c) 36
(d) 24

Q15. The value of 10-[121 ÷ (11 × 11)-(-4)-{3-(8-1)}] is:

10-[121 ÷ (11 × 11)-(-4)-{3-(8-1)}] का मान है:

CHSL 16-10-2020 (Afternoon shift)

(a) -1
(b) 1
(c) 0
(d) 19

Q16. What is the value of (9 + 3 - 16 ÷ 4 + 10) + {(3 + 5 × 2 ÷ 10)} × (18 – 4 *of* 5)?

(9 + 3 - 16 ÷ 4 + 10) + {(3 + 5 × 2 ÷ 10)} × (18 – 4 *of* 5)? का मान ज्ञात कीजिए।

CHSL 16-10-2020 (Evening shift)

(a) 15
(b) 10
(c) 5
(d) 8

Q17. Simplify the following:

$4\frac{4}{5}\div[2\frac{1}{5}-\frac{1}{2}\{1\frac{1}{4}-(\frac{1}{4}-\frac{1}{5})\}]$

निम्नलिखित को सरल कीजिए:

$4\frac{4}{5}\div[2\frac{1}{5}-\frac{1}{2}\{1\frac{1}{4}-(\frac{1}{4}-\frac{1}{5})\}]$

CHSL 19-10-2020 (Morning shift)

(a) 1
(b) 3
(c) 2
(d) 4

Q.18. Find the value of $309\div[(\frac{3}{2})\,of\,(25+35)-12\frac{3}{4}]$.

$309\div[(\frac{3}{2})\,of\,(25+35)-12\frac{3}{4}]$ का मान ज्ञात कीजिए।

CHSL 19-10-2020 (Afternoon shift)

(a) 8
(b) 16
(c) 12
(d) 4

Q.19. The value of $1\frac{3}{4}-[3\frac{1}{8}\div\{6-(2\frac{3}{4}-\frac{11}{12})\}]$ is:

$1\frac{3}{4}-[3\frac{1}{8}\div\{6-(2\frac{3}{4}-\frac{11}{12})\}]$ का मान क्या होगा

CHSL 19-10-2020 (Evening shift)

(a) 1
(b) 2
(c) 3
(d) 0

Q20. Evaluate: [7 + 7 × (7 + 7 ÷ 7)] + 7 ÷ 7.

[7 + 7 × (7 + 7 ÷ 7)] + 7 ÷ 7 सरल कीजिये

CHSL 20-10-2020 (Morning shift)

(a) 10
(b) 5
(c) 63
(d) 64

Q.21. The value of $\frac{4}{5}\div3\frac{1}{4}\,of\,\frac{8}{13}-\frac{\frac{1}{5}-\frac{1}{8}}{\frac{1}{5}+\frac{1}{8}}\times5\frac{1}{5}+\frac{5}{6}$ is:

$\frac{4}{5}\div3\frac{1}{4}\,of\,\frac{8}{13}-\frac{\frac{1}{5}-\frac{1}{8}}{\frac{1}{5}+\frac{1}{8}}\times5\frac{1}{5}+\frac{5}{6}$ का मान ज्ञात करे

Pinnacle

CHSL 20-10-2020 (afternoon shift)

(a) $\frac{2}{15}$

(b) $\frac{7}{30}$

(c) $\frac{1}{15}$

(d) $\frac{1}{30}$

Q.22.. What is the value of $-77+800\div[83-\{8\times9+(18-3\times5)\}]$?

$-77+800\div[83-\{8\times9+(18-3\times5)\}]$ का मान ज्ञात करे

CHSL 20-10-2020 (Evening shift)

(a) 24

(b) 23

(c) 26

(d) 25

Q.23. The value of $\frac{\frac{1}{5}\div\frac{1}{5}\times\frac{1}{5}}{\frac{1}{5}\div\frac{1}{5}\,of\,\frac{1}{5}}-4\frac{1}{5}\div105$ is:

$\frac{\frac{1}{5}\div\frac{1}{5}\times\frac{1}{5}}{\frac{1}{5}\div\frac{1}{5}\,of\,\frac{1}{5}}-4\frac{1}{5}\div105$ का मान ज्ञात करे

CHSL 21-10-2020 (Morning shift)

(a) 0

(b) 2

(c) 10

(d) 5

Q.24. The value of $75\frac{3}{5}\div[15\div3\,of\,5+7\div\frac{1}{14}-\{78\div3\frac{1}{3}\}]$ is:

$75\frac{3}{5}\div[15\div3\,of\,5+7\div\frac{1}{14}-\{78\div3\frac{1}{3}\}]$ का मान ज्ञात करे

CHSL 21-10-2020 (Evening shift)

(a) 1

(b) 2

(c) 5

(d) 0

Q.25. The value of $2\frac{1}{36}\div\frac{5}{9}of(5\frac{1}{10}+2\frac{1}{5})+\frac{2}{5}\div3\frac{1}{5}$ is:

$2\frac{1}{36}\div\frac{5}{9}of(5\frac{1}{10}+2\frac{1}{5})+\frac{2}{5}\div3\frac{1}{5}$ का मान ज्ञात करे

CHSL 26-10-2020 (Morning shift)

(a) 3/7

(b) 5/12

(c) 3/8

(d) 5/8

Q.26. The value of $[(3+5-4)+(17-3\times4)]+[4\div2-16\div4+3]$ is:

$[(3+5-4)+(17-3\times4)]+[4\div2-16\div4+3]$ का मान है

CHSL 26-10-2020 (afternoon shift)

(a) 16

(b) 10

(c) 12

(d) 14

Q.27. The value of $3\frac{1}{3}-[\frac{9}{4}+\{\frac{5}{4}-\frac{1}{13}\times(\frac{5}{2}-\frac{1}{3})\}]$ is:

$3\frac{1}{3}-[\frac{9}{4}+\{\frac{5}{4}-\frac{1}{13}\times(\frac{5}{2}-\frac{1}{3})\}]$ का मूल्य है:

CHSL 26-10-2020 (Evening shift)

(a) 10

(b) 0

(c) 5

(d) 1

Q.28. What will come at place of x,(x<10) for $\frac{(132\div12\times x-3\times3)}{5^2-6\times4+x^2}=1$?

X (x <10) के लिए $\frac{(132\div12\times x-3\times3)}{5^2-6\times4+x^2}=$ 1 के स्थान पर क्या आएगा?

CHSL 17-03-2020 (Morning shift)

(a) 2

(b) 4

(c) 3

(d) 1

Q29. If x is the square of the number when $(\frac{2}{5}of\,6\frac{1}{4}\div\frac{3}{7})of\,1\frac{2}{7}$ is divided by $11\frac{1}{4}$, then the value of 81x is:

प्रश्न 10। यदि x संख्या का वर्ग है जब $(\frac{2}{5}of\,6\frac{1}{4}\div\frac{3}{7})\;1\frac{2}{7}$ को $11\frac{1}{4}$ से विभाजित किया जाता है, तो 81x का मान होता है:

CHSL 18-03-2020 (Morning shift)

(a) 36

(b) 16

(c) 9

(d) 4

Q30. If $[\{(\frac{2}{3})^3\}^{(2x+3)}]^{\frac{3}{4}}=[\{(\frac{2}{3})^{\frac{2}{3}}\}^{(3x+7)}]^{\frac{6}{5}}$ then the value of $\sqrt{2-42x}$ is:

प्रश्न 22। यदि $[\{(\frac{2}{3})^3\}^{(2x+3)}]^{\frac{3}{4}}=[\{(\frac{2}{3})^{\frac{2}{3}}\}^{(3x+7)}]^{\frac{6}{5}}$ तो $\sqrt{2-42x}$ का मान:

CHSL 18-03-2020 (Morning shift)

(a) 5

(b) 6

(c) 3

(d) 4

Q31. If $\frac{4}{1+\sqrt{2}+\sqrt{3}}=a+b\sqrt{2}+c\sqrt{3}-d\sqrt{6}$, where a, b, c. d are natural numbers, then the value of a + b + c + d is:

प्रश्न 15। यदि $\frac{4}{1+\sqrt{2}+\sqrt{3}}=a+b\sqrt{2}+c\sqrt{3}-d\sqrt{6}$ जहां a, b, c ,d प्राकृतिक संख्याएँ हैं, तो a+b+ c+ d का मान है:

CHSL 18-03-2020 (Morning shift)

(a) 0

(b) 2

(c) 4

(d) 1

Q.32. The value of $8-[8-(5+8)-\{8-(8-5+8)\}+10]$ is:

8- [8- 8- (5+8) - {8- (8-5+8)}+10] का मान है:

CHSL 19-03-2020 (Morning shift)

(a) 5

(b) 20

(c) 0

(d) 10

Pinnacle

Q.33. Simplify the expression $25-[16-\{14-[18-\overline{8+3}]\}]$
व्यंजक को सरल कीजिए $25-[16-\{14-[18-\overline{8+3}]\}]$
CHSL 19-03-2020 (afternoon shift)
(a) 14
(b) 15
(c) 17
(d) 16

Q.34. The value of $7+[44\div4+\{9\times2-14\div7\}+5\times2]$ is:
$7+[44\div4+\{9\times2-14\div7\}+5\times2]$ का मूल्य है:
CHSL 19-03-2020 (Evening shift)
(a) 55
(b) 33
(c) 67
(d) 44

SSC CGL-2019 TIER-II
Q35. The value of $(2.\overline{4}\times0.\overline{6}\times3\times0.1\overline{6})\times[0.\overline{27}\times(0.8\overline{3}\div0.16)]$ is:
$(2.\overline{4}\times0.\overline{6}\times3\times0.1\overline{6})\times[0.\overline{27}\times(0.8\overline{3}\div0.16)]$ का मान ज्ञात कीजिये
CGL MAINS Tier-II
(15-10-2020)
(a) $0.8\overline{14}$
(b) $0.\overline{11}$
(c) $1.\overline{1}$
(d) $1.\overline{36}$

Q36. If $\frac{1}{4-\sqrt{8}}+\frac{3+2\sqrt{2}}{3-2\sqrt{2}}-\frac{3-2\sqrt{2}}{3+2\sqrt{2}}=a+b\sqrt{2}$, then what is the value of (3a+4b) ?
यदि $\frac{1}{4-\sqrt{8}}+\frac{3+2\sqrt{2}}{3-2\sqrt{2}}-\frac{3-2\sqrt{2}}{3+2\sqrt{2}}=a+b\sqrt{2}$, तो (3a+4b) का मान ज्ञात कीजिए ?
CGL MAINS Tier-II
(15-10-2020)
(a) $99\frac{1}{2}$
(b) 97
(c) $98\frac{1}{2}$
(d) 98

Q37. The value of $[\frac{4}{7}of2\frac{4}{5}\times1\frac{2}{3}-(3\frac{1}{2}-2\frac{1}{6})]\div(3\frac{1}{5}\div4\frac{1}{2}of5\frac{1}{3})$ is:

$[\frac{4}{7}of2\frac{4}{5}\times1\frac{2}{3}-(3\frac{1}{2}-2\frac{1}{6})]\div(3\frac{1}{5}\div4\frac{1}{2}of5\frac{1}{3})$ का मान ज्ञात कीजिए ?
CGL MAINS Tier-II
(15-10-2020)
(a) 10
(b) $7\frac{1}{2}$
(c) 15
(d) $1\frac{1}{3}$

Q38. Let $x=(\frac{\sqrt{1875}}{\sqrt{3888}}\div\frac{\sqrt{1200}}{\sqrt{768}})\times\frac{\sqrt{175}}{\sqrt{1792}}$. Then $\sqrt{x}$ is equal to:
माना $x=(\frac{\sqrt{1875}}{\sqrt{3888}}\div\frac{\sqrt{1200}}{\sqrt{768}})\times\frac{\sqrt{175}}{\sqrt{1792}}$. तो $\sqrt{x}$ का मान ज्ञात कीजिए
CGL MAINS Tier-II
(15-10-2020)
(a) $\frac{7}{12}$
(b) $\frac{4}{9}$
(c) $\frac{5}{12}$
(d) $\frac{5}{9}$

Q39. The expression $\frac{15(\sqrt{10}+\sqrt{5})}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}}$ is equal to:
$\frac{15(\sqrt{10}+\sqrt{5})}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}}$ का मान ज्ञात कीजिए
CGL MAINS Tier-II
(15-10-2020)
(a) $5+2\sqrt{2}$
(b) $5-2\sqrt{5}$
(c) $5(3+2\sqrt{2})$
(d) $10(3+2\sqrt{5})$

Q40. The value of $3\div18\,of\,3\times6+21\times6\div18-3\div2+3-3\div9\,of\,3\times9$ is:
$3\div18\,of\,3\times6+21\times6\div18-3\div2+3-3\div9\,of\,3\times9$ का मान ज्ञात कीजिए
CGL MAINS Tier-II
(15-10-2020)
(a) $\frac{47}{6}$
(b) $\frac{41}{9}$
(c) $\frac{35}{9}$
(d) $\frac{29}{6}$

Q41. The value of $\frac{0.0203\times2.92}{0.7\times0.0365\times2.9}\div\frac{(12.12)^2-(8.12)^2}{(0.25)^2+(0.25)(19.99)}$ is:
$\frac{0.0203\times2.92}{0.7\times0.0365\times2.9}\div\frac{(12.12)^2-(8.12)^2}{(0.25)^2+(0.25)(19.99)}$ का मान ज्ञात कीजिए
CGL 2019 Tier-II (15-11-2020)
(a) 0.05
(b) 0.5
(c) 0.1
(d) 0.01

Q42. the value of $0.\overline{57}-0.4\overline{32}+0.3\overline{5}$ is :
$0.\overline{57}-0.4\overline{32}+0.3\overline{5}$ का मान क्या होगा :
CGL 2019 Tier-II (16-11-2020)
(a) $0.\overline{494}$
(b) $0.\overline{498}$
(c) $0.4\overline{98}$
(d) $0.\overline{494}$

Q43.. If $\sqrt{11-3\sqrt{8}}=a+b\sqrt{2}$, then what is the value of (2a + 3b) ?
यदि $\sqrt{11-3\sqrt{8}}=a+b\sqrt{2}$, तो (2a + 3b) का मान क्या होगा
CGL 2019 Tier-II (16-11-2020)
(a) 5
(b) 7
(c) 9
(d) 3

Q44.. The value of $3\frac{1}{5}\div4\frac{1}{2}\,of\,5\frac{1}{3}+\frac{1}{8}\div\frac{1}{2}\,of\,\frac{1}{4}-\frac{1}{4}(\frac{1}{2}\div\frac{1}{8}\times\frac{1}{4})$ is:
$3\frac{1}{5}\div4\frac{1}{2}\,of\,5\frac{1}{3}+\frac{1}{8}\div\frac{1}{2}\,of\,\frac{1}{4}-\frac{1}{4}(\frac{1}{2}\div\frac{1}{8}\times\frac{1}{4})$ का मान क्या होगा
CGL 2019 Tier-II (16-11-2020)
(a) $\frac{53}{60}$
(b) $\frac{13}{15}$

Pinnacle

(c) $\frac{7}{8}$
(d) $\frac{3}{4}$

Q45.. The value of
$4 \div 12\ of\ [3 \div 4\ of\ \{(4\ -2) \times 6 \div 2\}] - 2 \times 6 \div 8 + 3$ is:
$4 \div 12\ of\ [3 \div 4\ of\ \{(4\ -2) \times 6 \div 2\}] - 2 \times 6 \div 8 + 3$ का मान क्या होगा ?
CGL 2019 Tier-II (16-11-2020)
(a) $4\frac{1}{6}$
(b) $7\frac{1}{6}$
(c) $2\frac{1}{3}$
(d) $3\frac{1}{3}$

Q46. The value of $\frac{7+3\sqrt{5}}{3+\sqrt{5}} - \frac{7-3\sqrt{5}}{3-\sqrt{5}}$ lies between:
$\frac{7+3\sqrt{5}}{3+\sqrt{5}} - \frac{7-3\sqrt{5}}{3-\sqrt{5}}$ का मान किसके बीच में होगा
CGL 2019 Tier-II (16-11-2020)
(a) 2 and 2.5
(b) 3 and 3.5
(c) 1.5 and 2
(d) 2.5 and 3

Q47.. If $\frac{8+2\sqrt{3}}{3\sqrt{3}+5} = a\sqrt{3} - b$, then the value of a + b is equal to:
यदि $\frac{8+2\sqrt{3}}{3\sqrt{3}+5} = a\sqrt{3} - b$, तब a+b का मान क्या है?
CGL 2019 Tier-II (18-11-2020)
(a) 18
(b) 15
(c) 16
(d) 24

Q.48.If x= $\sqrt{-\sqrt{3} + \sqrt{3 + 8\sqrt{7 + 4\sqrt{3}}}}$ where x>0, then the value of x is equal to:
यदि x= $\sqrt{-\sqrt{3} + \sqrt{3 + 8\sqrt{7 + 4\sqrt{3}}}}$ तो x का मान ज्ञात करे: जहा x>0
CGL 2019 Tier-II (18-11-2020)
(a) 2
(b) 3
(c) 4
(d) 1

Q.49. The value of $5 - \frac{8+2\sqrt{15}}{4} - \frac{1}{8+2\sqrt{15}}$ is equal to:
$5 - \frac{8+2\sqrt{15}}{4} - \frac{1}{8+2\sqrt{15}}$ का मान ज्ञात करे
CGL 2019 Tier-II (18-11-2020)
(a) $\frac{2}{3}$
(b) 1
(c) $\frac{1}{2}$
(d) $\frac{1}{4}$

Q50. Evaluate the following / मान ज्ञात करे
5-[96 ÷4 of 3 -(16-55 ÷ 5)]
CGL 2019 Tier-II (18-11-2020)
(a) 0
(b) 3
(c) 2
(d) 4

SSC CPO-2019
Q51.. The value of
$8 - 3 \div 6\ of\ 2 + (4 \div 4\ of\ \frac{1}{4}) \div 8 + (4 \times 8 \div \frac{1}{4}) \times \frac{1}{8}$ is:
$8 - 3 \div 6\ of\ 2 + (4 \div 4\ of\ \frac{1}{4}) \div 8 + (4 \times 8 \div \frac{1}{4}) \times \frac{1}{8}$ का मान ज्ञात करे |
CPO 23-11-2020 (Morning shift)
(a) $-\frac{7}{4}$
(b) $\frac{7}{4}$
(c) $-\frac{97}{4}$
(d) $\frac{97}{4}$

Q52. The value of $\frac{40 - \frac{3}{4}\ of\ 32}{37 - \frac{3}{4}\ of\ (34 - 6)}$ is:
$\frac{40 - \frac{3}{4}\ of\ 32}{37 - \frac{3}{4}\ of\ (34 - 6)}$ का मान ज्ञात करे
CPO 23-11-2020 (Morning shift)
(a) 1
(b) 0
(c) $-\frac{1}{2}$
(d) $\frac{1}{2}$

Q53. The value of
$(5\frac{1}{4} \div \frac{3}{7}of\frac{1}{2}) \div (5\frac{1}{9} - 7\frac{7}{8} \div 9\frac{9}{20}) \times \frac{11}{21} - (5 \div 2of\ \frac{1}{2})$ is:
$(5\frac{1}{4} \div \frac{3}{7}of\frac{1}{2}) \div (5\frac{1}{9} - 7\frac{7}{8} \div 9\frac{9}{20}) \times \frac{11}{21} - (5 \div 2of\ \frac{1}{2})$ का मान ज्ञात करे
CPO 23-11-2020 (Evening shift)
(a) $\frac{35}{24}$
(b) 0
(c) $\frac{15}{28}$
(d) -2

Q54. The value of
$3\frac{1}{3} \div 2\frac{1}{2}of\ 1\frac{3}{5} + (\frac{3}{8} + \frac{1}{7} \times 1\frac{3}{4})$ is:
$3\frac{1}{3} \div 2\frac{1}{2}of\ 1\frac{3}{5} + (\frac{3}{8} + \frac{1}{7} \times 1\frac{3}{4})$ का मान ज्ञात करे
CPO 23-11-2020 (Evening shift)
(a) $\frac{55}{24}$
(b) $\frac{35}{24}$
(c) $\frac{5}{24}$
(d) $\frac{25}{24}$

Q55. The value of
$2\frac{1}{3} \div 2\frac{1}{2}of\ 1\frac{3}{5} + (\frac{3}{8} + \frac{1}{7} \times 1\frac{3}{4})$ is:
$2\frac{1}{3} \div 2\frac{1}{2}of\ 1\frac{3}{5} + (\frac{3}{8} + \frac{1}{7} \times 1\frac{3}{4})$ का मान ज्ञात करे
CPO 24-11-2020 (Morning shift)
(a) $\frac{35}{24}$
(b) $\frac{25}{24}$
(c) $\frac{5}{24}$
(d) $\frac{29}{24}$

Q56. The value of
$(5 \div 2of\frac{1}{2}) \div (5\frac{1}{4} \div \frac{3}{7}of\frac{1}{2}) \div (5\frac{1}{9} - 7\frac{7}{8} \div 9\ \frac{9}{20}) \times \frac{11}{21}$ is:
$(5 \div 2of\frac{1}{2}) \div (5\frac{1}{4} \div \frac{3}{7}of\frac{1}{2}) \div (5\frac{1}{9} - 7\frac{7}{8} \div 9\ \frac{9}{20}) \times \frac{11}{21}$ का मान ज्ञात करे |
CPO 24-11-2020 (Morning shift)
(a) -2
(b) 8
(c) $\frac{35}{24}$

(d) $\frac{15}{28}$

Q57. The value of
$\frac{2}{3} \div \frac{3}{10} of \frac{4}{9} - \frac{4}{5} \times 1\frac{1}{9} \div \frac{8}{15} - \frac{3}{4} + \frac{3}{4} \div \frac{1}{2}$
is:
$\frac{2}{3} \div \frac{3}{10} of \frac{4}{9} - \frac{4}{5} \times 1\frac{1}{9} \div \frac{8}{15} - \frac{3}{4} + \frac{3}{4} \div \frac{1}{2}$
का मान ज्ञात करे
CPO 24-11-2020 (Evening shift)
(a) $\frac{49}{12}$
(b) $\frac{25}{6}$
(c) $\frac{17}{9}$
(d) $\frac{14}{3}$

Q58. The value of
$-7 \div [5 + 1 \div 2 - \{4 + (4of2 \div 4) + (4 \div 4of2)\}]$ is:
$-7 \div [5 + 1 \div 2 - \{4 + (4of2 \div 4) + (4 \div 4of2)\}]$ का मान ज्ञात करे |
CPO 24-11-2020 (Evening shift)
(a) 7
(b) $\frac{7}{2}$
(c) $-\frac{7}{2}$
(d) -7

Q59. The value of $\frac{40+\frac{3}{4}of\ 32}{37+\frac{3}{4}of(34-6)}$ is
$\frac{40+\frac{3}{4}of\ 32}{37+\frac{3}{4}of(34-6)}$ का मान ज्ञात करे |
CPO 25-11-2020 (Morning shift)
(a) $1\frac{3}{29}$
(b) $2\frac{3}{29}$
(c) $-1\frac{3}{29}$
(d) $1\frac{9}{29}$

Q60. The value of
$1 - 3 \div 6\ of\ 2 + (4 \div 4\ of\ \frac{1}{4}) \div 8 + (4 \times 8\ \div \frac{1}{4}) \times \frac{1}{8}$ is:
$1 - 3 \div 6\ of\ 2 + (4 \div 4\ of\ \frac{1}{4}) \div 8 + (4 \times 8\ \div \frac{1}{4}) \times \frac{1}{8}$ का मान ज्ञात करे
CPO 25-11-2020 (Morning shift)
(a) $-\frac{69}{4}$
(b) $\frac{69}{4}$
(c) $\frac{7}{4}$
(d) $-\frac{7}{4}$

Q61. The value of
$\frac{2}{3} \div \frac{3}{10} of \frac{4}{9} - \frac{4}{5} \times 1\frac{1}{9} \div \frac{8}{15} + \frac{3}{4} \div \frac{1}{2}$
is:
$\frac{2}{3} \div \frac{3}{10} of \frac{4}{9} - \frac{4}{5} \times 1\frac{1}{9} \div \frac{8}{15} + \frac{3}{4} \div \frac{1}{2}$
का मान ज्ञात करे
CPO 25-11-2020 (Evening shift)
(a) $\frac{49}{12}$
(b) $\frac{17}{9}$
(c) $\frac{29}{6}$
(d) $\frac{14}{3}$

Q62. The value of
$7 \div [5 + 1 \div 2 - \{4 + (4\ of\ 2 \div 4) + (5 \div 5\ of\ 2)\}]$ is:
$7 \div [5 + 1 \div 2 - \{4 + (4\ of\ 2 \div 4) + (5 \div 5\ of\ 2)\}]$ का मान ज्ञात करे |
CPO 25-11-2020 (Evening shift)
(a) 7
(b) $\frac{7}{2}$
(c) $-\frac{7}{2}$
(d) -7

Pinnacle

SOLUTION:

Variety Questions

Sol 1. (d)

$2 \times 3 \div 2$ of $3 \times 2 \div (4 + 4 \times 4 \div 4$ of $4\text{-}4 \div 4 \times 4)$

$\Rightarrow 2 \times 3 \div 6 \times 2 \div (4+4 \times 4 \div 16\text{-}4 \div 4 \times 4)$

$\Rightarrow 2 \times \frac{1}{2} \times 2 \times 1 = 2$

Sol 2. (d)

$2\frac{7}{8} \div (3\frac{5}{6} \div \frac{2}{7}$ *of* $2\frac{1}{3}) \times [(2\frac{6}{7}$ *of* $4\frac{1}{5} \div \frac{2}{3}) \times \frac{5}{9}]$

$\Rightarrow \frac{23}{8} \div (\frac{23}{6} \div \frac{2}{3}) \times [10] = 5$

Sol 3. (c)

$(5+3 \div 5 \times 5) / (3 \div 3$ of $6)$ of $(4 \times 4 \div 4$ of $4+4 \div 4 \times 4)$

$\Rightarrow \frac{(5+3 \div 5 \times 5)}{(3 \div 3 \text{ of } 6) \text{ of } (4 \times 4 \div 4 \text{ of } 4+4 \div 4 \times 4}$

$\Rightarrow \frac{8}{\frac{1}{6} of 5}$

$\Rightarrow \frac{48}{5} = 9\frac{3}{5}$

Sol 4. (b)

$\frac{1.0025+6.25 \times 10^{-6}}{0.0025+0.95} \Rightarrow (\frac{1.00250625}{0.9525}) = 1.0525$

Sol 5. (b)

$5 \div 5 of 5 \times 2 + 2 \div 2 of 2 \times 5 - (5 - 2) \div 6 \times 2 = 5 \div 25 \times 2 + 2 \div 4 \times 5 - 3 \div 6 \times 2$

$= \frac{1}{5} \times 2 + \frac{1}{2} \times 5 - \frac{1}{2} \times 2 = \frac{2}{5} + \frac{5}{2} - 1$

$= \frac{4+25}{10} - 1 = \frac{19}{10}$

Sol 6. (d)

$\frac{9}{15}$ of $(\frac{2}{3} \div \frac{2}{3}$ *of* $\frac{3}{2}) \div (\frac{3}{4} \times \frac{3}{4} \div \frac{3}{4}$ *of* $\frac{4}{3})$ of $(\frac{5}{4} \div \frac{5}{2} \times \frac{2}{5}$ *of* $\frac{4}{5})$

$\Rightarrow \frac{9}{15}$ of $\frac{2}{3} \div \frac{9}{16}$ of $\frac{4}{25}$

$\Rightarrow \frac{2}{5} \div \frac{9}{100}$

$\Rightarrow \frac{2}{5} \times \frac{100}{9} = \frac{40}{9}$

Sol 7. (a)

$16 \div 4$ of $4 \times [3 \div 4$ of $\{4 \times 3 \div (3+3)\}] \div (2 \div 4$ of $8)$

$\Rightarrow 16 \div 16 \times [3 \div 4$ of $\{4 \times 3 \div 6\}] \div (2 \div 32)$

$\Rightarrow 1 \times [3 \div 4$ of $2] \div \frac{1}{16}$

$\Rightarrow 1 \times \frac{3}{8} \div \frac{1}{16} = 6$

Sol 8. (c)

$\frac{8}{9}$ *of* $(5\frac{1}{4} \div 2\frac{1}{3}$ *of* $4) \div (8 \div \frac{2}{3}$ *of* $\frac{4}{5})$ of $(8 \times \frac{2}{3} \div \frac{4}{5})$

$\Rightarrow \frac{8}{9}$ of $(\frac{21}{4} \div \frac{28}{3}) \div (8 \div \frac{8}{15})$ of $(8 \times \frac{5}{6})$

$\Rightarrow \frac{8}{9}$ of $\frac{9}{16} \div 15$ of $\frac{20}{3}$

$\Rightarrow \frac{1}{2} \div 100$

$\Rightarrow \frac{1}{200}$

Sol 9. (a)

$4.5 - (3.2 \div 0.8 \times 5) + 3 \times 4 \div 6$

$\Rightarrow 4.5\text{-}(4 \times 5)+2$

$\Rightarrow 6.5\text{-}20$

$= -13.5$

Sol 10.(a)

$5 \div 10$ *of* $10 \times 4 + 4 \div 4$ *of* $4 \times 10 - (10 - 4) \div 16 \times 4$

$\Rightarrow 5 \div 100 \times 4+4 \div 16 \times 10\text{-} \frac{3}{8} \times 4$

$\Rightarrow \frac{1}{20} \times 4+ \frac{5}{2} - \frac{3}{2}$

$\Rightarrow 0.2+1 = 1.2$

Sol 11. (a)

$\frac{(3\frac{1}{5} - \frac{3}{5}) \div \frac{8}{5}}{1\frac{1}{7} \div \{\frac{6}{7} - (\frac{1}{7} \div \frac{1}{5})\}} \Rightarrow \frac{(\frac{13}{5}) \div \frac{8}{5}}{\frac{8}{7} \div \{\frac{6}{7} - (\frac{5}{7})\}}$

$\Rightarrow \frac{\frac{13}{8}}{\frac{8}{7} \div \{\frac{6}{7} - (\frac{5}{7})\}} = \frac{13}{8 \times 8} = \frac{13}{64}$

Sol 12. (d) Given fraction is

$\frac{5.75 \times 5.75 \times 5.75 + 3.25 \times 3.25 \times 3.25}{57.5 \times 57.5 + 32.5 \times 32.5 - 57.5 \times 32.5}$

$\Rightarrow \frac{5.75 \times 5.75 \times 5.75 + 3.25 \times 3.25 \times 3.25}{(5.75 \times 5.75 + 3.25 \times 3.25 - 5.75 \times 3.25) \times 100}$

$\Rightarrow$

$\frac{(5.75 + 3.25)(5.75 \times 5.75 + 3.25 \times 3.25 - 5.75 \times 3.25)}{(5.75 \times 5.75 + 3.25 \times 3.25 - 5.75 \times 3.25) \times 100}$

$\Rightarrow \frac{9}{100} = 0.09$

Sol 13. (c)

$\sqrt{4 + \sqrt{144}} = \sqrt{4 + 12} = \sqrt{16} = 4$

Practice Questions

Sol 1. (d)

$7\frac{1}{2} \times (3\frac{1}{5} \div 4\frac{1}{2}$ *of* $5\frac{1}{3}) + [11\text{-}(\frac{5}{8} + 3 - 1\frac{1}{4})] \div 5\frac{3}{4} - 5 \div 5 \times 5$ of $5 \div 25$

$\Rightarrow \frac{15}{2} \times (\frac{16}{5} \div 24)+[11\text{-} \frac{19}{8}] \div \frac{23}{4}$

$-1 \times 25 \div 25$

$\Rightarrow \frac{15}{2} \times \frac{2}{15} + \frac{69}{8} \div \frac{23}{4} -1$

$\Rightarrow 1+ \frac{3}{2} -1 = 1\frac{1}{2}$

Sol 2. (d)

$6 - 6 \div 6 \times 6 + (6 \div 6$ of $6) \times 6 - (3\frac{2}{3} \div \frac{11}{30}$ *of* $\frac{2}{3}) \div 5$

$\Rightarrow 6\text{-}6+(6 \div 36) \times 6 \text{-}(\frac{11}{3} \div \frac{11}{45}) \div 5$

$\Rightarrow \frac{1}{6} \times 6 - 15 \div 5$

$\Rightarrow 1\text{-}3 = -2$

Sol 3. (c)

$\frac{3}{4} \times 2\frac{2}{3} \div \frac{5}{9}$ of $1\frac{1}{5} + \frac{2}{23} \times 3\frac{5}{6} \div \frac{2}{7}$ of $2\frac{1}{3}$

$\Rightarrow \frac{3}{4} \times \frac{8}{3} \div \frac{2}{3} + \frac{2}{23} \times \frac{23}{6} \div \frac{2}{3}$

$\Rightarrow \frac{3}{4} \times 4+ \frac{1}{2}$

$\Rightarrow 3\frac{1}{2}$

Sol 4. (a)

$3.8 - (4.2 \div 0.7 \times 3) + 5 \times 2 \div 0.5$

$\Rightarrow 3.8 - (6 \times 3)+5 \times 4$

$\Rightarrow 3.8\text{-}18+20$

$= 5.8$

Sol 5. (d)

$2.8 + (5.2 \div 1.3 \times 2) - 6 \times 3 \div 8 + 2$

$\Rightarrow 2.8+(4 \times 2)\text{-}2.25+2$

$\Rightarrow 2.8 + 8 - 2.25 + 2$

$= 10.55$

Sol 6. (b)

$7.2 + (8.4 \div 0.12 \times 0.2) - 5 \times 3 \div 0.05 + 3$

$\Rightarrow 7.2 + (70 \times 0.2)\text{-}5 \times 60+3$

$\Rightarrow 7.2 + 14\text{-} 300 + 3$

$= -275.8$

Sol 7. (b)

$5.8 + (7.4 \div 3.7 \times 5) - 6 \times 2 \div 2.5$

$\Rightarrow 5.8 + (2 \times 5) - 6 \times 0.8$

$\Rightarrow 5.8 + 10 - 4.8$

$= 11$

Sol 8. (d)

Pinnacle

$3.8 + (8.2 \div 4.1 \times 2) - 4 \times 3 \div 1.2$
$\Rightarrow 3.8 + (2 \times 2) - 4 \times 2.5$
$\Rightarrow 3.8 + 4 - 10$
$= -2.2$

Sol 9. (b)
$7.5 + (5.4 \div 4.5 \times 2) - 8 \times 4 \div 3.2$
$\Rightarrow 7.5 + (1.2 \times 2) - 8 \times 1.25$
$\Rightarrow 7.5 + 2.4 - 10 = -0.1$

Sol 10. (c)
$108 \div 36 \times 4 + 2.5 \times 4 \div 0.5 - 10$
$\Rightarrow 3 \times 4 + 2.5 \times 8 - 10$
$\Rightarrow 12 + 10 = 22$

Sol 11. (d)
$21.6 \div 3.6 \times 2 + 0.25 \times 16 \div 4 - 6$
$\Rightarrow 6 \times 2 + 0.25 \times 4 - 6$
$\Rightarrow 12 + 1 - 6 = 7$

Sol 12. (c)
$15.2 + 5.8 \div 2.9 \times 2 - 3.5 \times 2 \div 0.5$
$\Rightarrow 15.2 + 2 \times 2 - 3.5 \times 4$
$\Rightarrow 19.2 - 14 = 5.2$

Sol 13. (c)
$9\frac{3}{4} \div [2\frac{1}{6} \div \{4\frac{1}{3} - (2\frac{1}{2} + \frac{3}{4})\}]$
$\Rightarrow \frac{39}{4} \div [\frac{13}{6} \div \{\frac{13}{3} - \frac{13}{4}\}]$
$\Rightarrow \frac{39}{4} \div [\frac{13}{6} \div \frac{13}{12}]$
$\Rightarrow \frac{39}{4} \div 2$
$= \frac{39}{8}$

CHSL

Sol 14. (d)
$\frac{3}{4} \div \frac{3}{4}$ of $\frac{3}{4} \times \frac{4}{3} + \frac{5}{2} \div \frac{2}{5}$ of $\frac{5}{4} - (\frac{2}{3} + \frac{2}{3}$ of $\frac{5}{6})$
$\Rightarrow \frac{3}{4} \div \frac{9}{16} \times \frac{4}{3} + \frac{5}{2} \div \frac{1}{2} - (\frac{2}{3} + \frac{5}{9})$
$\Rightarrow \frac{16}{9} + 5 - \frac{11}{9}$
$= \frac{50}{9}$

Sol 15. (c)
$\frac{3 \div \{5 - 5 \div (6 - 7) \times 8 + 9\}}{4 + 4 \times 4 \div 4 \text{ of } 4}$
$\Rightarrow \frac{3 \div \{5 - 5 \div (-1) \times 8 + 9\}}{4 + 4 \times 4 \div 16}$
$\Rightarrow \frac{3 \div \{5 + 5 \times 8 + 9\}}{4 + 1}$
$\Rightarrow \frac{3}{54 \times 5} = \frac{1}{90}$

Sol 16.(d)
$3 \times 2 \div 3$ of $12 - 3 \div 2 \times (2-3) \times 2 + 3 \div 2$ of 3
$\Rightarrow 3 \times 2 \div 36 - 3 \div 2 \times (-1) \times 2 + 3 \div 6$
$\Rightarrow \frac{1}{6} + 3 + \frac{1}{2}$
$\Rightarrow \frac{22}{6} = 3\frac{2}{3}$

Sol 17.(a)
$3 \times 2 \div 3$ of
$2 \times 3 \div (5 + 5 \times 5 \div 5 \text{ of } 5 - 5 \div 10 \text{ of } \frac{1}{5})$
$\Rightarrow 3 \times 2 \div 6 \times 3 \div (5 + 5 \times 5 \div 25 - 5 \div 2)$
$\Rightarrow 3 \times \frac{1}{3} \times 3 \div (5 + 1 - \frac{5}{2})$
$\Rightarrow 3 \times \frac{2}{7} = \frac{6}{7}$

Sol 18. (a)
$(\frac{7}{5} \div \frac{7}{10} \text{ of } \frac{3}{4}) \div \frac{4}{9} - (\frac{7}{16} \div 10\frac{1}{2} \times 7\frac{1}{5}) \times \frac{5}{12}$
$\Rightarrow (\frac{7}{5} \div \frac{21}{40}) \div \frac{4}{9} - (\frac{1}{24} \times \frac{36}{5}) \times \frac{5}{12}$
$\Rightarrow \frac{8}{3} \div \frac{4}{9} - \frac{3}{10} \times \frac{5}{12}$
$\Rightarrow 6 - \frac{1}{8} = \frac{47}{8}$

Sol 19. (b)
$3 \times 6 \div 4 \text{ of } 6 - 6 \div 2 \times (4 - 6) + 4 - 2 \times 3 \div 6 \text{ of } \frac{1}{3}$
$\Rightarrow 3 \times 6 \div 24 - 3 \times (-2) + 4 - 2 \times \frac{3}{2}$
$\Rightarrow \frac{3}{4} + 6 + 4 - 3$
$\Rightarrow 7\frac{3}{4}$

Sol 20. (a)
15 of $8 - 6 + [(27 - 3) \div 6 - 4]$
$\Rightarrow 120 - 6 + [4 - 4]$
$= 114$

Sol 21. (b)
15 of $8 + 6 + [(27 - 3) \div 6 + 4]$
$\Rightarrow 120 + 6 + [4 + 4]$
$= 134$

Sol 22. (d)
$\frac{(3\frac{1}{5} + \frac{3}{5}) \div \frac{8}{5}}{1\frac{1}{7} \div \{\frac{6}{7} - (\frac{1}{7} \div \frac{1}{5})\}} \Rightarrow \frac{(\frac{19}{5}) \div \frac{8}{5}}{\frac{8}{7} \div \{\frac{6}{7} - (\frac{5}{7})\}}$
$\Rightarrow \frac{\frac{19}{8}}{\frac{8}{7} \div \{\frac{6}{7} - (\frac{5}{7})\}} = \frac{19}{8 \times 8} = \frac{19}{64}$

Sol 23.(a)
$\frac{(3\frac{1}{5} + \frac{3}{5}) \div \frac{8}{5}}{1\frac{1}{7} \div \{\frac{5}{7} + (\frac{1}{7} \div \frac{1}{3})\}} \Rightarrow \frac{(\frac{19}{5}) \div \frac{8}{5}}{\frac{8}{7} \div \{\frac{5}{7} + (\frac{3}{7})\}}$
$\Rightarrow \frac{\frac{19}{8}}{\frac{8}{7} \div \frac{8}{7}} = \frac{19}{8}$

Sol 24. (c)
$\frac{(3\frac{1}{5} + \frac{3}{5}) \div \frac{8}{5}}{1\frac{1}{8} \div \{\frac{5}{8} + (\frac{1}{8} \div \frac{1}{3})\}} \Rightarrow \frac{(\frac{19}{5}) \div \frac{8}{5}}{\frac{9}{8} \div \{\frac{5}{8} + (\frac{3}{8})\}}$
$\Rightarrow \frac{\frac{19}{8}}{\frac{9}{8} \div 1} = \frac{19}{9}$

Sol 25. (d)
$\frac{46 - \frac{3}{4} \text{ of } 32 - 6}{37 - \frac{3}{4} \text{ of } (34 - 6)} \Rightarrow \frac{46 - 24 - 6}{37 - 21} = 1$

Sol 26. (d)
$\frac{46 - \frac{3}{4} \text{ of } 32 - 6}{11 + \frac{3}{4} \text{ of } (34 - 6)} \Rightarrow \frac{46 - 24 - 6}{11 + 21} = \frac{1}{2}$

Sol 27. (c)
$\frac{46 + \frac{3}{4} \text{ of } 32 - 6}{11 + \frac{3}{4} \text{ of } (34 - 6)} \Rightarrow \frac{46 + 24 - 6}{11 + 21} = 2$

Sol 28. (a)
$2\frac{1}{3}$ of $(\frac{3}{5} \div \frac{2}{9}) - (4\frac{2}{5} + \frac{19}{20} \div \frac{1}{2})$
$\Rightarrow \frac{7}{3}$ of $(\frac{27}{10}) - (\frac{22}{5} + \frac{19}{10})$
$\Rightarrow \frac{63}{10} - \frac{63}{10} = 0$

Sol 29. (c)
$[1\frac{1}{5} \text{ of } \{\frac{3}{7} - (1\frac{4}{15} - \frac{13}{15}) \times \frac{5}{7}\}] \div (\frac{6}{7} \div 5)$
$\Rightarrow [\frac{6}{5}$ of $\{\frac{3}{7} - \frac{6}{15} \times \frac{5}{7}\}] \div \frac{6}{35}$
$\Rightarrow [\frac{6}{5}$ of $\{\frac{3}{7} - \frac{2}{7}\}] \div \frac{6}{35}$
$\Rightarrow \frac{6}{35} \div \frac{6}{35} = 1$

Sol 30. (d)
$\frac{1}{2} \text{ of } \frac{8}{5} \div \{2\frac{1}{5} - (\frac{5}{16} + \frac{3}{5} \times 1\frac{7}{8} \div \frac{2}{3})\}$
$\Rightarrow \frac{4}{5} \div \{\frac{11}{5} - (\frac{5}{16} + \frac{3}{5} \times \frac{45}{16})\}$
$\Rightarrow \frac{4}{5} \div \{\frac{11}{5} - 2\}$
$= 4$

Sol 31. (a)
$\frac{0.01404}{24^2 + 6^2 - 144} \Rightarrow \frac{0.01404}{612 - 144} \Rightarrow \frac{0.01404}{612 - 144}$
$\Rightarrow \frac{0.01404}{468} = 3 \times 10^{-5}$

Sol 32. (c)
$\{1\frac{1}{4} \text{ of } (2\frac{1}{3} \div 1\frac{2}{5}) - 1\frac{5}{12}\} + \frac{1}{9} \div 2\frac{1}{3} + \frac{2}{7} + \frac{1}{6}$
$\Rightarrow \{\frac{5}{4}$ of $(\frac{5}{3}) - \frac{17}{12}\} + \frac{1}{21} + \frac{2}{7} + \frac{1}{6}$
$\Rightarrow \frac{25}{12} - \frac{17}{12} + \frac{1}{2} = \frac{14}{12} = \frac{7}{6}$

Pinnacle

Sol 33. (b)

$\frac{18.43\times18.43-6.57\times6.57}{11.86} \Rightarrow \frac{(18.43+6.57)(18.43-6.57)}{11.86}$

$\Rightarrow \frac{(25)(11.86)}{11.86} = 25$

Sol 34. (b)

$\frac{2}{3} \div \{\frac{3}{7}\ of\ \frac{14}{5} \times 1\frac{2}{3} - (3\frac{1}{2} - 2\frac{1}{6})\}$

$\Rightarrow \frac{2}{3} \div \{\frac{6}{5} \times \frac{5}{3} - (\frac{7}{2} - \frac{13}{6})\}$

$\Rightarrow \frac{2}{3} \div \{2 - \frac{8}{6}\} = 1$

Sol 35. (a)

20-[2.8 × 5 ÷ 0.7 – 3 ÷ 0.9 × 1.5 + 2]

⇒ 20-[20-5+2]

= 3

CPO

Sol 36.(d)

(24 ÷ 6 – 2)+(3 × 2 + 4)

⇒ (4-2) + (6+4)

= 12

Sol 37. (b)

$\frac{14-6\times2}{15\div3+3} = \frac{14-12}{5+3} = \frac{1}{4}$

Sol 38. (b)

$5\frac{5}{6} + [2\frac{2}{3} - \{3\frac{3}{4}(3\frac{4}{5} \div 9\frac{1}{2})\}]$

$\Rightarrow \frac{35}{6} + [\frac{8}{3} - \{\frac{15}{4}(\frac{19}{5} \div \frac{19}{2})\}]$

$\Rightarrow \frac{35}{6} + \frac{8}{3} - \frac{3}{2}$

$\Rightarrow \frac{35}{6} + \frac{7}{6} = 7$

Sol 39. (c)

$3\frac{1}{5}[2\frac{1}{2} - \{\frac{5}{6} - (\frac{2}{5} + \frac{3}{10} - \frac{4}{15})\}]$

$\Rightarrow \frac{16}{5}[\frac{5}{2} - \{\frac{5}{6} - \frac{13}{30}\}]$

$\Rightarrow \frac{16}{5} - [\frac{5}{2} - \frac{2}{5}] = \frac{11}{10}$

Sol 40. (a)

$\frac{63.5\times63.5\times63.5+36.5\times36.5\times36.5}{6.35\times6.35+3.65\times3.65-6.35\times3.65} = \frac{(63.5+36.5)(63.5\times63.5+36.5\times36.5-63.5\times36.5)}{6.35\times6.35+3.65\times3.65-6.35\times3.65}$

=10,000

Sol 41. (c)

$6\frac{1}{5} - [4\frac{1}{2} - \{\frac{5}{6} - (\frac{3}{5} + \frac{3}{10} - \frac{7}{15})\}]$

$= 6\frac{1}{5} - [4\frac{1}{2} - \{\frac{5}{6} - \frac{13}{30}\}]$

$= 6\frac{1}{5} - [\frac{9}{2} - \frac{2}{5}] = \frac{31}{5} - \frac{41}{10} = \frac{62-41}{10}$

$= \frac{21}{10} = 2.1$

Sol 42. (d)

$\frac{17}{30} + [3\frac{1}{5} - \{\frac{5}{6} - (3\frac{4}{5} \div 9\frac{1}{2})\}] = \frac{17}{30} + [\frac{16}{5} - \{\frac{5}{6} - (\frac{19}{5} \div \frac{19}{2})\}]$

$= \frac{17}{30} + [\frac{16}{5} - \{\frac{5}{6} - \frac{2}{5}\}] = \frac{17}{30} + [\frac{16}{5} - \frac{13}{30}]$

$= \frac{17}{30} + \frac{83}{30} = \frac{100}{30} = \frac{10}{3}$

Sol 43. (d)

$\frac{675\times675\times675+325\times325\times325}{67.5\times67.5+32.5\times32.5-67.5\times32.5}$

$= \frac{(675+325)(675\times675+325\times325-675\times325)}{67.5\times67.5+32.5\times32.5-67.5\times32.5}$

$= \frac{(675+325)(675\times675+325\times325-675\times325)\times100}{(675\times675+325\times325-675\times325)}$

=1,00,000

Sol 44. (a) $9\frac{3}{4} \div [2\frac{1}{6} + \{4\frac{1}{3} - (2\frac{1}{2} + \frac{3}{4})\}] = \frac{39}{4} \div [\frac{13}{6} + \{\frac{13}{3} - \frac{13}{4}\}]$

$= \frac{39}{4} \div [\frac{13}{6} + \frac{13}{12}] = \frac{39}{4} \div \frac{39}{12} = 3$

Sol 45. (d)

$4\frac{4}{5} \div \frac{3}{7}\ of\ 7 + \frac{4}{5} \times \frac{3}{10} - \frac{1}{5}$

$= \frac{24}{5} \div 3 + \frac{6}{25} - \frac{1}{5}$

$= \frac{8}{5} + \frac{1}{25} = \frac{41}{25}$

Sol 46. (d)

$\frac{6.75\times6.75\times6.75-4.25\times4.25\times4.25}{67.5\times67.5+42.5\times42.5+67.5\times42.5}$

$= \frac{(675-425)\times\frac{1}{1000000}}{\frac{1}{100}} = \frac{250}{10000} = \frac{1}{40}$

= 0.025

Sol 47. (a)

$\frac{26}{5} - [\frac{7}{2} - \{\frac{5}{6} - (\frac{3}{5} + \frac{1}{10} - \frac{4}{15})\}] = \frac{26}{5} - [\frac{7}{2} - \{\frac{5}{6} - \frac{13}{30}\}]$

$= \frac{26}{5} - [\frac{7}{2} - \frac{12}{30}] = \frac{26}{5} - \frac{31}{10} = \frac{21}{10}$

Sol 48. (c)

$3\frac{5}{6} + [3\frac{2}{3} - \{\frac{15}{4}(5\frac{4}{5} \div 14\frac{1}{2})\}]$

$= \frac{23}{6} + [\frac{11}{3} - \frac{15}{4} \times \frac{2}{5}] = \frac{23}{6} + \frac{22-9}{6}$

$= \frac{36}{6} = 6$

Sol 49. (b) 3 × 3-[6-{12+15 ÷ (7-2)}] = 9-[6-{12+3}] = 9-[-9] = 9+9 = 18

Sol 50. (c)

$\frac{1}{3} \div \frac{5}{6} \times \frac{-5}{8} = \frac{1}{3} \times \frac{6}{5} \times \frac{-5}{8} = -\frac{1}{4}$

Sol 51. (b) 3 × 7+4-6 ÷ 3-7+45 ÷ 5 × 4 + 49 = 21+4-2-7+36+49

= 101

Sol 52. (b)

(8+4-2) × (17-12) × 10 - 89 ⇒ 10 × 5 × 10-89 = 411

Sol 53. (c)

We know that,

$a^3 - b^3 = (a-b)(a^2 + b^2 + ab)$

$\frac{0.72\times0.72\times0.72-0.39\times0.39\times0.39}{0.72\times0.72+0.72\times0.39+0.39\times0.39} \Rightarrow \frac{(0.72-0.39)(0.72^2+0.39^2+0.72\times0.39)}{(0.72^2+0.39^2+0.72\times0.39)} =$ 0.33

Sol 54. (a)

(-4) × (– 8) ÷ (– 2) + 3 × 5 ⇒ (-4) × (4) + 3 × 5 = -1

Sol 55. (d)

$\frac{3}{4} + \frac{5}{2}[\frac{1}{4} \times (\frac{8}{5} - \frac{4}{3}) \Rightarrow \frac{3}{4} + \frac{5}{2}[\frac{1}{4} \times (\frac{4}{15})$

$\Rightarrow \frac{3}{4} + \frac{1}{6} = \frac{11}{12}$

Sol 56. (d)

15- { 5+24 ÷ (3 × 9-15)} ⇒ 15- { 5+24 ÷ 12} = 8

Sol 57. (b)

(-4) × (1020 ÷ 85 × 3-22) ⇒ (-4) × (14) = -56

Sol 58. (c)

$\frac{3}{5} \times 4[7 - \{\frac{2}{5} \times (13 + 2)\}] = \frac{3}{5} \times 4[7 - \{\frac{2}{5} \times 15\}] = \frac{3}{5} \times 4[7 - 6] = \frac{3}{5} \times 4 = 2\frac{2}{5}$

Sol 59. (d)

$7 - \{4 \times 3 - (-10) \times 8 \div (-4)\}$

$= 7 - \{12 + 10 \times (-2)\}$

$= 7 - \{12 - 20\} = 7 + 8 = 15$

Sol 60. (a) 10-{17-12 ÷ (5+9 × 2-17)} = 10-{17-12 ÷ (6)} = 10-{15} = -5

Pinnacle

Sol 61. (d) $13 \div \{4 \text{ of } 2 - 3 + 4 \times (6-4)\} = 13 \div \{8 - 3 + 8\} = 1$

Sol 62. (d)

$32 \div 4 \text{ of } 2 \times 3 + [5 \text{ of } 6 - \{7 \text{ of } 8(10 + 6 \text{ of } \frac{5}{6} \div 5 - 1) \div 80\}] - 7 \times 3 \div 2$

$\Rightarrow 32 \div 8 \times 3 + [30 - \{56(10 + 5 \div 5 - 1) \div 80\}] - 7 \times 3 \div 2$

$\Rightarrow 4 \times 3 + [30 - \{56(10) \div 80\}] - 7 \times \frac{3}{2}$

$\Rightarrow 12 + 23 - \frac{21}{2} = 24.5$

Sol 63. (b)

$\frac{72 \div 9 + 3 - 6 - (2 \times 3) + 5 \text{ of } 3 - (1 + 5 \times 2 - 2)}{8 \div 4 + 2 - (6 \times 8 \div 2) + (7 \times 4 - 2 \times 2)}$

$\Rightarrow \frac{8 + 3 - 6 - 6 + 15 - (1 + 10 - 2)}{2 + 2 - (6 \times 4) + (28 - 4)}$

$\Rightarrow \frac{11 + -1215 - 9}{4} = \frac{5}{4}$

Sol 64. (b)

$7 \div 2 - [3 \text{ of } 7 \div 4 \div \{(2 \div 5) \times (25 \div 8) \div (5 \div 2)\}]$

$\Rightarrow 3.5 - [21 \div 4 \div \{0.4 \times 3.125 \div 2.5\}]$

$\Rightarrow 3.5 - [5.25 \div \{0.4 \times 1.25\}]$

$\Rightarrow 3.5 - [5.25 \div 0.5] = -7$

Sol 65. (a)

$\frac{3}{4} \text{ of } (\frac{1}{3} \div \frac{1}{2}) + (2 - \frac{2}{5}) \times \frac{3}{2} + \frac{2}{3}$

$\Rightarrow \frac{3}{4} \text{ of } (\frac{2}{3}) + (\frac{8}{5}) \times \frac{3}{2} + \frac{2}{3}$

$\Rightarrow \frac{1}{2} + \frac{12}{5} + \frac{2}{3} = \frac{107}{30}$

Sol 66. (c)

$\frac{\frac{2}{3} \text{ of } \frac{9}{4} + \frac{1}{2} \div \frac{5}{4}}{1 - \frac{1}{3} + \frac{1}{4} \times (1 + \frac{1}{3})}$

$\Rightarrow \frac{\frac{3}{2} + \frac{1}{2} \div \frac{5}{4}}{\frac{2}{3} + \frac{1}{4} \times \frac{4}{3}}$

$\Rightarrow \frac{\frac{3}{2} + \frac{2}{5}}{1} = \frac{19}{10}$

Sol 67. (c)

$\frac{3}{7} \div \frac{9}{21} + 2 - \frac{4}{3} + \frac{1}{2} \text{ of } \frac{12}{5} \times \frac{25}{18} \div \frac{5}{9}$

$\Rightarrow 1 + \frac{2}{3} + \frac{6}{5} \times \frac{5}{2}$

$\Rightarrow 1 + \frac{2}{3} + 3 = \frac{14}{3}$

Sol 68. (c)

$90 \times 3 \div 9 + 4 \div 2 \times 3 \text{ of } 4 \times 8 \div (18 \times 2 - 4)$

$\Rightarrow 90 \times \frac{1}{3} + 2 \times 12 \times 8 \div (36-4)$

$\Rightarrow 30 + 24 \times \frac{1}{4} = 36$

Sol 69. (d)

$A = 40 \div 8 + 5 \times 2 - 4 + 5 \text{ of } 3 = 5 + 10 - 4 + 15 = 26$

$B = 24 \div 4(4 + 2) + 19 \text{ of } 2 = 24 \div 24 + 38 = 39$

$\Rightarrow A - B = 26 - 39 = -13$

Sol 70. (c)

$36 \div 8 \times 4 + 2 \div 4 - 1 + 5 \text{ of } 3 \div (4 \times 2 - 3) - 3$

$\Rightarrow 4.5 \times 4 + \frac{1}{2} - 1 + 15 \div (5) - 3$

$\Rightarrow 18 - \frac{1}{2} = \frac{35}{2}$

Sol 71. (c)

$A = 7 \times 3 \div (2 + 4) + 4 - 2 = 21 \div 6 + 2 = \frac{11}{2}$

$B = 3 \div 6 \times 4 + 2 - 2 \text{ of } 3 = \frac{1}{2} \times 4 + 2 - \frac{2}{3} = \frac{10}{3}$

and $C = 6 \div 2 + 4 \times 3 - 2 = 3 + 12 - 3 = 12$

$(A + B - C) = \frac{11}{2} + \frac{10}{3} - 12 = -\frac{19}{2}$

Sol 72.(b)

$\frac{3 \text{ of } 24 \div 8 \times 3 + 4 \div 2 - 4 \times 5}{36 \div 12 \times 4 \div 2 + 5 \times (6-4)}$

$\Rightarrow \frac{72 \div 8 \times 3 + 2 - 20}{3 \times 2 + 10}$

$\Rightarrow \frac{27 + 2 - 20}{16} = \frac{9}{16}$

Sol 73.(b)

$\frac{\frac{3}{4} \div \frac{9}{32} + \frac{4}{3} \times \frac{2}{3} \text{ of } \frac{27}{16}}{\frac{1}{2} \times (\frac{8}{3} - 2) \div \frac{4}{9} + (\frac{1}{3} + \frac{1}{6})}$

$\Rightarrow \frac{\frac{8}{3} + \frac{4}{3} \times \frac{9}{8}}{\frac{1}{2} \times (\frac{2}{3}) \div \frac{4}{9} + \frac{1}{2}}$

$\Rightarrow \frac{\frac{8}{3} + \frac{3}{2}}{\frac{1}{2} \times \frac{9}{2} + \frac{1}{2}} = \frac{10}{3}$

Sol 74. (d)

$\frac{39 \div 26 + 22 \div 11 \times 2 + 4 \times 3}{2 \text{ of } 5 - 3(7 + 10 \div 2 - 3 \times 3)}$

$\Rightarrow \frac{\frac{3}{2} + 2 \times 2 + 12}{10 - 3(7 + 5 - 9)}$

$\Rightarrow \frac{\frac{3}{2} + 4 + 12}{10 - 9} = \frac{35}{2}$

Sol 75.(c)

$(24 + 16 \times 5 - 8 \text{ of } 4) \div 84 \times 48 \div 24 \times 6 + 4 + 3$

$\Rightarrow (24 + 80 - 32) \div 84 \times 2 \times 6 + 4 + 3$

$\Rightarrow 72 \div 84 \times 12 + 7$

$\Rightarrow \frac{6}{7} \times 12 + 7 = \frac{121}{7}$

Sol 76. (d)

$(3 \times 4 \text{ of } 12 \div 2) \div 9 \times 4 + 4 \div 8 + 3 \times 2$

$\Rightarrow (3 \times 48 \div 2) \div 9 \times 4 + \frac{1}{2} + 6$

$\Rightarrow 72 \div 9 \times 4 + \frac{1}{2} + 6 = \frac{77}{2}$

Sol 77.(a)

$A = 8 \div 4 \times (3 - 1) + 6 \times 3 \div 2 \text{ of } 3 = 2 \times (2) + 6 \times 3 \div 6 = 7$

$B = 4 \div 8 \times 2 + 7 \times 3 = \frac{1}{2} \times 2 + 21 = 22$

$\Rightarrow A + B = 7 + 22 = 29$

Sol 78.(d)

$(6 \text{ of } 4 \div 16 \times 48) \div 8 \times 4 + 2 \times 3 \div 6 + 5(6 - 2)$

$\Rightarrow (24 \div 16 \times 48) \div 8 \times 4 + 2 \times \frac{1}{2} + 20$

$\Rightarrow 72 \div 8 \times 4 + 1 + 20$

$\Rightarrow 9 \times 4 + 21 = 57$

Sol 79. (a)

$\frac{3}{4} \div (\frac{1}{2} + \frac{1}{16}) + \frac{2}{3} \text{ of } \frac{4}{9} \div (\frac{1}{3} - \frac{11}{81}) + \frac{1}{4} \times \frac{2}{3}$

$\Rightarrow \frac{3}{4} \div (\frac{9}{16}) + \frac{8}{27} \div (\frac{16}{81}) + \frac{1}{6}$

$\Rightarrow \frac{4}{3} + \frac{3}{2} + \frac{1}{6} = 3$

Sol 80. (d)

$\frac{(0.7)^2 \div 0.14 + (0.6)^2 \div 0.18 + (0.5)^2 \div 0.05}{4(2.5 \text{ of } 4 - 13 \times 0.25 \times 3)}$

$\Rightarrow \frac{0.49 \div 0.14 + 0.36 \div 0.18 + 0.25 \div 0.05}{4(10 - 9.75)}$

$\Rightarrow \frac{3.5 + 2 + 5}{4 \times 0.25} = 10.5 = \frac{21}{2}$

Sol 81.(b)

$\frac{(1 - \frac{1}{4}) + (\frac{1}{2} \text{ of } \frac{1}{2}) \div \frac{2}{5}}{\frac{2}{5} \div \frac{1}{4} + \frac{3}{2}(2 - \frac{8}{5})}$

$\Rightarrow \frac{(\frac{3}{4}) + (\frac{1}{4}) \div \frac{2}{5}}{\frac{2}{5} \div \frac{1}{4} + \frac{3}{2}(\frac{2}{5})}$

$\Rightarrow \frac{(\frac{3}{4}) + (\frac{5}{8})}{\frac{8}{5} + \frac{3}{5}} = \frac{5}{8}$

Sol 82. (d)

$(1 + \frac{3}{4}) \times \frac{3}{21} \text{ of } 5\frac{1}{3} \div \frac{128}{49} + \frac{2}{3} \times \frac{7}{11} \times \frac{121}{49} \div (\frac{15}{14} - \frac{2}{7})$

$\Rightarrow$

$\frac{7}{4} \times \frac{16}{21} \div \frac{128}{49} + \frac{2}{3} \times \frac{7}{11} \times \frac{121}{49} \div \frac{11}{14}$

$\Rightarrow \frac{7}{4} \times \frac{7}{24} + \frac{2}{3} \times \frac{7}{11} \times \frac{22}{7}$

$\Rightarrow \frac{49}{96} + \frac{4}{3} = \frac{59}{32}$

Sol 83. (d)

Pinnacle

A= $2 \div 3 \times 4$

$= \frac{8}{3}$

B= $3 \text{ of } 4 + (7 - 2)$

$= 12 + 5 = 17$

and C= $4 + 5 - 6$

$= 3$

$\Rightarrow A+B+C = \frac{8}{3} + 17 + 3 = \frac{68}{3}$

Sol 84. (c)

$\frac{(49-13)\times 18\div 9+4\times 12\div 6+5}{98\div 14+7\times 4 \text{ of } 6\div 8+4}$

$\Rightarrow \frac{36\times 2+4\times 2+5}{7+7\times 24\div 8+4}$

$\Rightarrow \frac{72+8+5}{7+21+4} = \frac{85}{32}$

Sol 85.(c)

$\frac{2\div 3\times(1+3)+5-6}{2 \text{ of } 3\div 5\times 4+3-2}$

$\Rightarrow \frac{\frac{2}{3}\times 4+5-6}{6\div 5\times 4+3-2}$

$\Rightarrow \frac{\frac{5}{3}}{\frac{24}{5}+1} = \frac{25}{87}$

Sol 86.(a)

$2 \text{ of } 16 \div 48 \times 12 + 4 \div 8 \times 16 + (7 - 2) \times 25 \div 15$

$\Rightarrow$

$32 \div 48 \times 12 + \frac{1}{2} \times 16 + (7 - 2) \times 25 \div 15$

$\Rightarrow \frac{2}{3} \times 12 + 8 + 5 \times \frac{5}{3} = \frac{73}{3}$

Sol 87. (c)

$(\frac{1}{2} \div \frac{1}{2} \times \frac{1}{2} + \frac{1}{2} - \frac{1}{2} + \frac{1}{2} \times \frac{1}{2} \div \frac{1}{2})$ $\text{of } (\frac{1}{2} + \frac{1}{2})$

$\Rightarrow (1 \times \frac{1}{2} + \frac{1}{2} \times 1) \text{ of } (1) = 1$

Sol 88. (c)

$\frac{12 \text{ of } 3\div 6+12\times 2-(2\times 4-5)}{12\div 3\times 4+(2\times 4-5)}$

$\Rightarrow \frac{36\div 6+24-(8-5)}{4\times 4+(8-5)}$

$\Rightarrow \frac{6+24-3}{16+3} = \frac{27}{19}$

Sol 89. (b)

$5 \text{ of } 5 \text{ of } 5 \div 5 + 5 - 6 \div 3 \times 4 + 2 + (3 \div 6 \times 2)$

$\Rightarrow 125$

$\div 5 + 5 - 2 \times 4 + 2 + (\frac{1}{2} \times 2)$

$\Rightarrow 25+5-8+3 = 25$

Sol 90. (c)

$(9 \div 30)^2 \times 2.4 + 0.3 \text{ of } 12 \times (1 - 0.3)^2$

$+ 9 \times (0.3)^2$

$\Rightarrow 0.09 \times 2.4 + 3.6 \times 0.49 + 0.81$

$\Rightarrow 0.216 + 1.764 + 0.81 = 2.79$

Sol 91. (a)

$2 \text{ of } 3 \div 3 \times 2 + \{4 \times 3 - (5 \times 2 + 3)\}$

$\Rightarrow 6 \div 3 \times 2 + \{12 - (10 + 3)\}$

$\Rightarrow 2 \times 2 + 12 - 13 = 3$

Sol 92. (d)

$99\frac{95}{99} \times 99 - 95$

$\Rightarrow 99 \times 99 + \frac{95}{99} \times 99 - 95$

$\Rightarrow 9801 + 95 - 95 = 9801$

Sol 93. (d)

$\frac{0.56\times 0.36+0.42\times 0.32}{0.8\times 0.21}$

$\Rightarrow \frac{0.2016+0.1344}{0.168} = 2$

Sol 94. (a)

$(3576 + 4286 + 6593) \div (201 + 105 + 107)$

$\Rightarrow 14455 \div 413 = 35$

Sol 95. (d)

$45 \times x = 25\% \text{ of } 900$

$\Rightarrow 45x = \frac{25}{100} \text{ x } 900$

$\Rightarrow x = \frac{225}{45} = 5$

Sol 96. (d)

$(x^5 \div x^4)^3 \div x^2$

$\Rightarrow (x)^3 \div x^2 = x$

Sol 97.(c)

$23^2 + \sqrt{x} = 625$

$\Rightarrow \sqrt{x} = 625 - 529$

$\Rightarrow x = 96^2 = 9216$

Sol 98. (c)

$(2\frac{1}{6} + 1\frac{13}{18} - \frac{1}{6}) \times 16 \div 4$

$\Rightarrow (\frac{13}{6} + \frac{31}{18} - \frac{1}{6}) \times 4$

$\Rightarrow \frac{39+31-3}{18} \times 4 = \frac{134}{9}$

Sol 99. (c)

$[12 \times 5 - \{200 - (501 + 247 - 386)\}] \div 2$

$\Rightarrow [60 - \{200 - 362\}] \div 2$

$\Rightarrow [60+162] \div 2 = 111$

Sol 100. (b)

$5\frac{1}{3} \times 2\frac{1}{7} \times 9\frac{2}{5} \times 4\frac{3}{8} \times 2\frac{6}{47}$

$\Rightarrow \frac{16}{3} \times \frac{15}{7} \times \frac{47}{5} \times \frac{35}{8} \times \frac{100}{47} = 1000$

Sol 101.(c)

$\sqrt{\frac{25.60}{72.90}} + \sqrt{\frac{0.10}{8.10}}$

$\Rightarrow \sqrt{(\frac{1.6}{2.7})^2} + \sqrt{(\frac{1}{9})^2}$

$\Rightarrow \frac{16}{27} + \frac{1}{9} = \frac{19}{27}$

Sol 102. (a)

$(15 + 3 \times 1.1) \div 0.0003$

$\Rightarrow (15+3.3) \div 0.0003$

$\Rightarrow \frac{18.3}{3} \text{ x } 10000 = 61000$

Sol 103. (c)

$7 \times 7 \text{ of } 3 \div 3 - 14 \times x = 7$

$\Rightarrow 7 \times 21 \div 3 - 14 \times x = 7$

$\Rightarrow 49-7 = 14x$

$\Rightarrow x = 3$

Sol 104. (a)

(1x2+2x3-3x4+4x5-5x6+6x7)

$\Rightarrow 2 + 6 - 12 + 20 - 30 + 42 = 28$

Sol 105. (d)

$8 \text{ of } 3 \div 6 + (10 + 2) \times 3 - 96 \div 3$

$\Rightarrow 24 \div 6 + 12 \times 3 - 32$

$\Rightarrow 8$

Sol 106. (d)

$12^2 + 16 \text{ of } 3 - 20 \div 4$

$\Rightarrow 144 + 48 - 5 = 187$

Sol 107. (b)

$[\{(100 \text{ of } 0.9 \times 0.8 - 7 \times 1.2 \div 0.2 + 5 \times 4 - 3 \times 2)\} \div 10 + 1.85]$

$\Rightarrow [\{(90 \times 0.8 - 7 \times 6 + 20 - 6)\} \div 10 + 1.85]$

$\Rightarrow [72-42+20-6] \div 10+1.85$

$\Rightarrow 44 \div 10 + 1.85 = 6.25$

Required square root = $\sqrt{6.25} = 2.5$

Sol 108. (a)

(1 x 2+3 x 4+5 x 6+7 x 8 - 9 x 10) $\div$ 2 of 5

$\Rightarrow (2 + 12 + 30 + 56 - 90) \div 10$

$\Rightarrow 10 \div 10 = 1$

Pinnacle

Sol 109. (c)
$(28 \div 4 \times 7) + (44 \div 4 \times 7) - (12 \times x) = 18$
$\Rightarrow (7 \times 7) + (11 \times 7) - (12 \times x) = 18$
$\Rightarrow 49 + 77 - 12x = 18$
$\Rightarrow 126 - 18 = 12x$
$\Rightarrow x = 9$

Sol 110. (b)
$2 \times 2 + 4 \times 4 + 2 \text{ of } 3 \times 6 - 7 \times (5 + 4 \div 2)$
$\Rightarrow 4 + 16 + 6 \times 6 - 7 \times (5 + 2)$
$\Rightarrow 20 + 36 - 49 = 7$

Sol 111. (c)
$(0.4 \text{ of } 50 \times 6 \div 8) \div (12 \times 10 \div 16) + 5 \times 0.2 - 0.01 \times 10^2$
$\Rightarrow (20 \times 6 \div 8) \div (12 \times \frac{10}{16}) + 1 - 1$
$\Rightarrow (15) \div 7.5 = 2$

Sol 112. (c)
$(2 \text{ of } 14 \div 7 \times 3) + (44 \div 11 \times 8) - (12 \times 9 \div 3)$
$\Rightarrow (28 \div 7 \times 3) + (4 \times 8) - (12 \times 3)$
$\Rightarrow (4 \times 3) + (32) - (36) = 8$

Sol 113.(c)
$2 - 2 \div 2 \times 2 + 2(2 \text{ of } 2 - 2 - 2 \div 2)$
$\Rightarrow 2 - 1 \times 2 + 2(4 - 2 - 1)$
$\Rightarrow 2 - 2 + 2(1) = 2$

Sol 114. (a)
$3\frac{3}{4} - \frac{61}{122} + \frac{9}{2} \div \frac{1}{2} \text{ of } \frac{4}{3}(1 + \frac{1}{3}) + \frac{1}{2} \times \frac{4}{3}$
$\Rightarrow \frac{15}{4} - \frac{1}{2} + \frac{9}{2} \div \frac{2}{3}(\frac{4}{3}) + \frac{2}{3}$
$\Rightarrow \frac{15}{4} - \frac{1}{2} + \frac{27}{4} \times \frac{4}{3} + \frac{2}{3}$
$\Rightarrow \frac{13}{4} + 9 + \frac{2}{3} = \frac{155}{12}$

Sol 115.(a)
$\frac{(1-\frac{3}{4})+\frac{1}{2} \text{ of } \frac{6}{10}}{\frac{2}{3} \div \frac{4}{10} + (1-\frac{1}{5}) \text{ of } \frac{25}{16}}$
$\Rightarrow \frac{(\frac{1}{4})+\frac{3}{10}}{\frac{5}{3}+\frac{4}{5} \text{ of } \frac{25}{16}}$
$\Rightarrow \frac{\frac{11}{20}}{\frac{5}{3}+5}$
$\Rightarrow \frac{11 \times 20}{20 \times 35} = \frac{33}{175}$

Sol 116.(b)
$3 \div 3 \text{ of } 3 + 2 \div 4 + (4 \times 2 - 2) \div 12 + 4$
$\Rightarrow 3 \div 9 + \frac{1}{2} + (8 - 2) \div 12 + 4$
$\Rightarrow \frac{1}{3} + \frac{1}{2} + \frac{1}{2} + 4 = \frac{16}{3}$

Sol 117. (d)
$(8 \div \frac{2}{3} \text{ of } \frac{4}{5}) \div (8 \times \frac{2}{3} \div \frac{4}{5}) \text{ of } (8 \div \frac{2}{3} \times \frac{4}{5})$
$\Rightarrow (8 \div \frac{8}{15}) \div (8 \times \frac{5}{6}) \text{ of } (12 \times \frac{4}{5})$
$\Rightarrow 15 \div \frac{20}{3} \text{ of } \frac{48}{5}$
$\Rightarrow 15 \div 64 = \frac{15}{64}$

Sol 118. (c)
$165 - [135 - \{84 \div 4 \text{ of } 3 - (16 - 18 \div 3)\}]$
$\Rightarrow$
$165 - [135 - \{84 \div 12 - (16 - 6)\}]$
$\Rightarrow 165 - [135 - \{7 - 10\}]$
$\Rightarrow 165 - 138 = 27$

Sol 119.(b)
$27 \times 6 \div 24 + 6 \div 2 \text{ of } 3 + 30 \div 24 \times 18 - 9 \div 54 \text{ of } 3 \times 216$
$\Rightarrow 27 \times \frac{1}{4} + 6 \div 6 + \frac{5}{4} \times 18 - 9 \div 162 \times 216$
$\Rightarrow 27 \times \frac{1}{4} + 1 + \frac{90}{4} - \frac{1}{18} \times 216$
$\Rightarrow \frac{27}{4} + 1 + \frac{90}{4} - 12$
$\Rightarrow \frac{117}{4} - 11 = 18.25$

Sol 120.(a)
$\frac{1}{7} \text{ of } 1\frac{2}{5} \div \{5\frac{1}{2} - (\frac{5}{32} + \frac{3}{5} \times 1\frac{7}{8} \div 1\frac{1}{3} \text{ of } \frac{3}{16})\}$
$\Rightarrow \frac{1}{5} \div \{\frac{11}{2} - (\frac{5}{32} + \frac{3}{5} \times 1\frac{7}{8} \div \frac{1}{4})\}$
$\Rightarrow \frac{1}{5} \div \{\frac{11}{2} - (\frac{5}{32} + \frac{3}{5} \times \frac{15}{2})\}$
$\Rightarrow \frac{1}{5} \div \{\frac{11}{2} - (\frac{5}{32} + \frac{9}{2})\}$
$\Rightarrow \frac{1}{5} \div \{\frac{11}{2} - \frac{149}{32}\}$
$\Rightarrow \frac{1}{5} \div \frac{27}{32} = \frac{32}{135}$

Sol 121. (b)
$\frac{1}{4} \times \frac{3}{4} \div 1\frac{1}{4} \text{ of } \frac{2}{5} - [\frac{1}{6} \div \{\frac{3}{7} \text{ of } \frac{14}{5} \times 1\frac{2}{3} - (3\frac{1}{2} - 2\frac{1}{6})\}]$
$\Rightarrow \frac{1}{4} \times \frac{3}{4} \div \frac{1}{2} - [\frac{1}{6} \div \{\frac{6}{5} \times \frac{5}{3} - \frac{8}{6}\}]$
$\Rightarrow \frac{1}{4} \times \frac{3}{2} - [\frac{1}{6} \div \{2 - \frac{8}{6}\}]$
$\Rightarrow \frac{3}{8} - [\frac{1}{6} \div \frac{4}{6}\}] = \frac{1}{8}$

Sol 122.(c)
$4 \times 2 \div 4 \text{ of } (4 + 4 \div 4 \text{ of } 4) - (4 \div 4 \text{ of } 2 \times 4)$
$\Rightarrow$
$4 \times 2 \div 4 \text{ of } (4 + 4 \div 16) - (4 \div 8 \times 4)$
$\Rightarrow 4 \times 2 \div 4 \text{ of } (4 + \frac{1}{4}) - (\frac{1}{2} \times 4)$
$\Rightarrow 4 \times 2 \div 4 \text{ of } (\frac{17}{4}) - 2$
$\Rightarrow 4 \times \frac{2}{17} - 2 = -\frac{26}{17}$

Sol 123. (b)
$26 - [(2 \text{ of } 6 \div 3) - 93 - \{17 - (14 - 2)\}]$
$\Rightarrow$
$26 - [(12 \div 3) - 93 - \{17 - 12\}]$
$\Rightarrow 26 - [4 - 93 - 5] = 120$

Sol 124.(d)
$(5)^2 + (6)^2 + (30)^2 = (x)^2$
$\Rightarrow 25 + 36 + 900 = x^2$
$\Rightarrow x = \sqrt{961} = 31$

Sol 125. (a)
$56 + (4)^3 - 3 \times (3)^2$
$\Rightarrow 56 + 64 - 27 = 93$

Sol 126.(c)
$\sqrt{3\frac{1}{16} + \frac{1}{2} - \frac{3}{4}}$
$\Rightarrow \frac{7}{4} + \frac{1}{2} - \frac{3}{4} = 1\frac{1}{2}$

Sol 127.(c)
$(4488 \div 11.01 - 7.98) \div 15.99$
$\Rightarrow (407.63 - 7.98) \div 15.99$
$\Rightarrow 399.64 \div 15.99 = 24.99 \approx 25$
Alternate :
Since none of the option is very much close to one another we can take 11.01 = 11 7.98 = 8 and 15.99 =16 to ease the calculation.
$(4488 \div 11.01 - 7.98) \div 15.99 \Rightarrow (4488 \div 11 - 8) \div 16$
$\Rightarrow (408 - 8) \div 16 = 25$

Sol 128. (b)
$7 \div 14 \text{ of } 2 - 7 \times 7 \div 49 + \frac{1}{3} \text{ of } (14 \div 7 + 7) + 7 - 14 \div 2$
$\Rightarrow$
$7 \div 28 - 7 \times \frac{1}{7} + \frac{1}{3} \text{ of } (2 + 7) + 7 - 7$

Pinnacle

$\Rightarrow \frac{1}{4} - 1 + 3 = 2\frac{1}{4}$

Sol 129. (d)

$6\frac{1}{8} \div (5\frac{1}{4} \div \frac{3}{7} \text{ of } \frac{1}{2}) - 8 \times \frac{2}{3} \div \frac{4}{5} \text{ of } 1\frac{2}{3}$

$\Rightarrow \frac{49}{8} \div (5\frac{1}{4} \div \frac{3}{14}) - 8 \times \frac{2}{3} \div \frac{4}{3}$

$\Rightarrow \frac{49}{8} \div (\frac{147}{6}) - 8 \times \frac{1}{2}$

$\Rightarrow \frac{1}{4} - 4 = -\frac{15}{4}$

Sol 130. (c)

$3 \div 21 \text{ of } 3 \times 7 + 24 \times 6 \div 18 - 3 \div 2 + 3 - 2 \times 3 \div 6$

$\Rightarrow$

$3 \div 63 \times 7 + 24 \times \frac{1}{3} - \frac{3}{2} + 3 - 2 \times \frac{1}{2}$

$\Rightarrow \frac{1}{21} \times 7 + 8 - \frac{3}{2} + 3 - 1$

$\Rightarrow \frac{1}{3} + 10 - \frac{3}{2} = \frac{53}{6} = 8\frac{5}{6}$

Sol 131. (d)

$3\frac{1}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3} - 2\frac{1}{3} \text{ of } \{\frac{3}{7} - (1\frac{4}{15} - \frac{13}{30}) \times 1\frac{1}{5}\}$

$\Rightarrow \frac{16}{5} \div 24 - \frac{7}{3} \text{ of } \{\frac{3}{7} - \frac{25}{30} \times \frac{6}{5}\}$

$\Rightarrow \frac{2}{15} + \frac{4}{3} = 1\frac{7}{15}$

Sol 132. (a)

$1\frac{2}{3} \div \{\frac{3}{7} \text{ of } \frac{14}{5} \times 1\frac{2}{3} - (3\frac{1}{2} - 2\frac{1}{6})\} + \frac{1}{2} \div \frac{3}{2} \text{ of } \frac{1}{2}$

$\Rightarrow \frac{5}{3} \div \{\frac{6}{5} \times \frac{5}{3} - (\frac{8}{6})\} + \frac{1}{2} \div \frac{3}{4}$

$\Rightarrow \frac{5}{3} \div \frac{2}{3} + \frac{2}{3}$

$\Rightarrow \frac{5}{2} + \frac{2}{3} = 3\frac{1}{6}$

Sol 133. (d)

$72 \div 6 \text{ of } 12 + 4 \times (5 - 3) \text{ of } 2 \div 4 - 2$

$\Rightarrow 72 \div 72 + 4 \times 2 \text{ of } 2 \div 4 - 2$

$\Rightarrow 1 + 4 \times 4 \div 4 - 2 = 3$

Sol 134. (c)

$\frac{5+2 \text{ of } 3 \div 3 \text{ of } 2 \times 3}{9+72 \div 3 - 2 \times (3-2) - 3}$

$\Rightarrow \frac{5+6 \div 6 \times 3}{9+24-2 \times 1-3} = \frac{8}{28} = \frac{2}{7}$

$\Rightarrow \frac{a}{b} = \frac{2}{7}$

So, (b-a) = 7-2 = 5

Sol 135. (c)

$(5\frac{1}{4} \div \frac{3}{7} \text{ of } \frac{1}{2}) \times (5\frac{1}{4} \times \frac{3}{7} \div \frac{1}{2}) \div (5\frac{1}{4} \div \frac{3}{7} \times \frac{1}{2})$

$\Rightarrow$

$(\frac{21}{4} \div \frac{3}{14}) \times (\frac{21}{4} \times \frac{6}{7}) \div (\frac{21}{4} \div \frac{3}{7} \times \frac{1}{2})$

$\Rightarrow (\frac{49}{2}) \times (\frac{9}{2}) \div (\frac{49}{4} \times \frac{1}{2})$

$\Rightarrow (\frac{49}{2}) \times (\frac{36}{49}) = 18$

Sol 136. (d)

$x = \frac{1}{12.13} + \frac{1}{13.14} + \frac{1}{14.15} \ldots\ldots + \frac{1}{23.24}$

$= \frac{1}{12} - \frac{1}{13} + \frac{1}{13} - \frac{1}{14} + \ldots + \frac{1}{23} - \frac{1}{24} = \frac{1}{12} - \frac{1}{24}$

$= \frac{1}{24}$

$y = \frac{1}{36.37} + \frac{1}{37.38} + \frac{1}{38.39} \ldots\ldots + \frac{1}{71.72}$

$= \frac{1}{36} - \frac{1}{37} + \frac{1}{37} - \frac{1}{38} + \ldots + \frac{1}{71} - \frac{1}{72} = \frac{1}{36} - \frac{1}{72}$

$= \frac{1}{72}$

Therefore, $\frac{x}{y} = \frac{\frac{1}{24}}{\frac{1}{72}} = 3$

Alternate :

$x = \frac{1}{12.13} + \frac{1}{13.14} + \frac{1}{14.15} \ldots\ldots + \frac{1}{23.24}$

$= \frac{1}{13-12}(\frac{1}{12} - \frac{1}{24}) = \frac{1}{24}$

$y = \frac{1}{36.37} + \frac{1}{37.38} + \frac{1}{38.39} \ldots\ldots + \frac{1}{71.72}$

$= \frac{1}{37-36}(\frac{1}{36} - \frac{1}{72}) = \frac{1}{72}$

Therefore, $\frac{x}{y} = \frac{\frac{1}{24}}{\frac{1}{72}} = 3$

Sol 137. (d) Given,

$(1.25)(1 - 6.4 \times 10^{-5}) = 1.2496 + a$

$\Rightarrow (1.25)(0.999936) = 1.2496 + a$

$\Rightarrow 1.24992 = 1.2496 + a$

$\Rightarrow a = 0.00032$

SSC CGL TIER II

Sol 1. (d)

$\frac{7 + 8 \times 8 \div 8 \text{ of } 8 + 8 \div 8 \times 4 \text{ of } 4}{4 \div 4 \text{ of } 4 + 4 \times 4 \div 4 - 4 \div 4 \text{ of } 2}$

$\Rightarrow \frac{7 + 8 \times 8 \div 64 + 8 \div 8 \times 16}{4 \div 16 + 4 \times 4 \div 4 - 4 \div 8}$

$\Rightarrow \frac{7 + 1 + 16}{\frac{1}{4} + 4 - \frac{1}{2}}$

$\Rightarrow \frac{24 \times 4}{15} = 6.4$

Sol 2. (d)

$22.\overline{4} + 11.5\overline{67} - 33.5\overline{9} \Rightarrow$

$22.444444\ldots\infty + 11.5676767\ldots$

$\infty - 33.599999\ldots\ldots\infty$

$= 0.412121212\ldots\infty$

$= 0.4\overline{12}$

Sol 3. (a)

$(2\frac{6}{7} \text{ of } 4\frac{1}{5} \div \frac{2}{3})$

$\times 1\frac{1}{9} \div (\frac{3}{4} \times 2\frac{2}{3} \text{ of } \frac{1}{2} \div \frac{1}{4})$

$\Rightarrow (\frac{20}{7} \text{ of } \frac{21}{5} \div \frac{2}{3})$

$\times \frac{10}{9} \div (\frac{3}{4} \times \frac{4}{3} \div \frac{1}{4})$

$\Rightarrow (12 \div \frac{2}{3}) \times \frac{10}{9} \div (\frac{3}{4} \times \frac{16}{3})$

$\Rightarrow 18 \times \frac{10}{9} \div 4 = 5$

Sol 4. (a)

$\frac{(253)^3 + (247)^3}{25.3 \times 25.3 - 624.91 + 24.7 \times 24.7}$

$\Rightarrow \frac{(253+247)(253 \times 253 - 62491 + 247 \times 247}{\frac{1}{100} \times (253 \times 253 - 62491 + 247 \times 247)}$

$\Rightarrow 500 \text{ x } 100 = 50 \text{ x } 1000$

According to the question

$50 \text{ x } 1000 = 50 \times 10^k$

$\Rightarrow k = 3$

Sol 5. (b)

$(\sqrt{2} + \sqrt{5} - \sqrt{3}) \times k = -12$

$\Rightarrow k = \frac{-12}{(\sqrt{2}+\sqrt{5}-\sqrt{3})}$

$= \frac{-12}{(\sqrt{2}+\sqrt{5}-\sqrt{3})} \text{ x } \frac{(\sqrt{2}+\sqrt{5}+\sqrt{3})}{(\sqrt{2}+\sqrt{5}+\sqrt{3})}$

$\Rightarrow \frac{-12(\sqrt{2}+\sqrt{5}+\sqrt{3})}{(\sqrt{2}+\sqrt{5})^2 - (\sqrt{3})^2} \Rightarrow$

$\frac{-12(\sqrt{2}+\sqrt{5}+\sqrt{3})}{4+2\sqrt{10}}$

$\Rightarrow \frac{-6(\sqrt{2}+\sqrt{5}+\sqrt{3})}{2+\sqrt{10}} \times \frac{\sqrt{10}-2}{\sqrt{10}-2}$

$\Rightarrow \frac{-6(\sqrt{2}+\sqrt{5}+\sqrt{3})(\sqrt{10}-2)}{6} = ($

$\sqrt{2} + \sqrt{5} + \sqrt{3})(2 - \sqrt{10})$

Sol 6. (a)

$($

$1\frac{1}{3} \div 2\frac{6}{7} \text{ of } 5\frac{3}{5}) \div (6\frac{2}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3})$

$\times (\frac{3}{4} \times 2\frac{2}{3} \div \frac{5}{9} \text{ of } 1\frac{1}{5}) = 1 + k$

$\Rightarrow (\frac{4}{3} \div 16) \div (\frac{32}{5} \div 24)$

$\times (\frac{3}{4} \times 2\frac{2}{3} \div \frac{2}{3}) = 1 + k$

$\Rightarrow (\frac{1}{12}) \div (\frac{4}{15}) \times (3) = 1 + k$

$\Rightarrow \frac{5}{16} \times 3 = 1 + k$

$\Rightarrow 0.9375 = 1 + k$

$\Rightarrow k = -0.0625$

Clearly k lies between -0.07 and -0.06

Sol 7.(a)

$\frac{(0.545)(0.081)(0.51)(5.2)}{(0.324)^3 + (0.221)^3 - (0.545)^3} \Rightarrow$

$\frac{(0.545)(0.081) \times 4 \times 3 \times (0.17)(1.3)}{(0.324)^3 + (0.221)^3 - (0.545)^3}$

$\Rightarrow \frac{3 \times (0.545)(0.324)(0.221)}{(0.324)^3 + (0.221)^3 - (0.545)^3}$

Now, since

$(0.324 + 0.221 - 0.545 = 0)$

$\Rightarrow (0.324)^3 + (0.221)^3 - (0.545)^3$

$= -\{3 \times (0.545)(0.324)(0.221)\}$

Pinnacle

…….(Algebraic property)

So,

$\frac{3\times(0.545)(0.324)(0.221)}{(0.324)^3+(0.221)^3-(0.545)^3} \Rightarrow$

$\frac{3\times(0.545)(0.324)(0.221)}{-\{3\times(0.545)(0.324)(0.221)\}} = -1$

Sol 8. (a)

$\sqrt{10+2(\sqrt{6}-\sqrt{15}-\sqrt{10})} \Rightarrow$

$\sqrt{10+2(\sqrt{2}.\sqrt{3}-\sqrt{5}.\sqrt{3}-\sqrt{2}.\sqrt{5})}$

$\Rightarrow$

$\sqrt{\{(\sqrt{2})^2+(\sqrt{5})^2+(\sqrt{3})^2\}+}$

$\sqrt{2(\sqrt{2}.\sqrt{3}-\sqrt{5}.\sqrt{3})-\sqrt{2}.\sqrt{5}}$

$\Rightarrow \sqrt{(\sqrt{2}+\sqrt{3}-\sqrt{5})^2}$

$= (\sqrt{2}+\sqrt{3}-\sqrt{5})$

Sol 9.(a)

$0.5\bar{6}-0.7\overline{23}+0.3\bar{9}\times 0.7$

$\Rightarrow \frac{56-5}{90}-\frac{723-7}{990}+\frac{39-3}{90}\times\frac{7}{9}$

$\Rightarrow \frac{51}{90}-\frac{716}{990}+\frac{28}{90}$

$\Rightarrow \frac{561-716+308}{990} = \frac{153}{990} =$

$0.1545454\ldots\infty = 0.1\overline{54}$

Alternate :

$0.5\bar{6}-0.7\overline{23}+0.3\bar{9}\times 0.7 \Rightarrow 0.5\bar{6}$

$-0.7\overline{23}+\frac{39-3}{90}\times\frac{7}{9}$

$\Rightarrow 0.5\bar{6}-0.7\overline{23}+\frac{28}{90} \Rightarrow 0.5\bar{6}-0.7$

$\overline{23}+0.3\bar{1}$

$\Rightarrow 0.5\overline{66}-0.7\overline{23}+0.3\overline{11}=0.1\overline{54}$

Sol 10. (a)

$9\times 6\div 24+8\div 2\ of\ 5-30\div 4\ of\ 4$

$+27\times 5\div 9$

$\Rightarrow 9\times\frac{1}{4}+8\div 10-30\div 16+15$

$\Rightarrow \frac{9}{4}+\frac{4}{5}-\frac{15}{8}+15$

$\Rightarrow \frac{90+32-75}{40}+15$

$\Rightarrow \frac{47}{40}+15 = \frac{647}{40}$

Sol 11. (c)

$\sqrt{28+10\sqrt{3}}-\sqrt{7-4\sqrt{3}}$

$\Rightarrow \sqrt{25+3+2\times 5\times\sqrt{3}}$

$-\sqrt{4+3-2\times 2\times\sqrt{3}}$

$\Rightarrow \sqrt{(5+\sqrt{3})^2}-\sqrt{(2-\sqrt{3})^2}$

$\Rightarrow (5+\sqrt{3})-(2-\sqrt{3})$

$\Rightarrow 3+2\sqrt{3} = 6.46\approx 6.5$

Sol 12.(d)

$0.4\bar{7}+0.5\overline{03}-0.3\bar{9}\times 0.\bar{8}$

$\Rightarrow \frac{47-4}{90}+\frac{503-5}{990}-\frac{39-3}{90}\times\frac{8}{9}$

$\Rightarrow \frac{43}{90}+\frac{498}{990}-\frac{32}{90}$

$\Rightarrow \frac{473+498-352}{990} = \frac{619}{990} =$

$0.6252525\ldots\infty = 0.6\overline{25}$

Alternate :

$0.4\bar{7}+0.5\overline{03}-0.3\bar{9}\times 0.\bar{8}$

$\Rightarrow 0.4\overline{77}+0.5\overline{03}-\frac{39-3}{90}\times\frac{8}{9}$

$\Rightarrow 0.4\overline{77}+0.5\overline{03}-\frac{32}{90}$

$\Rightarrow 0.4\overline{77}+0.5\overline{03}-0.3\bar{5}$

$\Rightarrow 0.4\overline{77}+0.5\overline{03}-0.3\overline{55}=0.6\overline{25}$

Sol 13. (c)

$\frac{2\sqrt{10}}{\sqrt{5}+\sqrt{2}-\sqrt{7}}-\sqrt{\frac{\sqrt{5}-2}{\sqrt{5}+2}}-\frac{3}{\sqrt{7}-2}$

$\Rightarrow$

$\frac{2\sqrt{10}}{\sqrt{5}+\sqrt{2}-\sqrt{7}}\times\frac{\sqrt{5}+\sqrt{2}+\sqrt{7}}{\sqrt{5}+\sqrt{2}+\sqrt{7}}-\sqrt{\frac{\sqrt{5}-2}{\sqrt{5}+2}\times\frac{\sqrt{5}-2}{\sqrt{5}-2}}$

$-\frac{3}{\sqrt{7}-2}\times\frac{\sqrt{7}+2}{\sqrt{7}+2}$

$\Rightarrow$

$\frac{(2\sqrt{10})(\sqrt{5}+\sqrt{2}+\sqrt{7})}{(\sqrt{5}+\sqrt{2})^2-(\sqrt{7})^2}-\sqrt{\frac{(\sqrt{5}-2)^2}{(\sqrt{5})^2-2^2}}-\frac{3(\sqrt{7}+2)}{(\sqrt{7})^2-2^2}$

$\Rightarrow$

$\frac{(2\sqrt{10})(\sqrt{5}+\sqrt{2}+\sqrt{7})}{7+2\sqrt{10}-7}-(\sqrt{5}-2)-(\sqrt{7}+2)$

$\Rightarrow \sqrt{5}+\sqrt{2}+\sqrt{7}$

$-\sqrt{5}+2-\sqrt{7}-2) = \sqrt{2}$

Sol 14. (a)

$24\times 2\div 12+12\div 6\ of\ 2\div(15\div 8\times 4)$

$of\ (28\div 7\ of\ 5)$

$\Rightarrow$

$24\times\frac{1}{6}+12\div 12\div(\frac{15}{8}\times 4)\ of\ (28\div 35)$

$\Rightarrow 4+12\div 12\div(\frac{15}{2})\ of\ \frac{4}{5}$

$\Rightarrow 4+1\div 6 = 4\frac{1}{6}$

Sol 15. (a)

$9\frac{4}{9}\div 11\frac{1}{3}\ of\ \frac{1}{6}$

$+(1\frac{1}{3}\times 1\frac{4}{5}\div\frac{3}{5})\times 2\frac{1}{6}\ of\ \frac{2}{3}\div\frac{4}{3}\ of\ \frac{2}{3}$

$\Rightarrow \frac{85}{9}\div\frac{34}{18}+(\frac{4}{3}\times\frac{9}{5}\div\frac{3}{5})\times\frac{13}{9}\div\frac{8}{9}$

$\Rightarrow 5+4\times\frac{13}{8} = \frac{23}{2}$

Desired difference = $\frac{77}{4}-\frac{23}{2} = 7\frac{3}{4}$

Sol 16.(d)

$\frac{(4.6)^4+(5.4)^4+(24.84)^2}{(4.6)^2+(5.4)^2+24.84}\Rightarrow$

$\frac{\{(4.6)^2+(5.4)^2\}^2-2\{(4.6)^2(5.4)^2\}+(24.84)^2}{(4.6)^2+(5.4)^2+24.84}$

$\Rightarrow \frac{\{(4.6)^2+(5.4)^2\}^2-(24.84)^2}{(4.6)^2+(5.4)^2+24.84}\Rightarrow$

$\frac{[\{(4.6)^2+(5.4)^2\}-(24.84)][\{(4.6)^2+(5.4)^2\}+(24.84)]}{(4.6)^2+(5.4)^2+24.84}$

$\Rightarrow (4.6)^2+(5.4)^2-24.84$

$\Rightarrow (4.6+5.4)^2-2(4.6)(5.4)-24.84$

$\Rightarrow 100-74.52 = 25.48$

SSC CGL TIER I

Sol 1. (b) Replace symbols in equation $\frac{42-12\times 3+8\div 2+15}{8\times 2-4+9\div 3}$ and apply BODMAS rule

Hence;

$\frac{42-12\times 3+8\div 2+15}{8\times 2-4+9\div 3}$ becomes

$\frac{42+12\div 3-8\times 2-15}{8\div 2+4-9\times 3} = -\frac{15}{19}$

Sol 2. (c) Apply BODMAS rule in the given equation:

$(18\div 2\ of\ \frac{1}{4})\times(\frac{2}{3}\div\frac{3}{4}\times\frac{5}{8})\div(\frac{2}{3}\div\frac{3}{4}\ of\ \frac{3}{4})$

$\Rightarrow(\frac{18}{2\times\frac{1}{4}})\times(\frac{2}{3}\times\frac{4}{3}\times\frac{5}{8})\div(\frac{2}{3\times\frac{3}{4}\times\frac{3}{4}})$

$\Rightarrow (36)\times(\frac{5}{9})\div(\frac{32}{27})$

$\Rightarrow (36)\times(\frac{5}{9})\times(\frac{27}{32})$

$\Rightarrow \frac{27\times 5}{8} \Rightarrow \frac{135}{8} \Rightarrow 16\frac{7}{8}$

Sol 3. (d) On applying BODMAS rule in the given equation:

We get , $-\frac{5}{2}+\frac{3}{2}\div 6\times\frac{1}{2} = -\frac{19}{8}$

Sol 4. (a) Apply BODMAS rule in the given equation

$\Rightarrow$

$\frac{36\div 42\ of\ 6\times 7+24\times 6\div 18+3\div(2-6)-(4+3\times 2)\div 8}{21\div 3\ of\ 7}$

$\Rightarrow$

$\frac{36\div 252\times 7+24\times 6\div 18+3\div(2-6)-(4+3\times 2)\div 8}{21\div 21}$

$\Rightarrow$

$\frac{36\div 252\times 7+24\times 6\div 18+3\div(2-6)-(4+3\times 2)\div 8}{21\div 21}$

Pinnacle

$\Rightarrow \frac{1+8-\frac{3}{4}-\frac{10}{8}}{21\div21} = 7$

Sol 5. (b) Apply BODMAS rule in the given equation.

$\frac{7-[4+3(2-2\times2+5)-8]\div5}{2\div2\ of\ (4+4\div4\ of\ 4)}$

$\Rightarrow \frac{7-[4+3(3)-8]\div5}{2\div2\ of\ (\frac{17}{4})}$

$\Rightarrow \frac{7-1}{\frac{4}{17}}$

We get $25\frac{1}{2}$ as answer

Sol 6. (b)On applying BODMAS rule,

$\frac{5\frac{1}{2}\div3\frac{2}{3}of\frac{1}{4}+(5\frac{1}{9}-7\frac{7}{8}\div9\frac{9}{20})\times\frac{9}{11}}{5\div5of\frac{1}{10}-10\times10\div20}$

$\Rightarrow \frac{5\frac{1}{2}\div\frac{11}{12}+(\frac{77}{18})\times\frac{9}{11}}{5\div\frac{1}{2}-10\times10\div20}$

$\Rightarrow \frac{6+\frac{7}{2}}{10-5} = 1\frac{9}{10}$

Sol 7. (b) On applying BODMAS rule

$\frac{8\div[(8-3)\div\{(4\div4\ of\ 8)+4-4\times4\div8\}-2]}{8\times8\div4-8\div8\ of\ 2-7}$

$\Rightarrow \frac{8\div[(5)\div\{(\frac{1}{8})+4-2\}-2]}{8\times2-\frac{1}{2}-7}$

$\Rightarrow \frac{8\div[5\div\frac{17}{8}-2]}{8\times2-\frac{1}{2}-7} = \frac{8}{3}$

Sol 8. (a) Apply BODMAS rule

$\frac{3\frac{2}{3}\div\frac{11}{30}of\frac{2}{3}-\frac{1}{4}of2\frac{1}{2}\div\frac{3}{5}\times4\frac{4}{5}}{\frac{2}{5}of7\frac{1}{2}\div\frac{3}{4}-\frac{3}{4}\times1\frac{1}{2}\div2\frac{1}{4}}$

$\Rightarrow \frac{\frac{11}{3}\div\frac{11}{45}-\frac{5}{8}\div\frac{3}{5}\times\frac{24}{5}}{3\div\frac{3}{4}-\frac{3}{4}\times\frac{3}{2}\div\frac{9}{4}}$

$\Rightarrow \frac{15-5}{4-\frac{1}{2}} = 2\frac{6}{7}$

Sol 9. (c) Apply BODMAS rule

$\frac{3}{5}\times1\frac{7}{8}\div1\frac{1}{3}of\frac{3}{16}-(3\frac{1}{5}\div4\frac{1}{2}of5\frac{1}{3})\times2\frac{1}{2}+\frac{1}{2}+\frac{1}{8}\div\frac{1}{4}$

$\Rightarrow$

$\frac{3}{5}\times\frac{15}{8}\div\frac{1}{4}-(3\frac{1}{5}\div24)\times\frac{5}{2}+\frac{1}{2}+\frac{1}{2}$

$\Rightarrow \frac{9}{2}-\frac{2}{15}\times\frac{5}{2}+\frac{1}{2}+\frac{1}{2} = 5\frac{1}{6}$

Sol 10. (b) On Applying BODMAS

$-1+\frac{1}{4}\div\frac{1}{2}\times2+5 = 5$

Sol 11. (b)

As per given condition

$\frac{[(30\times5)+(84\times6)]\div5}{[\frac{2}{3}\div18]-[4\div2]} \Rightarrow \frac{[(30\div5)-(84\div6)]\times5}{[\frac{2}{3}\times18]+[4\times2]}$

Now, Apply BODMAS rule

$\Rightarrow \frac{(6-14)\times5}{12+8} = -2$

Sol 12. (d) $\frac{4}{3}\div\frac{1}{6}\times2-1 = \frac{4}{3}\times6\times2-1 = 15$

Sol 13. (d) As last digit of 113×87 is 1, only option (d) satisfies.

Sol 14. (a) $\frac{[54-(5\div2)\times8]+13}{48-4\div3\times8-2} = \frac{141}{106}$ (using BODMAS theorem)

Sol 15. (d) 151^2-149^2 = (151-149)(151+149) = (2)(300) = 600

Sol 16. (d) $3-(9-3\times8\div2) = 6$ (using BODMAS theorem)

Sol 17. (b) Apply BODMAS

$1\frac{1}{8}\div(4\frac{1}{4}\div\frac{3}{5}of\ 8\frac{1}{2})-\frac{2}{5}\times1\frac{1}{3}\div\frac{4}{5}$ of $1\frac{2}{3}+\frac{11}{20}$

$\Rightarrow \frac{9}{8}\div(\frac{17}{4}\div\frac{51}{10})-\frac{2}{5}\times\frac{4}{3}\div\frac{4}{3}+\frac{11}{20}$

$\Rightarrow \frac{9}{8}\div(\frac{5}{6})-\frac{2}{5}+\frac{11}{20} = 1\frac{1}{2}$

Sol 18. (b) Apply BODMAS theorem

$5.6-\{2+0.6$ of $(2.1-2.6\times1.12)\} = 4.0872$

Sol 19. (d) Apply BODMAS rule

$1800\div20\times\{(12-6)+(24-12)\} = 1620.$

Sol 20. (d) Apply BODMAS rule or Digital sum rule in: $11+11\times11-11\div11 = 131$

Sol 21. (a) 515×485 = (500+15)(500-15) = 250000-225 = 249775

Sol 22. (b) Apply BODMAS rule

$(26-13\times2)\div2+1 = 1$

SSC CHSL 2019

Sol:1. (a)

$-15+90$

$\div[89-\{9\times8+(33-3\times7)\}]$

$-15+90\div[89-\{9\times8+12\}$

$-15+90\div5$

3

Sol:2.(c)

Use BODMAS : $2.1+2.25$

$\div[63-\{7.5\times8+(13-2.5\times5)\}].$

$= 2.1+2.25\div2.5$

$= 3.0$

Sol:3.(a)

$[0.9-\{2.3-3.2-(7.1-5.4-3.5)\}]$

$=[0.9-\{2.3-3.2+1.8\}]$

$=[0.9-0.9]$

$=0$

Sol:4.(a)

$4\times30-15\div5+12 = 21$

$\Rightarrow 4\times30\div5-15+12 = 21$

$\Rightarrow 4\times6-15+12 = 21$

$\Rightarrow 24-15+12 = 21$

$\Rightarrow 9+12 = 21$

$\Rightarrow 21 = 21$

Sol:5.(b)

$45-5$ of $(0.7)+3.5$

$45-3.5+3.5=45$

Sol:6.(b)

$106\div2+[5+6\times2]$

$53+22=75$

Sol:7. (b)

$18+3-5\times6\div4$

$\Rightarrow 18\div3\times5+6-4$

$\Rightarrow 6\times5+6-4$

$\Rightarrow 30+6-4$

$\Rightarrow 36-4$

$\Rightarrow 32$

Sol:8.(b)

$4+[3\{35+(42+10$

$\div2\times3-40)\}+7]$

$4+[3\{35+(42+15-40)\}+7]$

$4+[3\{35+17\}+7]$

$4+[156+7]$

167

Sol:9. (c)

$5\sqrt{3}+7\sqrt{2}-\sqrt{6}-\frac{23}{\sqrt{2}+\sqrt{3}+\sqrt{6}}$

(put value of $\sqrt{3}=1.73$ and $\sqrt{2}=1.41$ and $\sqrt{6}=2.45$

$5(1.73)+7(1.41)-2.45-\frac{23}{1.41+1.73+2.45}$

$= 8.65+9.87-2.45-4.11$

$= 11.96$ or 12

Sol:10. (a)

$[5\frac{4}{9} \div (\frac{11}{4}-\frac{13}{6})^2] \div [7\frac{3}{11} \text{ of } 8\frac{4}{5} \div 1\frac{5}{7}-\frac{4}{3}]^2$

$16 \div (36 \times 36) = 1/81$

Sol:11. (c)

$\sqrt[3]{15625} - \sqrt{x} = 4$

$25 - \sqrt{x} = 4$

$21 = \sqrt{x}$

$x = 441$

Sol:12.(c)

$27 + [3(50 - 20) + 168 \div 4 + 2 - 11 \times 2]$

$27+ [90+42+2-22]$

$27+112$

$= 139$

Sol:13. (b)

$225 - [42 - \{25 - (18 - \sqrt{18+13})\}]$.

$225 - [42 - \{25+13\}$

221

Sol:14. (b)

$72-3(2+24 \div 4 \times 3-2 \times 2) + 8$

$72-3(2+6 \times 3-4)+8$

$72-3(2+18-4)+8$

$72-48+8$

$= 32$

Sol:15. (b)

$10-[121 \div (11 \times 11)-(-4)-\{3-(8-1)\}]$

$10-[121 \div 121+4+4]$

$10-[1+4+4]$

$10-9$

$= 1$

Sol:16. (b)

$(9 + 3 - 16 \div 4 + 10) + \{(3 + 5 \times 2 \div 10)\} \times (18 - 4 \text{ of } 5)$

$\Rightarrow (9+3-4+10)+\{(3+1)\} \times (-2)$

$18-8$

$= 10$

Sol:17. (b)

$\Rightarrow \frac{24}{5} \div [\frac{11}{5} - \frac{1}{2}\{\frac{5}{4} - \frac{1}{20}\}]$

$\Rightarrow \frac{24}{5} \div [\frac{11}{5} - \frac{1}{2} \times \frac{6}{5}]$

$\Rightarrow \frac{24}{5} \div \frac{8}{5}$

$=3$

Sol:18.(d)

$309 \div [(\frac{3}{2}) \text{ of } (25 + 35) - 12\frac{3}{4}]$.

$309 \div [90- \frac{51}{4}]$

$309 \div \frac{309}{4}$

$= 4$

Sol:19. (a)

$1\frac{3}{4} - [3\frac{1}{8} \div \{6 - (2\frac{3}{4} - \frac{11}{12})\}]$

$\Rightarrow \frac{7}{4} - [\frac{25}{8} \div \{6 - (\frac{11}{4} - \frac{11}{12})\}]$

$\Rightarrow \frac{7}{4} - [\frac{25}{8} \div \{6 - (\frac{22}{12})\}]$

$\Rightarrow \frac{7}{4} - [\frac{25}{8} \div \{\frac{50}{12}]$

$\Rightarrow \frac{7}{4} - [\frac{25}{8} \times \frac{12}{50}]$

$\Rightarrow \frac{7}{4} - \frac{3}{4}$

$= 1$

Sol:20. (d)

$[7 + 7 \times (7 + 7 \div 7)] + 7 \div 7.$

$[7+7 \times 8]+1$

64

Sol:21.(d)

$\frac{4}{5} \div 3\frac{1}{4} \text{ of } \frac{8}{13} - \frac{\frac{1}{5}-\frac{1}{8}}{\frac{1}{5}+\frac{1}{8}} \times 5\frac{1}{5} + \frac{5}{6}$

$= \frac{4}{5} \div 2 - \frac{3}{18} \times \frac{26}{5} + \frac{5}{6}$

$= \frac{2}{5} - \frac{6}{5} + \frac{5}{6}$

$= \frac{12-36-125}{30}$

$= \frac{1}{30}$

Sol:22. (b)

$-77 + 800 \div [83 - \{8 \times 9 + (18 - 3 \times 5)\}]$

$-77 + 800 \div [83 - 75]$

$-77 + 800 \div 8$

$= 23$

Sol:23. (a)

$\frac{\frac{1}{5} \div \frac{1}{5} \times \frac{1}{5}}{\frac{1}{5} \div \frac{1}{5} \text{ of } \frac{1}{5}} - 4\frac{1}{5} \div 105$

$\frac{1}{25} - \frac{1}{25} = 0$

Sol:24. (a)

$75\frac{3}{5} \div [15 \div 3 \text{ of } 5 + 7 \div \frac{1}{14} - \{78 \div 3\frac{1}{3}\}]$

$\frac{378}{5} \div (99 - \frac{117}{5})$

$\frac{378}{5} \div \frac{378}{5} = 1$

Sol:25. (d)

$2\frac{1}{36} \div \frac{5}{9} \text{ of } (5\frac{1}{10} + 2\frac{1}{5}) + \frac{2}{5} \div 3\frac{1}{5}$

$\frac{73}{36} \div \frac{73}{18} + \frac{1}{8}$

$\frac{1}{2} + \frac{1}{8} = 5/8$

Sol 26. (b)

$[(3+5-4)+(17-3 \times 4)]+[4 \div 2-16 \div 4+3]$

$\Rightarrow [(3+5-4)+(17-12)]+[2-4+3]$

$\Rightarrow [(8-4)+(5)]+[5-4]$

$\Rightarrow [(4)+(5)]+[1]$

$\Rightarrow 10$

Sol 27. (b)

$3\frac{1}{3} - [\frac{9}{4} + \{\frac{5}{4} - \frac{1}{13} \times (\frac{5}{2} - \frac{1}{3})\}]$

$\Rightarrow \frac{10}{3} - [\frac{9}{4} + \{\frac{5}{4} - \frac{1}{13} \times (\frac{15-2}{6})\}]$

$\Rightarrow \frac{10}{3} - [\frac{9}{4} + \{\frac{5}{4} - \frac{1}{13} \times (\frac{13}{6})\}]$

$\Rightarrow \frac{10}{3} - [\frac{9}{4} + \{\frac{5}{4} - \frac{1}{6}\}]$

$\Rightarrow \frac{10}{3} - [\frac{9}{4} + \{\frac{15-2}{12}\}]$

$\Rightarrow \frac{10}{3} - [\frac{9}{4} + \{\frac{13}{12}\}]$

$\Rightarrow \frac{10}{3} - [\frac{27+13}{12}]$

$\Rightarrow \frac{10}{3} - [\frac{40}{12}]$

$\Rightarrow \frac{10}{3} - [\frac{10}{3}]$

$\Rightarrow 0$

Sol 28. (d)

$\frac{(132 \div 12 \times x - 3 \times 3)}{5^2 - 6 \times 4 + x^2} = 1$

$\Rightarrow \frac{(11 \times x - 9)}{25 - 24 + x^2} = 1$

$\Rightarrow \frac{(11 \times x - 9)}{1 + x^2} = 1$

$\Rightarrow 11 \times x - 9 = 1 + x^2$

$\Rightarrow x^2 - 11x + 10 = 0$

$\Rightarrow x^2 - x - 10x + 10 = 0$

$\Rightarrow x(x-1) - 10(x - 1) = 0$

$\Rightarrow (x - 1)(x - 10) = 0$

$\Rightarrow x = 1, 10$

$x = 1$ satisfies.

Sol 29. (a)

Pinnacle

$x = [(\frac{2}{5} of\ 6\frac{1}{4} \div \frac{3}{7}) of\ 1\frac{2}{7}$ is divided by $11\frac{1}{4}]^2$

$\Rightarrow x = [(\frac{2}{5} of\ 6\frac{1}{4} \div \frac{3}{7}) of\ 1\frac{2}{7} \div 11\frac{1}{4}]^2$

$\Rightarrow x = [(\frac{2}{5} \times \frac{25}{4} \div \frac{3}{7}) \times \frac{9}{7} \div \frac{45}{4}]^2$

$\Rightarrow x = [(\frac{2}{5} \times \frac{25}{4} \times \frac{7}{3}) \times \frac{9}{7} \times \frac{4}{45}]^2$

$\Rightarrow x = [\frac{2}{3}]^2$

$\Rightarrow x = \frac{4}{9}$

$81x = 81 \times \frac{4}{9} = 36$

Sol 30. (a)

$[\{(\frac{2}{3})^3\}^{(2x+3)}]^{\frac{3}{4}} = [\{(\frac{2}{3})^{\frac{2}{3}}\}^{(3x+7)}]^{\frac{6}{5}}$

$\Rightarrow [\{(\frac{2}{3})^3\}^{(2x+3)}]^{\frac{3}{4}} = [\{(\frac{2}{3})^{\frac{2}{3}}\}^{(3x+7)}]^{\frac{6}{5}}$

$\Rightarrow [\{(\frac{2}{3})^3\}^{\frac{3(2x+3)}{4}}] = [\{(\frac{2}{3})^{\frac{2}{3}}\}^{\frac{6(3x+7)}{5}}]$

$\Rightarrow [\{(\frac{2}{3})^3\}^{\frac{6x+9}{4}}] = [\{(\frac{2}{3})^{\frac{2}{3}}\}^{\frac{18x+42}{5}}]$

$\Rightarrow [\{(\frac{2}{3})^{\frac{3(6x+9)}{4}}\}] = [\{(\frac{2}{3})^{\frac{2(18x+42)}{3\times5}}\}]$

$\Rightarrow [\{(\frac{2}{3})^{\frac{18x+27}{4}}\}] = [\{(\frac{2}{3})^{\frac{36x+84}{15}}\}]$

$\Rightarrow \frac{18x+27}{4} = \frac{36x+84}{15}$

$\Rightarrow 15(18x + 27) = 4(36x + 84)$

$\Rightarrow 270x + 405 = 144x + 336$

$\Rightarrow 270x - 144x = 336 - 405$

$\Rightarrow 126x = -69$

$\Rightarrow x = -\frac{69}{126}$

$\sqrt{2 - 42x} = \sqrt{2 - 42(-\frac{69}{126})} = \sqrt{2 + \frac{69}{3}} = \sqrt{2 + 23} = \sqrt{25} = 5$

Sol 31. (c)

$\frac{4}{1+\sqrt{2}+\sqrt{3}} = a + b\sqrt{2} + c\sqrt{3} - d\sqrt{6}$

$\Rightarrow \frac{4}{1+\sqrt{2}+\sqrt{3}} \times \frac{\sqrt{3}+1-\sqrt{2}}{\sqrt{3}+1-\sqrt{2}}$

$\Rightarrow \frac{4\sqrt{3}+4-4\sqrt{2}}{\sqrt{3}+\sqrt{6}+3+1+\sqrt{2}+\sqrt{3}-\sqrt{2}-2-\sqrt{6}}$

$\Rightarrow \frac{4\sqrt{3}+4-4\sqrt{2}}{2\sqrt{3}+2}$

$\Rightarrow \frac{2\sqrt{3}+2-2\sqrt{2}}{\sqrt{3}+1} \times \frac{\sqrt{3}-1}{\sqrt{3}-1}$

$\Rightarrow \frac{(2\sqrt{3}+2-2\sqrt{2})(\sqrt{3}-1)}{3-1}$

$\Rightarrow \frac{(2\sqrt{3}+2-2\sqrt{2})(\sqrt{3}-1)}{2}$

$\Rightarrow (\sqrt{3}+1-\sqrt{2})(\sqrt{3}-1)$

$\Rightarrow 3 + \sqrt{3} - \sqrt{6} - \sqrt{3} - 1 + \sqrt{2}$

$\Rightarrow 2 + \sqrt{2} - \sqrt{6} =$

$a + b\sqrt{2} + c\sqrt{3} - d\sqrt{6}$

$a = 2; b = 1; c = 0; d = 1$

$a + b + c + d = 2 + 1 + 0 + 1 = 4$

Sol 32. (c)

$8 - [8 - (5 + 8) - \{8 - (8 - 5 + 8)\} + 10]$

$\Rightarrow 8 - [8 - (13) - \{8 - (11)\} + 10]$

$\Rightarrow 8 - [8 - 13 - \{8 - 11\} + 10]$

$\Rightarrow 8 - [8 - 13 - \{-3\} + 10]$

$\Rightarrow 8 - [8 - 13 + 3 + 10]$

$\Rightarrow 8 - [21 - 13]$

$\Rightarrow 8 - [8]$

$\Rightarrow 0$

Sol 33. (d)

$25 - [16 - \{14 - [18 - \overline{8 + 3}]\}]$

$\Rightarrow 25 - [16 - \{14 - [18 - 11]\}]$

$\Rightarrow 25 - [16 - \{14 - 7\}]$

$\Rightarrow 25 - [16 - 7]$

$\Rightarrow 25 - [9]$

$\Rightarrow 16$

Sol:34. (d)

$7 + [44 \div 4 + \{9 \times 2 - 14 \div 7\} + 5 \times 2]$

$7 + [11 + \{16\} + 10]$

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Sol:35.(c)

$\Rightarrow 2.\overline{4} = 2\frac{4}{9} = \frac{22}{9}$

$\Rightarrow 0.\overline{6} = \frac{2}{3}$

$\Rightarrow 0.1\overline{6} = \frac{1}{6}$

$\Rightarrow 0.\overline{27} = \frac{3}{11}$

$\Rightarrow 0.8\overline{3} = \frac{5}{6}$

$(2.\overline{4} \times 0.\overline{6} \times 3 \times 0.1\overline{6}) \times [0.\overline{27} \times (0.8\overline{3} \div 0.1\overline{6})]$

$\Rightarrow (\frac{22}{9} \times \frac{2}{3} \times 3 \times \frac{1}{6}) \times [\frac{3}{11} \times \frac{5}{6} \times \frac{6}{1}]$

$\Rightarrow (\frac{22}{27}) \times (\frac{15}{11})$

$\Rightarrow \frac{10}{9} = 1\frac{1}{9} = 1.\overline{1}$

Sol:36.(c)

On rationalising $\frac{3+2\sqrt{2}}{3-2\sqrt{2}}$

$\frac{3+2\sqrt{2}}{3-2\sqrt{2}} \times \frac{3+2\sqrt{2}}{3+2\sqrt{2}} = 9 + 8 + 12\sqrt{2}$

On rationalising $\frac{3-2\sqrt{2}}{3+2\sqrt{2}}$

$\frac{3-2\sqrt{2}}{3+2\sqrt{2}} \times \frac{3-2\sqrt{2}}{3-2\sqrt{2}} = 9 + 8 - 12\sqrt{2}$

On rationalising $\frac{1}{4-\sqrt{8}}$

$\frac{1}{4-\sqrt{8}} \times \frac{4+\sqrt{8}}{4+\sqrt{8}} = \frac{4+\sqrt{8}}{8}$

$\frac{4+\sqrt{8}}{8} + 17 + 12\sqrt{2} - 17 + 12\sqrt{2}$

$\frac{4+\sqrt{8}}{8} + 24\sqrt{2}$

$\frac{1}{2} + \frac{\sqrt{2}}{4} + 24\sqrt{2}$

$\frac{1}{2} + \frac{97\sqrt{2}}{4}$

On comparing $a = \frac{1}{2}$, $b = \frac{97}{4}$

$3a + 4b = 3 \times \frac{1}{2} + 4 \times \frac{97}{4} = 98\frac{1}{2}$

Sol:37.(a)

$[\frac{4}{7} of\ 2\frac{4}{5} \times 1\frac{2}{3} - (3\frac{1}{2} - 2\frac{1}{6})] \div (3\frac{1}{5} \div 4\frac{1}{2} of\ 5\frac{1}{3})$

$\Rightarrow [\frac{4}{7} of \frac{14}{5} \times \frac{5}{3} - (\frac{7}{2} - \frac{13}{6})] \div (\frac{16}{5} \div \frac{9}{2} of\ \frac{16}{3})$

$\Rightarrow [\frac{4}{7} \times \frac{14}{5} \times \frac{5}{3} - (\frac{7}{2} - \frac{13}{6})] \div (\frac{16}{5} \div 24)$

$\Rightarrow [\frac{4}{7} \times \frac{14}{5} \times \frac{5}{3} - (\frac{7}{2} - \frac{13}{6})] \div (\frac{16}{5} \times \frac{1}{24})$

$\Rightarrow [\frac{4}{7} \times \frac{14}{5} \times \frac{5}{3} - (\frac{7}{2} - \frac{13}{6})] \div (\frac{2}{15})$

$\Rightarrow [\frac{4}{7} \times \frac{14}{5} \times \frac{5}{3} - (\frac{7}{2} - \frac{13}{6})] \times (\frac{15}{2})$

$\Rightarrow [\frac{4}{7} \times \frac{14}{5} \times \frac{5}{3} - \frac{8}{6}] \times (\frac{15}{2})$

$\Rightarrow [\frac{8}{5} \times \frac{5}{3} - \frac{8}{6}] \times (\frac{15}{2})$

$\Rightarrow [\frac{8}{3} - \frac{8}{6}] \times (\frac{15}{2})$

$\Rightarrow [\frac{8}{6}] \times (\frac{15}{2}) = 10$

Sol.38.(c)

$\sqrt{1875} = 25\sqrt{3}$

$\sqrt{3888} = 36\sqrt{3}$

$\sqrt{1200} = 20\sqrt{3}$

$\sqrt{768} = 16\sqrt{3}$

$\sqrt{175} = 5\sqrt{7}$

$\sqrt{1792} = 16\sqrt{7}$

$\frac{25\sqrt{3}}{36\sqrt{3}} \times \frac{16\sqrt{3}}{20\sqrt{3}} \times \frac{5\sqrt{7}}{16\sqrt{7}} = \frac{25}{144}$

$\sqrt{x} = \frac{5}{12}$

Pinnacle

Sol:39.(c)

$\frac{15(\sqrt{10}+\sqrt{5})}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}}$

$= \frac{15\sqrt{5}(\sqrt{2}+1)}{\sqrt{5}(\sqrt{2}+4+2\sqrt{2}-1-4)}$

$= \frac{15(\sqrt{2}+1)}{(3\sqrt{2}-3)}$

$= \frac{5(\sqrt{2}+1)}{(\sqrt{2}-1)}$ (on rationalising

$= 5(3+2\sqrt{2})$

Sol:40.(a)

$3 \div 18 \text{ of } 3 \times 6 + 21 \times 6 \div 18 - 3 \div 2 + 3 - 3 \div 9 \text{ of } 3 \times 9$

$\Rightarrow 3 \div 54 \times 6 + 21 \times 6 \div 18 - 3 \div 2 + 3 - 3 \div 27 \times 9$

$\Rightarrow \frac{1}{3} + 7 - \frac{3}{2} + 3 - 1$

$\Rightarrow \frac{31}{3} - \frac{5}{2} = \frac{47}{6}$

Sol:41.(a)

$\frac{0.0203\times2.92}{0.7\times0.0365\times2.9} \div \frac{(12.12)^2-(8.12)^2}{(0.25)^2+(0.25)(19.99)}$

$= \frac{203\times292\times10000\times100}{7\times365\times29\times10\times10000\times10} \div \frac{(12.12+8.12)(12.12-8.12)}{0.25\times0.25+0.25\times19.99}$

$= \frac{203\times292}{7\times365\times29} \div \frac{(20.24)(4)}{0.25(0.25+19.99)}$

$= \frac{4}{5} \times \frac{20.24\times0.25}{20.24\times4} = 0.05$

Sol:42.(c)

Let $x = 0.\overline{57}$

Then $100x = 57.\overline{57}$

$99x = 57$

$x = \frac{19}{33}$

Similarly $y = \frac{214}{495}$

And $z = \frac{16}{45}$

$\frac{19}{33} - \frac{214}{495} + \frac{16}{45} = \frac{247}{495} = 0.4\overline{98}$

Sol:43.(d)

$\sqrt{11-3\sqrt{8}} = a + b\sqrt{2},$

$\sqrt{9+2-6\sqrt{2}} = a + b\sqrt{2},$

$3 - \sqrt{2} = a + b\sqrt{2},$

$a = 3$

$b = -1$

$2a + 3b = 6 - 3 = 3$

Sol:44.(a)

$3\frac{1}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3} + \frac{1}{8} \div \frac{1}{2} \text{ of } \frac{1}{4} - \frac{1}{4}(\frac{1}{2} \div \frac{1}{8} \times \frac{1}{4})$

$\Rightarrow 3\frac{1}{5} \div 4\frac{1}{2} \text{ of } 5\frac{1}{3} + \frac{1}{8} \div \frac{1}{2} \text{ of } \frac{1}{4} - \frac{1}{4}$

$\Rightarrow 3\frac{1}{5} \div 24 + \frac{1}{8} \div \frac{1}{8} - \frac{1}{4}$

$\Rightarrow 3\frac{1}{5} \div 24 + 1 - \frac{1}{4}$

$\Rightarrow \frac{2}{15} + \frac{3}{4}$

$\Rightarrow \frac{53}{60}$

Sol:45.(a)

$4 \div 12 \text{ of } [3 \div 4 \text{ of } \{(4-2)\times6 \div 2\}] - 2 \times 6 \div 8 + 3$

$= 4 \div 12 \text{ of } [3 \div 4 \text{ of } \{(2)\times3\}] - 1.5 + 3$

$= 4 \div 12 \text{ of } [3 \div 4 \text{ of } 6] - 1.5 + 3$

$= 4 \div 12 \text{ of } [\frac{1}{8}] - 1.5 + 3$

$= 4 \div 1.5 - 1.5 + 3$

$\frac{8}{3} + 1.5 = \frac{25}{6}$

Sol:46.(a)

$\frac{7+3\sqrt{5}}{3+\sqrt{5}} \times \frac{3-\sqrt{5}}{3-\sqrt{5}} - \frac{7-3\sqrt{5}}{3-\sqrt{5}} \times \frac{3+\sqrt{5}}{3+\sqrt{5}}$

$= \frac{21-7\sqrt{5}+9\sqrt{5}-15}{4} - \frac{21+7\sqrt{5}-9\sqrt{5}-15}{4}$

$= \frac{2\sqrt{5}}{4} + \frac{2\sqrt{5}}{4} = \sqrt{5}$

$= \sqrt{5} = 2.2360$

Option a is correct

Sol:47.(a)

$\frac{8+2\sqrt{3}}{3\sqrt{3}+5}$ on rationalising

$\frac{8+2\sqrt{3}}{3\sqrt{3}+5} \times \frac{3\sqrt{3}-5}{3\sqrt{3}-5}$

$\frac{2(4+\sqrt{3})\times3\sqrt{3}-5}{2}$

$(4+\sqrt{3}) \times (3\sqrt{3}-5)$

$12\sqrt{3} - 20 + 9 - 5\sqrt{3}$

$7\sqrt{3} - 11$

$a = 7$ and $b = 11$

$a + b = 18$

Sol:48.(a)

$\sqrt{-\sqrt{3}+\sqrt{3+8\sqrt{7+4\sqrt{3}}}}$

$\sqrt{-\sqrt{3}+\sqrt{3+8\sqrt{(2+\sqrt{3})^2}}}$

$\sqrt{-\sqrt{3}+\sqrt{19+8\sqrt{3}}}$

$\sqrt{-\sqrt{3}+\sqrt{(4+\sqrt{3})^2}}$

$\sqrt{4}$

$= 2$

Sol:49.(b)

$5 - \frac{8+2\sqrt{15}}{4} - \frac{1}{8+2\sqrt{15}}$ on rationalisation

$5 - \frac{8+2\sqrt{15}}{4} - \frac{1}{8+2\sqrt{15}} \times \frac{8-2\sqrt{15}}{8-2\sqrt{15}}$

$5 - \frac{8+2\sqrt{15}}{4} - \frac{8-2\sqrt{15}}{4}$

$5 - \frac{4}{4} = 1$

Sol:50.(c)

$5-[96 \div 4 \text{ of } 3 - (16-55 \div 5)]$

$= 5-[96 \div 12 - (5)]$

$= 5-[8 - (5)]$

$= 5-3 = 2$

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Sol:51.(d)

$8-3 \div 6 \text{ of } 2+(4 \div 4 \text{ of } \frac{1}{4}) \div 8 + (4 \times 8 \div \frac{1}{4}) \times \frac{1}{8}$

Using BODMAS

$= 8-3 \div 12 + (4 \div 1) \div 8 + (4 \times 32) \times \frac{1}{8}$

$= 8 - \frac{1}{4} + \frac{1}{2} + 128 \times \frac{1}{8}$

Rearranging it we get

$24 + \frac{1}{4}$

$\frac{96+1}{4}$

$\frac{97}{4}$

Sol:52.(a)

$\frac{40-\frac{3}{4} \text{ of } 32}{37-\frac{3}{4} \text{ of } (34-6)}$

Using Bodmas we get

$\frac{40-24}{37-\frac{3}{4} \text{ of } (28)}$

$\frac{16}{37-21}$

$\frac{16}{16}$

$=1$

Sol:53.(d)

$(5\frac{1}{4} \div \frac{3}{7} \text{of} \frac{1}{2}) \div (5\frac{1}{9} - 7\frac{7}{8} \div 9\frac{9}{20}) \times \frac{11}{21} - (5 \div 2 \text{of} \frac{1}{2})$

$= (\frac{21}{4} \div \frac{3}{14}) \div (\frac{46}{9} - \frac{63}{8} \div \frac{189}{20}) \times \frac{11}{21} - (5 \div 1)$

$= (\frac{21}{4} \div \frac{3}{14}) \div (\frac{46}{9} - \frac{63}{8} \div \frac{189}{20}) \times \frac{11}{21} -$

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$(5 \div 1)$

$= \frac{49}{2} \div (\frac{46}{9} - \frac{5}{6}) \times \frac{11}{21} - 5$

$= \frac{49}{2} \div (\frac{77}{18}) \times \frac{11}{21} - 5$

$= \frac{63}{11} \times \frac{11}{21} - 5$

$=3 - 5 = -2$

Sol:54.(b)

$3\frac{1}{3} \div 2\frac{1}{2} of\ 1\frac{3}{5} + (\frac{3}{8} + \frac{1}{7} \times 1\frac{3}{4})$

$= \frac{10}{3} \div \frac{5}{2} of\ \frac{8}{5} + (\frac{3}{8} + \frac{1}{7} \times \frac{7}{4})$

$= \frac{10}{3} \div 4 + (\frac{3}{8} + \frac{1}{4})$

$= \frac{10}{12} + \frac{5}{8}$

$= \frac{35}{24}$

Sol:55.(d)

$2\frac{1}{3} \div 2\frac{1}{2} of\ 1\frac{3}{5} + (\frac{3}{8} + \frac{1}{7} \times 1\frac{3}{4})$

$= \frac{7}{3} \div \frac{5}{2} of\ \frac{8}{5} + (\frac{3}{8} + \frac{1}{7} \times \frac{7}{4})$

$= \frac{7}{3} \div 4 + (\frac{3}{8} + \frac{1}{4})$

$= \frac{7}{12} + \frac{5}{8}$

$= \frac{29}{24}$

Sol:56.(b)

$(5 \div 2 of \frac{1}{2}) + (5\frac{1}{4} \div \frac{3}{7} of \frac{1}{2}) \div (5\frac{1}{9} - 7\frac{7}{8} \div 9\frac{9}{20}) \times \frac{11}{21}$

$= (5 \div 1) + (\frac{21}{4} \div \frac{3}{14}) \div (\frac{46}{9} - \frac{63}{8} \div \frac{189}{20}) \times \frac{11}{21}$

$= 5 + (\frac{49}{2}) \div (\frac{46}{9} - \frac{5}{6}) \times \frac{11}{21}$

$= 5 + \frac{49}{2} \div \frac{77}{18} \times \frac{11}{21}$

$= 5 + \frac{49}{2} \times \frac{18}{77} \times \frac{11}{21}$

$= 5 + 3 = 8$

Sol:57.(a)

$\frac{2}{3} \div \frac{3}{10} of\ \frac{4}{9} - \frac{4}{5} \times 1\frac{1}{9} \div \frac{8}{15} - \frac{3}{4} + \frac{3}{4} \div \frac{1}{2}$

Using BODMAS

$\frac{2}{3} \div \frac{12}{90} - \frac{4}{5} \times \frac{10}{9} \div \frac{8}{15} - \frac{3}{4} + \frac{3}{4} \div \frac{1}{2}$

$= 5 - \frac{4}{5} \times \frac{150}{72} - \frac{3}{4} + \frac{3}{2}$

$= 5 - \frac{5}{3} + \frac{3}{4}$

$= \frac{60 - 20 + 9}{12}$

$= \frac{49}{12}$

Sol:58.(a)

$-7 \div [5 + 1 \div 2 - \{4 + (4 of 2 \div 4) + (4 \div 4 of 2)\}]$

Using bodmas we get

$-7 \div [5 + 0.5 - \{4 + (2) + (0.5)\}]$

$-7 \div [5.5 - \{6.5)\}]$

7

Sol:59.(a)

$\frac{40 + \frac{3}{4} of\ 32}{37 + \frac{3}{4} of (34 - 6)}$

$= \frac{40 + 24}{37 + \frac{3}{4} of (28)}$

$= \frac{64}{37 + 21}$

$= \frac{64}{58}$

$= \frac{32}{29}$

$=1\ \frac{3}{29}$

Sol:60.(b)

$1 - 3 \div 6\ of\ 2 + (4 \div 4\ of\ \frac{1}{4}) \div 8 + (4 \times 8 \div \frac{1}{4}) \times \frac{1}{8}$

Using Bodmas

$= 1 - 3 \div 12 + (4) \div 8 + (4 \times 32) \times \frac{1}{8}$

$= 1 - \frac{1}{4} + \frac{1}{2} + (4 \times 32) \times \frac{1}{8}$

$= 1 + \frac{1}{4} + 16$

$= 17 + \frac{1}{4}$

$= \frac{68 + 1}{4}$

$= \frac{69}{4}$

Sol:61.(c)

$\frac{2}{3} \div \frac{3}{10} of\ \frac{4}{9} - \frac{4}{5} \times 1\frac{1}{9} \div \frac{8}{15} + \frac{3}{4} \div \frac{1}{2}$

$\frac{2}{3} \div \frac{2}{15} - \frac{4}{5} \times 1\frac{1}{9} \div \frac{8}{15} + \frac{3}{4} \div \frac{1}{2}$

$5 - \frac{4}{5} \times \frac{150}{72} + \frac{3}{2}$

$5 - \frac{5}{3} + \frac{3}{2}$

$= \frac{29}{6}$

Sol:62.(d)

$7 \div [5 + 1 \div 2 - \{4 + (4\ of\ 2 \div 4) + (5 \div 5\ of\ 2)\}]$

$= 7 \div [5 + 1 \div 2 - \{4 + (8 \div 4) + (5 \div 10)\}]$

$= 7 \div [5 + 0.5 - \{4 + 2 + 0.5\}]$

$= 7 \div [5 + 0.5 - 6.5]$

$= 7 \div [-1]$

$= -7$

Pinnacle

Key Points:/ प्रमुख बिंदु:

1) An average or arithmetic mean of given data is the sum of the given observations divided by the number of observations.
दिए गए आंकड़ों का औसत या अंकगणित माध्य, आंकड़ों के योग को आंकड़ों की संख्या द्वारा विभाजित करके प्राप्त किया जाता है|

For example : If we have to find out the average of 10, 15, 25 and 30, then required average will be equal to:
उदाहरण : अगर हमें 10, 15, 25 और 30 की औसत पता लगाना है तो आवश्यक औसत होगा:
$\frac{10+15+25+30}{4} = \frac{80}{4} = 20.$

Therefore, we can say, Average (A) = $\frac{Sum\ of\ the\ given\ observations\ (S)}{Number\ of\ Observations\ (N)}$
इसलिए, हम कह सकते हैं, औसत = $\frac{\text{दिए गए आंकड़ों का योग}}{\text{आंकड़ों की संख्या}}$

2) If all the numbers increase by 'a' then the average of the numbers will also increase by 'a'.
यदि सभी संख्याएं 'a' से बढ़ती हैं तो संख्याओं का औसत भी 'a' से बढ़ेगा।

3) If all the numbers decrease by 'a' then the average of the numbers will also decrease by 'a'.
अगर सभी नंबर 'a' से घटते हैं तो संख्याओं का औसत भी 'a' से कम होगा।

4) If all the numbers are multiplied by 'a' then their average must also be multiplied by 'a'.
यदि सभी नंबरों को 'a' से गुणा किया जाता है तो उनके औसत को भी 'a' से गुणा किया जाना चाहिए।

5) If all the numbers are divided by 'a' then their average must also be divided by 'a'.
यदि सभी नंबरों को 'a' से विभाजित किया जाता है तो उनके औसत को 'a' से विभाजित किया जाना चाहिए।

6) Average of first n natural numbers / प्रथम n प्राकृतिक संख्याओं का औसत = $\left(\frac{n+1}{2}\right)$

7) Average of first n even numbers / प्रथम n सम संख्याओं का औसत = $(n + 1)$

8) Average of first n odd numbers/ प्रथम n विषम संख्याओं का औसत = n

9) Average of consecutive numbers/लगातार संख्याओं का औसत = $\frac{First\ number+Last\ number}{2}$

10) Average of 1 to n odd numbers/1 से n विषम संख्याओं का औसत = $\frac{Last\ odd\ number+1}{2}$

11) Average of 1 to n even numbers/1 से n सम संख्याओं का औसत = $\frac{Last\ even\ number+2}{2}$

12) Average of squares of first n natural numbers/ प्रथम n प्राकृतिक संख्याओं के वर्गों का औसत = $\frac{(n+1)(2n+1)}{6}$

13) Average of cubes of first n natural numbers/ प्रथम n प्राकृतिक संख्याओं के घन का औसत = $\frac{n(n+1)^2}{4}$

14) Average of n multiples of any number/किसी भी संख्या के n गुणांक का औसत = $\frac{number\times(n+1)}{2}$

Variety Questions

Q1. The average of twelve numbers is 42. The average of the last five numbers is 40 and that of the first four numbers is 44. The 6th number is 6 less than the fifth and 5 less than the 7th number. The average of the 5th and the 7th numbers is:
बारह संख्याओं का औसत 42 है | अंतिम पांच संख्याओं का औसत 40 तथा पहली चार संख्याओं का औसत 44 है | छठी संख्या पाँचवीं से 6 कम है तथा 7वीं संख्या से 5 कम है | 5वीं और 7वीं संख्या का औसत है :
SSC CGL - 4 June 2019 (Morning)
(a) 44
(b) 44.5
(c) 43
(d) 43.5

Q2. The average weight of a certain number of students in a class is 68.5 kg. If 4 new students having weights 72.2 kg, 70.8kg, 70.3kg and 66.7 kg join the class, then the average weight of all the students increases by 300 g. The number of students in the class, initially is:
किसी कक्षा में छात्रों की एक निश्चित संख्या का औसत वज़न 68.5 किलो ग्राम है | यदि 4 नए छात्र कक्षा में आ जाते हैं, जिनका वज़न क्रमशः 72.2 किलो ग्राम, 70.8 किलो ग्राम, 70.3 किलो ग्राम तथा 66.7 किलो ग्राम है, तो सभी छात्रों का औसत वज़न 300 ग्राम से बढ़ जाता है | आरंभ में कक्षा में छात्रों की संख्या कितनी थी ?
SSC CGL - 4 June 2019 (Afternoon)
(a) 21
(b) 16
(c) 11
(d) 26

Q3. Three numbers are such that if the average of any two of them is added to the third number, the sums obtained are 168, 174 and 180 respectively. What is the

average of the original three numbers?
तीन संख्याएँ इस प्रकार हैं कि यदि इनमें से किसी भी दो संख्या के औसत को तीसरी संख्या में जोड़ा जाए, तो प्राप्त होने वाले योगफल क्रमशः 168, 174 और 180 होते हैं | इन तीन प्रारंभिक संख्याओं का औसत ज्ञात करें |
SSC CGL - 4 June 2019 (Evening)
(a) 86
(b) 87
(c) 89
(d) 84

Q4. The total number of students in section A and B of a class is 110. The number of students in section A is 10 more than that of section B. The average score of the students in B, in a test, is 20% more than that of students in A. If the average score of all the students in the class is 72, then what is the average score of the students in A?
किसी कक्षा के खंड A और खंड B के छात्रों की कुल संख्या 110 है | खंड A में छात्रों की संख्या खंड B के छात्रों की संख्या से 10 अधिक है | किसी परीक्षा में B के छात्रों का औसत प्राप्तांक A के छात्रों के औसत प्राप्तांक से 20% अधिक है | यदि सभी छात्रों का औसत प्राप्तांक 72 है, तो A के छात्रों का औसत प्राप्तांक ज्ञात करें |
SSC CGL - 7 June 2019 (Afternoon)
(a) 66
(b) 68
(c) 63
(d) 70

Q5. Four different positive numbers are written in ascending order. One-third of the average of all the four numbers is 19 less than the greatest of these numbers. If the average of the first three numbers is 12, the greatest number among the given numbers is:
चार अलग-अलग धनात्मक संख्याओं को आरोही क्रम में लिखा गया है | सभी चार संख्याओं की औसत का एक-तिहाई इनमें से सबसे बड़ी संख्या से 19 कम है | यदि पहली तीन संख्याओं का औसत 12 है, तो इनमें से सबसे बड़ी संख्या ज्ञात करें |
SSC CGL - 7 June 2019 (Evening)
(a) 25
(b) 22
(c) 24
(d) 21

Q6. The average marks of 40 students was found to be 68. If the marks of two students were incorrectly entered as 48 and 64 instead of 84 and 46 respectively, then what is the correct average?
40 छात्रों के औसत अंक 68 पाए गए | यदि दो छात्रों के अंक भूलवश 84 एवं 46 के बजाय क्रमशः 48 और 64 के रूप में शामिल किये गए हैं, तो सही औसत ज्ञात करें |
SSC CGL - 10 June 2019 (Afternoon)
(a) 68.25
(b) 68.15
(c) 68.45
(d) 68.35

Q7. In a class of 40 students, 45% are girls and the remaining are boys. If the average of the girls marks is 54 and that of the boys is 46, what is the average of the whole class?
40 छात्रों की एक कक्षा में, 45% लड़कियाँ हैं तथा शेष लड़के हैं | यदि लड़कियों के अंकों का औसत 54 और लड़कों के अंकों का औसत 46 है, तो पूरी कक्षा का औसत अंक ज्ञात करें |
SSC CGL - 11 June 2019 (Afternoon)
(a) 49.8
(b) 49.7
(c) 49.6
(d) 49.5

Q8. The average of 27 numbers is zero. Out of them, how many may be greater than zero, at the most?
27 संख्याओं का औसत 0 है | इनमें से, अधिक से अधिक कितनी संख्याएँ शून्य से अधिक सकती हैं ?
SSC CGL - 13 June 2019 (Evening)
(a) 0
(b) 15
(c) 26
(d) 20

Q9. 10 years ago, the average age of a family of five members was 38 years. Now, two new members join, whose age difference is 8 years. If the present average age of the family is the same as it was 10 years ago, what is the age (in years) of the new younger member?
10 वर्ष पहले, पांच सदस्यों के एक परिवार की औसत उम्र 38 वर्ष थी | अब दो नए सदस्य शामिल हो गए हैं, जिनकी उम्र में 8 वर्ष का अंतर है | यदि परिवार की वर्तमान औसत उम्र उतनी ही है जितनी यह 10 साल पहले थी, तो नए छोटे सदस्य की उम्र ज्ञात करें |
SSC CHSL - 4 July 2019 (Afternoon)
(a) 15
(b) 9
(c) 10
(d) 17

Q10. The average of a number and its reciprocal is 4. The average of its cube and its reciprocal is equal to: किसी संख्या तथा उसके पारस्परिक (reciprocal) का औसत 4 है | इसके घन और और उसके पारस्परिक का औसत किसके बराबर होगा ?
SSC CHSL - 9 July 2019 (Evening)
(a) 256

Pinnacle

(b) 142
(c) 288
(d) 244

Q11. The average of the first 1234 _____ numbers is equal to 1234.
Fill in the blank.
पहली 1234 _____ संख्याओं का औसत 1234 के बराबर होता है |
रिक्त स्थान की पूर्ति करें |
SSC CHSL - 10 July 2019 (Morning)
(a) odd/ विषम
(b) even/ सम
(c) prime/ अभाज्य
(d) natural/ प्राकृतिक

Q12. Fill in the blank.
रिक्त स्थान की पूर्ति करें |
The average of the first 101 _____ numbers is equal to 102.
पहली 101 _____ संख्याओं का औसत 102 के बराबर होगा |
SSC CHSL - 10 July 2019 (Afternoon)
(a) natural/ प्राकृतिक
(b) odd/ विषम
(c) even/ सम
(d) perfect square/ पूर्ण वर्ग

Q13. The difference between the average of first ten prime numbers and the first ten prime numbers of two digits is:
पहली दस अभाज्य संख्याओं के औसत और पहली दस दो अंकों की अभाज्य संख्याओं के औसत में अंतर होगा :
SSC CHSL - 10 July 2019 (Evening)
(a) 14.5
(b) 16.5
(c) 12.5
(d) 13.5

Q14. The average of 1088 real numbers is zero. At most how many of them can be negative?
1088 वास्तविक संख्याओं का औसत शून्य है | उनमें अधिक से अधिक कितनी संख्याएँ ऋणात्मक हो सकती हैं ?
SSC CHSL - 11 July 2019 (Morning)
(a) 100
(b) 88
(c) 544
(d) 1087

Q15. The average age of four brothers is 15 years. If their father is included, the average is increased by 5 years. The age of the father (in years) is:
चार भाइयों की औसत आयु 15 वर्ष है | यदि उनके पिता को शामिल कर लिया जाए, तो औसत 5 वर्ष बढ़ जाता है | पिता की उम्र (वर्ष में) है :
SSC CHSL - 5 July 2019 (Afternoon)
(a) 35
(b) 40
(c) 38
(d) 36

Q16. The average of the squares of numbers 1 to 5 is:
1 से 5 तक की संख्याओं के वर्गों का औसत ज्ञात करें |
SSC CPO - 16 March 2019 (Afternoon)
(a)11
(b)5
(c)8
(d)9

Q17. The average of a and b is 36. The average of b and c is 42. What is the difference between c and a ?
a तथा b का औसत 36 है | b तथा c का औसत 42 है | c तथा a के बीच कितना अंतर् है ?
SSC MTS - 6 August 2019 (Afternoon)
(a) 18
(b) 12
(c) 16
(d) 14

Q18. What is the average of the first 8 multiples of 6 among the natural numbers?
प्राकृतिक संख्याओं में 6 के पहले 8 गुणजों का औसत क्या है ?
SSC MTS - 7 August 2019 (Evening)
(a) 24
(b) 26
(c) 27
(d) 28

Q19. The average of all the prime and composite numbers upto 100 is:
100 तक की सभी अभाज्य और विभाज्य संख्याओं का औसत है :
SSC MTS - 9 August 2019 (Morning)
(a) 51
(b) 50
(c) 50.5
(d) 49.5

Q20. The average weight of 12 articles is 18 kg. Addition of another new article reduces the average weight by 500g. What is the weight of the new article?
12 वस्तुओं का औसत वज़न 18 किलो ग्राम है | एक अन्य नयी वस्तु को शामिल करने से औसत वज़न 500 ग्राम कम हो जाता है | नयी वस्तु का वज़न ज्ञात करें |
SSC MTS - 9 August 2019 (Morning)
(a) 11.5 kg
(b) 15.0 kg
(c) 11.0 kg
(d) 10.1 kg

Q21. Given four different numbers, the average of first three numbers is four times the fourth number and the average of all the four numbers is 52. What is the average of the first three number?
चार अलग-अलग संख्याएँ दी गयी हैं, पहली तीन संख्याओं का औसत चौथी संख्या से चार गुना है तथा सभी चार

संख्याओं का औसत 52 है | पहली तीन संख्याओं का औसत क्या है ?
SSC CHSL - 3 July 2019 (Afternoon)
(a) 39
(b) 65
(c) 70
(d) 64

Q22. The average of all prime numbers 21 to 50 is (round off to one decimal number)
21 से 50 तक की सभी अभाज्य संख्याओं का औसत ज्ञात करें | (एक दशमलव संख्या तक पूर्णांक करें)
SSC CPO - 16 March 2019 (Morning)
(a) 35.9
(b) 34.8
(c) 33.7
(d) 32.9

Q23. What is the average of 59, 63, 68, 77, 74 and 73, when each number is divided by 23 ?
59, 63, 68, 77, 74 तथा 73 का औसत कितना है, जब प्रत्येक संख्या को 23 से विभाजित किया जाता है ?
SSC MTS - 6 August 2019 (Afternoon)
(a) $\frac{63}{23}$
(b) $\frac{67}{23}$
(c) 3
(d) 46

Q24. What is the average of the first 15 odd numbers among the natural numbers?
प्राकृतिक संख्याओं में पहली 15 विषम संख्याओं का औसत क्या है ?
SSC MTS - 8 August 2019 (Evening)
(a) 18
(b) 15
(c) 16
(d) 17

Q25. What is the average of the first 15 whole numbers?
प्रथम 15 पूर्ण संख्याओं का औसत ज्ञात करें |
SSC MTS - 8 August 2019 (Morning)
(a) 8
(b) 7
(c) 9
(d) 10

Q26. Out of four numbers the average of the first three is 16 and that of the last three is 15. If the last number is 21 then the first number is: चार संख्याओं में से पहली तीन संख्याओं का औसत 16 है और अंतिम तीन संख्याओं का औसत 15 है | यदि अंतिम संख्या 21 है, तो पहली संख्या है :
SSC MTS - 13 August 2019 (Evening)
(a) 28
(b) 22
(c) 21
(d) 24

SSC CGL TIER II

Q1.The average of thirteen numbers is 47. The average of the first three numbers is 39 and that of the next seven numbers is 49. The 11th number is two times the 12th number and 12th number is 3 less than the 13th number. What is the average of 11th and 13th numbers?
तेरह संख्याओं का औसत 47 है | पहली तीन संख्याओं का औसत 39 है तथा अगली सात संख्याओं का औसत 49 है | 11वीं संख्या 12वीं संख्या से दोगुनी है तथा 12वीं संख्या 13वीं संख्या से 3 कम है | 11वीं और 13वीं संख्याओं का औसत ज्ञात करें |
SSC CGL Tier 2 - 11 September 2019
(a)54.5
(b) 57
(c) 56
(d) 55.5

Q2. The number of students in a class is 75, out of which $33\frac{1}{3}$ % are boys and the rest are girls. The average score in mathematics of the boys is $66\frac{2}{3}$ % more than that of the girls. If the average score of all the students is 66, then the average score of the girls is:
एक कक्षा में 75 छात्र हैं, जिनमें से $33\frac{1}{3}$ % लड़के हैं और शेष लड़कियाँ हैं | लड़कों का गणित में औसत अंक लड़कियों के गणित में औसत अंक से $66\frac{2}{3}$ % अधिक है | यदि सभी छात्रों का औसत अंक 66 है, तो लड़कियों का औसत अंक ज्ञात करें |
SSC CGL Tier 2 - 11 September 2019
(a) 52
(b) 55
(c) 54
(d) 58

Q3.The average of 33 numbers is 74. The average of the first 17 numbers is 72.8 and that of the last 17 numbers is 77.2. If the 17th number is excluded, then what will be the average of the remaining numbers (correct to one decimal place)?
33 संख्याओं का औसत 74 है | पहली 17 संख्याओं का औसत 72.8 है तथा अंतिम 17 संख्याओं का औसत 77.2 है | यदि 17वीं संख्या हटा दी जाए, तो शेष संख्याओं का औसत क्या होगा ? (एक दशमलव स्थान तक)
SSC CGL Tier 2 - 12 September 2019
(a)72.9
(b) 73.4
(c) 71.6
(d) 70.8

Q4. The average weight of a certain number of students in a group is 72 kg. If 10 students having an average weight of 78 kg leave and 4 students having an average weight of 80 kg join the group, the average weight of the

students in the group decreases by 0.7 kg. The number of students initially in the group is :
निश्चित संख्या वाले एक समूह के छात्रों का औसत वज़न 72 किलो ग्राम है | यदि 78 किलो ग्राम औसत वज़न वाले 10 छात्र चले जाते हैं और 80 किलोग्राम औसत वज़न वाले 4 छात्र आ जाते हैं, तो समूह में छात्रों का औसत वज़न 0.7 किलो ग्राम से कम हो जाता है | आरंभ में समूह में छात्रों की संख्या थी :
SSC CGL Tier 2 - 12 September 2019
(a) 56
(b) 46
(c) 44
(d) 54

Q5.The average age of 120 students in a group is 13.56 years, 35% of the number of students are girls and the rest are boys. If the ratio of the average age of boys and girls is 6:5, then what is the average age (in years) of the girls?
एक समूह के 120 छात्रों की औसत उम्र 13.56 वर्ष है | छात्रों में 35% लड़कियाँ हैं तथा शेष लड़के हैं | यदि लड़कों और लड़कियों की औसत उम्र का अनुपात 6 : 5 है, तो लड़कियों की औसत उम्र (वर्ष में) कितनी है ?
SSC CGL Tier 2 - 13 September 2019
(a) 12
(b) 11.6
(c) 10
(d) 14.4

Q6. The average of 18 numbers is 37.5. If six numbers of average x are added to them, then the average of all the numbers increases by one. The value of x is :
18 संख्याओं का औसत 37.5 है | यदि औसत x वाली छः संख्याओं को उनमें जोड़ा जाए, तो इन सभी संख्याओं का औसत एक से बढ़ जाता है | x का मान है :
SSC CGL Tier 2 - 13 September 2019
(a) 40
(b) 41.5
(c) 42
(d) 38.5

Practice Questions

Q1. The average of thirteen numbers is 80. The average of the first five numbers is 74.5 and that of the next five numbers is 82.5. The 11th number is 6 more than the 12th number and the 12th number is 6 less than the 13th number. What is the average of the 11th and the 13th numbers?
तेरह संख्याओं का औसत 80 है | पहली पांच संख्याओं का औसत 74.5 और अगली पांच संख्याओं का औसत 82.5 है | 11वीं संख्या 12वीं संख्या से 6 अधिक है तथा 12वीं संख्या 13वीं संख्या से 6 कम है | 11वीं तथा 13वीं संख्याओं का औसत ज्ञात करें |
SSC CGL - 6 June 2019 (Morning)
(a) 87
(b) 86
(c) 86.5
(d) 87.5

Q2. The average of twelve numbers is 46. The average of the first four numbers is 43 and that of the last five numbers is 49.4. The 5th and the 6th numbers are respectively 4 and 6 more than the 7th number. What is the average of the 5th and the 7th numbers?
बारह संख्याओं का औसत 46 है | पहली चार संख्याओं का औसत 43 तथा अंतिम पांच संख्याओं का औसत 49.4 है | 5वीं और छठी संख्या सातवीं संख्या से क्रमशः 4 और 6 अधिक है | 5वीं और 7 वीं संख्या का औसत ज्ञात करें |
SSC CGL - 6 June 2019 (Afternoon)
(a) 43.5
(b) 43
(c) 44.5
(d) 44

Q3. The average of eleven numbers is 54. The average of the first four numbers is 48 and that of the next four numbers is 25% more than the average of the first four. The ninth number is 8 greater than the 11th number and the tenth number is 4 greater than the 11th number. What is the average of the 9th and the 10th numbers?
11 संख्याओं का औसत 54 है | पहली चार संख्याओं का औसत 48 है तथा अगली चार संख्याओं का औसत पहली चार संख्याओं के औसत से 25% अधिक है | 9वीं संख्या 11वीं संख्या से 8 अधिक है तथा दसवीं संख्या 11वीं संख्या से 4 अधिक है | 9वीं और 10वीं संख्याओं का औसत ज्ञात करें |
SSC CGL - 6 June 2019 (Evening)
(a) 54
(b) 52.6
(c) 56
(d) 54.4

Q4. Three numbers are such that if the average of any two of them is added to the third number, the sums obtained are 164, 158 and 132 respectively. What is the average of the original three numbers?
तीन संख्याएँ इस प्रकार हैं कि यदि इनमें से किसी भी दो संख्या के औसत को तीसरी संख्या में जोड़ा जाए, तो योगफल क्रमशः 164, 158 और 132 प्राप्त होते हैं | इन तीन आरंभिक संख्याओं का औसत ज्ञात करें |
SSC CGL - 7 June 2019 (Morning)

(a) $75\frac{2}{3}$
(b) 74
(c) 76
(d) $75\frac{1}{3}$

Q5. The average of twelve numbers is 55.5. The average of the first four numbers is 53.4 and that of the next four numbers is 54.6. The 10th number is greater than the 9th number by 3 but lesser than the 11th and 12th numbers by 2 and 3, respectively. What is the average of the 10th and the 12th numbers?
बारह संख्याओं का औसत 55.5 है | पहली चार संख्याओं का औसत 53.4 है तथा अगली चार संख्याओं का औसत 54.6 है | 10वीं संख्या 9वीं संख्या से 3 अधिक है लेकिन 11वीं और 12वीं संख्याओं से क्रमशः 2 और 3 कम है | 10वीं और 12वीं संख्याओं का औसत ज्ञात करें |
SSC CGL - 10 June 2019 (Morning)
(a) 59.5
(b) 58
(c) 57.5
(d) 56

Q6. The average marks of 50 students in a class was found to be 64. If the marks of two students were incorrectly entered as 38 and 42 instead of 83 and 24 respectively, then what is the correct average?
किसी कक्षा में 50 छात्रों के औसत अंक 64 पाए गए | यदि दो छात्रों के अंक भूलवश 83 एवं 24 के बजाय क्रमशः 38 और 42 लिखे गए थे, तो सही औसत ज्ञात करें |
SSC CGL - 10 June 2019 (Evening)
(a) 64.54
(b) 62.32
(c) 61.24
(d) 61.86

Q7. The average marks of 45 students was found to be 66. If the marks of two students were incorrectly entered as 28 and 64 instead of 82 and 46 respectively, then what is the correct average?
45 छात्रों के औसत अंक 66 पाए गए | यदि दो छात्रों के अंक 82 और 46 के बजाय भूलवश क्रमशः 28 और 64 लिखे गए थे, तो सही औसत क्या होगा ?
SSC CGL - 11 June 2019 (Morning)
(a) 67.2
(b) 66.8
(c) 66.4
(d) 66.6

Q8. In a class of 50 students, 46% are girls and the remaining are boys. The average of the boys marks is 58 and that of the girls is 62. What are the average marks of the whole class?
50 छात्रों की एक कक्षा में, 46% लड़कियाँ हैं तथा शेष लड़के हैं | लड़कों के अंकों का औसत 58 है तथा लड़कियों के अंकों का औसत 62 है | पूरी कक्षा का औसत अंक ज्ञात करें |
SSC CGL - 11 June 2019 (Evening)
(a) 59.84
(b) 60.65
(c) 60.38
(d) 60.12

Q9. In a class of 60 students, 40% are girls. The average weight of the boys is 62 kg and that of the girls is 55 kg. What is the average weight of the whole class?
60 छात्रों की एक कक्षा में, 40% लड़कियाँ हैं | लड़कों का औसत वज़न 62 किलो ग्राम तथा लड़कियों का औसत वज़न 55 किलो ग्राम है | पूरी कक्षा का औसत वज़न कितना है ?
SSC CGL - 12 June 2019 (Morning)
(a) 59.2kg
(b) 58.8kg
(c) 59kg
(d) 58.6kg

Q10. In a class of 60 students, 40% are girls. The average weight of the whole class is 59.2 kg and the average weight of the girls is 55 kg. What is the average weight of the boys?
60 छात्रों की एक कक्षा में, 40% लड़कियाँ हैं | पूरी कक्षा का औसत वज़न 59.2 किलो ग्राम है और लड़कियों का औसत वज़न 55 किलो ग्राम है | लड़कों का औसत वज़न ज्ञात करें |
SSC CGL - 12 June 2019 (Afternoon)
(a) 63 kg
(b) 60 kg
(c) 61 kg
(d) 62 kg

Q11. In a class of 40 students, 60% are girls. The average of the girls' marks is 72 and that of the boys is 54. What are the average marks of the whole class?
40 छात्रों की एक कक्षा में, 60% लड़कियाँ हैं | लड़कियों के अंकों का औसत 72 है तथा लड़कों के अंकों का औसत 54 है | पूरी कक्षा के औसत अंक कितने हैं ?
SSC CGL - 12 June 2019 (Evening)
(a) 65.4
(b) 65
(c) 64.8
(d) 65.2

Q12. In a class of 50 students, 60% are boys. The average of marks of the boys is 62, and that of the girl is 68. What is the average marks of the whole class?
50 छात्रों की एक कक्षा में, 60% लड़के हैं | लड़कों के औसत अंक 62 तथा लड़कियों के औसत अंक 68 हैं | पूरी कक्षा के औसत अंक ज्ञात करें |
SSC CGL - 13 June 2019 (Morning)

(a) 64.8
(b) 64.4
(c) 65.2
(d) 64.6

Q13. In a class of 50 students, 40% are girls. The average marks of the whole class are 64.4 and the average of the boys' marks is 62. What are the average marks of the girls?
50 छात्रों की एक कक्षा में, 40% लड़कियाँ हैं | पूरी कक्षा के औसत अंक 64.4 हैं तथा लड़कों के औसत अंक 62 हैं | लड़कियों के औसत अंक ज्ञात करें |
SSC CGL - 13 June 2019 (Afternoon)
(a) 67
(b) 66.8
(c) 66.4
(d) 68

Q14. There are three numbers. If the average of any two of them is added to the third number, the sums obtained are 177, 163 and 138. What is the average of the largest and the smallest of the given numbers?
तीन संख्याएं हैं | यदि इनमें से किसी भी दो संख्या के औसत को तीसरी संख्या में जोड़ा जाता है, तो इस प्रकार योगफल के रूप में क्रमशः 177, 163 और 138 प्राप्त होते हैं | इनमें से सबसे बड़ी और सबसे छोटी संख्याओं का औसत ज्ञात करें |
SSC CHSL - 1 July 2019 (Evening)
(a) 76
(b) 79
(c) 81
(d) 67

Q15. There are 90 students in a class, out of which 70% are from village A and others are from village B. The average score of students from village B in a test is 20% more than that from village A. If the average score of all the students is 53, then what is the average score of the students from village B?
एक कक्षा में 90 छात्र हैं, जिनमें से 70% छात्र गाँव A से हैं तथा अन्य छात्र गाँव B से हैं | गाँव B के छात्रों का औसत अंक गाँव A के छात्रों के औसत अंक से 20% अधिक है | यदि सभी छात्रों का औसत अंक 53 है, तो गाँव B के छात्रों का औसत अंक ज्ञात करें |
SSC CHSL - 2 July 2019 (Morning)
(a) 54
(b) 60
(c) 64
(d) 50

Q16. In a class of 80 students, 60% participate in games and the rest do not. The average weight of the former group is 5% more than that of the latter. If the average weight of all the students is $51\frac{1}{2}$ kg, then what is the average weight (in kg) of the former group?
80 छात्रों की एक कक्षा में, 60% खेलों में भाग लेते हैं तथा शेष खेलों में भाग नहीं लेते हैं | पहले समूह का औसत वज़न दूसरे समूह के औसत वज़न से 5% अधिक है | यदि सभी छात्रों का औसत वज़न $51\frac{1}{2}$ किलो ग्राम है, तो पहले समूह का औसत वज़न ज्ञात करें |
SSC CHSL - 2 July 2019 (Afternoon)
(a) 57.6
(b) 54.5
(c) 60
(d) 52.5

Q17. The total number of students in class A and B is 96. The number of students in A is 40% more than that in B. The average weight (in kg) of the students in B is 50% more than that of the students in A. If the average weight of all the students in A and B taken together is 58 kg, then what is the average weight of the students in B?
कक्षा A और कक्षा B के कुल छात्रों की संख्या 96 है | A के छात्रों की संख्या B के छात्रों से 40% अधिक है | B कक्षा के छात्रों का औसत वज़न A के छात्रों के औसत वज़न से 50% अधिक है | यदि A और B दोनों के छात्रों का कुल औसत वज़न 58 किलो ग्राम है, तो B के छात्रों का औसत वज़न ज्ञात करें |
SSC CHSL - 2 July 2019 (Evening)
(a) 72 kg
(b) 60 kg
(c) 48 kg
(d) 66 kg

Q18. The average weight of the students in a group was 75.4 kg. Later on, four students having weights, 72.9 kg, 73.8 kg, 79.5 kg and 87.4 kg joined the group. As a result, the average weight of all the students in the group increased by 0.24 kg. What was the number of students in the group, initially?
एक समूह के छात्रों का औसत वज़न 75.4 किलो ग्राम था | बाद में, चार छात्र इस समूह में शामिल हो गए जिनके वज़न क्रमशः 72.9 किलो ग्राम, 73.8 किलो ग्राम, 79.5 किलो ग्राम और 87.4 किलो ग्राम थे | परिणामस्वरूप, इस समूह के सभी छात्रों का औसत वज़न 0.24 किलो ग्राम से बढ़ गया | आरंभ में इस समूह में कितने छात्र थे ?
SSC CHSL - 3 July 2019 (Morning)
(a) 46
(b) 36
(c) 50
(d) 48

Q19. In a class of 80 students, the ratio of the urban to the rural is 5 : 3. In a test, the average score of the rural students is 40% more than that of the urban students. If

the average score of all the students is 69, then what is the average score of the rural students?
80 छात्रों की एक कक्षा में, शहरी और ग्रामीण का अनुपात 5 : 3 है | किसी परीक्षा में, ग्रामीण छात्रों के औसत अंक शहरी छात्रों के औसत अंक से 40% अधिक थे | यदि सभी छात्रों के औसत अंक 69 हैं, तो ग्रामीण छात्रों के औसत अंक ज्ञात करें |
SSC CHSL - 3 July 2019 (Evening)
(a) 80
(b) 76
(c) 92
(d) 84

Q20. The average of n number is 36. If each of 75% of the numbers is increased by 6 and each of the remaining numbers is decreased by 9, then the new average of the numbers is:
n संख्याओं का औसत 36 है | यदि इन संख्याओं के 75% में से प्रत्येक को 6 से बढ़ा दिया जाए और प्रत्येक शेष संख्या को 9 से कम कर दिया जाए, तो इन संख्याओं का नया औसत क्या होगा ?
SSC CHSL - 4 July 2019 (Morning)
(a) 37.125
(b) 33.75
(c) 38.25
(d) 36.25

Q21. 9 years ago, the average age of a family of five members was 33 years. Now, three new members join whose ages are in ascending order with consecutive gaps of 8 years. If the present average age of the family is the same as it was 9 years ago, what is the age (in years) of the youngest new member?
9 वर्ष पहले, पांच सदस्यों के एक परिवार की औसत उम्र 33 वर्ष थी | अब, तीन नए सदस्य शामिल हो गए हैं जिनकी उम्र आरोही क्रम में है एवं इनकी उम्रों में आठ वर्ष का अनुगामी अंतराल है | यदि परिवार की वर्तमान औसत उम्र उतनी ही है जितनी यह 9 वर्ष पहले थी, तो नए छोटे सदस्य की उम्र (वर्ष में) ज्ञात करें |
SSC CHSL - 4 July 2019 (Afternoon)
(a) 15
(b) 17
(c) 10
(d) 9

Q22. 9 years ago, the average age of a family of five members was 33 years. Now, three new members join whose ages are in ascending order with consecutive gaps of 8 years. If the present average age of the family is the same as it was 9 years ago, what is the age (in years) of the eldest new member?
9 वर्ष पहले, पांच सदस्यों के एक परिवार की औसत उम्र 33 वर्ष थी | अब, तीन नए सदस्य शामिल हो गए हैं जिनकी उम्र आरोही क्रम में है तथा उम्रों के बीच 8 वर्षों का अनुगामी अंतराल है | यदि परिवार की वर्तमान औसत आयु उतनी ही है जितनी यह 9 वर्ष पहले थी, तो सबसे बड़े नए सदस्य की उम्र (वर्ष में) ज्ञात करें |
SSC CHSL - 5 July 2019 (Morning)
(a) 29
(b) 26
(c) 35
(d) 17

Q23. The average age of four brothers is 14 years. If their father is also included, the average is increased by 4 years. The age of the father (in years) is:
चार भाइयों की औसत आयु 14 वर्ष है | यदि उनके पिता को भी शामिल कर लिया जाए, तो यह औसत 4 वर्ष बढ़ जाता है | पिता की उम्र (वर्ष में) है :
SSC CHSL - 5 July 2019 (Evening)
(a) 36
(b) 34
(c) 40
(d) 38

Q24. The average age of fifteen persons is 32 years. If two more persons are added, then the average is increased by 3 years. The new persons have age difference of 7 years. The age (in years) of the younger among the new persons is:
पंद्रह व्यक्तियों की औसत आयु 32 वर्ष है | यदि दो अतिरिक्त व्यक्तियों को शामिल कर लिया जाए, तो यह औसत 3 वर्ष बढ़ जाता है | नए व्यक्तियों में 7 वर्ष का उम्र अंतराल है | नए व्यक्तियों में छोटे व्यक्ति की उम्र (वर्ष में) ज्ञात करें |
SSC CHSL - 8 July 2019 (Morning)
(a) 54
(b) 61
(c) 50
(d) 58

Q25.The average age of fifteen person is 32 years. If two more persons are added then the average is increased by 3 years. The new persons have an age difference of 7 years between them. The age (in years) of the elder among the new persons is:
पंद्रह व्यक्तियों की औसत आयु 32 वर्ष है | यदि दो अतिरिक्त व्यक्तियों को शामिल कर लिया जाए, तो औसत 3 वर्ष से बढ़ जाता है | नए व्यक्तियों की उम्रों में 7 वर्ष का अंतर है | नए व्यक्तियों में से बड़े व्यक्ति की उम्र (वर्ष में) है :
SSC CHSL - 8 July 2019 (Afternoon)
(a) 58
(b) 61
(c) 50
(d) 54

Q26. The average age of fifteen persons is 32 years. If two more persons are added then the average is increased by 3 years.

The new persons have an age difference of 9 years between them. The age (in years) of the elder among the new persons is:
15 व्यक्तियों की औसत उम्र 32 वर्ष है | यदि दो नए व्यक्तियों को शामिल कर लिया जाए, तो औसत 3 वर्ष से बढ़ जाता है | नए व्यक्तियों की उम्र में 9 वर्षों का अंतर है | नए व्यक्तियों में से बड़े व्यक्ति की उम्र (वर्ष में) ज्ञात करें |
SSC CHSL - 8 July 2019 (Evening)
(a) 62
(b) 50
(c) 53
(d) 58

Q27. The average age of fifteen persons is 32 years. If two more persons are added then the average is increased by 3 years. The new persons have an age difference of 9 years between them. The age (in years) of the younger among the new persons is:
पंद्रह व्यक्तियों की औसत उम्र 32 वर्ष है | यदि दो नए व्यक्तियों को शामिल किया जाये, तो औसत उम्र 3 वर्ष से बढ़ जाती है | नए व्यक्तियों की उम्र में 9 वर्ष का अंतराल है | नए व्यक्तियों में से छोटे व्यक्ति की उम्र (वर्ष में) ज्ञात करें |
SSC CHSL - 9 July 2019 (Morning)
(a) 62
(b) 50
(c) 58
(d) 53

Q28. The average age of fifteen persons is 32 years. If two more persons are added then the average is increased by 3 years. The new persons have an age difference of 11 years between them. The age (in years) of the younger among the new persons is:
पंद्रह व्यक्तियों की औसत उम्र 32 वर्ष है | यदि दो नए व्यक्तियों को शामिल किया जाये, तो औसत उम्र 3 वर्ष से बढ़ जाती है | नए व्यक्तियों की उम्र में 11 वर्ष का अंतराल है | नए व्यक्तियों में से छोटे व्यक्ति की उम्र (वर्ष में) ज्ञात करें |
SSC CHSL - 9 July 2019 (Afternoon)
(a) 63
(b) 52
(c) 50
(d) 58

Q29. The average of a series of 21 numbers is equal to 43. The average of the first eleven of them is 33. The average of the last eleven numbers is 53. The eleventh number of the series is:
21 संख्याओं की एक श्रृंखला का औसत 43 के बराबर है | इनमें से पहली ग्यारह संख्याओं का औसत 33 है | अंतिम ग्यारह संख्याओं का औसत 53 है | इस श्रृंखला की 11वीं संख्या है :
SSC CHSL - 11 July 2019 (Afternoon)
(a) 43
(b) 47
(c) 33
(d) 46

Q30. The average of 24 numbers is 65. The average of first 11 numbers is 67 and the average of last 10 numbers is 70. If the 12th number is 13 less than the 13th number and the 14th number is one more than the 13th number, then the average of 12th and 14th number is:
24 संख्याओं का औसत 65 है | पहली 11 संख्याओं का औसत 67 है तथा अंतिम 10 संख्याओं का औसत 70 है | यदि 12वीं संख्या 13वीं संख्या से 13 कम है तथा 14वीं संख्या 13वीं संख्या से एक अधिक है, तो 12वीं और 14वीं संख्या का औसत ज्ञात करें |
SSC CHSL - 11 July 2019 (Evening)
(a) 39
(b) 36
(c) 26
(d) 42

Q31. The average height of 12 students of a class is 132.5 cm. If one more student joins, the average height becomes 131.2 cm, the height of the new student is:
एक कक्षा के 12 छात्रों की औसत ऊँचाई 132.5 सेमी है। यदि एक और छात्र आ जाता है, तो औसत ऊंचाई 131.2 सेमी हो जाती है, नए छात्र की ऊंचाई कितनी है?
SSC CPO - 16 March 2019 (Morning)
(a) 122.3 cm
(b) 115.6 cm
(c) 128.5 cm
(d) 112.7 cm

Q32. The average of 18 numbers is 52. The average of first 8 numbers is 62 and the average of the next 7 numbers is 45. If the 16th number is 6 less than the 17th number and the 17th number is one more than the 18th number then what is the average of 16th and 18th number?
18 संख्याओं का औसत 52 है | पहली 8 संख्याओं का औसत 62 तथा अगली 7 संख्याओं का औसत 45 है | यदि 16वीं संख्या 17वीं संख्या से 6 कम है तथा 17वीं संख्या 18वीं संख्या से एक अधिक है, तो 16वीं और 18वीं संख्या का औसत ज्ञात करें |
SSC CPO - 12 March 2019 (Evening)
(a) 39
(b) 39.5
(c) 40.5
(d) 40

Q33. In a class of 45 students, 40% are girls and the remaining are boys. The average marks of the girls is 64 and that of the boys

is 60. What is the average marks of the whole class?
45 छात्रों की एक कक्षा में 40 प्रतिशत लड़कियाँ हैं और शेष लड़के हैं | लड़कियों का औसत अंक 64 तथा लड़कों का 60 है | पूरी कक्षा का औसत अंक ज्ञात करें |
SSC CPO - 12 March 2019 (Evening)
(a) 62.4
(b) 61.8
(c) 61.6
(d) 62.9

Q34. In a class of 45 students, 40% are boys and rest are girls. The average weight of the girls is 55 kg and that of boys is 65kg. What is the average weight (in kg) of the whole class?
45 छात्रों की एक कक्षा में, 40% लड़के हैं और शेष लड़कियाँ हैं | लड़कियों का औसत वज़न 55 किलो ग्राम है तथा लड़कों का औसत वज़न 65 किलो ग्राम है | पूरी कक्षा का औसत वज़न (किलो ग्राम में) क्या है ?
SSC CPO - 13 March 2019 (Evening)
(a)58 kg
(b)60 kg
(c)61 kg
(d)59 kg

Q35. The average of 20 numbers is 65. The average of the first 9 numbers is 68 and the average of next 8 numbers is 62. If the 18th number is 3 more than 19th number and 9 less than 20th number, then what is the average of 19th and 20th number?
20 संख्याओं का औसत 65 है | पहली 9 संख्याओं का औसत 68 तथा अगली 8 संख्याओं का औसत 62 है | यदि 18वीं संख्या 19वीं संख्या से 3 अधिक तथा 20वीं संख्या से 9 कम है, तो 19वीं और 20वीं संख्या का औसत ज्ञात करें |
SSC CPO - 13 March 2019 (Evening)
(a) 66
(b) 64.5
(c) 65
(d) 65.5

Q36. The average of 16 numbers is 48. The average of the first 7 numbers is 45 and the average of the next 6 numbers is 52. If the 14th number is 11 less than the 15th number and is 5 more than the 16th number, then the average of the 15th and 16th number is:
16 संख्याओं का औसत 48 है | पहली 7 संख्याओं का औसत 45 तथा अगली 6 संख्याओं का औसत 52 है | यदि 14वीं संख्या 15वीं संख्या से 11 कम तथा 16वीं संख्या से 5 अधिक है, तो 15वीं एवं 16वीं संख्या का औसत क्या होगा ?
SSC CPO - 12 March 2019 (Morning)
(a) 47.5
(b) 48.5
(c) 49
(d) 48

Q37. In a class of 50 students, 40% are girls. The average weight of the boys is 62 kg and that of the girls is 58 kg. What is the average weight (in kg) of the whole class?
50 छात्रों की एक कक्षा में 40% लड़कियाँ हैं | लड़कों का औसत वज़न 62 किलो ग्राम तथा लड़कियों का औसत वज़न 58 किलो ग्राम है | पूरी कक्षा का औसत वज़न (किलो ग्राम में) क्या है ?
SSC CPO - 12 March 2019 (Morning)
(a) 60.4
(b) 60.2
(c) 60.8
(d) 60.6

Q38. In a class of 70 students, 40% are girls and remaining are boys. The average marks of the boys are 63 and that of the girls are 70. What is the average marks of the whole class?
70 छात्रों की एक कक्षा में 40% लड़कियाँ और शेष लड़के हैं | लड़कों का औसत अंक 63 तथा लड़कियों का औसत अंक 70 है | पूरी कक्षा का औसत अंक ज्ञात करें | **SSC CPO - 13 March 2019 (Morning)**
(a) 65.4
(b) 65.8
(c) 65.2
(d) 64.8

Q39. The average of 22 numbers is 52. The average of the first 8 numbers is 48 and the average of next 11 numbers is 54. The 20th number is 7 less than the 21st number and 21st number is 4 more than 22nd number. What is the average of the 20th and 22nd numbers?
22 संख्याओं का औसत 52 है | पहली 8 संख्याओं का औसत 48 तथा अगली 11 संख्याओं का औसत 54 है | 20वीं संख्या 21वीं संख्या से 7 कम है तथा 21वीं संख्या 22वीं संख्या से 4 अधिक है | 20वीं संख्या और 22वीं संख्या का औसत ज्ञात करें |
SSC CPO - 13 March 2019 (Morning)
(a) 52
(b) 52.5
(c) 53
(d) 53.5

Q40. The average age of a cricket team of eleven players is 27 years. If two more players are included in the team the average becomes 26 years, then the average age(in years) of the two included players is:
11 खिलाड़ियों की एक क्रिकेट टीम की औसत उम्र 27 वर्ष है | यदि इस टीम में दो और खिलाड़ी शामिल कर लिए जाते हैं, तो औसत आयु 26 वर्ष हो जाती है | शामिल किये गए दो

खिलाड़ियों की औसत उम्र (वर्ष में) ज्ञात करें |
SSC CPO - 14 March 2019 (Morning)
(a)24.5
(b)20.5
(c)26
(d)27

Q41. The average of all prime numbers between 10 and 25 is:
10 से 25 के बीच की सभी अभाज्य संख्याओं का औसत ज्ञात करें |
SSC CPO - 14 March 2019 (Morning)
(a)18.67
(b)16.6
(c)15.3
(d)14.7

Q42. The average weight of 16 boys in a class is 60.25 kg and that of the remaining 10 boys is 45.75 kg. The average weight of all boys in the class is:
किसी कक्षा में 16 लड़कों का औसत वज़न 60.25 किलो ग्राम है तथा शेष 10 लड़कों का औसत वज़न 45.75 किलो ग्राम है | इस कक्षा में सभी लड़कों का औसत वज़न क्या होगा ?
SSC CPO - 16 March 2019 (Evening)
(a)56.27
(b)55.37
(c)54.67
(d)53.76

Q43. The average of 26 numbers is zero. Of them, how many may be greater than zero, at the most?
26 संख्याओं का औसत शून्य है | अधिक से अधिक कितनी शून्य से बड़ी हो सकती हैं ?
SSC CPO - 16 March 2019 (Evening)
(a)25
(b)20
(c)0
(d)15

Q44. A scored 73, 76, 20 and 7 runs in four out of five innings. What should be his score in the fifth innings, if he has to make an average of 55 runs in five innings?
A ने पांच में से चार पारियों में 73, 76, 20 और 6 रन बनाए | पांचवी पारी में उसका स्कोर क्या होना चाहिए, यदि वह पांच पारियों में 55 रनों का औसत रखना चाहता है ?
SSC CPO - 15 March 2019 (Morning)
(a) 99
(b) 11
(c) 55
(d) 42

Q45.A bought 600 gm, 750 gm, 1.1 kg, 2.3 kg and 800 gm packs of dal from a shop. What is the average weight of the packs?
A ने किसी दुकान से 600 ग्राम, 750 ग्राम, 1.1 किलो ग्राम, 2.3 किलो ग्राम तथा 800 ग्राम की दाल की पैकेट खरीदी | इन पैकेटों का औसत वज़न क्या है ? **SSC CPO - 15 March 2019 (Morning)**
(a) 11.1 kg
(b) 111 gm
(c) 1.11 gm
(d) 1.11 kg

Q46. The average weight of six children is 32.8 kg. If two more children with 26.5 kg and 28.3 kg weight are added to the group, then what will be the average weight in kilograms?
छह बच्चों का औसत वजन 32.8 किलोग्राम है | यदि 26.5 किलोग्राम और 28.3 किलोग्राम वजन वाले दो और बच्चों को समूह में जोड़ा जाता है, तो किलोग्राम में तथा औसत वजन क्या होगा ?
SSC CPO - 15 March 2019 (Evening)
(a)31.45
(b)30.3
(c)28.9
(d)29.2

Q47. The average of 13 numbers is 42. If a 14th number is included, then the average becomes 44. What is the 14th number?
13 संख्याओं का औसत 42 है | यदि 14वीं संख्या को शामिल कर लिया जाए, तो यह औसत 44 हो जाता है | 14वीं संख्या कौन सी है ?
SSC MTS - 2 August 2019 (Morning)
(a) 70
(b) 62
(c) 66
(d) 68

Q48. What is the average of first seven prime numbers (correct to two decimal places)?
पहली सात अभाज्य संख्याओं का औसत ज्ञात करें | (दो दशमलव स्थान तक)
SSC MTS - 2 August 2019 (Evening)
(a) 7.14
(b) 8.76
(c) 7.64
(d) 8.29

Q49. What is the average of first six natural numbers, which are multiples of 3?
पहली छः प्राकृतिक संख्याओं का औसत ज्ञात करें, जो 3 की गुणज हैं |
SSC MTS - 2 August 2019 (Evening)
(a) 10.5
(b) 11
(c) 12
(d) 9.5

Q50. The average age of 12 boys is 15 years and the average age of 18 girls is 12 years. What is the combined average age of the boys and girls, taken together?
12 लड़कों की औसत उम्र 15 वर्ष है तथा 18 लड़कियों की औसत उम्र 12 वर्ष है | लड़कों एवं लड़कियों की संयुक्त औसत उम्र ज्ञात करें |

SSC MTS - 5 August 2019 (Morning)
(a) 15.4
(b) 13.2
(c) 16.6
(d) 14.8

Q51. What is the average of all the natural numbers from 49 to 125?
49 से 125 तक की सभी प्राकृतिक संख्याओं का औसत क्या है ?
SSC MTS - 5 August 2019 (Morning)
(a) 85
(b) 87
(c) 88
(d) 86

Q52. The average age of a group of 36 students is 23 years. 4 students leave the group whose average age is 22 years. What is the average age of new group in years ? (Correct to one decimal place).
36 छात्रों के समूह की औसत आयु 23 वर्ष है | 22 वर्ष की औसत आयु वाले 4 छात्र समूह छोड़ देते हैं | नए समूह की औसत आयु वर्षों में (एक दशमलव स्थान तक) कितनी है ?
SSC MTS - 5 August 2019 (Afternoon)
(a) 24.4
(b) 24.5
(c) 23.8
(d) 23.1

Q53. The average marks of a group of 15 students in maths is 87. Then, 25 other students join and the total average marks becomes 79.5. The average of 24 students of the other group is 74. The marks obtained by the 25th student of the other group is :
15 छात्रों के एक समूह का गणित में औसत अंक 87 है | फिर अन्य 25 छात्र शामिल होते हैं और कुल औसत अंक 79.5 हो जाता है| दूसरे समूह के 24 छात्रों का औसत 74 है | दूसरे समूह के 25 वें छात्र द्वारा प्राप्त अंक हैं:
SSC MTS - 5 August 2019 (Evening)
(a) 82
(b) 99
(c) 76
(d) 89

Q54. The average age of mother and father is 28 years. The average age of mother, father and their child is 20 years. What is the age of the child ?
माता तथा पिता की औसत आयु 28 वर्ष है | माता, पिता तथा उनके बच्चे की औसत आयु 20 वर्ष है | बच्चे की आयु कितनी है ?
SSC MTS - 5 August 2019 (Evening)
(a) 4 years / वर्ष
(b) 3 years / वर्ष
(c) 6 years / वर्ष
(d) 5 years / वर्ष

Q55. The average of 4 numbers is 9. If one more number 14 is included, then what will be the new average ? 4 संख्याओं का औसत 9 है | यदि एक और संख्या 14 को भी शामिल किया जाए, तो नया औसत कितना है ?
SSC MTS - 5 August 2019 (Evening)
(a) 9.5
(b) 10.5
(c) 9
(d) 10

Q56. The average weight of 14 children is 22 kg. If the weight of the teacher is added, then the average weight becomes 23 kg. What is the weight of the teacher ?
14 बच्चों का औसत वजन 22 kg है | यदि अध्यापक का वजन भी मिला लिया जाए तो औसत वजन 23 kg हो जाता है | अध्यापक का वजन कितना है ?
SSC MTS - 6 August 2019 (Morning)
(a) 34 kg
(b) 37 kg
(c) 35 kg
(d) 36 kg

Q57. Average age of 9 men is 45 years. If age of one woman is included, then the average age becomes 44 years. What is the age of the woman?
9 पुरुषों की औसत आयु 45 वर्ष है | यदि एक महिला की उम्र को शामिल किया जाए, तो औसत आयु 44 वर्ष हो जाती है | महिला की उम्र कितनी है ?
SSC MTS - 6 August 2019 (Evening)
(a) 44 years
(b) 30 years
(c) 40 years
(d) 35 years

Q58. Average of 50 numbers was calculated as 20 when three numbers, 26, 36 and 64 were wrongly read as 31, 46 and 59 respectively. What is the correct average?
50 संख्याओं का औसत 20 पाया गया जब तीन संख्याओं 26, 36 और 64 को क्रमशः 31, 46 और 59 पढ़ लिया गया था | सही औसत ज्ञात करें |
SSC MTS - 6 August 2019 (Evening)
(a) 26.2
(b) 19.8
(c) 20.2
(d) 24.4

Q59. Average of 12 numbers is 48. If each number is increased by 11, then what will be the new average?
12 संख्याओं का औसत 48 है | यदि प्रत्येक संख्या को 11 से बढ़ा दिया जाए, तो नया औसत कितना होगा ?
SSC MTS - 7 August 2019 (Morning)
(a) 13
(b) 58

(c) 64
(d) 59

Q60. What is the average of all the multiples of 6 from 20 to 80?
20 से 80 तक 6 के सभी गुणजों का औसत ज्ञात करें |
SSC MTS - 7 August 2019 (Morning)
(a) 51
(b) 50
(c) 48
(d) 52

Q61. The average of 36, 28, 43, 56, 74, 65, 12 and x is 45. What is the value of x?
36, 28, 43, 56, 74, 65, 12 और x का औसत 45 है | x का मान क्या है ?
SSC MTS - 7 August 2019 (Afternoon)
(a) 48
(b) 42
(c) 44
(d) 46

Q62. The average age of a group of 20 men is 30 years. A 50 year old man leaves the group, while a woman joins the group. The average age decreases by 1 year. What is the age of the woman?
एक समूह के 20 पुरुषों की औसत आयु 30 वर्ष है | 50 वर्ष का एक व्यक्ति समूह छोड़ देता है, जबकि समूह में एक महिला शामिल हो जाती है | औसत आयु 1 वर्ष कम हो जाती है | महिला की उम्र कितनी है ?
SSC MTS - 7 August 2019 (Afternoon)
(a) 40 years
(b) 30 years
(c) 35 years
(d) 38

Q63. The average of six observations is 15. The average of first three among them is twice the average of the last three. What is the sum of the last three observations?
छः अवलोकनों का औसत 15 है | इनमें से पहले तीन का औसत अंतिम तीन के औसत से दोगुना है | अंतिम तीन अवलोकनों का योग ज्ञात करें |
SSC MTS - 7 August 2019 (Evening)
(a) 35
(b) 20
(c) 25
(d) 30

Q64. The average weight of 18 boys in a group is 35 kg. If four new boys of weights 20kg, 22kg, 26kg and 28kg are added to the group, then what is the average weight of the newly formed group?
एक समूह के 18 लड़कों का औसत वज़न 35 किलो ग्राम है | यदि चार नए लड़के समूह में शामिल हो जाते हैं जिनके वज़न क्रमशः 20 किलो ग्राम, 22 किलो ग्राम, 26 किलो ग्राम और 28 किलो ग्राम हैं, तो नए बने समूह का औसत वज़न ज्ञात करें |
SSC MTS - 8 August 2019 (Morning)
(a) 34 years
(b) 32 years
(c) 35 years
(d) 33 years

Q65. What is the average of the first 15 even numbers starting from 2?
2 से शुरू करते हुए पहली 15 सम संख्याओं का औसत ज्ञात करें |
SSC MTS - 8 August 2019 (Afternoon)
(a) 16
(b) 15
(c) 17
(d) 14

Q66. The average of four numbers is 20. If the average of the first two numbers is 15, then what is the average of the last two numbers?
चार संख्याओं का औसत 20 है | यदि पहली दो संख्याओं का औसत 15 है, तो अंतिम दो संख्याओं का औसत ज्ञात करें | **SSC MTS - 8 August 2019 (Evening)**
(a) 22
(b) 18
(c) 25
(d) 20

Q67. Set A contains seven numbers and the average of these numbers is 41. Set B contains five numbers and the average of these numbers is 44. The overall average of both the sets is:
समूह A में सात संख्याएं हैं तथा इन संख्याओं का औसत 41 है | समूह B में पांच संख्याएं हैं तथा इन संख्याओं का औसत 44 है | इन दोनों समूहों का कुल औसत है :
SSC MTS - 9 August 2019 (Afternoon)
(a) 42.75
(b) 42.25
(c) 41.75
(d) 42.5

Q68. Average of 11 numbers is 32. If the average of first six numbers is 26 and the average of last six numbers is 36 then what is the value of the sixth number?
11 संख्याओं का औसत 32 है | यदि पहली छः संख्याओं का औसत 26 है और अंतिम छः संख्याओं का औसत 36 है, तो छठी संख्या का मान ज्ञात करें |
SSC MTS - 9 August 2019 (Afternoon)
(a) 20
(b) 26
(c) 32
(d) 30

Q69.The average marks of two classes M and N are 25 and 40 respectively and the overall average is 30. The ratio of the students of classes M and N is :
दो कक्षाओं M तथा N के औसत अंक क्रमश: 25 तथा 40 हैं, और प्राप्त

समग्र औसत 30 है | कक्षा M और N के छात्रों का अनुपात है :
SSC MTS - 9 August 2019 (Evening)
(a) 2 : 1
(b) 5 : 6
(c) 1 : 2
(d) 5 : 3

Q70. Five years ago, the average age of 4 girls was 7 years. After including a new girl, the present average age becomes 13 years. The present age of the new girl is :
पाँच वर्ष पहले 4 लड़कियों की औसत आयु 7 वर्ष थी | एक नई लड़की के शामिल होने पर वर्तमान औसत आयु 13 वर्ष हो जाती है | नई लड़की की वर्तमान आयु है :
SSC MTS - 13 August 2019 (Morning)
(a) 14 years / 14 वर्ष
(b) 19 years / 19 वर्ष
(c) 16 years / 16 वर्ष
(d) 17 years / 17 वर्ष

Q71. The average of 10 numbers is P and the average of 4 of these numbers is Q. If the average of remaining numbers is R then which of the following is correct:
10 संख्याओं का औसत P है तथा इनमें से 4 संख्याओं का औसत Q है | यदि शेष संख्याओं का औसत R है, तो निम्न में से कौन सा विकल्प सही है ?
SSC MTS - 13 August 2019 (Afternoon)
(a) 3P = 2Q + 4R
(b) 5P = 3Q + 2R
(c) 5P = 2Q + 3R
(d) 4P = 2Q + 3R

Q72. The average marks obtained by a student in 9 subjects is 98. On subsequent verification it was found that the marks obtained by him in a subject was wrongly copied as 86 instead of 68. The correct average of the marks obtained by him is:
एक छात्र द्वारा 9 विषयों में प्राप्त औसत अंक 98 है | फिर से जांच करने पर यह पाया गया कि उसके द्वारा एक विषय में प्राप्त किये गए अंक 68 के बजाय 86 लिखे गए थे | उसके द्वारा प्राप्त अंकों का सही औसत है :
SSC MTS - 13 August 2019 (Evening)
(a) 94
(b) 95
(c) 96
(d) 97

Q73. A party was held for 50 people on their own expenses. Out of them, 48 people paid Rs. 950 each and the other two persons paid Rs. 1200 more than the average expenses of the group. The total amount spent was :
50 लोगों के लिए एक पार्टी का आयोजन उन्हीं के खर्चे पर किया गया | उनमें से 48 लोगों ने, प्रत्येक ने,रु 950 का भुगतान किया, जबकि अन्य दो ने समूह के औसत व्यय से रु 1200 अधिक का भुगतान किया | खर्च किया गया कुल व्यय था : **SSC MTS - 14 August 2019 (Morning)**
(a) Rs 75,000 / रु 75,000
(b) Rs 40,000 / रु 40,000
(c) Rs 25,000 / रु 25,000
(d) Rs 50,000 / रु 50,000

Q74. The average of 25 number is zero. At most, how many of these numbers can be greater than zero?
25 संख्याओं का औसत शून्य है | इनमें से अधिक से अधिक कितनी संख्याएँ शून्य से अधिक हो सकती हैं ?
SSC MTS - 14 August 2019 (Afternoon)
(a) 25
(b) 13
(c) 12
(d) 24

Q75. The average of 50 numbers is 75. If the average of first set of 25 numbers is 65, then what is the average of the second set of 25 numbers?
50 संख्याओं का औसत 75 है | यदि 25 संख्याओं के पहले समूह का औसत 65 है, तो 25 संख्याओं के दूसरे समूह का औसत ज्ञात करें |
SSC MTS - 14 August 2019 (Afternoon)
(a) 105
(b) 95
(c) 85
(d) 75

Q76. The average weight of 38 students is 42 kg. It was found that the figure of 46 kg was misread as 26 kg in one of the readings. What is the correct average? (correct to one decimal places)
38 छात्रों का औसत वज़न 42 किलो ग्राम है | यह पाया गया कि 46 किलो ग्राम को भूल-वश 26 किलो ग्राम पढ़ लिया गया था | सही औसत क्या है ? (एक दशमलव स्थान तक)
SSC MTS - 14 August 2019 (Evening)
(a) 42.5 kg
(b) 45.5 kg
(c) 39 kg
(d) 44 kg

Q77. The average of 21 data is 36 out of which the first 12 data are having an average of 15. The average of the rest 9 data is:
21 आंकड़ों का औसत 36 है जिसमें से पहले 12 आंकड़ों का औसत 15 है | शेष 9 आंकड़ों का औसत है :
SSC MTS - 14 August 2019 (Evening)
(a) 87
(b) 65
(c) 64
(d) 50

Q78. A cricket team has scored 156 runs in 30 overs. They need to score 275 in 50 overs. What is the average runs per over they need to score in the next 20 overs?
एक क्रिकेट टीम ने 30 ओवर में 156 रन बनाए हैं | उन्हें 50 ओवर में 275 रन बनाने की आवश्यकता है | अगले 20 ओवर में उन्हें प्रति ओवर किस औसत से रन बनाने होंगे ?
SSC MTS - 16 August 2019 (Morning)
(a) 5.75
(b) 5.95
(c) 5.85
(d) 5.9

Q79. The average weight of a group of eight people increased by 2.5 kg when a person weighing 80 kg joined in place of one of the members of the group. The weight of the member replaced was:
आठ लोगों के एक समूह का औसत वज़न 2.5 किलो ग्राम से बढ़ गया जब 80 किलो ग्राम का एक व्यक्ति समूह के किसी एक सदस्य के स्थान पर शामिल हो गया | इस समूह से बाहर गए व्यक्ति का वज़न ज्ञात करें |
SSC MTS - 16 August 2019 (Morning)
(a) 60 kg
(b) 77.5 kg
(c) 70 kg
(d) 62.5 kg

Q80. The cost of 6 pencils is Rs. 30 and 12 pens is Rs. 120. Find the average cost of 50 pencils and 50 pens.
6 पेंसिल का मूल्य रु 30 और 12 कलमों का मूल्य रु120 है | 50 पेंसिल और 50 कलमों का औसत मूल्य कितना है ?
SSC MTS - 16 August 2019 (Afternoon)
(a) Rs 6.75 / रु 6.75
(b) Rs 7.5 / रु 7.5
(c) Rs 5 / रु 5
(d) Rs 5.75 / रु 5.75

Q81. An art exhibition was held in the month of november. The numbers of visitors on weekdays and on weekends were 450 and 750 respectively. If the first day of the month was Monday, then what was the average number of visitors in the month ?
नवंबर माह में एक कला प्रदर्शनी आयोजित की गई | सप्ताह के कार्यदिवसों (वीकडेज) और सप्ताहांत (वीक-एंड) पर आने वाले आगंतुकों की औसत संख्या क्रमश: 450 और 750 थी | यदि माह का पहला दिन सोमवार था, तो माह में आगंतुकों की औसत संख्या कितनी थी ?
SSC MTS - 16 August 2019 (Evening)
(a) 520
(b) 530
(c) 510
(d) 540

Q82. The owner of a bike buys petrol at the rate of Rs. 64, Rs. 80 and Rs. 320 per litre for three consecutive years. If he spends Rs. 32000 on petrol every year, then what is the average price of petrol per litre ?
एक बाइक का मालिक लगातार 3 वर्षों तक क्रमश: रु 64, रु 80 और रु 320 प्रति लीटर के हिसाब से पेट्रोल खरीदता है | यदि वह पेट्रोल खरीदने में हर वर्ष रु 32000 खर्च करता है, तो पेट्रोल का प्रति लीटर औसत मूल्य कितना है ?
SSC MTS - 16 August 2019 (Evening)
(a) Rs 120 / रु 120
(b) Rs 84 / रु 84
(c) Rs 108 / रु 108
(d) Rs 96 / रु 96

Q83. Average age of 12 students is 14 years. If the age of teacher is also included, the average becomes 15 years. What is the age of the teacher? 12 छात्रों की औसत उम्र 14 वर्ष है | यदि शिक्षक की उम्र को भी शामिल कर लिया जाए, तो औसत 15 वर्ष हो जाता है | शिक्षक की उम्र कितनी है ?
SSC MTS - 19 August 2019 (Morning)
(a) 23 years
(b) 25 years
(c) 27 years
(d) 28 years

Q84. Average of 10 numbers is 14.8. If two numbers 5 and 23 are replaced by 13 and 26 respectively, then what is the new average?
10 संख्याओं का औसत 14.8 है | यदि दो संख्याओं 5 और 23 को क्रमशः 13 और 26 से बदल दिया जाता है, तो नया औसत क्या होगा ?
SSC MTS - 19 August 2019 (Morning)
(a) 15.9
(b) 13.8
(c) 16.3
(d) 14.5

Q85. The average weight of 13 students and their teacher is 24.5 kg. If the weight of the teacher is 31 kg, then find the average weight of the students.
13 विद्यार्थियों तथा उनके अध्यापक का औसत वजन 24.5 kg है | यदि अध्यापक का वजन 31 kg है, तो 13 विधार्थियों का औसत वजन कितना है ?
SSC MTS - 19 August 2019 (Afternoon)
(a) 23.5 kg
(b) 23 kg
(c) 24 kg
(d) 25 kg

Q86. The average of a and b is 10, average of b and c is 12 and average of c and a is 15. Find the average of a, b and c.
a तथा b का औसत 10 है, b तथा c का औसत 12 है और c तथा a का

औसत 15 है | a, b और c का औसत कितना है ?
SSC MTS - 19 August 2019 (Afternoon)
(a) $\frac{37}{3}$
(b) $\frac{74}{3}$
(c) 74
(d) 37

Q87. In an examination, the average score of students in a class who passed is 69 and that of who failed is 61. If the average score of all the students, who appeared in the examination is 66, then the percentage of students who passed is: एक परीक्षा में, किसी कक्षा में पास करने वाले छात्रों का औसत अंक 69 है तथा फेल करने वाले छात्रों का औसत अंक 61 है | यदि परीक्षा में शामिल होने वाले सभी छात्रों का औसत अंक 66 है, तो पास करने वाले छात्रों का प्रतिशत ज्ञात करे | **SSC MTS - 19 August 2019 (Evening)**
(a) 37.5
(b) 60
(c) 62.5
(d) 56

Q88. The average of 20 numbers is 80. The average of first 10 numbers is 76.5 and that of next 7 numbers is 82. The 18th number is 3 more than the 19th number but 3 less than the 20th number. What is the average of 18th and 19th numbers?
20 संख्याओं का औसत 80 है | पहली 10 संख्याओं का औसत 76.5 है तथा अगली 7 संख्याओं का औसत 82 है | 18वीं संख्या 19वीं संख्या से 3 अधिक है लेकिन 20वीं संख्या से 3 कम है | 18वीं तथा 19वीं संख्या का औसत ज्ञात करें |
SSC MTS - 19 August 2019 (Evening)
(a) 85
(b) 88.5
(c) 86
(d) 85.5

Q89. The ratio of boys to girls in a class is 2 : 3 and the average score of all the students in the class in maths is 54. The average score of boys is 50% more than that of girls. What is the average score of girls ?
एक कक्षा में लड़के और लड़कियों की संख्या का अनुपात 2 : 3 है और कक्षा में सभी छात्रों के गणित में औसत प्राप्तांक 54 है | लड़कों का औसत प्राप्तांक लड़कियों के औसत प्राप्तांक से 50% अधिक है | लड़कियों का औसत प्राप्तांक कितना है ?
SSC MTS - 20 August 2019 (Morning)
(a) 50
(b) 42
(c) 45
(d) 40

Q90. Four different numbers are given here. The average of the first three numbers is four times to the fourth number and the average of all four numbers is 87.75. What is the average of the first three numbers ? यहाँ चार अलग-अलग संख्याएँ दी गई हैं | पहली तीन संख्याओं का औसत चौथी संख्या का चार गुणा है और सभी चार संख्याओं का औसत 87.75 है | पहली तीन संख्याओं का औसत कितना है ?
SSC MTS - 20 August 2019 (Morning)
(a) 90
(b) 108
(c) 100
(d) 96

Q91. The average of 21 numbers is 44. The average of first 11 numbers is 48 and that of last 11 numbers is 42. If 11th number is excluded, what is the average of the remaining numbers?
21 संख्याओं का औसत 44 है | पहली 11 संख्याओं का औसत 48 तथा अंतिम 11 संख्याओं का औसत 42 है | यदि 11वीं संख्या को हटा दिया जाए, तो शेष संख्याओं का औसत क्या होगा ?
SSC MTS - 20 August 2019 (Afternoon)
(a) 43
(b) 42
(c) 42.9
(d) 43.5

Q92. There are 90 students in a class out of which 60% are girls and the rest are boys. The average score of boys in english is 30% more than that of girls. If the average score of all the students in english is 56, then find the average score of only girls in english.
एक कक्षा में 90 छात्र हैं, जिसमें से 60% लड़कियां हैं और बाकी लड़के हैं | लड़कों का अंग्रेजी में औसत प्राप्तांक (स्कोर), लड़कियों की तुलना में 30% अधिक है | यदि अंग्रेजी में सभी छात्रों का औसत प्राप्तांक 56 है, तो अंग्रेजी में केवल लड़कियों का औसत प्राप्तांक कितना है ?
SSC MTS - 20 August 2019 (Afternoon)
(a) 62
(b) 48
(c) 65
(d) 50

Q93. The average marks of Madhu in four subjects is 64 and she got 69 marks in the fifth subject. What is the new average of marks obtained by Madhu in 5 subjects ?
मधु द्वारा चार विषयों में प्राप्त औसत अंक 64 है और पांचवें विषय में उसने 69 अंक हासिल किए | मधु द्वारा पांच विषयों में प्राप्त अंकों का नया औसत क्या है ?
SSC MTS - 20 August 2019 (Evening)
(a) 66
(b) 67

(c) 65
(d) 64

Q94. The average of 20 observations is 27. If each observation is multiplied by 3, then find the new average.
20 मानों का औसत 27 है | यदि प्रत्येक मान को 3 से गुणा किया जाता है | तो नया औसत है :
SSC MTS - 20 August 2019 (Evening)
(a) 91
(b) 61
(c) 81
(d) 71

Q95. A person bought 15 articles @ Rs. 70 per article, 13 articles @ Rs. 60 per article and 12 articles @ Rs. 65 per article. The average cost (in Rs.) of per article is :
किसी व्यक्ति ने रु 70 प्रति वस्तु की दर से 15 वस्तुएं, रु 60 प्रति वस्तु की दर से 13 वस्तुएं और रु 65 प्रति वस्तु की दर से 12 वस्तुएं खरीदीं | प्रति वस्तु औसत मूल्य (रु में) है :
SSC MTS - 21 August 2019 (Morning)
(a) 65.25
(b) 63.25
(c) 65.00
(d) 65.75

Q96. The average temperature of the first three days of the week is 23^0C and the average temperature of the next three days is 24^0C and the average temperature of the whole week is 23.5^0C. Find the temperature of the last days of this week.
सप्ताह के पहले तीन दिनों का औसत तापमान 23^0C है और अगले तीन दिनों का औसत तापमान 24^0C है और पूरे सप्ताह का औसत तापमान 23.5^0C है | सप्ताह के अंतिम दिन का तापमान है :
SSC MTS - 21 August 2019 (Morning)
(a) 22.5^0C
(b) 21.5^0C
(c) 24.5^0C
(d) 23.5^0C

Q97. The average score of 30 students is 65, 36 students is 35 and 34 students is 45. The average score of all the students is :
30 छात्रों का औसत अंक 65 है, 36 छात्रों का 35 और 34 छात्रों का 45 है तो सभी छात्रों का औसत अंक है :
SSC MTS - 21 August 2019 (Afternoon)
(a) 45.3
(b) 46.4
(c) 45.7
(d) 47.4

Q98. The average number of pages of 9 books is 400. If the average number of pages in the first 5 books is 430 and that of in the last five books is 380, then find the number of pages in the fifth book.
9 पुस्तकों के पृष्ठों की औसत संख्या 400 है | यदि प्रथम पांच पुस्तकों के पृष्ठों की औसत संख्या 430 और अंतिम पांच पुस्तकों की 380 है, तो पांचवीं पुस्तक के पृष्ठों की संख्या कितनी है ?
SSC MTS - 21 August 2019 (Afternoon)
(a) 430
(b) 440
(c) 420
(d) 450

Q99. In a class, the number of girls is 60% more than that of boys. The average weight of the boys is 2.6 kg more than that of girls. If the average weight of all the boys and girls is 50 kg, then find the average weight (in Kg.) of girls.
एक कक्षा में, लड़कियों की संख्या लड़कों की संख्या से 60% अधिक है | लड़कियों की तुलना में लड़कों का औसत वजन 2.6 kg अधिक है | यदि सभी लड़कों और लड़कियों का औसत वजन 50 kg है, तो लड़कियों का औसत वजन (kg में) कितना है ?
SSC MTS - 21 August 2019 (Evening)
(a) 48.8
(b) 49.2
(c) 49
(d) 48

Q100. The average of 15 numbers is 45. The average of the first six numbers is 42 and that of last six numbers is 43. The seventh number is two times the eighth number but 5 more than the 9th number. The average of the seventh and the ninth number is :
15 संख्याओं का औसत 45 है | प्रथम छह संख्याओं का औसत 42 है और अंतिम छह संख्याओं का औसत 43 है | 7 वीं संख्या, 8 वीं संख्या की दोगुनी है, लेकिन 9 वीं संख्या से 5 अधिक है | तो 7 वीं और 9 वीं संख्याओं का औसत कितना है ?
SSC MTS - 21 August 2019 (Evening)
(a) 65.5
(b) 64
(c) 55.5
(d) 65

Q101. The average weight of 60 students in a class of 56.4 kg. If 12 students having average weight of 59.5 kg leave the class and 15 students having average weight 54kg join the class, then what is the average weight (in kg) of the students in the class (correct to one decimal place)?
किसी कक्षा में 60 छात्रों का औसत वज़न 56.4 किलो ग्राम है | यदि 59.5 किलो ग्राम औसत वज़न वाले 12 छात्र कक्षा से चले जाते हैं और 54 किलो ग्राम औसत वज़न वाले 15 छात्र कक्षा में आ जाते हैं | कक्षा में छात्रों का

औसत वज़न (किलो ग्राम में) ज्ञात करें | (एक दशमलव स्थान तक)
SSC MTS - 22 August 2019 (Morning)
(a) 56.1
(b) 55.2
(c) 58.0
(d) 54.9

Q102. The average of a few numbers is 48. If 75% of the numbers are increased by 4 each and the rest are decreased by 6 each, then what is the average of the numbers, so obtained? कुछ संख्याओं का औसत 48 है | यदि 75% संख्याओं को 4 से बढ़ा दिया जाता है और शेष संख्याओं को 6 से कम कर दिया जाता है, तो इस प्रकार इन संख्याओं का प्राप्त होने वाला औसत होगा :
SSC MTS - 22 August 2019 (Morning)
(a) 50.4
(b) 49
(c) 49.5
(d) 50

Q103. The number of students in classes A and B are 60 and 70, respectively. The average score in mathematics of students in B is 57 and that of all students in A and B is 63. What is the average score of students in A?
कक्षा A और B में छात्रों की संख्या क्रमशः 60 और 70 है | B में गणित में छात्रों का औसत अंक 57 तथा A और B के सभी छात्रों का गणित में औसत अंक 63 है | A के छात्रों का औसत अंक ज्ञात करें |
SSC MTS - 22 August 2019 (Afternoon)
(a) 69
(b) 70
(c) 68
(d) 71

Q104. There are three positive numbers. If the average of any two of them is added to the third number, the sums obtained are 68, 74 and 98. What is the average of the smallest and the greatest of the given numbers?
तीन धनात्मक संख्याएँ हैं | यदि इनमें से किसी भी दो संख्या का औसत तीसरी संख्या में जोड़ा जाए, तो योगफल के रूप में क्रमशः 68, 74 और 98 प्राप्त होता है | इनमें से सबसे छोटी और सबसे बड़ी संख्या का औसत ज्ञात करें |
SSC MTS - 22 August 2019 (Afternoon)
(a) 46
(b) 48
(c) 47
(d) 52

Q105. The average of 12 numbers is 18.5. The average of first six numbers is 16.8 and that of the last seven numbers is 17.4. If the 6th number is excluded, then what is the average (correct to one decimal place) of remaining 11 numbers?
12 संख्याओं का औसत 18.5 है | पहली छः संख्याओं का औसत 16.8 है तथा अंतिम सात संख्याओं का औसत 17.4 है | यदि छठी संख्या को हटा दिया जाए, तो शेष 11 संख्याओं का औसत (एक दशमलव स्थान तक) क्या होगा ?
SSC MTS - 22 August 2019 (Evening)
(a) 17.9
(b) 18.9
(c) 18.4
(d) 20.1

Q106. There are 96 students in a class, out of which the number of girls is 40% more than that of the boys. The average score in mathematics of the boys is 40% more than the average score of girls. If the average score in mathematics of all the students is 63, then what is the average score of the girls in mathematics?
एक कक्षा में 96 छात्र हैं, जिनमें से लड़कियों की संख्या लड़कों की संख्या से 40% अधिक है | लड़कों का गणित में औसत प्राप्तांक लड़कियों के औसत प्राप्तांक से 40% अधिक है | यदि गणित में सभी छात्रों का औसत प्राप्तांक 63 है, तो गणित में लड़कियों का औसत प्राप्तांक ज्ञात करें |
SSC MTS - 22 August 2019 (Evening)
(a) 51
(b) 54
(c) 55
(d) 57

Q107. The average temperature of one week was $30^{\circ}c$. If the average temperature of the first four days of the week was $31^{\circ}c$, what would be the average temperature of the remaining days of the week?
एक सप्ताह का औसत तापमान $30^{\circ}c$ था | यदि सप्ताह के पहले चार दिनों का औसत तापमान $31^{\circ}c$ था, तो सप्ताह के शेष दिनों का औसत तापमान क्या होगा ?
SSC CPO 14 March 2019 (Evening)
(a) $29.33^{\circ}c$
(b) $29^{\circ}c$
(c) $28.5^{\circ}c$
(d) $28.67^{\circ}c$

Q108. The daily average rainfall on 5 days of the week is 30 mm. If the rainfall on 6th and 7th day are 42 mm and 2tg 5 mm respectively, then what is the average daily rainfall for the 7 days ?
सप्ताह के 5 दिनों की दैनिक औसत बारिश 30 मिमी है | यदि छठे और सातवें दिन क्रमशः 42 मिमी तथा 25 मिमी बारिश हुई, तो 7 दिनों के लिए औसत दैनिक बारिश ज्ञात करें |
SSC MTS 2 August 2019 (Morning)
(a) 31
(b) 29.5

(c) 33
(d) 28.5

Q109. The average weight of 8 gold coins is 20 g per coin. The average weight of 12 coins of silver is 35 g per coin. What is the average weight per coin for 2 coins?
8 सोने के सिक्कों का औसत भार 20 g प्रति सिक्का है | चाँदी के 12 सिक्को का औसत भार 35 g प्रति सिक्का है | 2 सिक्को के लिए प्रति सिक्का औसत भार कितना है ?
SSC MTS 2 August 2019 (Afternoon)
(a) 25 g
(b) 29 g
(c) 21 g
(d) 31 g

Q110.The average of a, b and c is 9. The average of b and c is 10. What is the value of a?
a, b तथा c का औसत 9 है | b तथा c का औसत 10 है | a का मान कितना है ?
SSC MTS 5 August 2019 (Afternoon)
(a) 6
(b) 7
(c) 8
(d) 9

Q111.The average of a and b is 36. The average of b and c is 42. The difference between c and a is :
a तथा b का औसत 36 है | b तथा c का औसत 42 है| c और a के बीच का अंतर है ?
SSC MTS 6 August 2019 (Afternoon)
(a) 18
(b) 12
(c) 16
(d) 14

Q112. 30 kg of rice costing Rs. 50 per kg is mixed with 20 kg of rice costing Rs. 60 per kg. What is the average cost of the mixture per kg?
50 रुपये प्रति किलो ग्राम कीमत वाले 30 किलो चावल को 60 रुपये प्रति किलोग्राम वाले 20 किलो चावल में मिलाया जाता है | प्रति किलोग्राम मिश्रण की औसत कीमत कितनी है ?
SSC MTS 8 August 2019 (Afternoon)
(a) Rs. 54
(b) Rs. 56
(c) Rs. 52
(d) Rs. 55

Q113.A family has two grandparents, two parents and four children. Two years ago, the average age of grandparents was 72 years. A year ago, the average age of parents was 36 years. Currently, the average age of children is 12 years. What is the current average age of the family?
किसी परिवार में दो दादा-दादी, दो माता-पिता और चार बच्चे है | दो साल पहले, दादा-दादी की औसत आयु 72 वर्ष थी | एक साल पहले, माता-पिता की औसत आयु 36 वर्ष थी | वर्तमान में, बच्चों की औसत आयु 12 वर्ष है | परिवार की वर्तमान औसत आयु कितनी है ?
SSC MTS 16 August 2019 (Afternoon)
(a) 32 years
(b) 33.75 years
(c) 32.75 years
(d) 33 years

Q114. Age of A is 6 years more than three times the age of B. After three years, A's age will be 8 years more than twice the age of B. The average of present age of A and B (in years) is
A की उम्र B की उम्र के तिगुने से 6 वर्ष अधिक है | तीन वर्ष बाद, A की उम्र B की उम्र के दोगुने से 8 वर्ष अधिक होगी | A और B की वर्तमान औसत आयु (वर्ष में) है :
SSC MTS 13 August 2019 (Afternoon)
(a) 12
(b) 11
(c) 14
(d) 13

Q115. A person was asked to guess his own weight. He estimated his weight to be over 70 kg but less than 80 kg. His friend estimated his weight to be more than 74 kg but less than 84 kg. His mother said that his weight is less than 78 kg. Assuming that the weights are a whole number and that the three had correctly guessed, then what is the average of the possible weights?
किसी व्यक्ति को स्वयं के वजन के बारे में अनुमान लगाने के लिए कहा गया | उसने अनुमान लगाया कि उसका वजन 70 kg से अधिक लेकिन 80 kg से कम है | उसके दोस्त ने उसके वजन का अनुमान 74 kg से अधिक लेकिन से 84 kg कम लगाया | उसकी माता ने कहा कि उसका वजन 78 kg से कम है | यह मानते हुए कि वजन एक पूर्णांक संख्या है और तीनों ने सही अनुमान लगाया था, तो संभावित वजनो का औसत कितना है ?
SSC MTS 14 August 2019 (Morning)
(a) 76.5 kg
(b) 76 kg
(c) 77 kg
(d) 75 kg

SSC CGL TIER I

Q1. Out of 6 numbers, the sum of the first 5 numbers is 7 times the 6th number. If their average is 136, then the 6th number is:
6 संख्याओं में से, पहली 5 संख्याओं का जोड़ छठी संख्या से 7 गुना है | यदि उनका औसत 136 है, तो छठी संख्या कौन सी है ?
SSC CGL 3 March 2020 (Morning)
(a) 84

(b) 96
(c) 116
(d) 102

Q2. The average of the first four numbers is three times the fifth number. If the average of all the five numbers is 85.8, then the fifth number is:
पहली चार संख्याओं का औसत पाँचवीं संख्या से तीन गुना है | यदि सभी पाँच संख्याओं का औसत 85.8 है, तो पाँचवीं संख्या होगी :
SSC CGL 3 March 2020 (Afternoon)
(a) 33
(b) 34
(c) 39
(d) 29

Q3. The average of five consecutive even numbers is M. If the next five even numbers are also included, the average of ten numbers will be:
पाँच लगातार सम संख्याओं का औसत M है | यदि अगली पाँच सम संख्याओं को भी शामिल कर लिया जाए, तो दस संख्याओं का औसत कितना होगा ?
SSC CGL 3 March 2020 (Evening)
(a) M + 10
(b) 11
(c) M + 5
(d) 10

Q4. The average of twelve numbers is 45.5. The average of the first four numbers is 41.5 and that of the next five numbers is 48. The 10th number is 4 more than the 11th number and 9 more than the 12th number. What is the average of the 10th and 12th numbers? /
बारह संख्याओं का औसत 45.5 है | पहली चार संख्याओं का औसत 41.5 है तथा अगली पाँच संख्याओं का औसत 48 है | 10वीं संख्या, 11वीं संख्या से 4 अधिक तथा 12वीं संख्या से 9 अधिक है | 10वीं तथा 12वीं संख्याओं का औसत कितना है ?
SSC CGL 4 March 2020 (Morning)
(a) 46.5
(b) 47.8
(c) 46
(d) 47

Q5. The average weight of some students in a class was 58.4kg. When 5 students having the average weight 62.8 kg joined the class, the average weight of all the students in the class increased by 0.55 kg. The number of students initially in the class were:
एक कक्षा में कुछ छात्रों का औसत वज़न 58.4 किलो ग्राम था | जब 62.8 किलो ग्राम औसत वज़न वाले 5 छात्र इस कक्षा में आते हैं, तो कक्षा के सभी छात्रों का औसत वज़न 0.55 किलो ग्राम बढ़ जाता है | आरंभ में कक्षा में छात्रों की संख्या कितनी थी ?
SSC CGL 4 March 2020 (Afternoon)
(a) 30
(b) 35
(c) 25
(d) 40

Q6. The average age of a number of persons in a group was calculated as 35 years, which was 2.5 years more than the correct average as there was an error in recording the age of two persons as 38.5 years and 40 years instead of 29 years and 22 years respectively. The number of persons in the group was:
एक समूह में कुछ लोगों की औसत उम्र की गणना 35 वर्ष की गयी, जो वास्तविक औसत से 2.5 वर्ष अधिक थी, क्योंकि दो व्यक्तियों की उम्र 29 वर्ष तथा 22 वर्ष के स्थान पर भूलवश 38.5 वर्ष तथा 40 वर्ष दर्ज कर ली गयी थी | इस समूह में लोगों की संख्या कितनी थी ?
SSC CGL 4 March 2020 (Evening)
(a) 11
(b) 12
(c) 15
(d) 13

Q7. The average of 24 numbers is 56. The average of the first 10 numbers is 71.7 and that of the next 11 numbers is 42. The next three numbers (i.e 22nd, 23rd and 24th) are in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{5}{12}$. What is the average of the 22nd and 24th numbers?
24 संख्याओं का औसत 56 है | पहली 10 संख्याओं का औसत 71.7 है तथा अगली 11 संख्याओं का औसत 42 है | अगली तीन संख्याएँ (अर्थात 22वीं, 23वीं तथा 24वीं) $\frac{1}{2} : \frac{1}{3} : \frac{5}{12}$ के अनुपात में हैं | 22वीं तथा 24वीं संख्याओं का औसत कितना है ?
SSC CGL 5 March 2020 (Morning)
(a) 49.5
(b) 58
(c) 55
(d) 60.5

Q8. The average of some numbers is 54.6. If 75% of the numbers are increased by 5.6 each and the rest are decreased by 8.4 each, then what is the average of the numbers so obtained?
कुछ संख्याओं का औसत 54.6 है | यदि इन संख्याओं के 75% में से प्रत्येक को 5.6 से बढ़ा दिया जाए तथा शेष में से प्रत्येक को 8.4 से कम कर दिया जाए, तो इस प्रकार प्राप्त होने वाली संख्याओं का औसत क्या होगा ?
SSC CGL 5 March 2020 (Afternoon)
(a) 56.7
(b) 55.6
(c) 55.8
(d) 56.3

Q9. The average height of 5 boys is 175 cm. A sixth boy joined the

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group and the average height of all the boys in the group now increased by one centimeter. The height of the sixth boy is:
5 लड़कों की औसत लंबाई 175 सेमी है | एक छठा लड़का समूह में शामिल हो जाता है तथा सभी लड़कों की औसत लंबाई एक सेमी से बढ़ जाती है | छठे लड़के की लंबाई कितनी होगी ?
SSC CGL 5 March 2020 (Evening)
(a) 175 cm
(b) 179 cm
(c) 180 cm
(d) 181 cm

Q10. The average marks of 30 boys is 88, and when the top scores were excluded, the average marks reduced to 87.5. If the top two scores differ by 2, then the highest marks is /
30 लड़कों का औसत अंक 88 है तथा जब शीर्ष अंक को हटा दिया जाता है, तो औसत अंक कम होकर 87.5 हो जाता है | यदि शीर्ष दो अंकों में 2 का अंतर है, तो शीर्ष अंक कितना है ?
SSC CGL 6 March 2020 (Morning)
(a) 94
(b) 96
(c) 90
(d) 92

Q11. 24 students collected money for donation. The average contribution was ₹ 50. Later on their teacher also contributed some money. Now the contribution is ₹ 56. The teacher's contribution is:
24 छात्रों ने दान देने के लिए धन एकत्रित किया | औसत योगदान 50 रुपये था | बाद में, उनके शिक्षक ने भी कुछ राशि का योगदान दिया | अब योगदान 56 रुपये हो गया है | शिक्षक का योगदान कितना है ?
SSC CGL 6 March 2020 (Afternoon)
(a) ₹ 56
(b) ₹ 200
(c) ₹ 106
(d) ₹ 194

Q12. The average of 60 student's results is 38. If the average of the first 22 students is 36, and that of last 32 students is 32, then the average result of remaining students is:
60 छात्रों के परिणामों का औसत 38 है | यदि प्रथम 22 छात्रों का औसत 36 तथा अंतिम 32 छात्रों का औसत 32 है, तो शेष छात्रों का औसत परिणाम कितना है ?
SSC CGL 6 March 2020 (Evening)
(a) 52.12
(b) 77.33
(c) 65.30
(d) 81.90

Q13. The average of five consecutive odd numbers is m. If the next three odd numbers are also included, then what is the increase in the average?
पाँच लगातार विषम संख्याओं का औसत m है | यदि अगली तीन विषम संख्याओं को भी शामिल कर लिया जाए, तो औसत में कितनी वृद्धि होगी ?
SSC CGL 7 March 2020 (Morning)
(a) 3
(b) 17
(c) 0
(d) 8

Q14. The average score in Mathematics of 90 students of sections A and B together is 49. The number of students in A was 25% more than that of B, and the average score of the students in B was 20% higher than that of the students in A. What is the average score of the students in A?
खंड A तथा खंड B के 90 छात्रों का गणित में औसत अंक 49 है | A के छात्रों की संख्या B के छात्रों से 25% अधिक है तथा B के छात्रों का औसत अंक A के छात्रों के औसत अंक से 20% अधिक है | A के छात्रों का औसत अंक कितना है ?
SSC CGL 7 March 2020 (Evening)
(a) 44.5
(b) 44
(c) 45.5
(d) 45

Q15. The average age of A,B and C is 20 years, and that of B and C is 25 years. What is the age of A?
A, B तथा C की औसत आयु 20 वर्ष है तथा B और C की औसत आयु 25 वर्ष है | A की उम्र कितनी है ?
SSC CGL 9 March 2020 (Morning)
(a) 25 years
(b) 10 years
(c) 15 years
(d) 20 years

Q16. The average of 4 items is 30 and the 1st term is $\frac{1}{3}$ of the sum of the remaining terms. What is the first term?
4 संख्याओं का औसत 30 है तथा पहली संख्या शेष संख्याओं का ⅓ भाग है | पहली संख्या कौन सी है ?
SSC CGL 9 March 2020 (Afternoon)
(a) 30
(b) 40
(c) 20
(d) 60

Q17. In a class, the average score of thirty students on a test is 69. Later on it was found that the score of one student was wrongly read as 88 instead of 58. The actual average score is:
एक कक्षा में, किसी परीक्षा में तीस छात्रों का औसत अंक 69 है | बाद में, यह पाया गया कि एक छात्र का अंक गलती से 58 के बजाय 88 दर्ज कर लिया गया था | वास्तविक औसत अंक कितना है ?

SSC CGL 9 March 2020 (Evening)

(a) 58
(b) 88
(c) 69
(d) 68

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Variety Questions

Sol 1. (b)
Let the sixth number is k , 5th number is k+6 and 7th number is k+5.
According to the question
12 x 42 = (4 x 44)+(k+k+6+k+5)+(5 x 40)
504 = 176+3k+11+200
⇒ k = 39
Desired average = $\frac{45+44}{2}$ =44.50

Alternate :
Average of the last 5 numbers is less than the total average by 2 and the average of the first four numbers is more than total average by 2. This will be managed by other numbers.
According to the question
(42 x 3) = (4 x 2) + k + (k+6) + (k+5) + {5 x (-2)}
117 = 3k
⇒ k = 39
Desired average = $\frac{45+44}{2}$ =44.50

Sol 2. (b)
Let the initial number of students = k
According to the question
68.5k + 72.2 + 70.8 + 70.3 + 66.7 = 68.8 (k+4)
68.5k + 280 = 68.8k +275.2
⇒ k = 16

Alternate :
Weights of 4 new students is 3.7, 2.3, 1.8 kg more and 1.8 kg less than the average weight of students while the average weight of the class increases by 0.3 kg. All this will be managed by the new students' weight.
According to the question
(0.3)(k+4) = 3.7+2.3+1.8-1.8
0.3k + 1.2 = 6
⇒ k = 16

Sol 3. (b)
Let the numbers are a, b and c.
According to the question
{($\frac{a+b}{2}$)+c}+{ ($\frac{b+c}{2}$)+a}+{($\frac{a+c}{2}$)+b}= 168+174+180
⇒ a+b+c =261
Desired average = $\frac{261}{3}$ = 87

Sol 4. (a)
Let the number of students in class B = k
⇒ k+k+10 = 110
⇒ k = 50
20% = $\frac{1}{5}$
Let the average score of the students of class A = 5k and the average score of the students of class B = 6k
According to the question
60(5k) + 50(6k) = 110 x 72
⇒ 300k + 300k = 7920
⇒ k = 13.2
the average score of the students of class A = 5 x 13.2 = 66

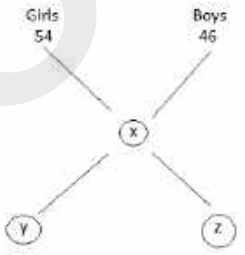
Sol 5. (c)
Let the average of all the four numbers = A and the last number = k
According to the question
$\frac{A}{3}$ =k - 19
⇒ A = 3k -57
3k - A = 57
……..(1)
And Sum of first three numbers = 12 x 3 = 36
⇒ $\frac{36+k}{4}$ =A
4A - k = 36 …..(2)
Multiply equation (1) by 4 and add in equation (2)
⇒ 12k-4A+4A-k = 228+36
⇒ k = 24

Sol 6. (c)
Total marks of the students = 68 x 40 = 2720
Actual total marks of the students = 2720-48-64+84+46 = 2738
Desired average = $\frac{2738}{40}$ = 68.45

Alternate :
Increase in total marks = 84+46-48-64 = 18
Increase in average = $\frac{18}{40}$ = 0.45
Desired average = 68+0.45 = 68.45

Sol 7. (c)
Ratio Girls to Boys = 45 % : 55%
= 9 : 11
Let the number of girls = 9 unit
And number of boys = 11 unit
Total marks of the class = (54 x 9) + (11 x 46) = 1984
Desired average = $\frac{992}{9+11}$ = 49.6

Alternate :
Ratio Girls to Boys = 45 % : 55%
= 9 : 11



Let the ratio of y : z = k : m
Then y = D × $\frac{k}{k+m}$
z = D × $\frac{m}{k+m}$
Where D is the difference of the number of boys and girls
D = 54-46 = 8
k : m = 9 : 11
y = 8 × $\frac{9}{9+11}$ = 3.6
Z = 8 × $\frac{11}{9+11}$ = 4.4
We know that 54-z = y+46 = x
x = 54 - 4.4 = 3.6 +46 = 49.6
Here, x is nothing but the average marks of the class.

Sol 8. (c)
Average of 27 numbers is zero, clearly the sum of 27 numbers is equal to zero.
So there can be total 26 number more than zero and the 27th number will be equal to the sum

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of 26 numbers but with the negative sign.{(i.e 27th number = -(sum of 26 numbers)}

Sol 9. (b)
Let the age of the younger member = k.
According to the question
$\frac{(38\times5)+(10\times5)+(k+k+8)}{7} = 38$
$\Rightarrow 2k+8 = 38(7-5)-50$
$\Rightarrow k = 9$

Sol 10. (d)
Let the number = k
$\Rightarrow$ Its reciprocal = $\frac{1}{k}$
According to the question
$\frac{k+\frac{1}{k}}{2} = 4$
$\Rightarrow k+\frac{1}{k} = 8$
$\Rightarrow k^3 + \frac{1}{k^3} = 8^3 - 3(8)$
...(Algebraic identity)
$= 488$
Desired average = $\frac{488}{2} = 244$

Sol 11 (a)
Average of n odd numbers is always n.

Sol 12. (c)
Average of n even numbers is always (n+1).

Sol 13. (d)
First 10 prime numbers = 2,3,5,7,11,13,17,19,23,29
First 10 2 digit prime numbers = 11,13,17,19,23,29,31,37,41,43
Desired average = $\frac{(31+37+41+43)-(2+3+5+7)}{10} = 13.5$

Sol 14. (d)
Average of 1088 numbers is zero, clearly the sum of 1088 numbers is equal to zero. So there can be total 1087 number less than zero and the 1088th number will be equal to the sum of 1087 numbers but with the positive sign.{(i.e 1088th number = (sum of 1087 numbers)}

Sol 15. (b)
Sum of the ages of four brothers = 15 x 4 = 60
Let the age of father = k
According to the question
$\frac{60+k}{5} = 20$
$\Rightarrow k = 40$

Alternate :
Average age of four brothers = 15
Increase in total average = 5
Increase in total age = 5 x 5 = 25
This age increase is balanced by father so age of father must be = 15+25 = 40

Sol 16.(a)
Average of the squares of 'n' natural numbers = $\frac{(n+1)(2n+1)}{6}$

$= \frac{(5+1)\{2(5)+1\}}{6} = 11$
Alternate :
Required average = $\frac{1+4+9+16+25}{5}$
$= 11$

Sol 17. (b)
Sum of a and b (a+b) = 2 x 36 = 72
Sum of b and c (b+c) = 2 x 42 = 84
Desired difference = 84-72 = 12

Sol 18. (c)
Sum of first 8 multiples of six = 6 (1+2+3+4+5+6+7+8)= 216
Desired average = $\frac{216}{8} = 27$

Sol 19. (a)
Sum of numbers from 1 to 100 = $\frac{100(100+1)}{2} = 5050$
Now, excluding the number **1** each and every number beginning from 2 to 100 are **prime or either composite.**
Sum of all the prime and composite numbers upto 100 = 5050-1 = 5049
Desired average = $\frac{5049}{99} = 51$

Sol 20. (a)
Total weight of 12 articles = 12 x 18 = 216
Let the weight of new articles = k
According to the question
$\frac{216+k}{13} = 18-0.500$
$216 + k = 17.5 \times 13$
$\Rightarrow k = 11.5$

Alternate :
Average weight of the articles = 18
Reduction in average weight = 0.5 kg
Total reduction = 13 x 0.5 = 6.5 kg
This decrease in weight is balanced by the third article = 18-6.5 = 11.5

Sol 21.(d)
Let the average of first three numbers = 4A
$\Rightarrow$ the 4th number = A
Sum of first three numbers = 4A x 3 = 12A
According to the question
$\frac{12A+A}{4} = 52$
$\Rightarrow A = 16$
Average of first three numbers = 4 x 16 = 64

Sol 22. (a)
All the prime numbers between 21 to 50 = 23, 29, 31, 37, 41, 43 and 47
$\Rightarrow$ Desired average = $\frac{23+29+31+37+41+43+47}{7} = 35.85 \approx 35.9$

Sol 23. (c)
Average of the given numbers = $\frac{59+63+68+77+74+73}{6} = 69$
When each number is divided by 23, average = $\frac{69}{23} = 3$

Sol 24. (b)
Average of 'n' odd numbers is always 'n'.

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Sol 25. (b)
First 15 whole numbers are 0,1,2,3,4 ….. 14
Sum of the numbers from 1-14 = $\frac{n}{2}$ [2a + (n-1)d]
⇒ $\frac{14}{2}$ [2(1)+(14-1)1] = 105
Desired average = $\frac{105}{15}$ = 7

Sol 26. (d)
Sum of first three = 3 x 16 = 48
Sum of last three = 3 x 15 = 45
⇒ First term - Last term= 48-45 = 3
⇒ First term = 3 + 21 = 24

SSC CGL TIER II

Sol 1. (b)
Let the 12th number is k , 11th number is 2k and 13th number is k+3.
According to the question
13 x 47 = (3 x 39)+(7 x 49)+(k+2k+k+3)
611 = 463 + 4k
⇒ k =37
Desired average = $\frac{2(37)+37+3}{2}$ = 57

Alternate :
Average of the first 3 numbers is less than the total average by 8 and the average of the next seven numbers is more than the total average by 2 . This will be managed by other numbers.
According to the question
(47 x 3) = {3 x (-8)} + (k + 2k + k+3) + {7 x (2)}
141 = 4k-7
⇒ k = 37
Desired average = $\frac{2(37)+37+3}{2}$ = 57

Sol 2. (c)
33 $\frac{1}{3}$ % = $\frac{1}{3}$ and 66 $\frac{2}{3}$ % = $\frac{2}{3}$
Let the total students = 3 unit
Number of boys = 1 unit
Number of girls = 2 unit
Let the average score of girls = 3k
⇒ the average score of boys = 5k
According to the question
3 x 66 = 1 x 5k + 2 x 3k
⇒ k = 18
So, average of the marks of the girls = 3 x 18 = 54

Sol 3. (a)
Sum of the numbers = 33 x 74 = 2442
Sum of first 17 numbers = 17 x 72.8 = 1237.6
Sum of last 17 numbers = 17 x 77.2 = 1312.4
⇒ 17th number = 1312.4+1237.6-2442 = 108
Desired average = $\frac{2442-108}{32}$ = 72.9

Alternate :
Average of first 17 numbers is less than total numbers = 1.2
Sum of first 17 numbers is less than sum of total numbers = 17 x 1.2 = 20.4
Average of last 17 numbers is more than total numbers = 3.2
Sum of last 17 numbers is more than sum of total numbers = 17 x 3.2 = 54.4
final increase = 54.4-20.4 = 34
This increase will be adjusted by rest 32 numbers
Average increase = $\frac{34}{32}$ =1.0625
⇒ Average of rest 32 numbers = 74-1.0625 = 72.9375

Sol 4. (b)
Let the initial number of students = k
According to the question
$\frac{72k-10(78)+4(80)}{k-10+4}$ = 71.3
72k-460 = 71.3k - 427.8
0.7k = 32.2
⇒ k = 46

Alternate :
Let the initial number of students = k
Weight of the students who left is more than the average weight by 6kg and weight of the students who joined is more than the average weight by 8 kg. Total change in total weight = 4 x 8 - 10 x 6 = -28kg.
Here, the negative sign shows that the weight is decreasing.
According to the question
28 = (k-6) x 0.7
40 = k - 6
⇒ k = 46

Sol 5. (a)
Percentage of girls = 35
⇒ percentage of boys = 65
⇒ Boys : Girls = 13 : 7
Let the average age of boys = 6k and the average age of girls = 5k
According to the question
⇒ 13(6k) + 7(5k) = (13+7) x 13.56
⇒ k = $\frac{12}{5}$
Average age of girls (5k) = 5 x $\frac{12}{5}$ = 12

Sol 6. (b)
Sum of the numbers = 18 x 37.5 = 675
According to the question
$\frac{675+6x}{18+6}$ = 38.5
⇒ 675 + 6x = 924
⇒ x = 41.5
Alternate :
Total increase = (18+6) x 1 = 24
This increase will be managed by added six new numbers.
⇒ average increase per number = $\frac{24}{6}$ = 4
⇒ x = 37.5+4 = 41.5

Practice Questions

Sol 1. (a) Let the 12th number be k , 11th number is k+6 and 13th number is k+6.
According to the question
13 x 80 = (5 x 74.5)+(5 x 82.5)+(k+k+6+k+6)

1040 = 797 + 3k
⇒ k = 81
Desired average = $\frac{81+6+81+6}{2}$ = 87

Alternate :
Average of first 5 numbers is less than the total average by 5.5 and average of next five number is more than the total average by 2.5 . This will be managed by other numbers.
According to the question
(80 x 3) = {5 x (-5.5)} + k + (k+6) + (k+6) + {5 x (2.5)}
240 = 3k-3
⇒ k = 81
Desired average = $\frac{81+6+81+6}{2}$ = 87

Sol 2. (b)
Let the 7th number is k , 5th number is k+4 and 6th number is k+6.
According to the question
12 x 46 = (4 x 43)+(5 x 49.4)+(k+k+4+k+6)
552 = 419 + 3k + 10
⇒ k = 41
Desired average = $\frac{41+4+41}{2}$ = 43

Alternate :
Average of the first 4 numbers is less than the total average by 3 and the average of the last five numbers is more than the total average by 3.4 . This will be managed by other numbers.
According to the question
(46 x 3) = {4 x (-3)} + {5 x (3.4)} + k + (k+4) + (k+6)
138 = 3k+15
⇒ k = 41
Desired average = $\frac{41+41+4}{2}$ = 43

Sol 3. (c)
Let the 11th number is k, 10th number is k+4 and the ninth number is k+8
Average of first four numbers = 48
⇒ Average of next four numbers = 48 x $\frac{5}{4}$ = 60
According to the question
11 x 54 = (4 x 48)+(4 x 60)+(k+k+4+k+8)
594 = 432 + 3k + 12
⇒ k = 50
Desired average = $\frac{50+4+50+8}{2}$ = 56

Alternate :
Average of the first 4 numbers is less than the total average by 4 and the average of the next four numbers is more than the total average by 8 . This will be managed by other numbers.
According to the question
(54 x 3) = {4 x (-6)} + {4 x (6)} + k + (k+4) + (k+8)
162 = 3k+12
⇒ k = 50
Desired average = $\frac{50+4+50+8}{2}$ = 56

Sol 4. (a)
Let the numbers are a, b and c.
According to the question
{($\frac{a+b}{2}$)+c}+{ ($\frac{b+c}{2}$)+a}+{($\frac{a+c}{2}$)+b}= 164+158+132
⇒ a+b+c =227
Desired average = $\frac{227}{3}$ = 75 $\frac{2}{3}$

Sol 5. (a)
Let the 9th number is k, 10th number is k+3, 11th number is k+5 and 12th number is k+6 .
According to the question
12 x 55.5 = (4 x 53.4)+(4 x 54.6)+(k+k+3+k+5+k+6)
666 = 432 + 4k + 14
⇒ k = 55
Desired average = $\frac{55+3+55+6}{2}$ = 59.5

Alternate :
Average of the first 4 numbers is less than the total average by 2.1 and the average of the next four numbers is less than the total average by 0.9 . This will be managed by other numbers.
According to the question
(55.5 x 4) = {4 x (-2.1)} + {4 x (-0.9)} + k + (k+3) + (k+5)+ (k+6)
222 = 4k+2
⇒ k = 55
Desired average = $\frac{55+3+55+6}{2}$ = 59.5

Sol 6. (a)
Total marks of the students = 64 x 50 = 3200
Actual total marks of the students = 3200-38-42+83+24 = 3227
Desired average = $\frac{3227}{50}$ = 64.54

Alternate :
Increase in total marks = 83+24-38-40 = 27
Increase in average = $\frac{27}{50}$ = 0.54
Desired average = 64+0.54 = 64.54

Sol 7. (b)
Total marks of the students = 66 x 45 = 2970
Actual total marks of the students = 2970-28-64+82+46 = 3006
Desired average = $\frac{3006}{45}$ = 66.8

Alternate :

Increase in total marks = 82+46+-28-64 =
Increase in average = $\frac{36}{45}$ = 0.8
Desired average = 66+0.8 = 66.80

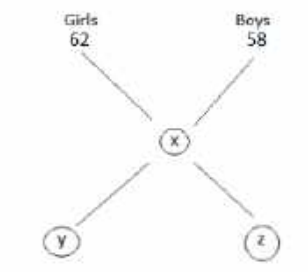
Sol 8. (a)
Number of girls = 50 x $\frac{46}{100}$ = 23
⇒ number of boys =50-23 = 27
Total marks of the class = (58 x 27) + (62 x 23) = 2992
Desired average = $\frac{2992}{50}$ = 59.84

Alternate :

Ratio Girls to Boys = 46 % : 54%

Pinnacle

= 23 : 27

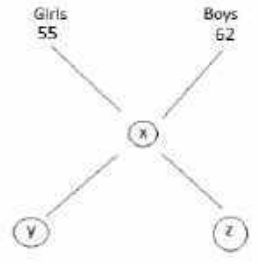


Let the ratio of y : z = k : m
Then $y = D \times \frac{k}{k+m}$
$z = D \times \frac{m}{k+m}$
Where D is the difference of the number of boys and girls
D = 62-58 = 4
k : m = 23 : 27
$y = 4 \times \frac{23}{23+27} = 1.84$
$Z = 4 \times \frac{27}{23+27} = 2.16$
We know that 62-z = y+58 = x
x = 62 - 2.16 = 58 + 1.84 = 59.84
Here, x is nothing but the average marks of the class.

Sol 9. (a)
Ratio Girls to Boys = 40 % : 60%
= 2 : 3
Let the number of girls = 2 unit
And number of boys = 3 unit
Total marks of the class = (3 x 62) + (2 x 55) = 296
Desired average = $\frac{296}{5} = 59.2$

Alternate :

Ratio Girls to Boys = 40 % : 60%
= 2 : 3

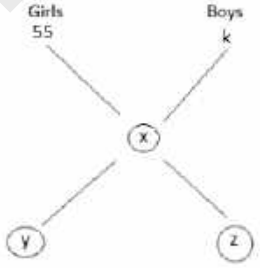


Let the ratio of y : z = k : m
Then $y = D \times \frac{k}{k+m}$
$z = D \times \frac{m}{k+m}$
Where D is the difference of the number of boys and girls
D = 62-55 = 7
k : m = 2 : 3
$y = 7 \times \frac{2}{3+2} = 2.8$
$Z = 7 \times \frac{3}{3+2} = 4.2$
We know that 62-z = y+58 = x
x = 62 - 2.8 = 55 + 4.2 = 59.2
Here, x is nothing but the average marks of the class.

Sol 10. (d)
Ratio Girls to Boys = 40 % : 60%
= 2 : 3
Let the number of girls = 2 unit
And number of boys = 3 unit
Total marks of the class = (3 x k) + (2 x 55) = 5 x 59.2
⇒ 3k + 110 = 296
⇒ k = 62

Alternate :

Ratio Girls to Boys = 40 % : 60%
= 2 : 3

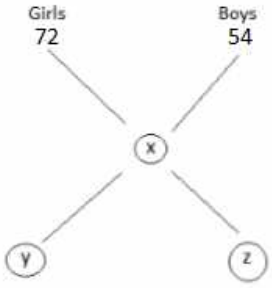


y:z = 24:26
= 2 : 3
Now,
x = 59.2
….(given)
⇒ z = 59.2 - 55 = 4.2
So,
3 unit = 4.2
1 unit = 1.4
⇒ y = 2 unit = 2.8
⇒ k = 59.2+y
= 59.2+2.8 = 62

Sol 11. (c)
Ratio Girls to Boys = 60 % : 40%
= 3 : 2
Let the number of girls = 3 unit
And number of boys = 2 unit
Total marks of the class = (3 x 72) + (2 x 54) = 324
Desired average = $\frac{324}{5} = 64.8$

Alternate :

Ratio Girls to Boys = 60 % : 40%
= 3 : 2



Let the ratio of y : z = k : m
Then $y = D \times \frac{k}{k+m}$
$z = D \times \frac{m}{k+m}$
Where D is the difference of the number of boys and girls
D = 72-54 = 18
k : m = 2 : 3
$y = 18 \times \frac{3}{3+2} = 10.8$
$Z = 18 \times \frac{2}{3+2} = 7.2$
We know that 72-z = y+54 = x
x = 72 - 7.2 = 54 + 10.8 = 64.8
Here, x is nothing but the average marks of the class.

Sol 12. (b)
Ratio Girls to Boys = 40 % : 60%

Pinnacle

= 2 : 3

Let the number of girls = 2 unit

And number of boys = 3 unit

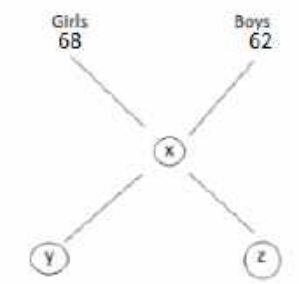
Total marks of the class = (3 x 62) + (2 x 68) = 322

Desired average = $\frac{322}{3+2}$ =64.4

Alternate :

Ratio Girls to Boys = 40 % : 60%

= 2 : 3



Let the ratio of y : z = k : m

Then y = D × $\frac{k}{k+m}$

z = D × $\frac{m}{k+m}$

Where D is the difference of the number of boys and girls

D = 68-62 = 6

k : m = 2 : 3

y = 6 × $\frac{2}{3+2}$ = 2.4

Z = 6 × $\frac{3}{3+2}$ = 3.6

We know that 68-z = y+62 = x

x = 68 -3.6 = 64.4 = 62 + 2.4 = 64.4

Here, x is nothing but the average marks of the class.

Sol 13. (d)

Ratio Girls to Boys = 40 % : 60%

= 2 : 3

Let the number of girls = 2 unit

And number of boys = 3 unit

Let the average marks of the girls = k

5 x 64.4 = (2 x k) + (3 x 62) = 3552

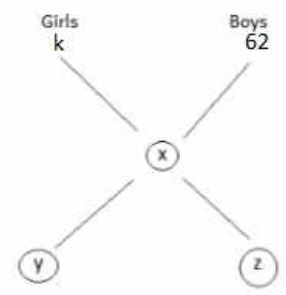
322 = 2k + 186

k = 68

Alternate :

Ratio Girls to Boys = 40 % : 60%

= 2 : 3



y:z = 20:30

= 2 : 3

Now,

x = 64.4

….(given)

⇒ y = 64.4 - 62 = 2.4

So,

2 unit = 2.4

1 unit = 1.2

⇒ z = 3 unit = 3.6

⇒ k = 64.4+3.6

= 64.4+3.6 = 68

Sol 14.(a)

Let the numbers are a, b and c.

According to the question

{($\frac{a+b}{2}$)+c}+{ ($\frac{b+c}{2}$)+a}+{($\frac{a+c}{2}$)+b}= 177+163+138

⇒ a+b+c =239

Now, {($\frac{a+b}{2}$)+c} = 177

⇒ a+b+2c = 354

Similarly

c+b+2a = 326

And

c+a+2b = 276

Biggest number =(a+b+2c) - (a+b+c) = 2(177)-239 = 115

Smallest number = (c+a+2b) - (a+b+c) = 2(138)-239 = 37

Desired average = $\frac{115+37}{2}$ = 76

Sol 15. (b)

Ratio of students from Village A to Village B = 70:30

= 7:3

Let the Number of students from village A = 7 unit

⇒ Number of students from village B = 3 unit

20% = $\frac{1}{5}$

Marks scored by the students from village A = 5k

⇒ Marks scored by the students from village B = 6k

According to the question

10 x 53 = (7 x 5k) + (3 x 6k)

⇒ k = 10

the average score of the students from village B = 6 x 10 = 60

Sol 16. (d)

Ratio of number of students who take part in games to the students who do not participate = 60:40

= 3 : 2

Let Number of students who take part in games = 3 unit

⇒ Number of students who do not take part in games = 2 unit

5% = $\frac{1}{20}$

Average weight of students who take part in games = 20k

⇒ Average weight of students who do not take part in games = 21k

According to the question

5 x 51 $\frac{1}{2}$ = (3 x 21k) + (2 x 20k)

⇒ 257.5 = 103k

⇒ k = 2.5

the average weight (in kg) of the former group = 21 x 2.5 = 52.5

Sol 17. (a)

40% = $\frac{2}{5}$

Let the number of students in class B = 5 unit

⇒ the number of students in Class A = 7 unit

According to the question

(7+5) unit = 96

1 unit = 8

7 unit = 56

5 unit = 40

Pinnacle

Number of students from village A = 56
⇒ Number of students from village B = 40
50% = $\frac{1}{2}$
Let Weight of the students in Class A = 2k
⇒ Weight of the students in Class B = 3k
According to the question
96 x 58 = (56 x 2k) + (40 x 3k)
⇒ k = 24
⇒ Weight of the students in Class B = 3k = 3 x 24 = 72

Sol 18. (a)
Let the initial number of students = k
According to the question
75.4k + 72.9 + 73.8 + 79.5 + 87.4 = 75.64 (k+4)
75.4k + 313.6 = 75.64k +302.56
⇒ k = 46

Alternate :
Weights of 4 new students is 2.5 kg less, 1.6 kg less, 4.1 kg more and 12 kg more than the average weight of students while average weight of the class increases by 0.24 kg. All this will be managed by the new students' weight.
According to the question
(0.24)(k+4) = -2.5-1.6+4.1+12
0.24k + 0.96 = 12
⇒ k = 46

Sol 19. (d)
Ratio of urban students to rural students = 5:3
Let the Number of urban students = 5 unit
⇒ Number of rural students = 3 unit
40% = $\frac{2}{5}$
Let the average score of urban students = 5k
⇒ the average score of rural students = 7k
According to the question
8 x 69 = (5 x 5k) + (3 x 7k)
⇒ k = 12
⇒ the average score of rural students = 7 x 12 = 84

Sol 20. (c)
75% = $\frac{3}{4}$
Let n = 4
Total increase / decrease in the sum of numbers = (3 x 6) - (1 x 9) = 9
Note : The difference is positive means total sum is increasing.
Increase in average = $\frac{9}{4}$ = 2.25
Desired average = 36 + 2.25 = 38.25

Sol 21. (c)
9 years ago total age of the family (5 members) = 33 x 5 = 165
Increase in the total age = 5 x 9 = 45
Current total age of the family (8 members) = 33 x 8 = 264
Let the age of younger person = k
According to the question
k + k+8 + k+16 = (264-165-45)
3k + 24 = 54
⇒ k = 10

Sol 22. (b)
9 years ago total age of the family (5 members) = 33 x 5 = 165
Increase in the total age = 5 x 9 = 45
Current total age of the family (8 members) = 33 x 8 = 264
Let the age of younger person = k
According to the question
k + k+8 + k+16 = (264-165-45)
3k + 24 = 54
⇒ k = 10
So, age of the oldest member = 10+16 = 26

Sol 23. (b)
Total age of four brothers = 4 x 14 = 56
Let the age of father = k
According to the question
$\frac{56+k}{5}$ = 18
⇒ k = 34
Alternate :
Increase in total age after the addition of father's age = 5 x 4 = 20
This is managed by the father so age of father = 14 + 20 = 34

Sol 24. (a)
Total age of 15 persons = 15 x 32 = 480
Let the age of younger person = k
According to the question
$\frac{480+k+k+7}{17}$ = 35
487+2k = 595
⇒ k = 54

Sol 25. (b)
Total age of 15 persons = 15 x 32 = 480
Let the age of younger person = k
According to the question
$\frac{480+k+k+7}{17}$ = 35
487+2k = 595
⇒ k = 54
So age of elder person = 54+7 = 61

Sol 26. (a)

Total age of 15 persons = 15 x 32 = 480
Let the age of younger person = k
According to the question
$\frac{480+k+k+9}{17}$ = 35
489+2k = 595
⇒ k = 53
So age of elder person = 53+9 = 62

Sol 27. (d)
Total age of 15 persons = 15 x 32 = 480
Let the age of younger person = k
According to the question
$\frac{480+k+k+9}{17}$ = 35
489+2k = 595
⇒ k = 53

Pinnacle

Sol 28. (b)
Total age of 15 persons = 15 x 32 = 480
Let the age of younger person = k
According to the question
$\frac{480+k+k+11}{17} = 35$
491+2k = 595
⇒ k = 52

Sol 29. (a)
Sum of the numbers = 21 x 43 = 903
Sum of first 11 numbers = 11 x 33 = 363
Sum of last 11 numbers = 11 x 53 = 583
⇒ 11th number = 583+363-903 = 43

Alternate :
Average of first 11 numbers is less than total numbers = 10
Sum of first 11 numbers is less than sum of total numbers = 11 x 10 = 110
Average of last11 numbers is more than total numbers = 10
Sum of last 11 numbers is more than sum of total numbers = 11 x 10 = 110
final increase / decrease = 110-110 = 0
⇒ 11th number = 43+0 = 43

Sol 30. (a)
Let the 13th number = k
⇒ 12th number = k-13 and 14th number = k+1
Total sum of numbers = 24 x 65 = 1560
Sum of first 11 numbers = 11 x 67 = 737
Sum of last 10 numbers = 10 x 70 = 700
According to the question
k-13 + k + k+1 = 1560 - 1437
3k - 12 = 123
k = 45
Desired average = $\frac{45-13+45+1}{2} = 39$

Alternate :
Average of first 11 number is more than total average by 2 and average of last 10 number is more than total average by 5.
Total increase in sum of the numbers = 11 x 2 + 10 x 5 = 72
This will be managed by 12th, 13th and 14th number
⇒ k-13 + k + k+1 = (65 x 3)-72
⇒ k = 45
Desired average = $\frac{45-13+45+1}{2} = 39$

Sol 31. (b)
Total height of the students = 12 x 132.5 = 1590
Let the height of 13th student = k
According to the question
$\frac{1590+k}{13} = = 131.2$
1590 + k = 1705.6
⇒ k = 115.6

Alternate :
Decrease in total height of students due to addition of new student = (132.5-131.2) x 13 = 16.9
⇒ Height of the 13th student = 132.5-16.9 = 115.6

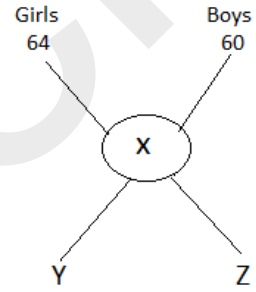
Sol 32. (c)
Let 16th, 17th and 18th number be x, x+6 and x+5 respectively.
According to the question
18 x 52 = (8 x 62) + (7 x 45) + x + (x+6) + (x+5)
125 = 3x + 11
⇒ x = 38
Desired average = $\frac{38+38+5}{2} = 40.5$

Alternate :
Average of first 8 numbers is more than the total average by 10 and average of next 7 numbers is less than total average by 7 . This will be managed by other numbers.
According to the question
(52 x 3) = {8 x (10)} + {7 x (-7)} + x + (x+6) + (x+5)
156 = 3x + 42
⇒ x = 38
Desired average = $\frac{38+38+5}{2} = 40.5$

Sol 33. (c)
Ratio of Girls to Boys = 40 % : 60%
= 2 : 3
Let the number of girls = 2 unit
And number of boys = 3 unit
Total marks of the class = (3 x 60) + (2 x 64) = 308
Desired average = $\frac{308}{3+2}$ =61.6

Alternate :

Ratio Girls to Boys = 40 % : 60%
= 2 : 3



Let the ratio of y : z = k : m
Then y = D × $\frac{k}{k+m}$
z = D × $\frac{m}{k+m}$
Where D is the difference of the number of boys and girls
D = 64-60 = 4
k : m = 2 : 3
y = 4 × $\frac{2}{3+2}$ = 1.6
Z = 4 × $\frac{3}{3+2}$ = 2.4
We know that 64-z = y+60 = x
x = 64-2.4 = 61.6 = 60 + 1.6 = 61.6
Here, x is nothing but the average marks of the class.

Sol 34. (d)
Ratio of Girls to Boys = 40 % : 60%
= 2 : 3
Let the number of girls = 2 unit
And number of boys = 3 unit

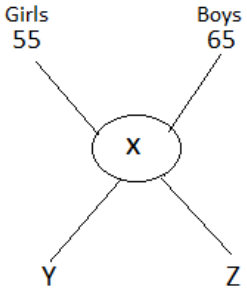
Pinnacle

Total marks of the class = (3 x 65) + (2 x 55) = 305
Desired average = $\frac{305}{3+2}$ =61

Alternate :

Ratio Girls to Boys = 60 % : 40%

= 3 : 2



Let the ratio of y : z = k : m
Then y = D × $\frac{k}{k+m}$
z = D × $\frac{m}{k+m}$
Where D is the difference of the number of boys and girls
D = 65-55 = 10
k : m = 3 : 2
z = 10 × $\frac{3}{3+2}$ = 6
y = 10 × $\frac{2}{3+2}$ = 4
We know that 65-z = y+55 = x
x = 65-6 = 55+4 = 59
Here, x is nothing but the average marks of the class.

Sol 35. (c)
Let the 18th, 19th and 20th numbers be (x+3), x and (x+12).
According to the question
20 x 65 = (9 x 68) + (8 x 62) + x + (x+3) + (x+12)
192 = 3x + 15
⇒ x = 59
Desired average = $\frac{59+59+12}{2}$ = 65

Alternate :

Average of first 9 numbers is more than the total average by 3 and average of next 8 numbers is less than total average by 3 . This will be managed by other numbers.
According to the question
(65 x 3) = {9 x (3)} + {8 x (-3)} + x + (x+3) + (x+12)
195 = 3x + 18
⇒ x =59
Desired average = $\frac{59+59+12}{2}$ = 65

Sol 36. (d)
Let the 14th, 15th and 16th numbers be x, (x+11) and (x-5) respectively.
According to the question
16 x 48 = (7 x 45) + (6 x 52) + x + (x+11) + (x-5)
768 = 627+3x + 6
⇒ x = 45
Desired average = $\frac{45+11+45-5}{2}$ = 48

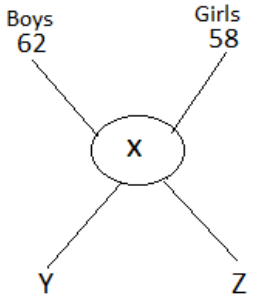
Alternate :

Average of first 7 numbers is less than the total average by 3 and average of next 6 numbers is more than total average by 4. This will be managed by other numbers.
According to the question
(48 x 3) = {7 x (-3)} + {6 x (4)} + x + (x+11) + (x-5)
144 = 3x + 9
⇒ x = 45
Desired average = $\frac{45+11+45-5}{2}$ = 48

Sol 37. (a)
40% = $\frac{2}{5}$
Boys:Girls = 3:2
Therefore, Average weight = $\frac{62\times3+58\times2}{3+2}$ = $\frac{302}{5}$ = 60.4

Alternate :

40% = $\frac{2}{5}$
Boys:Girls = 3:2

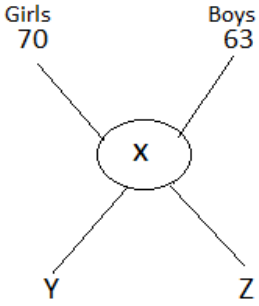


Let the ratio of y : z = k : m
Then y = D × $\frac{k}{k+m}$
z = D × $\frac{m}{k+m}$
Where D is the difference of the number of boys and girls
D = 62-58 = 4
k : m = 3 : 2
y = 4 × $\frac{3}{3+2}$ = 2.4
z = 4 × $\frac{2}{3+2}$ = 1.6
We know that 62-z = y+58 = x
x = 62-1.6 = 58+2.4 = 60.4
Here, x is nothing but the average marks of the class.

Sol 38. (b)
40% = $\frac{2}{5}$
Boys:Girls = 3:2
Therefore, Average weight = $\frac{63\times3+70\times2}{3+2}$ = $\frac{329}{5}$ = 65.8

Alternate :

40% = $\frac{2}{5}$
Boys:Girls = 3:2



Let the ratio of y : z = k : m
Then y = D × $\frac{k}{k+m}$
z = D × $\frac{m}{k+m}$
Where D is the difference of the number of boys and girls
D = 70-63 = 7
k : m = 2 : 3
y = 7 × $\frac{2}{3+2}$ = 2.8
z = 7 × $\frac{3}{3+2}$ = 4.2
We know that 70-z = y+63 = x

Pinnacle

x = 70 - 4.2 = 63+2.8 = 65.8
Here, x is nothing but the average marks of the class.

Sol 39. (d)
Let the 20th, 21st and 22nd numbers be x, (x+7) and (x+3) respectively.
According to the question
22 x 52 = (8 x 48) + (11 x 54) + x + (x+7) + (x+3)
1144 = 978+3x + 10
⇒ x = 52
Desired average = $\frac{52+52+3}{2}$ = 53.5

Alternate :
Average of first 8 numbers is less than the total average by 4 and average of next 11 numbers is more than total average by 2. This will be managed by other numbers.
According to the question
(52 x 3) = {8 x (-4)} + {11 x (2)} + x + (x+7) + (x+3)
156 = 3x
⇒ x = 52
Desired average = $\frac{52+52+3}{2}$ = 53.5

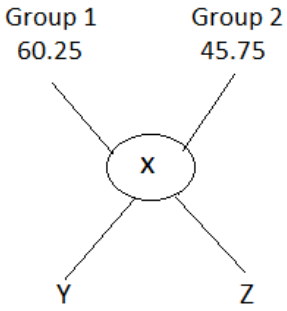
Sol 40. (b) Total age of 11 players = 27 × 11 = 297
Total age of 13 players = 26 × 13 = 338
Total age of two new students = 338-297 = 41
Desired average = $\frac{41}{2}$ = 20.5

Alternate :
Reduction in the total age of 13 players = 13 x 1 = 13
This reduction is due the age of new added players, so total age of two new players = (2 x 27) -13 = 41
Desired average = = $\frac{41}{2}$ = 20.5

Sol 41. (b)
Prime numbers between 10 to 25 = 11, 13, 17, 19 and 23
Desired average = $\frac{11+13+17+19+23}{5}$ = 16.6

Sol 42. (c)
Required average = $\frac{(16\times60.25)+(10\times45.75)}{16+10}$ = 54.67

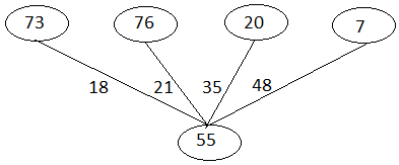
Alternate :
Ratio of Boys of group 1 to Boys of group 2 = 16:10
= 8 : 5



Let the ratio of y : z = k : m
Then y = D × $\frac{k}{k+m}$
z = D × $\frac{m}{k+m}$
Where D is the difference of the number of boys and girls
D = 60.25-45.75 = 14.50
k : m = 8 : 5
y = 14.50 × $\frac{8}{8+5}$ = 8.9
z = 14.50 × $\frac{5}{8+5}$ = 5.58
We know that 60.25-z = y+45.75 = x
x = 60.25- 5.58 = 45.75 + 8.9 = 54.67
Here, x is nothing but the average marks of the class.

Sol 43. (a)
Average of 26 numbers is zero, clearly sum of 26 numbers is equal to zero.
So there can be total 25 number more than zero and the 26th number will be equal to the sum of 25 numbers but with the negative sign.{(i.e 26th number = -(sum of 25 numbers)}

Sol 44. (a)
Runs to be scored = (55 × 5)-73-76-20-7 = 99
Alternate :



Score in 5th innings = 55+48+35-18-21 = 99

Sol 45. (d)
Required average = $\frac{600+750+1100+2300+800}{5}$ = 1110 gram = 1.11 kg

Sol 46. (a) New average = $\frac{32.8\times6+26.5+28.3}{8}$ = 31.45 *kg*

Sol 47. (a)
Total increase in sum of numbers = 2 x 14 = 28
⇒ 14th number = 42+28 = 70

Sol 48. (d)
First seven prime numbers are 2,3,5,7,11,13 and 17
Desired average = $\frac{2+3+5+7+11+13+17}{7}$ = 8.29

Sol 49. (a)
Sum of first 6 multiples of 3 = 3 (1+2+3+4+5+6) = 63
Desired average = $\frac{63}{6}$ = 10.5

Sol 50. (b) Total age = (12 x 15) + (18 x 12) = 396
Desired average = $\frac{396}{30}$ = 13.2

Alternate :
Boys : Girls = 12: 18
= 2 : 3
Desired average = $\frac{(2\times15)+(3\times12)}{2+3}$ = 13.2

Sol 51. (b)
Sum of first 125 natural numbers = $\frac{125(125+1)}{2}$ = 7875

Pinnacle

Sum of first 48 natural numbers = $\frac{48(48+1)}{2} = 1176$

Desired average = $\frac{7875-1176}{125-48} = 87$

Sol 52. (d)

Total age = 36 x 23 = 828

Total age of the students who left = 22 x 4 = 88

Desired average = $\frac{828-88}{32} = 23.1$

Alternate :

Sol 53. (b)

Let the average marks of 25 students = k

According to the question

$\frac{(15 \times 87) + 25k}{15+25} = 79.5$

$\Rightarrow 25k = 1875$

Total marks of 24 students = 24 x 74 = 1776

Marks of 25th student = 1875-1776 = 99

Sol 54. (a)

Total age of mother and father = 2 x 28 = 56

Total age of mother, father and son = 3 x 20 = 60

$\Rightarrow$ Age of child = 60-56 = 4

Alternate :

With child average age of family decrease by 8 years.

$\Rightarrow$ With child decrease in total age of the family = 3 x 8 = 24

So, age of the child = 28-24 = 4

Sol 55. (d)

Sum of 4 numbers = 4 x 9 = 36

$\Rightarrow$ desired average = $\frac{36+14}{4+1} = 10$

Alternate :

Average increase per number = $\frac{14-9}{5} = 1$

Desired average = 4+1 = 5

Sol 56. (b)

Sum of the weight of the children = 14 x 22 = 308

Let the weight of the teacher = k

According to the question

$\frac{308+k}{14+1} = 23$

$\Rightarrow k = 37$

Alternate :

Average increase per person = 23-22 = 1

Total increase = 15 x 1 = 15

This increase is due to addition of teacher, so weight of the teacher = 22+15 = 37 kg

Sol 57. (d)

Sum of the age of the men = 45 x 9 = 405

Let the age of the woman = k

According to the question

$\frac{405+k}{9+1} = 44$

$\Rightarrow k = 35$

Alternate :

Average decrease per person = 45-44 = 1

Total decrease = 10 x 1 = 10

This decrease is due to addition of the woman, so age of the woman = 35 kg

Sol 58. (b)

Sum of 50 numbers = 50 x 20 = 1000

Desired average = $\frac{1000-31-46-59+26+36+64}{50} = 19.8$

Alternate :

Decrease in sum= (59+46+31)-(64+36+26) = 10

Decrease in average = $\frac{10}{50} = 0.2$

Desired average = 20-0.20 = 19.8

Sol 59. (d)

Sum of total numbers = 12 x 48 = 576

Total increase = 12 x 11 = 132

Desired average = $\frac{576+132}{12} = 59$

Alternate :

Each number is increased by 11 so increase in average = 11

Desired average = 48+11 = 59

Sol 60. (a)

Multiples of 6 from 20 to 80 is 24,30,36,42,48,54,60,66,72,78.

Sum of these multiples = 6 x (4+5+6+7+8+9+10+11+12+13) = 510

Desired average = $\frac{510}{10} = 51$

Alternate :

The numbers form an A.P. series with the common difference = 6

$\Rightarrow$ Average of the numbers = $\frac{\text{first term+last term}}{2} = \frac{24+78}{2} = 51$

Sol 61. (d)

According to the question

$\frac{36+28+43+56+74+65+12+x}{8} = 45$

$\Rightarrow x = 46$

Sol 62. (b)

Total age of the group = 20 x 30 = 600

Let the age of the woman = k

According to the question

$\frac{600-50+k}{20} = 29$

$\Rightarrow 550+k = 580$

$\Rightarrow k = 30$

Alternate :

Decrease in total age after the exclusion of old man = 50

Actual decrease in the total age = 20 x 1 = 20

$\Rightarrow$ Age of the woman = 50-20 = 30

Sol 63. (d)

Let the average of last 3 observations = k

$\Rightarrow$ the average of first 3 observations = 2k

Sum of six observation = 6 x 15 = 90

According to the question

(3 x 2k) + (3 x k) = 90

$\Rightarrow k = 10$

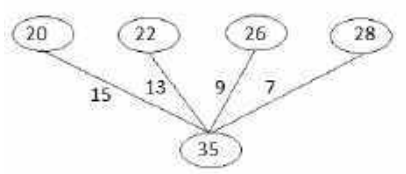
Sum of the last 3 observations = 3 x 10 = 30

Alternate :

Ratio of the average of first three observations to the average of last three observations = 2 : 1
This must be the ratio of their respective sums, as number of observations are same.
Now,
Sum of all the six observations = 6 x 15 = 90
⇒ Sum of last three observations = 90 x $\frac{1}{2+1}$ = 30

Sol 64. (d)
Total weight of the group = 18 x 35 = 630
Desired average = $\frac{630+20+22+26+28}{18+4}$ = 33

Alternate :



Total decrease = 15+13+9+7 = 44
Average decrease = $\frac{44}{22}$ = 2
Desired average = 35-2 = 33

Sol 65. (a)
Average of first n natural numbres is always (n+1).
⇒ Average of first n natural numbers = 15+1 = 16

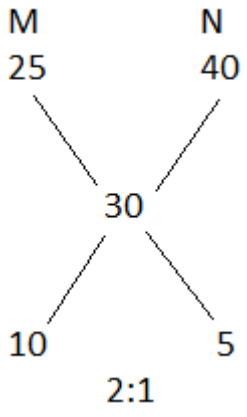
Sol 66. (c)
Sum of four numbers = 4 x 20 = 80
Sum of first 2 numbers = 2 x 15 = 30
Sum of last 2 numbers = 80-30 = 50
Desired average = $\frac{50}{2}$ = 25

Sol 67. (b)
Desired average = $\frac{(7 \times 41) + (5 \times 44)}{7+5}$ = 42.25
Alternate :
Let the overall average = 42
Note : We can choose any number between 41 and 44 i.e 42, 43, 42.5 and 43.5.
Average of first group is less than the assumed average by 1
Total decrease due to group 1 = 1 x 7 = 7
Average of 2nd group is more than the assumed average by 2
Total increase due to group 1 = 2 x 5 = 10
Clearly there is an increase of 10-7 = 3
Average increase = $\frac{3}{7+5}$ = 0.25
⇒ Desired average = 42.25

Sol 68. (a)
Total sum = 11 x 32 = 352
Sum of first six numbers = 6 x 26 = 156
Sum of last six numbers = 6 x 36 = 216
⇒ Sixth number = (156+216) - 352 = 20

Sol 69. (a)
Let the number of students in class M = m and Class N = n
According to the question
$\frac{25(m) + 40(n)}{m + n}$ = 30
⇒ 25m + 40n = 30m + 30n
⇒ m : n = 2:1

Alternate :



Sol 70. (d)
Age of the 4 girls 5 years ago = 4 x 7 = 28
Sum of their present age = 28 + 4(5) = 48
Sum of the present age of 5 girls = 5 x 13 = 65
Age of 5th girl = 65-48 = 17

Sol 71.(c)
Sum of 10 numbers = 10 x P = 10P
Sum of 4 numbers = 4 x Q = 4Q
Sum of remaining 6 numbers = 6 x R = 6R
Now, 10P = 4Q+6R
⇒ 5P = 2Q+3R

Sol 72. (c)
Total marks obtained = 9 x 98 = 982
Desired average = $\frac{882 - 86 + 68}{9}$ = 96
Alternate :
Decrease in total marks = 86-68 = 18
Decrease in average = $\frac{18}{9}$ = 2
Desired average = 98-2 = 96

Sol 73. (d)
Let the average expanse = A
According to the question
$\frac{48 \times 950 + 2\,(A+1200)}{50}$ = A
48000 = 48A
⇒ A = 1000
Total expanse = 50 x 1000 = 50,000

Alternate :

Extra amount spent by two = 2 x 1200 = 2400
Average amount spent extra = $\frac{2400}{48}$ = 50
Average expense of the group = 950+50 = 1000
Total expanse = 50 x 1000 = 50,000

Sol 74. (d)
Average of 25 numbers is zero, clearly sum of 25 numbers is equal to zero.

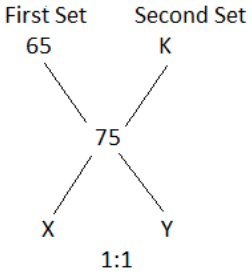
Pinnacle

So there can be total 24 number more than zero and the 25th number will be equal to the sum of 24 numbers but with the negative sign.{(i.e 25th number = -(sum of 24 numbers)}

Sol 75. (c)
Sum of 50 numbers = 50 x 75 = 3750
Sum of the first set of the numbers = 25 x 65 = 1625
Sum of the second set of the numbers = 3750-1625 = 2125
Desired average = $\frac{2125}{25}$ = 85

Alternate :

X : Y = 25 : 25
= 1 : 1



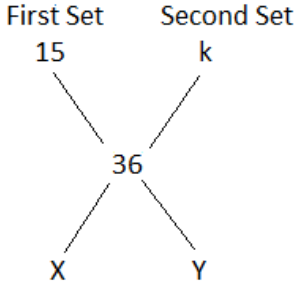
Now,
Y = 75-65 = 10
1 unit = 10
⇒ X = 10
⇒ k = 75 + x
= 75 + 10 = 85

Sol 76. (a)
Total weight = 38 x 42 = 1596
Desired average = $\frac{1596-46+26}{38}$ = 42.5 kg
Alternate :
Increase in total weight = 46-26 = 20
Increase in average = $\frac{20}{38}$ = 0.526
Desired average = 42 + 0.5 = 42.5

Sol 77. (c)
Sum of 21 numbers = 21 x 36 = 756
Sum of first 12 numbers = 12 x 15 = 180
Sum of next 9 numbers = 756 -180 = 576
Desired average = $\frac{576}{9}$ = 64

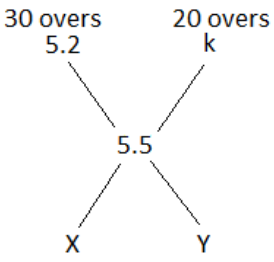
Alternate :

X : Y = 12 : 9
= 4 : 3



Now,
Y = 36-15 = 21
3 unit = 21
1 unit = 7
⇒ X = 4 unit = 28
⇒ k = 36 + x
= 36 + 28 = 64

Sol 78. (b)
Runs to be scored in last 20 years = 275-156 = 119
Desired average = $\frac{119}{20}$ = 5.95
Alternate :
X : Y = 30 : 20
= 3 : 2



Now,
Y = 5.5-5.2 = 0.3
2 unit = 0.3
1 unit = 0.15
⇒ X = 3 unit = 0.45
⇒ k = 5.5 + x
= 5.5 + 0.45 = 5.95

Sol 79. (a)
Average increase = 2.5
Total increase = 2.5 x 8 = 20
Weight of the member replaced = 80-20 = 60

Sol 80. (b)
Cost of one pencil = $\frac{30}{6}$ = Rs 5
Cost of one pen = $\frac{120}{12}$ = Rs 10
Total cost of 50 pens and 50 pencils = (50x10) + (50x5) = 750
Desired Average cost = $\frac{750}{50+50}$ = 7.5

Sol 81. (b)
Month is started with monday so total weekends = 2 x 4 = 8
Total number of visitors on weekends = 750 x 8 = 6000
Total number of visitors on weekdays = 450 x 22 = 9900
Desired average = $\frac{6000+9900}{30}$ = 530

Sol 82. (d)
Total amount spent in three years = 3 x 32000 = 96000
Total petrol purchased in three years = $\frac{32000}{64} + \frac{32000}{80} + \frac{32000}{320}$ = 1000 litres
Average price of petrol per litre = $\frac{96000}{1000}$ = 96

Sol 83. (c)
Total age of the students = 14 x 12 = 168
Let the age of the teacher = k
According to the question
$\frac{168+k}{12+1}$ = 15
⇒ k = 27
Alternate :
Average increase = 15-14 = 1
Total increase = 13 x 1 = 13

Pinnacle

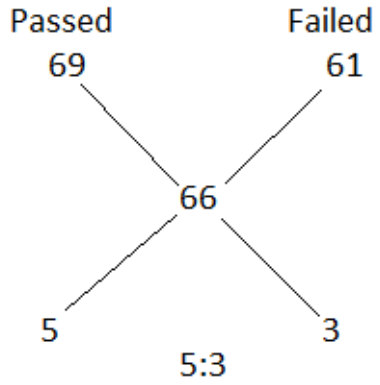
This increase is due the age of the teacher.
So, age of the teacher = 14+13 = 27

Sol 84. (a)
Sum of the numbers = 14.8 x 10 = 148
Desired average = $\frac{148-5-23+13+26}{10}$ = 15.9
Alternate :
Increase / Decrease in total sum = 26+13-5-23 = 11
Clearly the sum is increasing so average increase = $\frac{11}{10}$ = 1.1
Desired average = 14.8+1.1 = 15.9

Sol 85. (c)
Total weight of the students and teacher = 24.5 x 14 = 343
Total weight of the students = 343-31 = 312
Desired average = $\frac{312}{13}$ = 24
Alternate :
Total average is less than the teacher's age by 31-24.5 = 6.5
This reduction is due to age of students so average decrease per student = $\frac{6.5}{13}$ = 0.5
Average age of the students = 24.5-0.5 = 24

Sol 86. (a)
According to the question
$(\frac{a+b}{2})+(\frac{b+c}{2})+(\frac{a+c}{2})$ =10+12+15
⇒ a+b+c = 37
Desired average = $\frac{37}{3}$

Sol 87. (c)
Let the number of students who passed = p and the number of students who failed = f
According to the question
$\frac{69(p)+61(f)}{p+f}$ = 66
⇒ 3p = 5f
⇒ p : f = 5 : 3
Let p = 5 unit and f = 3 unit
Desired percentage = $\frac{5}{5+3}$ x 100 = 62.5
Alternate :



Let the students who passed = 5 unit and students who failed = 3 unit
Desired percentage = $\frac{5}{5+3}$ x 100 = 62.5

Sol 88. (d)
Let the 19th number is k , 18th number is k+3 and 20th number is k+6.
According to the question
20 x 80 = (10 x 76.5)+(7 x 82)+(k+k+3+k+6)
1600 = 1348 + 3k
⇒ k = 84
Desired average = $\frac{84+84+3}{2}$ = 85.5

Alternate :
Average of first 10 numbers is less than the total average by 3.5 and average of next seven number is more than total average by 2.
This will be managed by other numbers.
According to the question
(80 x 3) = {10 x (-3.5)} +{7 x (2)}+ k + (k+3) + (k+6) +
252 = 3k
⇒ k = 84
Desired average = $\frac{84+84+3}{2}$ = 85.5

Sol 89. (c)
50 % = $\frac{1}{2}$
Let the number of boys = 2 unit
Let the number of girls = 3 unit
Let the average score of girls = 2k
⇒ the average score of boys = 3k
According to the question
(3+2) x 54 = 3 x 2k + 2 x 3k
⇒ k = 22.5
So, the average marks of the girls = 2 x 22.5 = 45

Sol 90. (b)
Let the fourth number = A
⇒ Average of first three numbers = 4A
According to the question
$\frac{A+3(4A)}{4}$ = 87.75
⇒ A = 27
Sum of first three numbers = 4 x 27 = 108

Sol 91. (c)
Sum of 21 numbers = 21 x 44 = 924
Sum of first 11 numbers = 11 x 48 = 528
Sum of last 11 numbers = 11 x 42 = 462
⇒ 11th number = (528+462)-924 = 66
Desired average = $\frac{924-66}{20}$ = 42.9

Sol 92. (d)
60% = $\frac{3}{5}$ and 30% = $\frac{3}{10}$
Let the total students = 5 unit
Number of boys = 2 unit
Number of girls = 3 unit
Let the average score of girls = 10k
⇒ the average score of boys = 13k
According to the question
(2+3) x 56 = 3 x 10k + 2 x 13k
⇒ k = 5
So, average score of the girls = 5 x 10 = 50

Sol 93. (c)
Total marks in 4 subjects = 64 x 4 = 256
Marks in 5th subject = 69

Pinnacle

Desired average = $\frac{325}{5}$ = 65

Alternate :

Marks in 5th subject is more than the average score by 69-64 = 5

Average increase = $\frac{5}{5}$ = 1

Desired average = 64+1 = 65

Sol 94. (c)

Each number is multiplied by 3.

So the average will also be multiplied by 3.

So the new average will be 27 x 3 = 81

Sol 95. (a)

Total amount spent = (15 x 70) + (13 x 60) + (12 x 65) = 2610

Average cost of the article = $\frac{2610}{15+13+12}$ = 65.25

Sol 96. (d)

Total temperature of first three days = 3 x 23 = 69

Total temperature of next three days = 3 x 24 = 72

Total temperature of the week = 23.5 x 7 = 164.5

Temperature of the 7th day = 164.5 - (72+69) = 23.5

Alternate :

Temperature of first three days is less than average temperature of the week by 0.5.

Total decrease = 0.5 x 3 = 1.5

Temperature of first three days is more than average temperature of the week by 0.5.

Total increase = 0.5 x 3 = 1.5

Temperature of the 7th day = 23.5-1.5+1.5 = 23.5

Sol 97. (d)

Total score of the students = (30 x 65) + (36 x 35) + (34 x 45) = 4740

Desired average = $\frac{4740}{30+36+34}$ = 47.4

Sol 98. (d)

Total pages in 9 books = 9 x 400 = 3600

Total pages in first 5 books = 5 x 430 = 2150

Total pages in last 5 books = 5 x 380 = 1900

⇒ Pages in 5th book = (2150+1900)-3600 = 450

Sol 99. (c)

60% = $\frac{3}{5}$

Let the number of boys = 5 unit and the number of girls= 8 unit

Let the Average weight of the girls = A

⇒ average weight of the boys = (A+2.6)

According to the question

$\frac{5(A+2.6)+8(A)}{5+8}$ = 50

⇒ A = 49

Sol 100. (a)

Let the 8th number is k , 7th number is 2k and 9th number is 2k-5.

According to the question

15 x 45 = (6 x 42)+(2k+k+2k-5)+(6 x 43)

675 = 505 + 5k

⇒ k = 34

Desired average = $\frac{68+63}{2}$ = 65.5

Alternate :

Average of first 6 numbers is less than the total average by 3 and average of last 6 number is less than total average by 2. This will be managed by other numbers.

According to the question

(45 x 3) = {6 x (-3)} + k + 2k + 2k-5 +{6 x (-2)}

135 = 5k-35

⇒ k = 34

Desired average = $\frac{68+63}{2}$ = 65.5

Sol 101. (b)

Total weight of the class = 60 x 56.4 = 3384

Total weight of the students who left the class = 12 x 59.5 = 714

Total weight of the students who joined the class = 15 x 54 = 810

Desired average = $\frac{3384-714+810}{60-12+15}$ = 55.2

Sol 102. (c)

75% = $\frac{3}{4}$

Let the total numbers are 4.

Total increase = 3x4 = 12

Total decrease = 1 x 6 = 6

Average increase = $\frac{12-6}{4}$ = 1.5

Desired average = 48+1.5 = 49.5

Sol 103. (b)

Total score = (60+70) x 63 = 8190

Score of class B = 70 x 57 = 3990

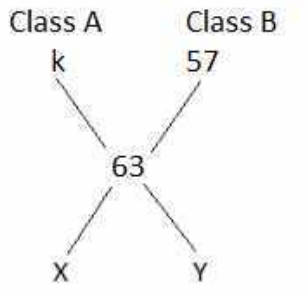
Score of class A = 8190 -3990 = 4200

Desired average = $\frac{4200}{60}$ = 70

Alternate :

X : Y = 60 : 70

= 6 : 7



Now,

X = 63-57 = 6

6 unit = 6

1 unit = 1

⇒ Y = 7 unit = 7

⇒ k = 63 + y

= 63 + 7 = 70

Sol 104. (a)

Let the numbers are a, b and c.

According to the question

$\{(\frac{a+b}{2})+c\}+\{(\frac{b+c}{2})+a\}+\{(\frac{a+c}{2})+b\}$ = 68+74+98

⇒ a+b+c =120

Now, $\{(\frac{a+b}{2})+c\}$ = 68

⇒ a+b+2c = 136

Similarly
c+b+2a = 148
And
c+a+2b = 196
Biggest number =(a+b+2c) - (a+b+c) = 196-120 = 76
Smallest number = (c+a+2b) - (a+b+c) = 136-120 = 16
Desired average = $\frac{76+16}{2}$ = 46

Sol 105. (d)
Sum of 12 numbers = 12 x 18.5 = 222
Sum of first 6 numbers = 6 x 16.8 = 100.8
Sum of last 7 numbers = 7 x 17.4 = 121.8
⇒ 6th number = 121.8+100.8-222 = 0.6
Desired average = $\frac{222-0.6}{11}$ = 20.1

Alternate :
Average of first six numbers is less than the total average by 1.7 and average of last 7 numbers is less than the total average by 1.1
Total decrease = 1.7 x 6 + 1.1 x 7 = 17.9
⇒ 6th number must be = 18.5-17.9 = 0.6
Desired average = $\frac{222-0.6}{11}$ = 20.1

Sol 106. (b)
40% = $\frac{2}{5}$
Let number of boys = 5 unit
Number of girls = 7 unit
Let the average score of girls = 5k
⇒ the average score of boys = 7k
According to the question
(5+7) x 63 = 5 x 7k + 7 x 5k
⇒ k = 10.8
So, average score of the girls = 5 x 10.8 = 54

Sol 107. (d)
Average of temperature in first four days = $1^{\circ}c$
Total increase due to first for days = 4 x 1 = $4^{\circ}c$
This increase will be balanced by last three days.
⇒ Average temperature of last three days = $31^{\circ} - \frac{4^{\circ}}{3} = 28.67^{\circ}c$

Alternate:
Average temperature on remaining days = $\frac{30\times7-31\times4}{3} = \frac{210-124}{3} = 28.67^{\circ}\ C$

Sol 108. (a)
Temperature of sixth day is 12 mm more than the average temperature of first 5 days. And temperature of seventh day is 5 mm less than the average temperature of the first 5 days.
⇒ Total increase = 12-5 = 7 mm
Average increase = $\frac{7}{7}$ = 1 mm
Required average = 30+1 = 31 mm

Alternate :
Average daily rainfall for the week = $\frac{5\times30+42+25}{7} = \frac{217}{7} = 31\ mm$

Sol 109. (b)
Let the required average is a number between 20 and 35.
For example, let the average weight of the coin = 30 gram
Weight of gold coins is 10 gram less than the average weight.
Total decrease = 8 x 10 = 80 gram
Weight of silver coins is 5 gram more than the average weight.
Total increase = 12 x 5 = 60 gram
Overall decrease = 80-60 = 20 gram
Average decrease = $\frac{20}{8+12}$ = 1 gram
Required average = 30-1 = 29 gram

Alternate :
Total weight of gold coin = 8 x 20 = 160 gram
Total weight of silver coin = 12 x 35 = 420 gram
Required average = $\frac{160+420}{8+12}$ = 29 gram

Sol 110. (b)
The average of a, b and c = 9
The average of b and c = 10
Average of b and c is 1 more than the overall average.
⇒ Total decrease = 2 x 1 = 2
This increase will be managed by a so the value of a = 9-2 = 7

Alternate :

Given, $\frac{a+b+c}{3} = 9$
⇒ $a + b + c = 27$ ---- (i)
And, $\frac{b+c}{2} = 10$
⇒ $b + c = 20$ ---- (ii)
Subtracting (ii) from (i), we get a = 7

Sol 111. (b)
Given, $\frac{a+b}{2} = 36$
⇒ a+b = 72 ---- (i)
Again, $\frac{b+c}{2} = 42$
⇒ b+c = 84 ---- (ii)
Now, Subtracting (i) from (ii), we get
c - a = 84 - 72 = 12

Sol 112. (a)
Let the required average is a number between 50 and 60.
For example, let the average cost of the mixture = 20 gram
Cost of first type of rice is Rs. 5 less than the average cost.
Total decrease = 30 x 50 = Rs. 150
Cost of second type of rice is Rs. 5 more than the average cost.
Total increase = 20 x 5 = Rs. 100
Overall decrease = 150-100 = Rs. 50
Average decrease = $\frac{50}{30+20}$ = Rs. 1
Required average = 55-1 = Rs. 54

Alternate :
Total price of 30 kg rice = 30 x 50 = 1500
Total price of 20 kg rice = 20 x 60 = 1200

Pinnacle

Required average = $\frac{1500+1200}{30+20}$ = Rs. 54

Sol 113. (b)
Present average age of grandparents = 72 + 2 = 74 years
Present average age of parents = 36 + 1 = 37 years
Present average of children = 12 years
Therefore, Average age of family = $\frac{74\times2+37\times2+12\times4}{8}$ = $\frac{148+74+48}{8} = \frac{270}{8} = 33.75$ *years*

Sol 114. (d)
Let the age of A and B be a and b respectively.
ATQ: a = 3b + 6 ----- (i)
And, a + 3 = 2 (b + 3) + 8
⇒ 3b + 6 + 3 = 2b + 6 + 8
[From eq. (i)]
⇒ b = 5
Again, a = 3 x 5 + 6 = 21
Therefore, Average weight of A and B = $\frac{21+5}{2}$ = 13 *years*

Sol 115. (b)
As per given data, it can be deduced that the average weight lies from 75kg to 77 kg.
Therefore, Average weight of the person = $\frac{75+76+77}{3} = \frac{228}{3}$ = 76 *kg*
increase

SSC CGL TIER I

Sol 1. (d) As the sum of the first 5 numbers is 7 times the 6th number and their average is 136.
We can say
8 × sixth number = 6 × 136
Thus,
Sixth number is 102

Sol 2. (a) Let the fifth number be 'x'
Average of first four numbers= 3x
4 × (3x) + x = 5 × 85.8 = 429
13x = 429
x= 33.

Sol 3. (c) For given five consecutive even numbers, average = middle number
Thus, M = middle number
And their sum = 5 × M
We can now conclude that first 5 numbers are:M-4,M-2,M, M+2, M+4
And the next five numbers are M+6,M+8,M+10,M+12,M+14
And their average = $\frac{5M+50}{5}$ = $M + 10$
now , the average of all the 10 numbers = $\frac{M+M+10}{2}$ =M+5

Sol 4. (a) Average of 12 numbers = 45.5
Average of first four numbers = 41.5
Average of next five numbers = 48

Let 12th number be 'x'
Then 10th number = x+9
And 11th number = x+5

We get:
45.5 × 12 = 4 × 41.5 + 5 × 48 + (x+9) + (x+5) + x
⇒ 546 = 166 + 240 + 3x + 14
⇒ 546 = 420 + 3x
⇒ 126 = 3x
⇒ x = 42

Thus, 12th number x = 42
Then 10th number = x+9 = 51
Average of 10th and 12th number = $\frac{42+51}{2} = \frac{93}{2}$ = 46.5

Sol 5. (b) Let there be 'x' students initially in the class.
According to given condition:
58.4 × x + 62.8 × 5 = 58.95(x+5)
3.85 × 5=0.55 × x
X =35 students

Sol 6. (a) Let there be 'x' persons in a group.
35 × x = S_{x-2}+ 38.5 + 40 … (1)
Correct average = 35-2.5 = 32.5
32.5 × x = S_{x-2}+ 29+ 22 … (2)
(1)-(2) ⇒ 2.5*x = 27.5
x = 11 person

Sol 7. (d) The last three numbers are in ratio: $\frac{1}{2} : \frac{1}{3} : \frac{5}{12}$ = 6a:4a:5a
According to question:
24 × 56 = 10 × 71.7+ 11 × 42+ 6a+4a+5a
1344 = 717+ 462 + 15a
1344 = 1179 + 15 a
a = 11
$\frac{22^{nd}+24^{th}}{2} = \frac{66+55}{2}$ = 60.5

Sol 8. (a) Let there be a total of 4a numbers.
Suppose for 3a numbers, average = x and for remaining a numbers, average = y
According to given condition:
3a × x + a × y = 4a × 54.6
3x + y = 4 × 54.6
Also, 3a × (x+5.6) + a × (y- 8.4) = 4a × A'
3 × (x+5.6) +(y- 8.4) = 4 × A'
A' = $\frac{54.6\times4+3\times5.6-8.4}{4}$ = 56.7

Sol 9. (d) Average height of 5 boys = 175 cm
After addition of one more boy, average height = 176 cm
New boys height = 175 + 6 × (actual increase) = 181 cm

Sol 10. (b) Let top scorers be 'x' and 'x+2'.
30 × 88 = 28 × 87.5 + x + x+2
x = 94 and x+2 = 96

Sol 11. (b) According to question:
24 × 50 + T = 25 × 56
T = ₹ 200

Sol 12. (b) According to question :
60 × 38 = 22 × 36+ 32 × 32 + 6 × A
⇒ A = 77.33

Sol 13. (a) Average of five consecutive odd numbers = m
Thus, middle number is 'm'
First five odd numbers = m-4,m-2,m,m+2,m+4
Next three odd consecutive numbers = m+6,m+8,m+10
Average of these 8 consecutive numbers = $\frac{m-4+m-2+m+m+2+m+4+m+6+m+8+m+10}{8}$ = m+3
Increase in average = 3

Sol 14. (d) Number of students in A:B = 5:4 or 5x and 4x respectively.
Total number of students = 90
5x = 50 and 4x = 40
Average scores of A and B are 5y and 6y respectively.
Total marks = 90 × 49 = 4410
5y × 50+6y × 40 = 4410
y = 9
Average score of class A = 5 × 9 = 45

Sol 15. (b) According to question:
3 × 20 = 2 × 25 + A
A = 10 years

Sol 16. (a) 1st item: sum of remaining three items = 1:3
1st item = x
Sum of remaining 3 items = 3x
4x = 4 × 30
x = 30

Sol 17. (d) Actual average = $\frac{30\times69-88+58}{30}$ = 68

SSC CHSL 2019

Sol:1. (b)
Sum of ages of 25 men = 25 × 28 = 700
Sum of ages of 5 new men = 25 × 5 = 125
Total ages = 70+125 = 825
required average = $\frac{825}{30}$ = 27.5

Sol:2.(d)
The average of the runs of a cricket players in 20 matches = 35
Total runs = 35 × 20 = 700
The average of the first 12 matches = 45
Total runs in first 12 matches = 12 × 45 = 540
Total runs in last 8 matches = 700 - 540 = 160
Average of the last 8 matches = 160/8 = 20

Sol:3.(b)
Three years ago, the average age of a husband, wife and child = 26 years
Three years ago, the total age of a husband, wife and child = 26 × 3 = 78 years
Present total age of husband, wife and child = 78+9 = 87 years.
5 years ago, the average age of wife and child = 20 years
5 years ago, the total age of wife and child = 20 × 2 = 40 years
Present total age of wife and child = 40+10 = 50 years.
The present age of the husband = 87-50 = 37 years.

Sol:4.(d)
Average of 35 consecutive natural numbers = N
Dropping the first 10 numbers and including the next 10 numbers, the average is changed to M,
So we can say that the difference between M and N is 10.
M - N = 10……...1
$M^2 - N^2 = 600$
(M+N)(M-N) = 600
(M + N) = 600/10 = 60……...2
Now we can get, from eq1 and 2
M = 35, N = 25
the average of 3M and 5N = $\frac{3M+5N}{2}$ = $\frac{3\times35+5\times25}{2}$ = 115

Sol:5.(d)
When serial number is added to each then now average =59
Old average = 55- $\frac{(1+2+3+.....+10)}{10}$ =49.5
$\frac{24+45+a+35+59+83+46+b+29+74}{10}$ =495
a+b=100
Average of a+b=50

Sol:6.(b)
Total sum of money=35 × 22=770
Sum of first 17 number=17 × 19=323
Sum of last 17 number=17 × 20=340
18th number=770-(323+340)=107

Sol:7. (d)
Present age of Ravi, Mohan and Govind = 3 × 32 + 3 × 6 = 114
Sum of ages of four = 4 × 36 = 144
The present age of shyam = 144-114 = 30 years

Sol:8.(c)
The sum of 17 consecutive numbers = 289,
The average of 17 consecutive numbers = $\frac{289}{17}$ = 17
The first term of another series is 5 more than the average of the first set of consecutive
Numbers = 17 + 5 = 22
The sum of another 10 consecutive numbers
= $\frac{10}{5}$ {2 × 22 + (10 – 1) 1}
= 265

Sol:9.(b)
Sum of 5 consecutive odd numbers = 5 × 75 = 375
Total average after adding = 6 × 76 = 456
Required number = 456-375 = 81

Sol:10.(b)
Sum of marks in five subjects = 5 × 150 = 750

Pinnacle

After calculation = 750-43+23 = 770
New average = $\frac{770}{5}$ = 154

Sol:11.(a)
41 years 9 months = $41\frac{3}{4} = \frac{167}{4}$
Now, go through allegation,

Male	Female
42	41
$\frac{167}{4}$	

3 : 1
4 unit = 600
1 unit = 150
So, number of female employee = 150

Sol:12. (c)
Let his initial average = x
Total runs in 15 innings = 15x
His run, after 16th innings = 15x+120
$\frac{15x+120}{16}$ = x+6
15x+120 = 16x+96
x = 24
New average = 24+6 = 30

Sol:13. (d)
Sum of first two numbers = $2 \times 7 = 14$
Sum of last two numbers = $2 \times 10 = 20$
Sum of first and last numbers = $2 \times 14 = 28$
sum of all numbers = $\frac{14+20+28}{2}$ = 31
required average = $\frac{31}{3}$

Sol:14. (b)
Sum of runs in 20 matches = $20 \times 52 = 1040$
Sum of runs in 18 matches = $18 \times 50 = 900$
Runs in 2 innings = 1040-900 = 140
Let the lowest score = x and highest score = x+120
x+x+120 = 140
x = 10
Highest score = x+120 = 10+120 = 130

Sol:15. (a)
Sum of 24 numbers = $26 \times 24 = 624$
Sum of first 15 numbers = $15 \times 23 = 345$
Sum of last 8 numbers = $8 \times 33 = 264$
16th number = 624-(345+264) = 15

Sol:16. (a)
There are total 4 sunday in a month
Total visitors on sunday = $4 \times 265 = 1060$
Total visitors all day = $26 \times 130 = 3380$
Required average = 148

Sol:17. (a)
Let us consider by mistake he writes 9th number with its digit interchanged
$\frac{(10x+y)-(10y+x)}{9} = 6$
9x-9y = 54
x-y = 6

Sol:18. (b)
Let the average of 4 consecutive odd numbers = x
Average of 3 consecutive even number = y
Sum of four consecutive odd number = 4x
Sum of 3 consecutive even number = 3y
According to the question
y -x =8
And 4x =3y
Solving both the equation gives
x = 24

Sol:19.(c)
Sum of ages of man to son = 2*60 = 120
13x+7x = 120
x = 6
Son's age = $7x = 7 \times 6 = 42$ years

Sol:20. (a)
Let there be n numbers in the list and let their average be x.
Then, sum of n numbers = nx
$\frac{nx+40}{n+1} = x + 4$
nx+40 = (n+1)(x+4)
4n+x = 36……..(1)
$\frac{nx+70}{n+2} = x + 5$
nx+70 = (n+2)(x+5)
5n+2x = 60……(2)
Solving (1) and (2), we get:
n = 4; x = 20

Sol 21. (d)
Sum of ages of Sonu, Hari and Govind = $3 \times 30 = 90$ years
Ratio of ages of Sonu, Hari and Govind = 4:5:6
I.e. ages of sonu, hari and govind are 4x, 5x, 6x respectively
4x + 5x + 6x = 90
15x = 90
x = 6
Difference between ages of Sonu and Govind = 6x - 4x = 2x = 12 years

Sol 22. (d)
Total weight of P, Q and R = P + Q + R = $62 \times 3 = 186$
R' weight = 12 + P's weight = 9 + Q's weight
S's weight = R's weight - 15
$\Rightarrow$ P + Q + R = $62 \times 3 = 186$
$\Rightarrow$ R - 12 + R - 9 + R = 186
$\Rightarrow$ 3R = 186 + 21 = 207
$\Rightarrow$ R = 69
S's weight = R - 15 = 69 - 15 = 54 kg
Average weight of P,Q,R and S = $\frac{P+Q+R+S}{4} = \frac{186+54}{4} = \frac{240}{4}$ = 60 kg

Sol 23. (c)
Let the average score of a batsman for 10 innings = A
According to question:-
$10 \times A + 77 = 11 \times (A+3)$

$\Rightarrow 10 \times A + 77 = 11 \times A + 11 \times 3$
$\Rightarrow 11 \times A - 10 \times A = 77 - 33 = 44$
$\Rightarrow A = 44$
Average after 11 innings = 44 + 3 = 47

Sol: 24. (b)
Sum of ages of 16 students = 16 × 20 = 320
Sum of ages of 5 students = 5 × 20= 100
Sum of ages of 10 students = 10 × 20.4 = 204
Age of 16th students = 320-(100+204) = 16

Sol: 25. (c)
Let T students take part in an examination.
Average of all students = A
For 48 students, average changes from 78 to 66.
While for remaining students i.e. (T-48), average increase by 3.5 marks.
Overall change in average marks of students is a decrease of 4.5 marks.
This can be represented as follows:-

Average of (T - 48)	Average of (48)	Overall average of T
X	78	A
X + 3.5	66	A - 4.5

$(T - 48) \times X + 48 \times 78 = T \times A$ … (i)
$(T - 48) \times (X + 3.5) + 48 \times 66 = T \times (A - 4.5)$ … (ii)

In equation (i):- $T \times X - 48 \times X + 48 \times 78 = T \times A$ …. (iii)
In equation (ii):- $T \times X - 48 \times X + 3.5 \times T - 168 + 48 \times 66 = T \times A - T \times 4.5$ …. (iv)

Subtract (iv) from (iii):--
$48 \times (78 - 66) + 168 = 8 \times T$
$48 \times 12 + 168 = 8 \times T$
$T = 6 \times 12 + 21 = 72 + 21 = 93$

Sol 26. (a)
Let the four consecutive even numbers = 2a, 2a + 2, 2a + 4, 2a + 6
Sum of numbers = 2a + 2a + 2 + 2a + 4 + 2a + 6 = 8a + 12
Average = $\frac{8a+12}{4}$ = 2a + 3 = 27
2a = 27 - 3 = 24
a = 12
Then, four numbers will be:- 24, 26, 28, 30
Sum of four numbers = 8a + 12 = 96 + 12 = 108
Let us add x to 108 to make average = 28
108 + x = 28 × 5 = 140
x = 140 - 108 = 32

Or, Average of four number, A_1 = 27
Average of five numbers, A_2 = 28
$A_2 \times 5 = A_1 + x$
$\Rightarrow 28 \times 5 = 27 \times 4 + x$
$\Rightarrow x = 28 \times 5 - 27 \times 4 = 140 - 108 = 32$

Sol: 27. (d)
Sum of ages of 65 men = 65 × 32
When 5 more men joined the group, average of 70 men becomes = 34 years
Sum of ages of 70 men = 70 × 34
Sum of 65 men + Sum of new 5 men = Sum of 70 men
65 × 32 + Sum of 5 new men = 70 × 34
Sum of 5 new men = 70 × 34 - 65 × 32 = 2380 - 2080 = 300
Average age of 5 men = $\frac{300}{5}$ = 60 years

SSC CGL 2019 TIER-II
Sol: 28. (a)
Average of first 25 number = 31
Sum of first 25 number = 31 × 25
Average of last 16 number = 43
Sum of last 16 number = 43 × 16
Average of 40 numbers = 36
Sum of 40 numbers = 40 × 36
Sum of first 25 numbers + Sum of last 16 numbers = Sum of 40 numbers + 25th number
31 × 25 + 43 × 16 = 40 × 36 + 25th number
25th number = 31 × 25 + 43 × 16 - 40 × 36 = 775 + 688 - 1440 = 23

Sol:29.(b)
According to the que
$\frac{a+b+c}{3} = 2 + c$
$\frac{a+b}{2} = 48$
a + b = 96
$\frac{96+c}{3} = 2 + c$
96 + c = 6 + 3c
c=45
d=35
Average of a and b = 40

Sol:30.(b)
Number of students in A = 50
Number of students in B = 40
Total marks = 90 × 63 = 5670
average score of students in B = x
Total marks of student in B = 40x
average score of students in A = 1.3x
Total marks of student in A = 65x
According to question = 40x + 65x = 5670
x= 54

Sol:31.(d)
Let the average score of student in B = x
Let the average score of student in A = 1.2x
According to the question
48x + 52x = 75 × 92
100x = 6900
x= 69

Sol:32.(c)
Total of 25 number = 54 × 25 = 1350
Total of first 13 number = 13 × 52.8 = 686.4

Total of last 13 number = 13 × 62.2 = 808.6
Total of 26 number (13 is two times) = 1495
13 number = 1495-1350 = 145
Average of remaining 24 = $\frac{1350-145}{24}$ = 50.20

Sol:33.(b)
Let the 1st no, is a and average of last four no. is x.
Sum of the last four no. is 4x.
a= (¾) × 4x =3x
Sum of all five positive no.=56 × 5=280
a+4x=280
3x+4x=280
x=40

Sol:34.(c)
Average age of Kishore, his wife and their child 6 years ago =38 Years
Present Average age of Kishore, his wife and their child =44 years
Present Total age of Kishore his wife and their child=132Years
Average age of his wife and their child 8 years ago =32 Years
Present Average age of his wife and their child =40 years
Present Total age of his wife and their child=80 Years
Present Average age of Kishore=132-80=52 Years

SSC CPO 2019

Sol:35.(d)
Average of twelve numbers=39
Average of last five numbers is 35
Average of first four numbers is 40
Let the fifth number be x
Then sixth number will be x+6
seventh number will be x-5
As we know sum of all the numbers is equal to average multiplied by total number of terms
39 × 12=40 × 4+35 × 5+x+x+6+x-5
468=160+175+3x+1
133=3x+1
3x=132
x=44
Fifth number will be 44
Sixth number will be 50
Average will be $\frac{44+50}{2}$
Average =47

Sol:36.(b)
Average weight of a, b and c is 65kgs(given)
Average weight of a and b is 63.5 kgs(given)
Total weight of a,b and c will be 65 × 3 = 195*kg*
Total weight of a and b will be 63.5 × 2=127kg
Weight of c will be 195-127=68 kgs
Average weight of a and c is 67.5 kg
Total weight of a and c will be 135 kg
So the average weight of a will be (135-68)=67kg

Sol:37.(a)
According to the question
6A = C
2A = B
Sum of number = A + 2A + 6A = 9A
Average = $\frac{9A}{3}$ = 3A
3A = 30
A = 10
C = 60
C - A = 50

Sol:38.(c)
Average weight of A, B and C is 60kgs(given)
A + B + C = 210
Average weight of A, B, C and D is 70 kgs(given)
A + B + C + D = 240
So, D = 30kg
And E = 35kgs
Average weight of B, C, D and E is 59 kgs(given)
B + C + D + E = 236 kgs
B + E = 236 - 30 - 35 = 171 kgs
So A = 210 - 171 = 39kg

Sol:39.(c)
Total weight of A, B and C = 70 × 3=210
Total weight of A, B C and D = 60 × 4= 240 …(a)
so D = 30 kg
And E = 35kg
Total weight of B, C, D and E = 59 × 4= 236 …(b)
From equation (a) and (b)
As, 240- 236 =4
So, A is 4kg heavier than E
Weight of A = 39 kg
Total weight of A, D and E = $\frac{39+30+35}{3}$ = 34.66 = approximately = 35

Sol:40.(d)
Sum of ratio = 3 + 4 + 7 = 14
Highest price = $\frac{7}{14}$ × 14,014 = 7,007

41.Sol:(b)
Average temperature for monday wednesday and friday=41°
The average for wednesday, thursday and friday = 42°
Temperature on Thursday = 43°C
Let temperature on monday=X
Sum of temperatures on wednesday, thursday and friday =126
Sum of temperatures on wednesday and friday=83°C
Sum of temperatures on monday wednesday and friday=123°C
Temperature on monday= 123°C-83°C=40°C

42.Sol:(d)
Average of twelve numbers=39
Average of last five numbers is 35

Average of first four numbers is 40
Let the fifth number be x
Then sixth number will be x+6
seventh number will be x-5
As we know sum of all the numbers is equal to average multiplied by total number of terms
$39 \times 12=40 \times 4+35 \times 5+x+x+6+x-5$
$468=160+175+3x+1$
$133=3x+1$
$3x=132$
$x=44$
Sixth number will be 50
Seventh number will be 39
Average will be $\frac{39+50}{2}$
Average =44.5

43.Sol:(b)
Average weight of a, b and c is 65kgs(given)
Average weight of c and b is 61.5 kgs(given)
Total weight of a,b and c will be $65 \times 3 = 195kg$
Total weight of c and b will be $61.5 \times 2=123$kg
Weight of a will be 195-123=72 kgs
Average weight of a and c is 68.5 kg
Total weight of a and c will be 137 kg
So the average weight of c will be (137-72)=65kg

Pinnacle

RATIO & PROPORTION / अनुपात-समानुपात

Key-points:/ प्रमुख बिंदु:

1) What are antecedent and consequent?/ पूर्ववर्ती और अनुवर्त्ती क्या हैं?

In the form $x : y$; x is called the *antecedent* (पूर्ववर्ती) and y is called *consequent*.(अनुवर्त्ती)

2) $x : y$ can also be written as $\frac{x}{y}$

3) Duplicate ratio (squaring)/ वर्गानुपात. E.g. duplicate ratio of *2 : 3* will be $2^2 : 3^2$ i.e. *4 : 9*

4) Sub-duplicate Ratio (square root) / वर्गमूलानुपात. E.g. Sub-duplicate Ratio of *9 : 4* will be $\sqrt{9} : \sqrt{4}$ i.e. 3 : 2

5) Triplicate Ratio (cube) / घनानुपात will be in $x^3 : y^3$ format. Triplicate ratio of 4 : 5 will be 64 : 125

6) Sub-triplicate Ratio (cube root)/घनमूलानुपात will be in form $\sqrt[3]{x} : \sqrt[3]{y}$

7) Inverse Ratio (व्युतक्रमनिष्पत्ति) of $x : y$ will be $y : x$

8) Compound Ratio (यौगिक अनुपात): If two or more ratios are given, then the antecedent of one is multiplied with antecedent of other and respective consequents are also multiplied. If a : b, c : d and e : f are three ratios, then their compound ratio will be *ace : bdf*. E.g. For 2 : 3, 3 : 4 and 4 : 5, compound ratio will be :

यदि दो या दो से अधिक अनुपात दिए जाते हैं, तो एक के पूर्ववर्ती को दूसरे के पूर्ववर्ती से गुणा किया जाता है और संबंधित परिणाम भी गुणा किया जाता है। यदि a:b, c:d और e: f तीन अनुपात हैं, तो उनका यौगिक अनुपात ace: bdf होगा। जैसे 2:3, 3:4 और 3:5 के लिए, यौगिक अनुपात होगा :

$\frac{2\times3\times3}{3\times4\times5} = \frac{18}{60} = \frac{3}{10}$ i.e. 3 : 10

9) 3rd Proportional: What is the 3rd proportion of 5 and 7. Answer will be

5 और 7 का तीसरा आनुपातिक क्या है। उत्तर होगा :

$5 : 7 :: 7 : x$

Where, $5x = 49 \Rightarrow x = \frac{49}{5}$

10) 4th Propotional: 4th proportional of 2, 5 and 7. Answer will be 2 : 5 :: 7 : x

Where, $2x = 7 \times 5 = 35 \Rightarrow x = \frac{35}{2}$

11) Componendo and dividendo rule:

Example: If a = 3 and b = 2.

Then, $\frac{a+b}{a-b} = \frac{c}{d}$, $\therefore \quad \frac{c}{d} = \frac{3+2}{3-2} = \frac{5}{1}$

i.e. c = 5 and d = 1

Also, $\frac{c+d}{c-d} = \frac{a}{b}$ [Check yourself]

12) Mean Proportion (मध्यनुपाती): Mean proportion of two numbers, a and b, is given by $\sqrt{ab}$.

दिये गये दो अनुपातों का मध्यपनुपाती उनके गुणनफल का वर्गमुल होता है|

Partnership/ साझेदारी

Concept / सिद्धांत:

The ratio of profits of two or more partners will be equal to the ratio of their respective equivalent investment ratio.

दो या अधिक भागीदारों के मुनाफे का अनुपात उनके संबंधित समकक्ष निवेश के अनुपात के बराबर होगा

Equivalent investment = (Amount Invested) × (Time for which the amount is invested).

We will take some examples to understand the concepts of partnership./साझेदारी की सिद्धांत के समझने के लिए हम कुछ उदाहरण लेंगे।

Example 1: A invests Rs. 10,000 and B invests Rs. 20,000 for a period of 1 year each. The profit, after 1 year will be divided in the ratio:

A ने 10,000 रुपये का निवेश किया और B ने 20,000 रुपये का निवेश किया 1 वर्ष की अवधि के लिए| 1 वर्ष के बाद लाभ किस अनुपात में विभाजित किया जाएगा:

$\frac{Profit\ of\ A}{Profit\ of\ B} = \frac{10000\times12}{20000\times12} = \frac{1}{2}$

Example 2: A invests Rs.100 in a business. After 6 months B joins with an investment of Rs. 200. At the end of 1 year C joins with an investment of Rs.100. What will be the ratio of profit after 3 years?

A एक व्यवसाय में रु .100 का निवेश करता है| 6 महीने के बाद B रु 200 के निवेश के साथ जुड़ जाता है| 1 वर्ष के अंत में 100 रुपये के निवेश के साथ C भी साथ जुड़ जाता है| 3 साल बाद लाभ का अनुपात क्या होगा?

	A		B		C
Amount (Rs.)	100		200		100
Time(month)	36		30		24
Equivalent Investment	3600	:	6000	:	2400
Profit Ratio	3	:	5	:	2

Example 3: In the previous case if the total profit after 3 years is 10,000. What will be the share of A?

पिछले सवाल में अगर 3 साल के बाद कुल मुनाफ़ 10,000 रुपये है तो A का हिस्सा क्या होगा?

Share of A in total profit = $\frac{3}{3+5+2}\times10,000 = \frac{3}{10}\times10000 = 3\times1000 = 3000$

Note: In case someone invest in-between the total period of time, just take care for what time

an amount is invested. Similarly there can be a case when someone opts out in that case also, the time for which the amount was invested will be taken into consideration and not the full period.
अगर कोई व्यक्ति कुल अवधि के बीच में निवेश करता है, तो ध्यान रखें कि राशि का निवेश कितने समय के लिए किया गया है। इसी तरह एक ऐसा सवाल हो सकता है जब कोई व्यक्ति बाहर निकल जाता है, उस सवाल में भी निवेश का समय ही ध्यान में रखा जाएगा और न की पूरा समय|

Variety Questions

Q1. The ratio of the ages of A and B, four years ago, was 4 : 5. Eight years from now, the ratio of the ages of A and B will be 11 : 13. What is the sum of their present ages?
A और B की उम्र का अनुपात चार वर्ष पहले 4 : 5 था | अब से आठ वर्ष बाद, A और B की उम्र का अनुपात 11 : 13 होगा | उनकी वर्तमान उम्र का योग क्या है ?
SSC CGL 4 June 2019 (Morning)
(a) 80 years
(b) 96 years
(c) 72 years
(d) 76 years

Q2. If x is subtracted from each of 23, 39, 32 and 56, the numbers so obtained in this order are in proportion. What is the mean proportional between (x + 4) and (3x + 1)?
यदि x को 23, 39, 32 और 56 में से प्रत्येक से घटाया जाता है, तो प्राप्त होने वाली संख्याएं समानुपात में आती हैं | (x + 4) और (3x + 1) के बीच मध्य आनुपातिक ज्ञात करें |
SSC CGL 4 June 2019 (Afternoon)
(a) 15
(b) 10
(c) 12
(d) 14

Q3. The prices of two articles are in the ratio 4 : 5. If the price of the first article is increased by x% and that of the other is decreased by 30% , then the new prices of A and B will be in the ratio 10 : 7. The value of x is :
दो वस्तुओं की कीमतें 4 : 5 के अनुपात में हैं | यदि पहली वस्तु की कीमत x % से बढ़ा दी जाए और दूसरी वस्तु की कीमत 30% से कम कर दी जाए, तो A और B की नयी कीमतों का अनुपात 10 : 7 हो जाता है | x का मान है :
SSC CGL 7 June 2019 (Afternoon)
(a) 24.5
(b) 22.5
(c) 25
(d) 20

Q4. A sum of Rs. x is divided among A , B and C such that the ratio of shares of A and B is 7 : 12 and that of B and C is 8 : 5. If the difference in the shares of A and C is Rs. 214 , then the value of x is :
x रुपये की राशि A, B और C में इस प्रकार विभाजित की जाती है कि A और B के हिस्से का अनुपात 7 : 12 है और B तथा C के हिस्से का अनुपात 8 : 5 है | यदि A और C के हिस्सों में 214 रुपये का अंतर है, तो x का मान ज्ञात करें |
SSC CGL 7 June 2019 (Evening)
(a) 11556
(b) 11128
(c) 11770
(d) 11342

Q5. What is the ratio of the mean proportional between 4.8 and 10.8 and the third proportional to 0.4 and 2.4?
4.8 तथा 10.8 के बीच माध्य समानुपाती तथा 0.4 और 2.4 के बीच तीसरे आनुपातिक का अनुपात ज्ञात करें |
SSC CGL 10 June 2019 (Morning)
(a) 2 : 1
(b) 3 : 2
(c) 1 : 2
(d) 2 : 3

Q6. If a : b = 3 : 2 then (5a + 2b) : (3a + 4b) is equal to:
यदि a : b = 3 : 2 है, तो (5a + 2b) : (3a + 4b) का मान क्या होगा ?
SSC CGL 10 June 2019 (Afternoon)
(a) 16 : 15
(b) 8 : 7
(c) 19 : 17
(d) 17 : 14

Q7. If a : b = 2 : 5 , c : b = 3 : 4 , then a : b : c is equal to :
यदि a : b = 2 : 5 , c : b = 3 : 4 है, तो a : b : c का मान ज्ञात करें |
SSC CGL 12 June 2019 (Evening)
(a) 6 : 15 : 20
(b) 8 : 20 : 15
(c) 2 : 5 : 4
(d) 2 : 5 : 3

Q8. If (5a - 3b) : (4a - 2b) = 2:3, then a:b is equal to:
यदि (5a - 3b) : (4a - 2b) = 2:3 है, तो a : b का मान क्या होगा ?
SSC CGL 13 June 2019 (Afternoon)
(a)3:4
(b)2:3
(c)5:8
(d)5:7

Q9. A sum of Rs. 4360 was to be divided among A , B , C and D in the ratio of 3 : 4 : 5 : 8, but it was divided in the ratio of $\frac{1}{3} : \frac{1}{4} : \frac{1}{5} : \frac{1}{8}$ by mistake. As a result:
4360 रुपये की एक राशि को A, B, C तथा D के बीच 3 : 4 : 5 : 8 के अनुपात में विभाजित करना था,

लेकिन इसे भूलवश $\frac{1}{3} : \frac{1}{4} : \frac{1}{5} : \frac{1}{8}$ के अनुपात में विभाजित कर दिया गया। परिणामस्वरूप :

SSC CHSL 1 July 2019 (Evening)

(a) A received Rs. 956 more/ A को 956 रुपये अधिक मिले।

(b) B received Rs. 318 more/ B को 318 रुपये अधिक मिले।

(c) D received Rs. 1144 less/ D को 1144 रुपये कम मिले।

(d) C received Rs. 132 less/ C को 132 रुपये कम मिले।

Q10. Two numbers are in the ratio 3:4. On increasing each of them by 30, the ratio becomes 9:10. The numbers are :

दो संख्याएं 3 : 4 के अनुपात में हैं। दोनों को 30 से बढ़ाने पर, यह अनुपात 9 : 10 हो जाता है। ये संख्याएं हैं :

SSC CHSL 8 July 2019 (Afternoon)

(a) 30,40

(b) 15,20

(c) 12,16

(d) 18,24

Q11. The ratio of incomes of A and B is 2 : 3 and that of their expenditure is 1 : 2. If 90% of B's expenditure is equal to the income of A , then what is the ratio of the savings of A and B?

A और B की आय का अनुपात 2 : 3 है तथा उनके व्यय का अनुपात 1 : 2 है। यदि B का 90% व्यय A की आय के बराबर है, तो A और B की बचत का अनुपात ज्ञात करें।

SSC CHSL 2 July 2019 (Morning)

(a) 1 : 1

(b) 9 : 8

(c) 8 : 7

(d) 3 : 2

Q12. In an examination, the success to failure ratio was 5 : 2. Had the number of failures been 14 more, then the success to failure ratio would have been 9 : 5. The total number of candidates who appeared for the examination was :

एक परीक्षा में, सफलता और असफलता का अनुपात 5 : 2 था। यदि असफल अभ्यर्थी की संख्या 14 अधिक होती , तो सफलता और असफलता का अनुपात 9 : 5 होता। इस परीक्षा में कुल कितने अभ्यर्थी शामिल हुए थे ?

SSC CHSL 2 July 2019 (Evening)

(a) 210

(b) 196

(c) 126

(d) 203

Q13. Three numbers are in the ratio ½ : ⅔ : ¾ . The difference between the greatest and the smallest number is 27. The smallest number is

तीन संख्याएं : ½ : ⅔ : ¾ के अनुपात में हैं। सबसे बड़ी तथा सबसे छोटी संख्याओं के बीच 27 का अंतर है। सबसे छोटी संख्या है -

SSC CHSL 4 July 2019 (Evening)

(a) 81

(b) 40

(c) 72

(d) 54

Q14. Three numbers are in the ratio ½ : ⅔ : ¾ . The difference between the greatest and the smallest number is 27. The average of the three numbers is :

तीन संख्याएं ½ : ⅔ : ¾ के अनुपात में हैं। सबसे बड़ी तथा सबसे छोटी संख्या के बीच 27 का अंतर है। तीनों संख्याओं का औसत ज्ञात करें।

SSC CHSL 5 July 2019 (Morning)

(a) 40

(b) 81

(c) 69

(d) 54

Q15. If a:b:c=1:3:5, what is the value of $\frac{4a-b+2c}{3(a+b+c)}$?

यदि a:b:c=1:3:5 है, तो $\frac{4a-b+2c}{3(a+b+c)}$ का मान क्या होगा ?

SSC CHSL 8 July 2019 (Evening)

(a) $\frac{8}{27}$

(b) $\frac{10}{27}$

(c) $\frac{11}{27}$

(d) $\frac{1}{3}$

Q16. Rs. 8000 is distributed among A, B and C such that they receive notes of Rs. 500, Rs. 200 and Rs. 100 respectively. The amounts received by them are in the ratio 15:2:3. What was the ratio of the numbers of notes of Rs. 500, Rs 200 and Rs 100 ?

8000 रुपये A, B और C के बीच इस प्रकार वितरित किये जाते हैं कि उन्हें क्रमशः 500, 200 और 100 रुपये के नोट प्राप्त होते हैं। उनके द्वारा प्राप्त की गयी राशि का अनुपात 15 : 2 : 3 है। 500, 200 तथा 100 रुपये के नोटों की संख्या का अनुपात ज्ञात करें।

SSC CHSL 10 July 2019 (Morning)

(a) 3:1:3

(b) 3:3:1

(c) 4:1:2

(d) 3:2:2

Q17. What is the ratio between the fourth proportional of 3, 4, 9 and the mean proportional between 2 and 98?

3, 4, 9 के चतुर्थ अनुपाती और 2 और 98 के मध्यानुपाती के बीच का अनुपात क्या है?

SSC CHSL 11 July 2019 (Afternoon)

(a) 7:8

(b) 7:6

(c) 8:7

(d) 6:7

Q18. Three partners A, B and C share profit and losses in the ratio 3:4:7 If the profit for the year

before charging 30% tax is Rs. 1,10, 166 What is B's share of profit after tax? तीन साझेदार A, B और C लाभ और हानि का अनुपात 3: 4: 7 में बांटते हैं यदि 30% कर लगाने से पहले वार्षिक लाभ 1,10, 166 है,तो कर के बाद B का लाभांश क्या होगा ?

SSC CPO 16 March (Morning)

(a) Rs.9442.80
(b) Rs.31476
(c) Rs.22033.20
(d) Rs. 24673.10

Q19. In an office of 1200 employees, the ratio of urban to rural members of staff is 8 : 7. After joining some new employees, out of which 20 are rural, the ratio becomes 5 : 4. The number of new urban employees is:

1200 कर्मचारियों वाले एक कार्यालय में शहरी और ग्रामीण सदस्यों का अनुपात 8 : 7 है | कुछ नए कर्मचारियों, जिनमें से 20 ग्रामीण हैं, के शामिल होने के बाद यह अनुपात 5 : 4 हो जाता है | नए शहरी कर्मचारियों की संख्या ज्ञात करें |

SSC CPO 15 March (Morning)

(a) 100
(b) 85
(c) 76
(d) 108

Q20. Rs 4, 06, 736 is divided among A, B and C such that the ratio between A and B is 2 : 3 and B and C is 1 : 2. The share of C is: 4,06,736 को A, B और C में इस प्रकार बांटा जाता है कि A और B का अनुपात 2 : 3 है तथा B और C का अनुपात 1 : 2 है | C का हिस्सा ज्ञात करें |

SSC CPO 15 March (Morning)

(a) Rs 73,952
(b) Rs 1,10,928
(c) Rs 2,64,796
(d) Rs 2,21,856

Q21. A, B and C are partners. They share profits in the ratio of 5 : 3: 6. If A earns rs 1,92,380 as his share of profit, then the share of C is:

A, B तथा C साझेदार हैं | वे 5 : 3 : 6 के अनुपात में लाभ बांटते हैं | यदि A को लाभ में अपने हिस्से के रूप में 1,92,380 रुपये प्राप्त होते हैं, तो C का हिस्सा ज्ञात करें |

SSC CPO 14 March 2019 (Morning)

(a) 2,30,856
(b)1,15,428
(c)82,449
(d)1,60,317

Q22. Rs 15,000 was invested by A and B together to start a small business. They got a profit of Rs 2,000 at the end of the year. B took his profit share of Rs 600, How much did A invest?

A और B द्वारा एक साथ किसी छोटे व्यवसाय की शुरुआत करने के लिए 15,000 रुपये निवेश किये गए | उन्हें वर्ष के अंत में 2000 रुपये का लाभ हुआ | B ने लाभ में से अपना हिस्सा 600 रुपये लिया, तो A का निवेश कितना था ?

SSC CPO 16 March 2019 (Evening)

(a)9,000
(b)2,000
(c)10,500
(d)10,000

Q23. A, B and C are partners in a firm sharing profit in the ratio of 3:4:5. If they set aside 4% of the profits as emergency fund and shared the rest of the profit and B gets his share of profit as Rs. 1,81,400, the amount of profit set aside for emergency fund is:

A, B तथा C किसी फर्म में साझेदार हैं तथा लाभ को 3:4:5 के अनुपात में बांटते हैं | यदि वे लाभ का 4% भाग आपातकालीन निधि के रूप में अलग रख देते हैं तथा शेष लाभ का बँटवारा करते हैं तो B को उसके हिस्से का लाभ 1,81,400 रुपये के रूप में प्राप्त होता है | आपातकालीन निधि के लिए अलग रखी गयी राशि ज्ञात करें |

SSC CPO 15 March 2019 (Morning)

(a)Rs. 27848
(b)Rs.18140
(c)Rs.22675
(d)Rs.24500

Q24. A ,B, and C started a business by investing Rs. 55,000 , Rs. 65,000 and Rs. 75,000 respectively. A is a working partner and gets 20% of the profit as a working allowance and remaining is distributed in the proportion of their investment. If the money received by C is Rs. 27,000 what is total profit?

A, B और C ने क्रमशः 55,000 रुपये , 65,000 रुपये तथा 75,000 रुपये निवेश करने एक व्यवसाय की शुरुआत की | A कार्यशील साझेदार है और उसे लाभ का 20% कार्यकारी भत्ते के रूप में दिया जाता है तथा शेष लाभ का वितरण उनके निवेश के अनुपात में किया जाता है | यदि C के द्वारा प्राप्त राशि 27000 रुपये है, तो कुल लाभ क्या है ?

SSC CPO 12 March 2019 (Evening)

(a) Rs. 85500
(b) Rs.87750
(c) Rs.76850
(d) Rs.70200

SSC CGL 2018 TIER II

Q1. The ratio of the income of A to that of B is 5:7. A and B save Rs. 4000 and Rs. 5000 respectively. If the expenditure of A is equal to $66\frac{2}{3}\%$ of the expenditure of B, then the total income of A and B is :

A की आय और B की आय में 5 : 7 का अनुपात है | A और B महीने में क्रमश 4000 और 5000 रुपये की बचत करते हैं | यदि A का व्यय B के

व्यय के $66\frac{2}{3}$ % के बराबर है, तो A और B की कुल आय ज्ञात करें |
SSC CGL Tier II 11 September 2019
(a) Rs. 25,200
(b) Rs. 24,000
(c) Rs. 26,400
(d) Rs. 28,800

Q2. If (a+b) : (b+c) : (c+a) = 7 : 6 : 5 and a+b+c = 27, then what will be the value of $\frac{1}{a} : \frac{1}{b} : \frac{1}{c}$?
यदि (a+b) : (b+c) : (c+a) = 7 : 6 : 5 तथा a+b+c = 27 है, तो $\frac{1}{a} : \frac{1}{b} : \frac{1}{c}$ का मान क्या होगा ?
SSC CGL Tier II 11 September 2019
(a) 3:6:4
(d) 3:2:4
(c) 4:3:6
(d) 3:4:2

Q3. When x is added to each of 2,3,30 and 35, then the numbers obtained in this order, are in proportion. What is the mean proportional between (x+7) and (x-2)?
जब x को 2, 3, 30 और 35 में जोड़ा जाता है तो इस क्रम में प्राप्त होने वाली संख्याएं समानुपात में हैं | (x+7) तथा (x-2) के बीच मध्य समानुपाती ज्ञात करें |
SSC CGL Tier II 11 September 2019
(a) 7
(b) 4
(c) 6
(d) 5

Q4. The ratio of investment by A to that by B is a business is 14:15 and the ratio of their respective profits at the end of a year is 2:5. If A invested the money for 3 months, then for how much time (in months) B invested his money?
एक व्यवसाय में A और B के द्वारा किये गए निवेश का अनुपात 14:15 है तथा वर्ष के अंत में उनके लाभों का अनुपात 2 : 5 है | यदि A ने 3 माह के लिए राशि निवेश की थी, तो B द्वारा निवेश की गयी राशि की अवधि (महीने में) कितनी थी ? **SSC CGL Tier II 11 September 2019**
(a) 7
(b) 6
(c) 5
(d) 9

Q5. One year ago, the ratio of the age (in years) of A to that of B was 4:3. The ratio of their respective ages, 3 years from now, will be 6:5. What will be the ratio of respective ages of A and B, 9 years from now?
एक साल पहले, A और B की उम्र (वर्ष में) का अनुपात 4:3 था | अब से 3 वर्ष बाद उनकी उम्र का अनुपात 6 : 5 होगा | अब से 9 वर्ष बाद A और B की उम्र में क्या अनुपात होगा ?
SSC CGL Tier II 11 September 2019
(a) 7:6
(b) 10:9
(c) 9:8
(d) 8:7

Q6. What is the ratio of the third proportional to 0.4 and 0.8, to the mean proportional between 13.5 and 0.24 ?
0.4 तथा 0.8 के तीसरे आनुपातिक और 13.5 तथा 0.24 के बीच माध्य समानुपाती में क्या अनुपात होगा ?
SSC CGL Tier II 12 September 2019
(a) 5:4
(b) 7:8
(c) 8:9
(d) 9:10

Q7. 5 years ago, the ratio of the age of A to that of B was 4:5. Five years hence, the ratio of the age of A to that of B will be 6:7. If, at present, C is 10 years younger than B, then what will be the ratio of the present age of A to that of C ?
5 वर्ष पहले, A और B की उम्र का अनुपात 4 : 5 था | अब से 5 वर्ष बाद, A और B की उम्र में 6 : 7 का अनुपात होगा | यदि वर्तमान में, C, B से 10 वर्ष छोटा है | तो, A और C की वर्तमान आयु में क्या अनुपात है ?
SSC CGL Tier II 12 September 2019
(a) 3:2
(b) 5:4
(c) 4:3
(d) 5:3

Q8. A sum of Rs. x is divided among A, B and C such that the ratio of the shares of A and B is 6:7 and that of B and C is 3:2. If the difference between the shares of A and C is Rs. 540, then the value of x is :
x रुपये की राशि A, B और C में इस प्रकार विभाजित की जाती है कि A और B के हिस्सों का अनुपात 6 : 7 है तथा B और C के हिस्सों का अनुपात 3 : 2 है | यदि A और C के हिस्सों में 540 रुपये का अंतर है, तो x का मान क्या होगा ?
SSC CGL Tier II 12 September 2019
(a) 7425
(b) 7020
(c) 7155
(d) 7290

Q9. A, B and C invested their capitals in the ratio of 2:3:5. The ratio of months for which A, B and C invested is 4:2:3. If C gets a share of profit which is Rs. 1,47,000 more than that of A, then B's share of profit is :
A, B और C ने अपनी पूँजी 2 : 3 : 5 के अनुपात में लगाईं | A, B और C के द्वारा निवेश की गयी राशियों की अवधि (महीने में) का अनुपात 4 : 2 : 3 है | यदि C को लाभ का एक हिस्सा प्राप्त होता है जो A के हिस्से से 1,47,000 रुपये अधिक है, तो इस लाभ में B का हिस्सा ज्ञात करें |

SSC CGL Tier II 12 September 2019
(a) Rs. 1,26,000
(b) Rs. 1,68,000
(c) Rs. 1,05,000
(d) Rs. 1,89,000

Q10. The ratio of income of A and B last year was 4:3, respectively. The ratios of their individual incomes of the last year and the present year are 3:4 and 5:6, respectively. If their total income for the present year is Rs. 8.04 lakh, then the income of B last year was :
पिछले वर्ष A और B की आय का अनुपात क्रमशः 4 : 3 था | पिछले वर्ष और इस वर्ष की उनकी आय का अनुपात क्रमशः 3 : 4 और 5 : 6 है | यदि वर्तमान वर्ष के लिए उनकी कुल आय 8.04 लाख रुपये है, तो पिछले वर्ष B की आय कितनी थी ?
SSC CGL Tier II 12 September 2019
(a) Rs. 2.7 lakh
(b) Rs. 3.6 lakh
(c) Rs. 2.4 lakh
(d) Rs. 2.8 lakh

Q11. A, B and C started a business with their capitals in the ratio 2:3:5. A increased his capital by 50% after 4 months, B increased his capital by $33\frac{1}{3}$% after 6 months and C withdrew 50% of his capital after 8 months, from the start of the business. If the total profit at the end of a year was Rs. 86,800, then the difference between the shares of A and C in the profit was :
A, B और C ने एक व्यवसाय की शुरुआत की जिनकी पूँजी का अनुपात क्रमशः 2 : 3 : 5 है | व्यवसाय के आरंभ से 4 महीने बाद A ने अपनी पूँजी 50% से बढ़ा ली, B ने 6 महीने बाद अपनी पूँजी $33\frac{1}{3}$% से बढ़ा ली तथा C ने 8 महीने बाद अपनी 50% पूँजी निकाल ली | यदि वर्ष के अंत में कुल 86,800 रुपये का लाभ हुआ, तो इस लाभ में A और C के हिस्सों में अंतर ज्ञात करें |
SSC CGL Tier II 13 September 2019
(a) Rs. 12,600
(b) Rs. 7,000
(c) Rs. 9,800
(d) Rs. 8,400

Q12. Two numbers are in the ratio 3:5. If 13 is subtracted from each, the new numbers are in the ratio 10:21. If 5 is added to each of the original numbers, then the ratio becomes :
दो संख्याएं 3 : 5 के अनुपात में हैं | यदि प्रत्येक संख्या से 13 घटा दिया जाए, तो नयी संख्याओं का अनुपात 10 : 21 हो जाता है | यदि मूल संख्याओं में 5 जोड़ा जाए, तो नया अनुपात क्या होगा ?
SSC CGL Tier II 13 September 2019
(a) 5:7
(b) 23:33
(c) 4:5
(d) 24:35

Q13. A, B and C spend 80%, 85% and 75% of their incomes, respectively. If their savings are in the ratio 8:9:20 and the difference between the incomes of A and C is Rs. 18,000 , then the income of B is :
A, B और C अपनी आय का क्रमशः 80%, 85% और 75% खर्च करते हैं | यदि उनकी बचत 8 : 9 : 20 के अनुपात में है और A तथा C की आय में 18000 रुपये का अंतर है, तो B की आय ज्ञात करें |
SSC CGL Tier II 13 September 2019
(a) Rs. 24,000
(b) Rs. 27,000
(c) Rs. 30,000
(d) Rs. 36,000

Q14. A, B and C started a business. Thrice the investment of A is equal to twice the investment of B and also equal to four times the investment of C. If C's share out of the total profit is Rs. 4,863, then the share of A in the profit is :
A, B और C ने एक व्यवसाय की शुरुआत की | A के निवेश का तिगुना B के निवेश के दोगुने तथा C के निवेश के चार गुना के बराबर है | यदि कुल लाभ में C का हिस्सा 4863 रुपये है, तो इस लाभ में A का हिस्सा ज्ञात करें |
SSC CGL Tier II 13 September 2019
(a) Rs. 7,272
(b) Rs. 6,484
(c) Rs. 9,726
(d) Rs. 8,105

Q15. If (5x+2y) : (10x+3y) = 5:9, then $(2x^2 + 3y^2):(4x^2 + 9y^2) = ?$
यदि (5x+2y) : (10x+3y) = 5:9 है, तो $(2x^2 + 3y^2):(4x^2 + 9y^2) = ?$
SSC CGL Tier II 13 September 2019
(a) 31:87
(b) 10:27
(c) 16:47
(d) 1:3

Q16. A sum is divided among A, B, C and D such that the ratio of shares of A and B is 2:3, that of B and C is 1:2 and that of C and D is 3:4. If the difference between the shares of A and D is Rs. 648, then the sum of their shares is :
एक राशि A, B, C और D में इस प्रकार विभाजित की जाती है कि A और B के हिस्सों का अनुपात 2 : 3 है तथा B और C के हिस्सों का अनुपात 1 : 2 है और C एवं D के हिस्सों का अनुपात 3 : 4 है| यदि A और D के हिस्सों में 648 रुपये का अंतर है, तो उनके हिस्सों का योग ज्ञात करें |
SSC CGL Tier II 13 September 2019
(a) Rs. 2,052
(b) Rs. 2,160
(c) Rs. 2,484

(d) Rs. 1,944

Q17. A started a business with a capital of Rs. 54000 and admitted B and C after 4 months and 6 months respectively. At the end of the year, the profit was divided in the ratio 1:4:5. What is the difference between the capitals invested by B and C ?
A ने 54000 रुपये की पूँजी से एक व्यवसाय की शुरुआत की तथा क्रमशः चार और छः महीने बाद B एवं C को शामिल कर लिया | वर्ष के अंत में लाभों का वितरण 1:4:5 के अनुपात में किया गया | B और C के द्वारा लगाई गयी पूँजी में क्या अंतर है ?
SSC CGL TIER II (11 September 2019)
(a) Rs. 1,08,000
(b) Rs. 1,62,000
(c) Rs. 2,16,000
(d) Rs. 3,24,000

Practice Questions

Q1. If x is added to each of 12, 28, 21 and 45, the numbers so obtained, in this order, are in proportion. What is the mean proportional between (x+3) and (4x + 1)?
यदि x को 12, 28, 21 और 45 में से प्रत्येक में जोड़ा जाता है, तो इस प्रकार प्राप्त संख्याएं समानुपात में हैं | (x+3) और (4x + 1) का माध्य समानुपाती ज्ञात करें |
SSC CGL 4 June 2019 (Evening)
(a) 15
(b) 18
(c) 10
(d) 12

Q2. When x is subtracted from each of 21, 22, 60 and 64, the numbers so obtained, in this order, are in proportion. What is the mean proportional between (x+1) and (7x+8).
जब x को 21, 22, 60 तथा 64 में से घटाया जाता है, तो इस प्रकार प्राप्त संख्याएं समानुपात में हैं | (x+1) तथा (7x+8) के बीच माध्य समानुपाती ज्ञात करें |
SSC CGL 6 June 2019 (Morning)
(a) 27
(b) 18
(c) 24
(d) 21

Q3. The ratio of present ages of A and B is 8 : 9. After 9 years, the ratio will become 19 : 21. C is 3 years younger to B. What is the present age (In years) of C ?
A और B की वर्तमान आयु का अनुपात 8 : 9 है | 9 वर्ष के बाद, यह अनुपात 19 : 21 हो जाएगा | C, B से 3 वर्ष छोटा है | C की वर्तमान उम्र (वर्ष में) कितनी है ?
SSC CGL 6 June 2019 (Afternoon)
(a) 49
(b) 48
(c) 51
(d) 52

Q4. The ratio of present ages of A and B is 8 : 15. Eight years ago, the ratio of their ages was 6 : 13. What will be the ratio of ages of A and B after 8 years from now?
A और B की वर्तमान उम्र का अनुपात 8 : 15 है | आठ साल पहले, उनकी उम्र का अनुपात 6 : 13 था | अब से 8 वर्ष बाद A और B की उम्र में क्या अनुपात होगा ? **SSC CGL 7 June 2019 (Morning)**
(a) 5 : 8
(b) 9 : 14
(c) 10 : 17
(d) 5 : 9

Q5. If a : b = 4 : 5, then (2a + 3b) : (3a + 2b) is equal to :
यदि a : b = 4 : 5 है, तो (2a + 3b) : (3a + 2b) का मान क्या होगा ?
SSC CGL 10 June 2019 (Evening)
(a) 22 : 23
(b) 23 : 22
(c) 10 : 9
(d) 9 : 10

Q6. If a : b = 5 : 3, then (8a - 5b) : (8a + 5b) is equal to :
यदि a : b = 5 : 3 है, तो (8a - 5b) : (8a + 5b) का मान क्या होगा ?
SSC CGL 11 June 2019 (Morning)
(a) 3 : 13
(b) 2 : 5
(c) 3 : 11
(d) 5 : 11

Q7. If a : b = 2 : 3 and c : b = 5 : 6 , then a : b : c is equal to:
यदि a : b = 2 : 3 तथा c : b = 5 : 6 है, तो a : b : c का मान ज्ञात करें |
SSC CGL 11 June 2019 (Afternoon)
(a) 4 : 6 : 5
(b) 6 : 9 : 16
(c) 6 : 9 : 12
(d) 10 : 15 : 18

Q8. If a : b = 5 : 8 and c : b = 4 : 3, then a : b : c is equal to:
यदि a : b = 5 : 8 और c : b = 4 : 3 है, तो a : b : c किसके बराबर होगा ?
SSC CGL 11 June 2019 (Evening)
(a) 15 : 24 : 28
(b) 5 : 6 : 8
(c) 15 : 24 : 32
(d) 5 : 8 : 6

Q9. If a : b = 2 : 3, then (5a - 2b) : (5a + 2b) is equal to:
यदि a : b = 2 : 3 है, तो (5a - 2b) : (5a + 2b) का मान ज्ञात करें |
SSC CGL 12 June 2019 (Morning)
(a) 3 : 7
(b) 2 : 7
(c) 1 : 3
(d) 1 : 4

Q10. If a : b = 2 : 3, then (5a + 3b) : (6a - 2b) is equal to :

यदि a : b = 2 : 3 है, तो (5a + 3b) : (6a - 2b) का मान ज्ञात करें |
SSC CGL 12 June 2019 (Afternoon)
(a) 19 : 6
(b) 3 : 2
(c) 17 : 5
(d) 10 : 7

Q11. If a : b = 5:7, then (5a - 3b) : (4a - 2b) is equal to:
यदि a : b = 5:7 है, तो (5a - 3b) : (4a - 2b) का मान क्या होगा ?
SSC CGL 13 June 2019 (Morning)
(a)2 : 3
(b)5 : 4
(c)4 : 3
(d)3 : 2

Q12. The ratio of the present ages of A and B is 6 : 5. Four years ago, this ratio was 5 : 4. What will be the ratio of ages of A and B after 12 years from now?
A और B की वर्तमान आयु का अनुपात 6 : 5 है | चार वर्ष पहले, यह अनुपात 5 : 4 था | अब से 12 वर्ष बाद A और B की उम्र में क्या अनुपात होगा ?
SSC CHSL 2 July 2019 (Afternoon)
(a) 3 : 2
(b) 8 : 7
(c) 9 : 8
(d) 7 : 6

Q13. Eight years ago, the ratio of ages of A and B was 9 : 10. The ratio of their ages four years from now will be 12 : 13. What is the age (In years) of C now, if his age is 6 years more than that of A?
आठ वर्ष पहले, A और B की उम्र में 9 : 10 का अनुपात था | अब से चार वर्ष बाद उनकी उम्र का अनुपात 12: 13 हो जाएगा | C की वर्तमान आयु (वर्ष में) ज्ञात करें, यदि उसकी उम्र A की उम्र से 6 साल अधिक है |
SSC CHSL 3 July 2019 (Morning)
(a) 56
(b) 42
(c) 50
(d) 48

Q14. Two numbers A and B are in the ratio 5 : 2. If 4 is added to each number then this ratio becomes 9 : 4. If 5 is subtracted from each of the original numbers , then the ratio of A and B will be:
दो संख्याएं A और B 5 : 2 के अनुपात में हैं | यदि प्रत्येक संख्या में 4 जोड़ा जाए, तो यह अनुपात 9 : 4 हो जाता है | यदि प्रत्येक मूल संख्या में से 5 घटाया जाए, तो A और B का अनुपात क्या हो जाएगा ? **SSC CHSL 3 July 2019 (Afternoon)**
(a) 3 : 1
(b) 8 : 3
(c) 7 : 2
(d) 4 : 1

Q15. Incomes of A and B are in the ratio 5:3 and their expenditure are in the ratio 9:5. If income of A is twice the expenditure of B, then what is the ratio of savings of A and B?
A और B की आय 5 : 3 के अनुपात में है और उनके व्यय 9 : 5 के अनुपात में हैं | यदि A की आय B के व्यय से दोगुनी है, तो A और B की बचत का अनुपात ज्ञात करें |
SSC CHSL 4 July 2019 (Morning)
(a) 2:3
(b) 1:1
(c) 3:2
(d) 3:4

Q16. Two numbers are in the ratio 7:5. On diminishing each of them by 40, the ratio becomes 27:17. The difference between the numbers is :
दो संख्याएं 7 : 5 के अनुपात में हैं | दोनों में से 40 घटाने पर, यह अनुपात 27 : 17 हो जाता है | इन दोनों संख्याओं के बीच क्या अंतर है ?
SSC CHSL 5 July 2019 (Afternoon)
(a) 75
(b) 40
(c) 25
(d) 50

Q17. Two numbers are in the ratio 7:5. On diminishing each of them by 40, the ratio becomes 27:17. The sum of the numbers is :
दो संख्याएं 7 : 5 के अनुपात में हैं | दोनों में से 40 घटाने पर, यह अनुपात 27 : 17 हो जाता है | इन दोनों संख्याओं का योग ज्ञात करें |
SSC CHSL 5 July 2019 (Evening)
(a) 300
(b) 240
(c) 325
(d) 275

Q18. Two numbers are in the ratio 3:4. On increasing each of them by 30, the ratio becomes 9:10. The sum of the numbers is :
दो संख्याएं 3 : 4 के अनुपात में है | दोनों को 30 से बढ़ाने पर, यह अनुपात 9 : 10 हो जाता है | इन संख्याओं का योग है - **SSC CHSL 8 July 2019 (Morning)**
(a) 35
(b) 32
(c) 30
(d) 25

Q19. What is the ratio of mean proportional of 14.4 and 3.6 and the third proportional of 5 and 4?
14.4 और 3.6 के बीच माध्य समानुपाती और 5 तथा 4 के तीसरे आनुपातिक का अनुपात क्या है ?
SSC CHSL 11 July 2019 (Evening)
(a) 4:9
(b) 5:8
(c) 9:4
(d) 8:5

Pinnacle

Q 20. What is the ratio of the mean proportional between 8.1 and 3.6 and the third proportional of 2 and 3?
8.1 और 3.6 के बीच माध्य समानुपाती और 2 तथा 3 के तीसरे आनुपातिक का अनुपात क्या है ?
SSC CPO 12 March 2019 (Evening)
(a) 5:6
(b) 5:4
(c) 4:5
(d) 6:5

Q21. What is ratio of mean proportional between 3.6 and 12.1 and third proportional between 2 and 11?
3.6 और 12.1 के बीच माध्य समानुपाती तथा 2 और 11 के बीच तीसरे आनुपातिक में क्या अनुपात है ?
SSC CPO 13 March 2019 (Evening)
(a)36:5
(b)6:5
(c)11:36
(d)6:55

Q22 What is the sum of the mean proportional between 10.8 and 4.8 and the third proportional of 2 and 4? / 10.8 तथा 4.8 के बीच माध्य समानुपाती तथा 2 और 4 के तीसरे आनुपातिक का योग क्या है ?
SSC CPO 12 March 2019 (Morning)
(a) 15.2
(b) 11.2
(c) 8.2
(d) 10.2

Q23. What is the ratio of mean proportional between 1.8 and 3.2 and the third proportional of 5 and 3?
1.8 तथा 3.2 के बीच माध्य समानुपाती तथा 5 और 3 के तीसरे आनुपातिक का अनुपात क्या है ?
SSC CPO 13 March 2019 (Morning)
(a) 3 : 5
(b) 4 : 3
(c) 3 : 4
(d) 5 : 3

Q24. The ages of A and B are in the ratio 5:7. Five years ago, their ages were in the ratio 5:8. The respective present ages(in years) are:
A और B की उम्र 5 : 7 के अनुपात में है | पांच वर्ष पहले उनकी उम्र 5 : 8 के अनुपात में थी | उनकी वर्तमान आयु (क्रमशः) है -
SSC CPO 14 March 2019 (Morning)
(a)10,14
(b)20,28
(c)25,40
(d)15,21

Q25. Divide Rs 8,288 between A, B and C such that the proportion of their shares is 5 : 7 :9. The share of C is:
8,288 रुपये को A, B और C में इस प्रकार विभाजित करें कि उनके हिस्सों का अनुपात 5 : 7 : 9 हो | C का हिस्सा ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)2032
(b)3552
(c)3872
(d)2612

Q26. In one bag 50 paisa, 25 paisa and 1 rupee coins are in the ratio of 5: 8: 1. If the total cost of all the coins is 55 rupees then how many coins of 25 paisa are in the bag?
एक बैग में 50 पैसे , 25 पैसे और 1 रूपए के सिक्के 5 :8 :1 के अनुपात में है | यदि सभी सिक्के की कुल कीमत 55 रूपए है तो बैग में 25 पैसे के कितने सिक्के है ? **SSC CPO 14 March 2019 (Evening)**
(a) 25
(b) 10
(c) 50
(d) 80

Q27. Rs. 7,80,516 is divided between A, B, C and D in the ratio of 2: 3: 4:3. What is the part of C?
7,80,516 को 2:3:4:3 के अनुपात में A , B , C और D के बीच बांटा गया है | C का हिस्सा क्या है ?
SSC CPO 14 March 2019 (Evening)
(a) Rs 1,30,086
(b) Rs 2,60,172
(c) Rs 2,24,562
(d) Rs 1,95,129

Q28.Two numbers are in the ratio 4:9. If both the numbers are increased by 12, the ratio becomes 11:21, the sum of the original numbers is:
दो संख्याएँ 4 : 9 के अनुपात में है | यदि दोनों संख्याओं में 12 की वृद्धि होती है, तो अनुपात 11 : 21 हो जाता है | मूल संख्याओं का योग है :
SSC CPO 15 March 2019 (Evening)
(a)52
(b)64
(c)128
(d)104

Q29. The sum of three numbers is 777. The ratio between the first two numbers is 7:9 and the ratio between the second and third number is 3:7. The second number is:
तीन संख्याओं का योग 777 है | पहली दो संख्याओं के बीच का अनुपात 7 : 9 है तथा दूसरी और तीसरी संख्या के बीच का अनुपात 3 : 7 है | दूसरी संख्या है :
SSC CPO 15 March 2019 (Evening)
(a)252
(b)147
(c)63
(d)189

Q 30. A, B and C started a business by investing Rs 1,37,500 and Rs 1,62,500 and Rs 1,87,500 respectively. A is a working partner and gets 20% of the profit as working allowance and remaining is distributed in the proportion of their investment. If the total profit is Rs 2,19,375. What is the share of C?
A, B और C ने क्रमशः 1,37,500 रुपये , 1,62,500 रुपये तथा 1,84,500 रुपये निवेश करके एक व्यवसाय की शुरुआत की | A कार्यशील साझेदार है तथा लाभ का 20% कार्यशील भत्ता के रूप में लेता है और शेष लाभ का वितरण उनके निवेश के अनुपात में कर दिया जाता है | यदि कुल लाभ 2,19,375 रुपये का है, तो C का हिस्सा क्या होगा ?
SSC CPO 13 March 2019 (Evening)
(a) Rs 88,600
(b) Rs 64,500
(c) Rs 67,500
(d) Rs 62,700

Q 31. A, B and C started a business by investing Rs. 55,000, Rs. 65,000 and Rs. 75,000 respectively. A is a working partner and gets 20% of the profit and the remaining is distributed in the proportion of their investments. If total profit is Rs. 87,750. What is the share of A?
A, B तथा C ने क्रमशः 55,000, 65,000 तथा 75,000 रुपये निवेश करके एक व्यवसाय की शुरुआत की | A कार्यशील साझेदार है तथा लाभ का 20% लेता है एवं शेष राशि का वितरण उनके निवेश के अनुपात में कर दिया जाता है | यदि कुल लाभ 87,750 रुपये है, तो A का हिस्सा ज्ञात करें |
SSC CPO 12 March 2019 (Morning)
(a) 27,000
(b) 37,500
(c) 23,000
(d) 37,350

Q32. A, B and C started a business by investing Rs 27,500, Rs 32,500 and Rs 37,500 respectively. A is a working partner and gets 20% of profit as working allowance and the remaining is distributed in proportion of their investments. If the money received by C is Rs 13,500. What is total profit?
A, B और C ने क्रमशः 27,500, 32,500 तथा 37,500 रुपये निवेश करके एक व्यवसाय की शुरुआत की | A कार्यशील साझेदार है तथा लाभ का 20% कार्यशील भत्ते के रूप में लेता है और शेष राशि का वितरण उनके निवेश के अनुपात में कर दिया जाता है | यदि C के द्वारा प्राप्त राशि 13500 रुपये है, तो कुल लाभ ज्ञात करें |
SSC CPO 13 March 2019 (Morning)
(a) Rs 35,100
(b) Rs 38,425
(c) Rs 42,750
(d) Rs 43,875

SSC MTS

Q33. If P : Q = 5:2,then (2P - 3Q) : (3P - 5Q) is equal to:
यदि P : Q = 5 : 2 है, तो (2P - 3Q) : (3P - 5Q) का मान किसके बराबर होगा ?
SSC MTS 2 August 2019 (Morning)
(a)5:6
(b)2:7
(c)4:5
(d)3:4

Q34. The ratio of monthly incomes of Pawan and Sunil is 4:3 and the ratio of their monthly expenditures is 3:2. If Pawan and Sunil save Rs. 4000 and Rs 6000 respectively per month, then what is the sum of their monthly incomes ?
पवन और सुनील की मासिक आय का अनुपात 4 : 3 है तथा उनके मासिक व्यय का अनुपात 3 : 2 है | यदि पवन और सुनील क्रमशः 4000 रुपये और 6000 रुपये की बचत करते हैं, तो उनकी मासिक आय का योग क्या होगा ?
SSC MTS 2 August 2019 (Morning)
(a) Rs 60000
(b) Rs 70000
(c) Rs 50000
(d) Rs 36000

Q35. If U+V = 80 and U : V = 5 : 3, then the value of U - V will be :
यदि U + V = 80 तथा U : V = 5: 3 है, तो U - V का मान कितना है?
SSC MTS 2 August 2019 (Afternoon)
(a)20
(b)15
(c)30
(d)25

Q36. The salary of Mahesh is Rs. 12000 more than Sumit. If the ratio of Mahesh's salary to Sumit's salary is 7 : 4, then what is the salary of Sumit ?
महेश का वेतन सुमित के वेतन से रु 12000 अधिक है | यदि महेश तथा सुमित के वेतन का अनुपात 7:4 है, तो सुमित का वेतन कितना है?
SSC MTS 2 August 2019 (Afternoon)
(a)Rs 16000
(b)Rs 12000
(c)Rs 18000
(d)Rs 20000

Q37. The ratio of monthly incomes of Ram and Rahim is 4:3 and the ratio of their monthly expenditures is 3:2. If each saves Rs 5000 per month, then what is the respective monthly incomes of Ram and Rahim?
राम और रहीम की मासिक आय का अनुपात 4 : 3 है तथा उनके मासिक

व्यय का अनुपात 3 : 2 है | यदि उनमें से प्रत्येक 5000 रुपये की मासिक बचत करता है, तो राम और रहीम का वेतन (क्रमशः) ज्ञात करें |

SSC MTS 2 August 2019 (Evening)

(a)Rs 12000 and Rs 9000
(b)Rs 10000 and Rs 7500
(c)Rs 16000 and Rs 12000
(d)Rs 20000 and Rs 15000

Q38. For three numbers, the ratio of the first and the second number is 2:3 and that of the second and the third number is 4:5. If the sum of the three numbers is 140, then what is the second number?
तीन संख्याओं के लिए, पहली और दूसरी संख्याओं का अनुपात 2 : 3 है तथा दूसरी और तीसरी संख्याओं का अनुपात 4 : 5 है | यदि इन तीनों संख्याओं का योग 140 है, तो दूसरी संख्या कौन सी है ?

SSC MTS 2 August 2019 (Evening)

(a)60
(b)48
(c)96
(d)32

Q39. In a bag, the ratio of the number of 2 rupee, 1 rupee and 50 paise coins is 3:4:5. If the total amount in the bag is Rs 250, then how many 1 rupee coins are there? एक थैले में, 2 रुपये, 1 रुपये और 50 पैसे के सिक्कों की संख्या का अनुपात 3 : 4 : 5 है | यदि थैले में कुल राशि 250 रुपये है, तो 1 रुपये के सिक्कों की संख्या ज्ञात करें |

SSC MTS 5 August 2019 (Morning)

(a)70
(b)100
(c)60
(d)80

Q40. If A:B is 2:3 and B-A = 28, then what is the value of B+A?
यदि A:B = 2:3 तथा B-A = 28 है , तो B+A का मान ज्ञात करें |

SSC MTS 5 August 2019 (Morning)

(a) 120
(b) 150
(c) 130
(d) 140

Q41. If x : y : z = 3:4:5 and x + y + z = 96, then what is the value of z ?
यदि x : y : z = 3:4:5 और x + y + z = 96 है, तो z का मान कितना है?

SSC MTS 5 August 2019 (Afternoon)

(a)42
(b)36
(c)32
(d)40

Q42. There are 150 students in a school. If the ratio between the number of boys and girls is 4 : 1, then find the mean proportional between the number of boys and girls.
किसी विद्यालय में 150 छात्र हैं | यदि लड़के तथा लड़कियों की संख्या का अनुपात 4 : 1 है, तो विद्यालय में लड़कों और लड़कियों की संख्या के बीच मध्यानुपात कितना है?

SSC MTS 5 August 2019 (Afternoon)

(a)50
(b)40
(c)30
(d)60

Q43. The ratio between the monthly incomes of A and B is 3 : 4 and their monthly expenditures are in the ratio of 2 : 3. If each of them saves Rs. 4000 monthly, then B's income is :
A तथा B की मासिक आय का अनुपात 3 : 4 है तथा उनके मासिक व्यय का अनुपात 2 : 3 है | यदि प्रत्येक रु 4000 प्रति माह बचाता है, तो B की आय कितनी है?

SSC MTS 5 August 2019 (Evening)

(a)20000
(b)14000
(c)16000
(d)12000

Q44. If x + y = 52 and x - y = 20, then find the value of x : y.
यदि x + y = 52 तथा x - y = 20 है, तो x : y का मान कितना है?

SSC MTS 6 August 2019 (Morning)

(a)3 : 2
(b)3 : 4
(c)9 : 4
(d)7 : 5

Q45. The monthly incomes of A and B are Rs. 12000 and Rs. 8000 respectively. Their monthly expenditures are in the ratio of 5 : 3. If the save equal amount every month, then What amount do they save individually ?
A तथा B की मासिक आय क्रमशः 12000 रूपए तथा 8000 रूपए है | उनके मासिक व्यय का अनुपात 5:3 है | यदि वे प्रति माह समान राशि बचाते है, तो उनमे से प्रत्येक हर माह कितनी राशि बचाता है ?

SSC MTS 6 August 2019 (Morning)

(a) Rs. 2000
(b) Rs. 1500
(c) Rs. 800
(d) Rs. 1000

Q46. If x+y+z = 360 and x:y:z = 4:3:2, then the value of y+z-x is :
यदि x+y+z = 360 तथा x:y:z = 4:3:2 है, तो y+z-x का मान कितना है ?

SSC MTS 6 August 2019 (Morning)

(a) 80
(b) 60
(c) 30
(d) 40

Q47. If X : Y : Z = 1 : 2 : 3 and $X^2 + Y^2 + Z^2 = 224$, then the value of X+Y+Z is:

यदि X : Y : Z = 1 : 2 : 3 तथा $X^2 + Y^2 + Z^2 = 224$ है, तो X+Y+Z का मान कितना है ?

SSC MTS 6 August 2019 (Afternoon)

(a) 48
(b) 32
(c) 36
(d) 24

Q48. The ratio in the number of students in three classes is 3 : 4 : 5. If 20 students are increased in every class, then this ratio becomes 4 : 5 : 6. What was the original number of students in these classes taken together ?

तीन कक्षाओं में विद्यार्थियों का अनुपात 3 : 4 : 5 है | यदि प्रत्येक कक्षा में 20 छात्र बढ़ा दिये जाते हैं तो अनुपात बदलकर 4 : 5 : 6 हो जाता है| तीनों कक्षाओं को मिलाकर उनमें छात्रों की आरंभिक संख्या कितनी है ?

SSC MTS 6 August 2019 (Afternoon)

(a) 280
(b) 240
(c) 320
(d) 300

Q49. The sum of two numbers is 77 and their ratio is 6 : 5. What is their difference ?

दो संख्याओं का योग 77 है तथा उनका अनुपात 6 : 5 है | उनका अंतर कितना है ?

SSC MTS 6 August 2019 (Afternoon)

(a) 4
(b) 6
(c) 7
(d) 5

Q50. If X : Y = 13 : 12 and X - Y = 2, then what is the value of 2X + 3Y?

यदि X : Y = 13 : 12 तथा X-Y = 2 है, तो 2X+3Y का मान क्या होगा ?

SSC MTS 6 August 2019 (Evening)

(a) 144
(b) 120
(c) 124
(d) 136

Q51. The monthly incomes of A and B are Rs12000 and Rs15000 respectively. The monthly expenditure of A is Rs8000. If the ratio of the monthly expenditures of A and B is 2 : 3, then what is the sum of their monthly savings?

A तथा B की मासिक आय क्रमशः 12000 रुपये और 15000 रुपये है | A का मासिक व्यय 8000 रुपये है | यदि A और B के मासिक व्यय का अनुपात 2 : 3 है, तो उनकी मासिक बचत का योग क्या होगा ?

SSC MTS 6 August 2019 (Evening)

(a) Rs 7000
(b) Rs 8000
(c) Rs 5000
(d) Rs 6000

Q52. The ratio of the ages of two persons is 3 : 4. If the age of one of them is greater than the other by 8 years, then what is the sum of their ages?

दो व्यक्तियों की उम्र में 3 : 4 का अनुपात है | यदि उनमें से एक की आयु दूसरे से 8 वर्ष अधिक है, तो उनकी उम्र का योग क्या होगा ?

SSC MTS 6 August 2019 (Evening)

(a) 54 years
(b) 58 years
(c) 60 years
(d) 56 years

Q53. The monthly incomes of Mohit and Prakash are in the ratio 2 : 3. Their monthly expenditures are in the ratio 3 : 5. If each saves Rs5000 per month, then what is the sum of monthly incomes of Mohit and Prakash?

मोहित तथा प्रकाश की मासिक आय 2 : 3 के अनुपात में है | उनके मासिक व्यय 3 : 5 के अनुपात में हैं | यदि उनमें से प्रत्येक प्रतिमाह 5000 रुपये की बचत करता है, तो मोहित तथा प्रकाश की मासिक आय का योग ज्ञात करें |

SSC MTS 7 August 2019 (Morning)

(a) Rs 40000
(b) Rs 50000
(c) Rs 60000
(d) Rs 42000

Q54. The ratio of two whole numbers is 5 : 7. Which of the following can be their sum?

दो पूर्ण संख्याओं का अनुपात 5 : 7 है | उनका जोड़ निम्न में से क्या हो सकता है ?

SSC MTS 7 August 2019 (Morning)

(a) 54
(b) 60
(c) 46
(d) 68

Q55. If $X^2 + Y^2 = 100$ and X : Y = 4 : 3, then what is the value of $X^2 - Y^2$?

यदि $X^2 + Y^2 = 100$ तथा X : Y = 4 : 3 है, तो $X^2 - Y^2$ का मान क्या होगा ?

SSC MTS 7 August 2019 (Morning)

(a) 18
(b) 28
(c) 36
(d) 24

Q56. If V1:V2 = 1:2 and V1+V2=147, then what is the value of V2-V1.

यदि V1:V2 = 1:2 तथा V1+V2=147 है, तो V2-V1 का मान क्या होगा ?

SSC MTS 7 August 2019 (Afternoon)

(a) 48
(b) 56

(c) 98
(d) 49

Q57. Rs 975 is distributed among Anuj, Bharat and Shekhar. The proportion of their shares is 3 : 4 : 8 respectively. What is the share of Bharat?
975 रुपये अनुज, भरत और शेखर के बीच बांटे गए | उनके हिस्सों का अनुपात क्रमशः 3 : 4: 8 था | भरत का हिस्सा ज्ञात करें |
SSC MTS 7 August 2019 (Afternoon)
(a) Rs 198
(b) Rs 260
(c) Rs 296
(d) Rs 280

Q58. A bag contains 5 rupee, 2 rupee, 1 rupee and 50 paise coins in the proportion 1 : 2 : 3 : 4. If the total amount in the bag is Rs 168, then how many 50 paise coins are there?
एक थैले में 5 रुपये, 2 रुपये, 1 रुपये और 50 पैसे के सिक्के 1 : 2 : 3 : 4 के अनुपात में हैं | यदि थैले में कुल राशि 168 रुपये है, तो 50 पैसे के सिक्कों की संख्या कितनी है ?
SSC MTS 7 August 2019 (Evening)
(a) 46
(b) 52
(c) 56
(d) 48

Q59. The proportion of the number of students in three classes is 1 : 2 : 3. If 20 students are included in each class, then the proportion becomes 3 : 5 : 7. What was initially the total number of students in the three classes?
तीन कक्षाओं में छात्रों की संख्या का अनुपात 1 : 2 : 3 है | यदि प्रत्येक कक्षा में 20 छात्र शामिल कर लिए जाते हैं, तो यह अनुपात 3 : 5 : 7 हो जाता है | इन तीन कक्षाओं में आरंभ में कितने छात्र थे ?
SSC MTS 8 August 2019 (Morning)
(a) 200
(b) 280
(c) 220
(d) 240

Q60. Ravi's age is $\frac{3}{5}$ of Shyam's age. After x years the ratio of the ages of Ravi and Shyam becomes 5 : 7. If initially the sum of their ages is 32, then what is the value of x?
रवि की उम्र श्याम की उम्र का $\frac{3}{5}$ भाग है | x वर्ष के बाद, रवि और श्याम की उम्र का अनुपात 5 : 7 हो जाता है | यदि आरंभ में उनकी उम्र का योग **32 था, तो x का मान ज्ञात करें** |
SSC MTS 8 August 2019 (Morning)
(a) 2
(b) 4
(c) 8
(d) 7

Q61. What is the ratio of the mean proportional between 24 and 150 and the third proportional between 12 and $6\sqrt{5}$?
24 तथा 150 के मध्यानुपाती और 12 तथा $6\sqrt{5}$ के बीच तीसरे समानुपाती में क्या अनुपात है ?
SSC MTS 8 August 2019 (Morning)
(a) 2 : 1
(b) 1 : 2
(c) 1 : 4
(d) 4 : 1

Q62. The sum of the present ages of a father and his son is 78 years. After five years, the ratio of their ages becomes 7 : 4. What is the present age (in years) of the father?
पिता तथा पुत्र की वर्तमान आयु का योग 78 वर्ष है | पांच वर्षों के बाद, उनकी उम्र का अनुपात 7 : 4 होगा | पिता की वर्तमान उम्र (वर्ष में) कितनी है ?
SSC MTS 8 August 2019 (Afternoon)
(a) 45
(b) 51
(c) 55
(d) 50

Q63. Three positive numbers are in the proportion 3 : 4 : 6. If the sum of their squares is 244, then what is the largest number?
तीन धनात्मक संख्याएँ 3 : 4 : 6 के अनुपात में हैं | यदि उनके वर्गों का योग 244 है, तो सबसे बड़ी संख्या कौन सी है ?
SSC MTS 8 August 2019 (Afternoon)
(a) 16
(b) 8
(c) 12
(d) 6

Q64. A bag contains one rupee, 50 paise and 25 paise coins in the proportion 5 : 7 : 9. If the total amount in the bag is Rs430, then how many 25 paise coins are there?
किसी थैले में एक रुपये, 50 पैसे और 25 पैसे के सिक्के 5 : 7 : 9 के अनुपात में हैं | यदि थैले में कुल राशि 430 रुपये है, तो 25 पैसे के कितने सिक्के हैं ?
SSC MTS 8 August 2019 (Afternoon)
(a) 400
(b) 360
(c) 380
(d) 340

Q65. The present age of a Manoj is twice the sum of the ages of his two children. After 20 years, the age of Manoj will become equal to the sum of the ages of his two children. What is the present age of Manoj?
मनोज की वर्तमान आयु उसके दो बच्चों की उम्र के योग से दोगुनी है |

Pinnacle

20 वर्ष के बाद, मनोज की उम्र उसके दोनों बच्चों की उम्र के योग के बराबर हो जायेगी | मनोज की वर्तमान आयु कितनी है ?

SSC MTS 8 August 2019 (Evening)

(a) 40 years
(b) 30 years
(c) 36 years
(d) 35 years

Q66. The ratio of the age of a father and his son is 3 : 1. If the product of their ages is 432, then what is the sum of their ages?

पिता तथा पुत्र की आयु 3 : 1 के अनुपात में है | यदि उनकी आयु का गुणनफल 432 है, तो उनकी आयु का योग क्या है ?

SSC MTS 8 August 2019 (Evening)

(a) 36 years
(b) 48 years
(c) 60 years
(d) 54 years

Q67. The ratio of the sum of the salaries of A and B to the difference of their salaries is 11 : 1. The ratio of the sum of the salaries of B and C to the difference of their salaries is also 11 : 1. If A's salary is the highest and C's is the lowest then what is B's salary (in Rs), given that the total of their salaries is Rs18,200?

A और B के वेतन के योग तथा उनके वेतन के अंतर में 11 : 1 का अनुपात है | B और C के वेतन के योग तथा उनके वेतन के अंतर में भी 11 : 1 का ही अनुपात है | यदि A का वेतन सर्वाधिक तथा C का वेतन सबसे कम है, तो B का वेतन ज्ञात करें जब यह दिया हुआ है कि उनके वेतनों का योग 18200 रुपये है |

SSC MTS 9 August 2019 (Morning)

(a) 8500
(b) 5500
(c) 6000
(d) 7200

Q68. If the ratio of selected to unselected candidates was 14 : 25. If 35 less had applied and 10 less selected, the ratio of selected to unselected would have been 3 : 5. What is the Number of candidates who had applied for a job?

चयनित और गैर-चयनित उम्मीदवारों का अनुपात 14 : 25 है | यदि 35 कम उम्मीदवारों ने आवेदन दिया होता तथा 10 कम चयनित हुए होते, तो चयनित एवं गैर-चयनित उम्मीदवारों का अनुपात 3 : 5 होता | इस नौकरी के लिए कितने उम्मीदवारों ने आवेदन दिया था ?

SSC MTS 9 August 2019 (Morning)

(a) 200
(b) 175
(c) 275
(d) 195

Q69. The employees of three categories A, B and C get their wages in the ratio of 1 : 2 : 3. If they get increment of 5%, 10% and 15% respectively, then what will be the new ratio of their wages ?

तीन श्रेणी के कर्मचारी A, B और C 1 : 2 : 3 के अनुपात में मजदूरी प्राप्त करते हैं, यदि वे क्रमश: 5%, 10% एवं 15% की वेतन-वृद्धि प्राप्त करते हैं | उनकी मजदूरियों का नया अनुपात क्या होगा ?

SSC MTS 9 August 2019 (Evening)

(a) 21 : 44 : 69
(b) 7 : 22 : 23
(c) 21 : 22 : 23
(d) 7 : 21 : 23

Q70. There are 1 rupee, 50 paise and 10 paise coins are in a bag in the ratio of 3 : 2 : 3 and make the amount Rs. 25.8. How many 50-paise coins are there in the bag ?

एक बैग में 3 : 2 : 3 के अनुपात में 1 रुपये, 50 पैसे और 10 पैसे के रूप में रु25.8 की राशि है | बैग में 50 पैसे के कितने सिक्के हैं?

SSC MTS 9 August 2019 (Evening)

(a) 18
(b) 3
(c) 36
(d) 12

Q71. If 4A = 6B = 5C; then A : B : C is :

यदि 4A = 6B = 5C; तो A : B : C है-

SSC MTS 13 August 2019 (Morning)

(a) 20 : 15 : 24
(b) 15 : 10 : 12
(c) 15 : 20 : 24
(d) 24 : 20 : 15

Q72. If A:B = 3:4, B:C = 2:3, then the value of A + B : B + C : C + A will be :

यदि A:B = 3:4, B:C = 2:3 है, तो A + B : B + C : C + A का मान है :

SSC MTS 13 August 2019 (Morning)

(a) 5:6:7
(b) 7:10:9
(c) 7:5:6
(d) 3:4:6

Q73. Seventy eight is divided into two parts such that the ratio between four times the first part and five times the second part is 14 : 15. The first part is :

अठहत्तर को दो भागों में इस प्रकार विभाजित किया जाता है कि पहले भाग के चौगुना और दूसरे भाग के पांच गुना का अनुपात 14:15 है | पहला भाग है :

SSC MTS 13 August 2019 (Morning)

(a) 42
(b) 36
(c) 30
(d) 48

Q74. A bag contains ten rupee, five rupee and two rupee notes in the ratio 10 : 5 : 2. The total value of five rupee notes in the bag is Rs 84 more than that of two rupee notes. The total value of ten rupee notes in the bag (in Rs) is:
एक थैले में दस रुपये, पांच रुपये और दो रुपये के नोट 10 : 5 : 2 के अनुपात में हैं | थैले में पांच रुपये के नोटों का कुल मान दो रुपये के नोटों के कुल मान से 84 रुपये अधिक है | थैले में दस रुपये के नोटों का कुल मान (रुपये में) है :
SSC MTS 13 August 2019 (Afternoon)
(a) 350
(b) 450
(c) 300
(d) 400

Q75. If a : b = 2 : 3 and b : c = 2 : 3, then what is the value of $(3a^2 + b^2 - c^2) : (a^2 + 2b^2 - c^2)$?
यदि a : b = 2 : 3 है तथा b : c = 2 : 3 है, तो $(3a^2 + b^2 - c^2) : (a^2 + 2b^2 - c^2)$ का मान क्या होगा ?
SSC MTS 13 August 2019 (Afternoon)
(a) 3 : 5
(b) 4 : 5
(c) 5 : 7
(d) 3 : 7

Q76. If three numbers are in the ratio 2 : 3 : 5 and the twice of their sum is 200. The square of the largest of three numbers is:
यदि तीन संख्याएँ 2 : 3 : 5 के अनुपात में हैं, तथा उनके योग का दोगुना 200 है, तो इन तीनों में सबसे बड़ी संख्या का वर्ग होगा :
SSC MTS 13 August 2019 (Evening)
(a) 2500
(b) 1000
(c) 625
(d) 2250

Q77. If a : b = 2 : 5, b : c = 4 : 7 and c : d = 9 : 14, then the value of a : b : c : d is :
यदि a : b = 2 : 5, b : c = 4 : 7 और c : d = 9 : 14, तो a : b : c : d कितना है ?
SSC MTS 14 August 2019 (Morning)
(a) 72 : 180 : 245 : 490
(b) 72 : 180 : 315 : 490
(c) 72 : 144 : 315 : 490
(d) 36 : 180 : 315 : 490

Q78. The number of students studying A, B and C in a school are in the proportion 12 : 15 : 16. There is a proposal to increase the number of students studying A, B and C, respectively by 50%, 20% and 50%. What will be the new proportion of the number of students studying A, B and C?
किसी विद्यालय में A, B तथा C की पढ़ाई करने वाले छात्रों की संख्या का अनुपात 12 : 15 : 16 है | A, B तथा C पढ़ने वाले छात्रों की संख्या को क्रमशः 50%, 20% और 50% से बढ़ाने का प्रस्ताव है | A, B और C की पढ़ाई करने वाले छात्रों की संख्या का नया अनुपात क्या होगा ?
SSC MTS 14 August 2019 (Afternoon)
(a) 3 : 3 : 5
(b) 3 : 3 : 4
(c) 2 : 3 : 3
(d) 5 : 8 : 12

Q79. If A : B = 2 : 3, B : C = 4 : 5 and C : D = 6 : 7, then the value of $\frac{A+B+C}{D}$ is:
यदि A : B = 2 : 3, B : C = 4 : 5 और C : D = 6 : 7 है, तो $\frac{A+B+C}{D}$ का मान क्या होगा ?
SSC MTS 14 August 2019 (Evening)
(a) 3
(b) 7
(c) 5
(d) 2

Q80. In a school there are 550 students. The ratio of the boys to that of the girls is 6 : 5. How many more girls should join the school so that the ratio becomes 5 : 6?
एक विद्यालय में, 550 छात्र हैं | लड़कों और लड़कियों की संख्या में 6 : 5 का अनुपात है | इस अनुपात को 5 : 6 करने के लिए कितनी अतिरिक्त लड़कियों को विद्यालय में दाखिला लेना चाहिए ?
SSC MTS 14 August 2019 (Evening)
(a) 25
(b) 170
(c) 50
(d) 110

Q81. Kartik's father age is four times the age of kartik. Three years ago, kartik's father age was seven times the age of kartik. The present age of kartik is:
कार्तिक के पिता की उम्र कार्तिक की उम्र से चार गुनी है | तीन साल पहले, कार्तिक के पिता की उम्र कार्तिक की उम्र से सात गुना थी | कार्तिक की वर्तमान आयु है -
SSC MTS 14 August 2019 (Evening)
(a) 12 years
(b) 6 years
(c) 9 years
(d) 8 years

Q82. The ratio of boys and girls in a college was 4 : 5. New students got admitted and the number of boys went up by 50% and the number of girls went up by 60%. What is the new ratio of boys and girls in the college?
एक कॉलेज में लड़कों तथा लड़कियों की संख्या में 4 : 5 का अनुपात है | नए छात्रों का नामांकन हुआ और लड़कों की संख्या 50% तथा लड़कियों की संख्या 60% बढ़ गयी | इस कॉलेज में लड़कों और लड़कियों का नया अनुपात क्या है ?

SSC MTS 16 August 2019 (Morning)
(a) 3 : 5
(b) 3 : 4
(c) 5 : 8
(d) 2 : 3

Q83. What is the proportion equivalent to $\frac{x}{y} : \frac{y}{z} : \frac{x}{z}$, if X : Y : Z = 4 : 7 : 9?
$\frac{x}{y} : \frac{y}{z} : \frac{x}{z}$ के समतुल्य समानुपात ज्ञात करें, यदि X : Y : Z = 4 : 7 : 9 है |
SSC MTS 16 August 2019 (Morning)
(a) 36 : 49 : 32
(b) 16 : 21 : 14
(c) 36 : 51 : 28
(d) 36 : 49 : 28

Q84. The difference between the cubes of two numbers is 999. The numbers are in the ratio of 4 : 3. What is the square of the smaller number ?
दो संख्याओं के घनों का अंतर 999 है | संख्याएं 4 : 3 के अनुपात में हैं | छोटी संख्या का वर्ग कितना है ?
SSC MTS 16 August 2019 (Afternoon)
(a) 49
(b) 81
(c) 64
(d) 100

Q85. A, B, C and D have to share profits in the ratio of 4 : 8 : 11 : 15. If the difference between the lowest and maximum proportions is Rs. 22000, then what is the sum of the other two proportions ?
A, B, C और D को 4 : 8 : 11 : 15 के अनुपात में लाभ बांटना है | यदि न्यूनतम और अधिकतम अनुपातों के बीच रु 22000 का अंतर है, तो अन्य 2 अनुपातों का योग क्या है ?
SSC MTS 16 August 2019 (Afternoon)
(a) Rs. 39900
(b) Rs. 37050
(c) Rs. 36100
(d) Rs. 38000

Q 86. If 0.8 : X :: 5 : 8, then X is equal to :
यदि 0.8 : X :: 5 : 8, तो X किसके बराबर है ?
SSC MTS 16 August 2019 (Afternoon)
(a) 1.28
(b) 1.16
(c) 1.32
(d) 1.24

Q87. A number is divided into three parts such that three times the first part, six times the second part and eight times the third part are equal. If the first part is Rs. 1600, then what is the third part ?
एक संख्या को तीन भागों में इस प्रकार विभाजित किया जाता है की पहला भाग का तीन गुना, दूसरे भाग का छह गुना और तीसरे भाग का आठ गुना बराबर है | यदि पहला भाग Rs. 1600 है, तो तीसरी भाग कितना है?
SSC MTS 16 August 2019 (Evening)
(a) Rs. 450
(b) Rs. 900
(c) Rs. 600
(d) Rs. 750

Q88. The sum and difference of the two numbers are 27 and 3 respectively. What is the ratio of these two numbers ?
दो संख्याओं का योग और अंतर क्रमशः 27 और 3 है | दो संख्याओं का अनुपात कितना है?
SSC MTS 16 August 2019 (Evening)
(a) 5:3
(b) 2:1
(c) 4:7
(d) 5:4

Q89. The sum of two numbers x and y is 48 and their difference is 6. Then x:y = ?
दो संख्याओं x और y का योग 48 है तथा उनका अंतर 6 है | तो x : y = ?
SSC MTS 19 August 2019 (Morning)
(a) 8:9
(b) 7:6
(c) 9:7
(d) 3:7

Q90. A sum is divided between two people in the ratio 3:2. If one person got Rs. 12 less than the other person, then what is the sum?
कोई राशि दो लोगों के बीच 3 : 2 के अनुपात में विभाजित की जाती है | यदि एक व्यक्ति को दूसरे व्यक्ति से 12 रुपये कम मिले, तो यह राशि कितनी है ?
SSC MTS 19 August 2019 (Morning)
(a) Rs. 60
(b) Rs. 50
(c) Rs. 72
(d) Rs. 44

Q91. The ratio of two numbers is 2:1. If each number is increased by 5, then the new ratio becomes 3:2. What is the sum of the number?
दो संख्याओं का अनुपात 2 : 1 है | यदि प्रत्येक संख्या को 5 से बढ़ा दिया जाए, तो नया अनुपात 3 : 2 हो जाता है | संख्याओं का योग ज्ञात करें |
SSC MTS 19 August 2019 (Morning)
(a) 15
(b) 45
(c) 30
(d) 20

Q92. A sum is divided between Ram and Rahim in the ratio of 3 : 2. If Ram's share is Rs. 36000, then the total amount is :
किसी राशि को राम तथा रहीम के बीच 3:2 के अनुपात में बांटा जाता है | यदि राम का हिस्सा Rs. 36,000 है, तो कुल राशि कितनी है?

SSC MTS 19 August 2019 (Afternoon)
(a) Rs. 60000
(b) Rs. 40000
(c) Rs. 90000
(d) Rs. 72000

Q93. The ratio of the given two numbers is 9 : 7. If 6 is added to each number, then the ratio becomes 21 : 17. What is the difference between the given numbers ?
दी गयी दो संख्याओं का अनुपात 9:7 है | यदि प्रत्येक संख्या में 6 जोड़कर उसे बढ़ा दिया जाए तो अनुपात 21:17 हो जाता है | दी गयी दो संख्याओं के बीच क्या अंतर है?
SSC MTS 19 August 2019 (Afternoon)
(a) 4
(b) 16
(c) 8
(d) 12

Q94. A sum of Rs. 5200 is divided amongst A, B, C and D such that the ratio of shares of A and B is 2:3, that of B and C is 4:5 and that of C and D is 1:2. What is the difference between the shares of B and D?
5200 रुपये की राशि A, B, C और D में इस प्रकार विभाजित की जाती है कि A और B के हिस्सों का अनुपात 2 : 3 है, B और C के हिस्सों का अनुपात 4 : 5 है तथा C और D के हिस्सों का अनुपात 1 : 2 है | B और D के हिस्सों में क्या अंतर है ?
SSC MTS 19 August 2019 (Evening)
(a) Rs. 1440
(b) Rs. 1360
(c) Rs. 1200
(d) Rs. 1280

Q95. If a:b = 2:3, a:d = 3:4 and e:d = 3:5 then e:b = ?
यदि a : b = 2 : 3 है, a : d= 3 : 4 है तथा e : d = 3 : 5 है, तो e : b = ?
SSC MTS 19 August 2019 (Evening)
(a) 10:9
(b) 8:15
(c) 9:10
(d) 15:8

Q96. The ratio of present ages of A and B is 5 : 3. 9 years ago, the ratio of their ages was 23 : 12. What will be the ratio of their ages after 15 years ?
A और B की वर्तमान आयु का अनुपात 5:3 है | 9 वर्ष पहले, उनकी आयु का अनुपात 23:12 था | अब से 15 वर्ष बाद उनकी आयु का अनुपात क्या होगा?
SSC MTS 20 August 2019 (Morning)
(a) 35:24
(b) 7:5
(c) 34:25
(d) 3:2

Q97. Let x be the mean proportional of 25.6 and 32.4 and y be the third proportional of 32 and 48. Then, 3x:2y = _____
मान लीजिए कि x, 25.6 और 32.4 का मध्यानुपाती है और y, 32 एवं 48 का तृतीयानुपाती है | तब 3x:2y = ___ .
SSC MTS 20 August 2019 (Morning)
(a) 5:3
(b) 3:5
(c) 4:5
(d) 5:4

Q98. The monthly incomes of Abhinav and Rekha are in the ratio of 6 : 5, while their monthly expenditures are in the ratio of 9 :8. If the income of Abhinav is twice the expenditure of Rekha, then what is the ratio between the savings of Abhinav and Rekha ?
अभिनव और रेखा की मासिक आय 6:5 के अनुपात में है, जबकि मासिक व्यय 9:8 के अनुपात में है | यदि अभिनव की आय, रेखा के व्यय से दोगुनी है, तब अभिनव और रेखा की बचत का अनुपात है:
SSC MTS 20 August 2019 (Afternoon)
(a) 21:16
(b) 23:18
(c) 5:3
(d) 3:2

Q99. A person divides a certain amount among his three sons in the ratio of 2 : 3 : 8. If he had divided this amount in the ratio of $\frac{1}{2} : \frac{1}{3} : \frac{1}{8}$, then the son getting the lowest amount would have got Rs. 2200 more. What is the total amount (in Rs) ?
एक व्यक्ति एक निश्चित राशि को अपने तीन पुत्रों में 2:3:8 के अनुपात में बांटता है | यदि उसने इस राशि को $\frac{1}{2} : \frac{1}{3} : \frac{1}{8}$ के अनुपात में बांटा होता, तो जिस पुत्र को सबसे कम राशि प्राप्त हुई थी, उसे Rs. 2200 अधिक प्राप्त होते | कुल राशि (Rs. में) कितनी थी?
SSC MTS 20 August 2019 (Afternoon)
(a) 5980
(b) 6556
(c) 6578
(d) 5940

Q100. Which number should be subtracted from the Numerator and Denominator of the fraction $\frac{4}{9}$ so that this fraction could be made equal to the fraction $\frac{1}{6}$?
भिन्न $\frac{4}{9}$ के अंश तथा हर प्रत्येक में कौन सी संख्या घटाई जानी चाहिए जिससे भिन्न को $\frac{1}{6}$ के बराबर बनाया जा सके?
SSC MTS 20 August 2019 (Evening)
(a) 3
(b) 7
(c) 2
(d) 5

Q101. If x, 8 and 27 are in constant proportion, then what is the value of x ?
यदि x, 8 और 27 निरंतर अनुपात में है, तो x का मान क्या है?
SSC MTS 20 August 2019 (Evening)
(a) $\frac{2}{3}$
(b) $\frac{8}{3}$
(c) $\frac{4}{3}$
(d) $\frac{64}{27}$

Q102. If a : b = 2 : 3, then $\frac{3a+4b}{4a+5b}$ is equal to :
यदि a : b = 2 : 3, तो $\frac{3a+4b}{4a+5b}$ बराबर है:
SSC MTS 21 August 2019 (Morning)
(a) 6 : 7
(b) 20 : 23
(c) 19 : 23
(d) 18 : 23

Q103. The ratio between the divisor and remainder is 3 : 2 and the ratio between the divisor and the quotient is 7 : 12. If remainder is 14, then find the remainder when the dividend is divided by 9.
भाजक तथा शेषफल का अनुपात 3:2 है और भाजक तथा भागफल का अनुपात 7:12 है | यदि शेषफल 14 है, तो भाज्य को 9 से विभाजित करने पर प्राप्त शेषफल है:
SSC MTS 21 August 2019 (Morning)
(a) 3
(b) 6
(c) 4
(d) 5

Q104. The ratio of the number of boys in sections A and B of a class is 2 : 3 and the ratio between the total number of boys and girls in sections A and B is 3 : 4. If the number of girls in B is 50% of the number of boys in B, then what will be the ratio between the number of girls in A and B ?
एक कक्षा के अनुभाग A और B में लड़कों की संख्या का अनुपात 2:3 है तथा अनुभाग A और B में लड़कों और लड़कियों की कुल संख्या का अनुपात 3:4 है | यदि B में लड़कियों की संख्या, B में लड़कों की संख्या की 50% है, तो A और B में लड़कियों की संख्या का अनुपात कितना होगा ?
SSC MTS 21 August 2019 (Evening)
(a) 2:3
(b) 11:12
(c) 3:5
(d) 5:6

Q105. Let $y > 0$, If 5 : 15 :: x : 90 and 162 : y :: y : 128, then 8x : y is equal to :
मान ले की, $y > 0$, यदि 5 : 15 :: x : 90 और 162 : y :: y : 128 है, तब 8x : y किसके बराबर है:
SSC MTS 21 August 2019 (Evening)
(a) 5:3
(b) 10:7
(c) 3:2
(d) 4:3

Q106. The amount of Rs. 6859 is divided among A, B, C and D such that the shares of A and B are in the ratio of 4 : 3, the shares of B and C in 5 : 4 and the shares of C and D in the ratio of 6 : 5. What is the share of B ?
Rs. 6859 की राशि को A, B, C और D के बीच इस प्रकार विभाजित किया जाता है की A और B के अंशों का अनुपात 4:3 होता है, B और C के अंशों का अनुपात 5:4 होता है और C और D के अंशों का अनुपात 6:5 है | B का अंश कितना है?
SSC MTS 21 August 2019 (Evening)
(a) Rs. 1805
(b) Rs. 1444
(c) Rs. 2508
(d) Rs. 2407

Q107. The ratio of the number of males and females in a group is 6:7. Fifteen females leave the group. As a result, this ratio becomes 12:11. Now, if 6 males join the group, then what will be the ratio of the number of males and females in the group?
एक समूह में पुरुषों और महिलाओं की संख्या का अनुपात 6 : 7 है | पंद्रह महिलाएं समूह से निकल जाती हैं | परिणामस्वरूप, यह अनुपात 12 : 11 हो जाता है | अब, यदि 6 पुरुष समूह में शामिल हो जाते हैं, तो समूह में पुरुषों और महिलाओं की संख्या का अनुपात क्या होगा ?
SSC MTS 22 August 2019 (Morning)
(a) 3:2
(b) 6:5
(c) 4:3
(d) 5:4

Q108. The ratio of incomes of A and B is 3:8 and the ratio of their savings is 9:25. If the income of A equals the expenditure of B, then the ratio of expenditures of A and B is:
A और B की आय में 3 : 8 का अनुपात है तथा उनकी बचत में 9 : 25 का अनुपात है | यदि A की आय B के व्यय के बराबर है, तो A और B के व्यय में क्या अनुपात है ?
SSC MTS 22 August 2019 (Morning)
(a) 3:8
(b) 6:17
(c) 5:12
(d) 2:5

Q109. When x is added to each of 8, 14, 20 and 30, then the number, so obtained, in this order form a proportion. What is the mean proportion between (x-2) and (7x+2)?
जब x को 8, 14, 20 और 30 में जोड़ा जाता है, तो इस प्रकार इस क्रम में प्राप्त संख्याएँ समानुपात का निर्माण

करती है | (x-2) और (7x+2) का मध्यानुपाती क्या है ?
SSC MTS 22 August 2019 (Morning)
(a) 25
(b) 16
(c) 24
(d) 12

Q110. x is the 4th proportional to 12, 16 and 5; and 20, y, 15, 21 are in proportion. Then the value of (6x-y) is:
x, 12, 16 और 15 का चौथा समानुपाती है ; तथा 20, y, 15, 21 समानुपात में हैं | (6x-y) का मान है :
SSC MTS 22 August 2019 (Afternoon)
(a) 9
(b) 18
(c) 13
(d) 12

Q111. A sum of Rs. 3200 was to be divided among A, B, C and D in the ratio 4 : 6 : 7 : 3. But by mistake, it was divided in the ratio 3 : 5 : 6 : 2. As a result, who got $16\frac{2}{3}$ % less than her due?
3200 रुपये की राशि A, B, C और D के बीच 4 : 6 : 7 : 3 के अनुपात में विभाजित की जानी थी | लेकिन भूल-वश, इसे 3 : 5 : 6 : 2 के अनुपात में विभाजित कर दिया गया | परिणामस्वरूप, किसे उसके हिस्से से $16\frac{2}{3}$ % कम मिला ?
SSC MTS 22 August 2019 (Evening)
(a) C
(b) A
(c) B
(d) D

Q 112. What is the ratio of the mean proportional between 4.5 and 0.5, and the third proportional to 4.5 and 9.0?
4.5 और 0.5 के मध्यानुपाती और 4.5 और 9.0 के तृतीय समानुपाती में क्या अनुपात है ?
SSC MTS 22 August 2019 (Evening)
(a) 3:8
(b) 2:9
(c) 1:6
(d) 1:12

Q113. A, B and C are partners in a firm sharing profit in the ratio of 3:4:5. If they set aside 4% of the profits as emergency fund and shared the rest of the profit and B gets his share of profit as Rs. 1,81,400, the amount of profit set aside for emergency fund is:
A, B तथा C किसी फर्म में साझेदार हैं तथा लाभ को 3:4:5 के अनुपात में बांटते हैं | यदि वे लाभ का 4% भाग आपातकालीन निधि के रूप में अलग रख देते हैं तथा शेष लाभ का बँटवारा करते हैं तो B को उसके हिस्से का लाभ 1,81,400 रुपये के रूप में प्राप्त होता है | आपातकालीन निधि के लिए अलग रखी गयी राशि ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)Rs. 27848
(b)Rs.18140
(c)Rs.22675
(d)Rs.24500

Q 114. What is the ratio of the mean proportional between 8.1 and 3.6 and the third proportional of 2 and 3?
8.1 और 3.6 के बीच माध्य समानुपाती और 2 तथा 3 के तीसरे आनुपातिक का अनुपात क्या है ?
SSC CPO 12 March 2019 (Evening)
(a) 5:6
(b) 5:4
(c) 4:5
(d) 6:5

Q115. If x+y+z = 400 and x:y:z = 1:1:2. Then find the value of z ?
यदि x+y+z = 400 तथा x:y:z = 1:1:2 है, तो z का मान ज्ञात करें |
SSC MTS 2 August 2019 (Afternoon)
(a) 100
(b) 150
(c) 120
(d) 200

Q116. The ratio of the number of boys and girls in a school 3:2. If there are 360 students in the school, then what is the number of girls in the school ?
एक विद्यालय में लड़कों तथा लड़कियों की संख्या में 3 : 2 का अनुपात है | यदि विद्यालय में 360 छात्र हैं, तो इस विद्यालय में लड़कियों की संख्या कितनी है ?
SSC MTS 7 August 2019 (Evening)
(a) 144
(b) 160
(c) 124
(d) 142

Q117. If l:m:n = 1:2:4, then $\sqrt{5l^2 + m^2 + n^2}$ is equal to :
यदि l:m:n = 1:2:4 है, तो $\sqrt{5l^2 + m^2 + n^2}$ का मान किसके बराबर है ?
SSC MTS 13 August 2019 (Evening)
(a) 4n
(b) 5l
(c) 2m
(d) 5

Q118. The sum and difference between two numbers are 27 and 3 respectively. What is the ratio of these two numbers ?
दो संख्याओं का योग और अंतर क्रमश: 27 और 3 है | दो संख्याओं का अनुपात कितना है ?
SSC MTS 16 August 2019 (Evening)
(a) 5:3
(b) 2:1
(c) 4:7
(d) 5:4

Q119. If u+v = 84 and u-v = 4 then u:v is equal to

यदि u+v = 84 तथा u-v = 4 है, तो u : v का मान होगा :
SSC MTS 19 August 2019 (Afternoon)
(a) 11:10
(b) 10:11
(c) 10:9
(d) 9:10

Q120. The first, second and third items of a proportion are 24, 32 and 48. What is the 4th item ?
किसी समानुपात के प्रथम, द्वितीय और तृतीय पद 24,32,48 है | चौथा पद क्या है ?
SSC MTS 20 August 2019 (Evening)
(a) 54
(b) 84
(c) 64
(d) 72

Q121. If (2x-y) : (5x+3y) = 3:8, then find the value of $(x^2+y^2) : (x^2-y^2)$.
यदि (2x-y) : (5x+3y) = 3:8 है, तो $(x^2+y^2) : (x^2-y^2)$ का मान ज्ञात करें |
SSC MTS 20 August 2019 (Afternoon)
(a) 145:144
(b) 257:255
(c) 144:143
(d) 133:122

Q122. Ramesh is three times elder to Suresh. After two years Ramesh's age will be twice the age of Suresh. What is the current age of Ramesh.
रमेश सुरेश से तीन गुना बड़ा है | दो वर्ष के बाद, रमेश की उम्र सुरेश की उम्र से दोगुनी हो जाएगी | रमेश की वर्तमान उम्र कितनी है ?
SSC MTS 21 August 2019 (Morning)
(a) 4
(b) 6
(c) 3
(d) 2

Q123. The ratio between the present ages of a mother and her son is 4 : 1. 14 years from now, their ages will be in the ratio of 2 : 1. What is the present age (in years) of the mother ?
किसी माता और उसके पुत्र की वर्तमान आयु का अनुपात 4:1 है | आज से 14 वर्षो के बाद उनकी आयु का अनुपात 2:1 हो जायेगा | माता की वर्तमान आयु (वर्षो में) है :
SSC MTS 21 August 2019 (Afternoon)
(a) 36
(b) 24
(c) 32
(d) 28

Q124. If a:b=2:3 and b:c = 2:3, then the value of $(3a^2+b^2+c^2):(a^2+2b^2+c^2) = ?$
यदि a : b = 2 : 3 तथा b:c = 2 : 3 है, तो $(3a^2+b^2+c^2):(a^2+2b^2+c^2)$ का मान क्या होगा ?
SSC MTS 21 August 2019 (Afternoon)
(a) 169:165
(b) 165:169
(c) 7:5
(d) 5:7

Q125. Five year ago, the ratio of the ages of A and B was 3:4. Five years from now, the ratio of their ages will be 4:5. What is the ratio of A and B, 10 years form now ?
पांच साल पहले, A और B की उम्र का अनुपात 3 : 4 था | अब से पांच वर्ष बाद, उनकी उम्र का अनुपात 4 : 5 हो जाएगा | अब से 10 वर्ष बाद A और B की उम्र में क्या अनुपात होगा ?
SSC MTS 22 August 2019 (Afternoon)
(a) 9:11
(b) 6:7
(c) 5:6
(d) 7:9

Q126. The ratio of ages of A and B, four years ago, was 7:5. The ratio of their ages, 6 years form now will be 19:15. What is the ratio of the present ages of A and B ?
A और B की उम्र में चार वर्ष पहले 7 : 5 का अनुपात था | अब से छः वर्ष बाद उनकी उम्र में 19 : 15 का अनुपात हो जाएगा | A और B की वर्तमान उम्र में क्या अनुपात है ?
SSC MTS 22 August 2019 (Evening)
(a) 2:1
(b) 5:2
(c) 4:3
(d) 3:2

Q127. If a:b:c = 1:3:5, what is the value of $\frac{4a-b+2c}{3(a+b+c)}$?
यदि a:b:c = 1:3:5 है, तो $\frac{4a-b+2c}{3(a+b+c)}$ का मान क्या होगा ?
SSC CHSL 11 July 2019 (Evening)
(a) $\frac{8}{27}$
(b) $\frac{10}{27}$
(c) $\frac{11}{27}$
(d) $\frac{1}{3}$

Q128. The price of a rubber is Rs. 3. The price of 20 rubbers is equal to that of three pens. The price of a pen is equal to that of two pencils and the price of six pencils is equal to that of five markers. What is the price of one marker ?
एक रबड़ का मूल्य 3 रूपए है | 20 रबडो का मूल्य तीन कलमों के मूल्य के बराबर है | एक कलम का मूल्य दो पेंसिल के मूल्य के बराबर है और छह पेंसिल का मूल्य पांच मार्कर के मूल्य के बराबर है | एक मार्कर का मूल्य कितना है ?
SSC MTS 14 August 2019 (Morning)
(a) Rs. 9
(b) Rs. 12
(c) Rs. 13.50
(d) Rs. 15

Pinnacle

SSC CGL 2019 TIER I

Q1. If the base radius of 2 cylinders are in the ratio 3:4 and their heights are in the ratio of 4:9, then the ratio of their volumes is:
यदि दो बेलनों के आधार की त्रिज्या का अनुपात 3 : 4 है तथा उनकी ऊंचाई का अनुपात 4 : 9 है, तो उनके आयतन का अनुपात क्या होगा ?
SSC CGL 3 March 2020 (Morning)
(a) 2:1
(b) 1:4
(c) 1:2
(d) 4:1

Q2. The ratio of the number of boys to the number of girls in a school of 640 students is 5:3. If 30 more girls are admitted in the school, then how many more boys should be admitted so that the ratio of boys to that of the girls, becomes 14:9
640 छात्रों वाले एक विद्यालय में लड़कों की संख्या तथा लड़कियों की संख्या में 5 : 3 का अनुपात है | यदि इस विद्यालय में 30 और लड़कियों का नामांकन हो जाता है, तो कितने अतिरिक्त लड़कों का नामांकन होना चाहिए ताकि लड़कों और लड़कियों की संख्या का अनुपात 14 : 9 हो जाए |
SSC CGL 3 March 2020 (Morning)
(a) 15
(b) 30
(c) 25
(d) 20

Q3. If x is the mean proportional between 12.8 and 64.8 and y is the third proportional to 38.4 and 57.6, then 2x:y is equal to:
यदि 12.8 तथा 64.8 का माध्य समानुपाती x है और y , 38.4 एवं 57.6 का तीसरा समानुपाती है, तो 2x:y का मान किसके बराबर होगा ?
SSC CGL 3 March 2020 (Afternoon)
(a) 2:3
(b) 4:5
(c) 3:4
(d) 1:2

Q4. Two numbers are in the ratio 5:7. If the first number is 20, then the second number will be:
दो संख्याएँ 5 : 7 के अनुपात में हैं | यदि पहली संख्या 20 है, तो दूसरी संख्या कितनी है ?
SSC CGL 3 March 2020 (Evening)
(a) 18
(b) 28
(c) 8
(d) 22

Q5. If 2x+1, x+2, 2 and 5 are in proportion, then what is the mean proportional between 3.5(1-x) and 8(1+x)? /
यदि 2x+1, x+2, 2 और 5 समानुपात में हैं, तो 3.5(1-x) एवं 8(1+x) के बीच माध्य समानुपाती ज्ञात करें |
SSC CGL 4 March 2020 (Morning)
(a) 5.5
(b) 4.25
(c) 5.25
(d) 4.5

Q6. The ratio of boys and girls in a group is 7:6. If 4 more boys join the group and 3 girls leave the group, then the ratio of boys to girls becomes 4:3. What is the total number of boys and girls initially in the group? /
एक समूह में लड़कों तथा लड़कियों का अनुपात 7 : 6 है | यदि 4 और लड़के समूह में आ जाते हैं तथा 3 लड़कियाँ समूह से चली जाती हैं, तो लड़कों तथा लड़कियों का अनुपात 4 : 3 हो जाता है | आरंभ में इस समूह में लड़कों तथा लड़कियों की कुल संख्या कितनी थी ?
SSC CGL 4 March 2020 (Afternoon)
(a) 117
(b) 78
(c) 91
(d) 104

Q7. A sum of ₹x was divided between A, B, C and D in the ratio $\frac{1}{3} : \frac{1}{5} : \frac{1}{6} : \frac{1}{9}$. If the difference between the shares of B and D is ₹ 832, then the value of x is:
X रुपये की राशि का विभाजन A, B, C और D के बीच $\frac{1}{3} : \frac{1}{5} : \frac{1}{6} : \frac{1}{9}$ के अनुपात में किया गया | यदि B और D के हिस्सों में 832 रुपये का अंतर है, तो x का मान ज्ञात कीजिए |
SSC CGL 4 March 2020 (Evening)
(a) ₹7,592
(b) ₹7,384
(c) ₹7,696
(d) ₹7,488

Q8. The ratio of ages of A and B, 8 years ago, was 2:3. Four years ago, the ratio of their ages was 5:7. What will be the ratio of their ages 8 years from now?
8 वर्ष पहले A और B की उम्र का अनुपात 2 : 3 था | चार वर्ष पहले, उनकी उम्र का अनुपात 5 : 7 था | अब से 8 वर्ष के बाद उनकी उम्र का अनुपात क्या होगा ?
SSC CGL 5 March 2020 (Morning)
(a) 7:8
(b) 4:5
(c) 3:4
(d) 5:6

Q9. What x is added to each of 10,16, 22 and 32, the number so obtained in this order are in proportion? What is the mean proportional between the numbers (x+1) and (3x+1)?
जब 10, 16, 22 तथा 32 में से प्रत्येक संख्या में x जोड़ा जाता है, तो इस क्रम में प्राप्त होने वाली संख्याएँ समानुपात में होती हैं | (x+1) तथा

(3x+1) के बीच माध्य समानुपाती ज्ञात कीजिए |

SSC CGL 5 March 2020 (Afternoon)

(a) 15
(b) 12
(c) 10
(d) 9

Q10. A certain amount is divided among Sunita, Amit and Vibha in the ratio of 2:3:4. If Vibha gets ₹14,416, then the total amount is:
सुनीता, अमित तथा विभा बके बीच एक निश्चित राशि 2 : 3 : 4 के अनुपात में विभाजित की जाती है | यदि विभा को 14,416 रुपये मिलते हैं, तो कुल राशि कितनी है ?

SSC CGL 5 March 2020 (Evening)

(a) ₹43,248
(b) ₹3,604
(c) ₹32,436
(d) ₹16,219

Q11. If a sum of ₹ 1,180 is to be divided among A, B and C, such that 2 times A's share, 5 times B's share and 7 times C's share, are equal, then A's share is:
यदि 1,180 रुपये की एक राशि A,B,C और D के बीच इस प्रकार विभाजित की जाती है कि A के हिस्से का दोगुना, B के हिस्से का 5 गुना तथा C के हिस्से का 7 गुना बराबर है | A का हिस्सा कितना है ?

SSC CGL 6 March 2020 (Morning)

(a) ₹ 650
(b) ₹ 500
(c) ₹ 750
(d) ₹ 700

Q12. In a wallet, there are notes of the denominations of ₹ 10 and ₹ 50. The total notes is 12. The number of ₹ 10 and ₹ 50 notes are in the ratio of 1:2. Total money in the wallet is:
एक वॉलेट में, 10 रुपये तथा 50 रुपये के नोट हैं | कुल नोट 12 हैं | 10 रुपये तथा 50 रुपये के नोटों की संख्या का अनुपात 1 : 2 है | इस वॉलेट में कुल कितनी राशि है ?

SSC CGL 6 March 2020 (Afternoon)

(a) ₹280
(b) ₹360
(c) ₹440
(d) ₹110

Q13. The sum of the squares of 3 natural numbers is 1029, and they are in the proportion 1:2:4. The difference between greatest number and the smallest number is:
3 प्राकृतिक संख्याओं के वर्गों का जोड़ 1029 है तथा वे 1 : 2 : 4 के अनुपात में हैं | सबसे बड़ी संख्या तथा सबसे छोटी संख्या के बीच क्या अंतर है ?

SSC CGL 6 March 2020 (Evening)

(a) 18
(b) 15
(c) 31
(d) 21

Q14. If A:B = 3:5 and B:C = 2:3, then A:B:C is equal to:
यदि A:B = 3:5 तथा B:C = 2:3 है, तो A:B:C का मान क्या होगा ?

SSC CGL 7 March 2020 (Morning)

(a) 6:10:15
(b) 6:15:10
(c) 3:7:3
(d) 3:8:6

Q15. If 3A = 4B = 5C, then A:B:C is equal to:
यदि 3A = 4B = 5C है, तो A:B:C का मान किसके बराबर है ?

SSC CGL 9 March 2020 (Morning)

(a) 20:15:16
(b) 10:7:6
(c) 10:5:4
(d) 20:15:12

Q16. If an amount of ₹990 is divided among A,B and C in the ratio 3:4:2, then B will get:
यदि 990 रुपये की राशि A, B और C के बीच 3 : 4 : 2 के अनुपात में विभाजित की जाती है, तो B को कितनी राशि मिलेगी ?

SSC CGL 9 March 2020 (Evening)

(a) ₹247.5
(b) ₹440
(c) ₹110
(d) ₹350

SSC CHSL 2019

Q1. Rs6,300 is divided between X, Y, Z, such that X : Y = 7 : 5 and Y : Z = 4 : 3. Find the share of Y.
6300 रुपये को X, Y और Z के बीच इस प्रकार विभाजित किया जाता है कि X:Y = 7:5 तथा Y:Z = 4:3 है। Y का हिस्सा ज्ञात कीजिए।

CHSL 12-10-2020 (morning shift)

(a) Rs 2,200
(b) Rs 2,000
(c) Rs 2,400
(d) Rs 1,800

Q2. Rs 3,600 is divided between Seema, Komal and Rita, such that the ratios of the shares of Seema : Komal = 1.5 : 2 and Komal : Rita = 2 : 2.5. Find Rita's share.
3,600 रुपये को सीमा, कोमल और रीता में इस प्रकार विभाजित किया जाता है कि सीमा : कोमल = 1.5 : 2 और कोमल : रीता = 2 : 2.5 है। रीता का हिस्सा ज्ञात कीजिए।

CHSL 12-10-2020 (afternoon shift)

(a) Rs 1,500
(b) Rs 1,300
(c) Rs 1,400
(d) Rs 1,200

Q3. The sum of three numbers is 79. If the ratio of the first number to the second number is 4 : 7 and that of the second number to the

third number is 4 : 5, then the second number is:
तीन संख्याओं का जोड़ 79 है। यदि पहली से दूसरी संख्या का अनुपात 4:7 है तथा दूसरी से तीसरी संख्या का अनुपात 4:5 है, तो दूसरी संख्या कौन सी है?
CHSL 12-10-2020 (evening shift)
(a) 15
(b) 28
(c) 35
(d) 12

Q4. If 2145 : x :: 3003 : 42, then the value of y so that x : 2508:: y: 11704, is
यदि 2145 : x :: 3003 : 42 है, तो y का मान इस प्रकार ज्ञात करें कि x : 2508:: y: 11704 हो।
CHSL 13-10-2020 (morning shift)
(a)212
(b)156
(c)140
(d)96

Q5. The ratio of man's age to his father's age is 4:5, and the ratio of his age to his son's age is 6:1. Four years ago these ratios were 11:14 and 11:1, respectively. The ratio of the age of the grandfather to that of the grandson 12 years from now will be:
एक व्यक्ति की उम्र और उसके पिता की उम्र का अनुपात 4:5 है तथा उसकी और उसके पुत्र की उम्र में 6:1 का अनुपात है। चार वर्ष पहले, ये अनुपात क्रमशः 11:14 और 11:1 थे। दादा तथा उसके पोते की उम्र में अब से 12 वर्ष बाद क्या अनुपात होगा?
CHSL 13-10-2020 (afternoon shift)
(a) 12:5
(b) 14:3
(c) 18:5
(d) 18:7

Q6. If a:b = 3:5 and b:c = 2:3, then the proportion a:b:c is:
यदि a: b = 3: 5 और b: c = 2: 3 है, तो अनुपात a: b: c है:
CHSL 13-10-2020 (evening shift)
(a) 6:10:15
(b) 3:5:3
(c) 3:10:3
(d) 3:10:15

Q7. Six years ago, the average of the ages of Ravi, Mohan and Govind was 32 years. If Shyam joins them now, the average of the ages of all four of them is 36 years. The present age of Shyam is:
छह साल पहले रवि, मोहन और गोविंद की उम्र का औसत 32 साल था। अगर श्याम उनके साथ आ जाये, तो उन चारों की उम्र का औसत 36 साल है। श्याम की वर्तमान आयु है:
CHSL 14-10-2020 (morning shift)
(a) 35 years
(b) 32 years
(c) 40 years
(d) 30 years

Q8. If x : y = 3 : 2 and x + y = 90. Then the value 7(x - y) : (x + y) is:
यदि x: y = 3: 2 और x+ y = 90 है। तो मान 7 (x - y): (x y) मान है:
CHSL 14-10-2020 (morning shift)
(a) 7 : 5
(b) 2 : 3
(c) 7 : 9
(d) 7 : 6

Q9. Dividing the amount Rs18,144 among three people A, B, C in the ratio 3 : 5 : 8, the amount B gets more than A, is:
तीन लोगों A, B, C के बीच की राशि Rs. 18,144 को 3: 5: 8 के अनुपात में विभाजित करने पर राशि B के पास A से कितनी अधिक राशि हो जाती है:
CHSL 14-10-2020 (afternoon shift)
(a) Rs2,178
(b) Rs2,268
(c) Rs2,464
(d) Rs2,386

Q10. Two numbers are respectively 25% and 65% more than a third number. The ratio of the two numbers is:
दो संख्याएँ तीसरी संख्या से क्रमशः 25% और 65% अधिक हैं। दोनों संख्याओं का अनुपात क्या है?
CHSL 14-10-2020 (evening shift)
(a) 25 : 42
(b) 16 : 17
(c) 16 : 19
(d) 25 : 33

Q11. If an amount of 800 is distributed between Ravi, Mohan and Govind in the proportions 2:5:3, then the sum of the shares of Mohan and Govind is:
यदि रवि, मोहन और गोविंद के बीच 800 की राशि 2: 5: 3 के अनुपात में बाटी जाती है, तो मोहन और गोविंद के हिस्से का योग है:
CHSL 15-10-2020 (morning shift)
(a)Rs 560
(b)Rs 400
(c)Rs 640
(d)Rs 240

Q12. In a bag, white marbles and red marbles are in the ratio of 3 : 5. If the number of red marbles are 150, then how many white marbles are there?
एक बैग में, सफेद पत्थर और लाल पत्थर 3: 5 के अनुपात में होते हैं। यदि लाल पत्थर की संख्या 150 है, तो सफेद पत्थर कितने हैं?
CHSL 15-10-2020 (afternoon shift)
(a) 90
(b) 60
(c) 30
(d) 120

Q13. The ratio of the areas of two squares is 16 : 1. Find the ratio between their perimeters.
दो वर्गों के क्षेत्रों का अनुपात 16: 1 है. उनके परिधि के बीच का अनुपात ज्ञात करें।
CHSL 15-10-2020 (evening shift)
(a) 8 : 1
(b) 3 : 1
(c) 4 : 1
(d) 12 : 1

Q14. The fourth proportional to 10, 12, 15 is:
10, 12, 15 का चौथा आनुपातिक है:
CHSL 15-10-2020 (evening shift)
(a) 24
(b) 22
(c) 18
(d) 20

Q15. The proportion among three numbers is 3 : 4 : 5 and their LCM is 1800. The second number is:
तीन संख्याओं का अनुपात 3: 4: 5 है और उनका LCM 1800 है। दूसरी संख्या है:
CHSL 16-10-2020 (morning shift)
(a) 150
(b) 30
(c) 120
(d) 90

Q16. What number must be added to each of the numbers 8, 13, 26 and 40 so that the numbers obtained in this order are in proportion?
किस संख्या को 8, 13, 26 और 40 में जोड़ा जाना चाहिए ताकि इस क्रम में प्राप्त संख्याएँ समानुपात में हों?
CHSL 16-10-2020 (afternoon shift)
(a) 2
(b) 3
(c) 1
(d) 4

Q17. By adding 3 and 5 in numerator and denominator of a fraction it becomes $\frac{2}{3}$. If 1 and 3 are subtracted and added from numerator and denominator respectively, it becomes $\frac{2}{5}$. Find the fraction.
किसी भिन्न के अंश और हर में 3 और 5 जोड़ने पर , भिन्न $\frac{2}{3}$ हो जाता है। यदि 1 और 3 को क्रमशः अंश और हर में घटाया जाता है तो भिन्न $\frac{2}{5}$ हो जाता है। अंश ज्ञात कीजिए।
CHSL 19-10-2020 (morning shift)
(a) $\frac{5}{7}$
(b) $\frac{6}{7}$
(c) $\frac{7}{6}$
(d) $\frac{7}{5}$

Q18. The ratio of the number of men and women in a factory is 14 : 19. If the total number of employees in the factory is 2145, then the number of women in the factory is:
एक कारखाने में पुरुषों और महिलाओं की संख्या का अनुपात 14: 19 है। यदि कारखाने में कर्मचारियों की कुल संख्या 2145 है, तो कारखाने में महिलाओं की संख्या है
CHSL 19-10-2020 (evening shift)
(a) 1367
(b) 1976
(c) 1645
(d) 1235

Q19. The ratio of present ages (in years) of a father and son is 15 : 8. Six years ago, the ratio of their ages was 13 : 6. What is the father's present age?
एक पिता और पुत्र की वर्तमान आयु (वर्षों में) का अनुपात 15: 8 है। छह साल पहले, उनकी आयु का अनुपात 13: 6 था। पिता की वर्तमान आयु क्या है?
CHSL 19-10-2020 (evening shift)
(a) 65 years
(b) 58 years
(c) 45 years
(d) 78 years

Q20. The salaries of Vipin and Dinesh are in the ratio 5 : 8. If the salary of each is increased by Rs 4,800, then new ratio becomes 7 : 10. What is Vipin's salary?
विपिन और दिनेश का वेतन 5: 8 के अनुपात में है। यदि प्रत्येक के वेतन में 4,800 रुपये की वृद्धि हुई है, तो नया अनुपात 7: 10 हो जाएगा। विपिन का वेतन क्या है ?
CHSL 20-10-2020 (morning shift)
(a) Rs 12,000
(b) Rs 10,000
(c) Rs 13,000
(d) Rs 12,500

Q.21. When 50% of a number A is added to B, the second number B increases by 25%. The ratio between the numbers A and B is:
जब संख्या A का 50% B में जोड़ दिया जाता है, तो दूसरी संख्या B 25% बढ़ जाती है। संख्या A और B के बीच का अनुपात है
CHSL 20-10-2020 (afternoon shift)
(a) 3:2
(b) 2:3
(c) 1:2
(d) 3:4

Q.22.If (a+3b):(2a+4b)=3:5, then (a-b):(a+b) is equal to:
यदि (a+3b):(2a+4b)=3:5 तो (a-b):(a+b) के बराबर है:
CHSL 20-10-2020 (evening shift)
(a) 1:2
(b) 2:1
(c) 3:2
(d) 2:3

Q.23. The average age of a man and his son is 60 years. The ratio

of their ages is 13:7, respectively. What is the son's age?
एक आदमी और उसके बेटे की औसत आयु 60 वर्ष है। उनकी आयु का अनुपात क्रमशः 13: 7 है। बेटे की उम्र क्या है
CHSL 20-10-2020 (evening shift)
(a) 40 years
(b) 41 years
(c) 42 years
(d) 43 years

Q.24. Two numbers A and B are, respectively, 80% and 20% more than a third number C. The ratio of the numbers A to B is:
दो संख्या A और B क्रमशः, 80% और 20% अधिक है एक तीसरी संख्या C से । A से B की संख्या का अनुपात है
CHSL 26-10-2020 (morning shift)
(a) 5:4
(b) 4:5
(c) 3:2
(d) 3;4

Q25. The perimeter of a rectangular field is 32 meters and its sides are in the ratio 5:3, Then the sides of the field are:.
एक आयताकार क्षेत्र की परिधि 32 मीटर है और इसके भुजा 5: 3 के अनुपात में हैं, फिर मैदान के भुजाएँ हैं
CHSL 26-10-2020 (afternoon shift)
(a) 10 m and 6 m
(b) 9 m and 7 m
(c) 12 m and 10 m
(d) 5 m and 3 m

Q.26. The ages of Fatima and Ahmed are in the ratio of 3:8. The sum of their present ages is 44 years. The difference of their ages is:
फातिमा और अहमद की आयु 3: 8 के अनुपात में है। उनकी वर्तमान आयु का योग 44 वर्ष है। उनकी उम्र का अंतर है:
CHSL 26-10-2020 (evening shift)
(a) 30 years
(b) 11 years
(c) 24 years
(d) 20 years

Q.27. How much should be added to each term of 4:7 so that it become 2:3
4: 7 के प्रत्येक पद पर कितना जोड़ा जाना चाहिए ताकि यह 2: 3 हो जाए|
CHSL 17-03-2020 (morning shift)
(a) 3
(b) 4
(c) 2
(d) 1

Q.28. The perimeter of a rectangle is 50 cm. Its area and length are in the ratio of 5:1. Find the length of the rectangle?
एक आयत की परिधि 50 सेमी है। इसका क्षेत्रफल और लंबाई 5: 1 के अनुपात में है। आयत की लंबाई ज्ञात कीजिये?
CHSL 17-03-2020 (morning shift)
(a) 15 cm
(b) 20 cm
(c) 18 cm
(d) 22 cm

Q29. The average price of three items is Rs14,265. If their prices are in the ratio 7 : 9 : 11, then the price of the costliest item is:
तीन वस्तुओं का औसत मूल्य 14,265 रुपये है। यदि उनकी कीमतें 7: 9: 11 के अनुपात में हैं, तो सबसे महंगी वस्तु की कीमत है:
CHSL 17-03-2020 (afternoon shift)
(a) Rs 17,435
(b) Rs 16,235
(c) Rs 19,875
(d) Rs 14,875

Q30. The length and breadth of a rectangle are in the ratio 5 : 3. If the length is 8 m more than the breadth, what is the area of the rectangle?
एक आयत की लंबाई और चौड़ाई 5: 3 में है। 3. यदि लंबाई चौड़ाई से 8 मीटर अधिक है, तो आयत का क्षेत्रफल क्या है?
CHSL 17-03-2020 (afternoon shift)
(a) 240 m^2
(b) 380 m^2
(c) 360 m^2
(d) 400 m^2

Q31. The length and breadth of a rectangle are in ratio 3:2. If its perimeter is 730 cm, what is the area of the rectangle?
एक आयत की लंबाई और चौड़ाई 3: 2 के अनुपात में है। यदि इसकी परिधि 730 सेमी है, तो आयत का क्षेत्रफल क्या है?
CHSL 17-03-2020 (evening shift)
(a) 31,974 cm^2
(b) 24,452 cm^2
(c) 20,567 cm^2
(d) 28,976 cm^2

Q32. The ratio of tables and chairs in a room is 7:9. If there are 560 tables and chairs in the room, then what is the number of chairs?
एक कमरे में टेबल और कुर्सियों का अनुपात 7: 9 है। यदि कमरे में 560 टेबल और कुर्सियां हैं, तो कुर्सियों की संख्या क्या है?
CHSL 17-03-2020 (evening shift)
(a) 397
(b) 315
(c) 463
(d) 489

Q33. The incomes of two persons P and Q are in the ratio 5:6. If each of them saves Rs200 per month, the ratio of their

expenditure is 3 : 4. Find the income of Q.
दो व्यक्तियों P और Q की आय 5: 6 के अनुपात में है। यदि उनमें से प्रत्येक प्रति माह 200 रुपये बचाता है, तो उनके व्यय का अनुपात 3: 4 है। Q की आय ज्ञात कीजिए।
CHSL 18-03-2020 (afternoon shift)
(a) Rs750
(b) Rs800
(c) Rs600
(d) Rs740

Q34. If the perimeter and length of a rectangle are in the ratio 6:1 and the area of the rectangle is 288 cm^2 . Find the length of the rectangle.
यदि आयत की परिधि और लंबाई 6: 1 के अनुपात में है और आयत का क्षेत्रफल 288 वर्ग सेमी है। आयत की लंबाई ज्ञात कीजिए।
CHSL 18-03-2020 (afternoon shift)
(a) 10 cm
(b) 12 cm
(c) 8 cm
(d) 9 cm

Q35. Two numbers are respectively 25% and 60% more than a third number. The ratio of the two numbers is:
दो संख्याएँ , तीसरी संख्या से क्रमशः 25% और 60% अधिक हैं। दो संख्याओं का अनुपात है:
CHSL 18-03-2020 (evening shift)
(a) 20 : 30
(b) 20 : 35
(c) 25 : 32
(d) 21 : 31

Q36. If x:y = 3:2 and x+y = 90, then the value of (x-y) is:
यदि x: y = 3: 2 और x y = 90 है, तो (x-y) का मान है:
CHSL 19-03-2020 (morning shift)
(a) 12
(b) 18
(c) 16
(d) 14

Q.37. How much will be decreased to each term of ratio 16:19, so that it will be 7:6?
अनुपात 16:19 के प्रत्येक पद को कितना घटाया जाएगा, ताकि यह 7: 6 हो जाए?
CHSL 19-03-2020 (afternoon shift)
(a) 37
(b) 36
(c) 35
(d) 34

SSC CGL2019 TIER-II
Q.38. In a school, $\frac{3}{8}$ of the number of students are girls and the rest are boys, One -third of the number of boys are below 10 years and $\frac{2}{3}$ of the number of girls are also below 10 years. If the number of students of age 10 or more years is 260, then the number of boys in the school is:
किसी विद्यालय में छात्रों की संख्या का $\frac{3}{8}$ भाग लड़कियाँ और शेष लड़के है| लड़को की संख्या का एक तिहाई 10 वर्ष से कम है और लड़कियों की संख्या का $\frac{2}{3}$ भी 10 वर्ष से कम है| यदि 10 वर्ष या उससे अधिक आयु वाले छात्रों की संख्या 260 है, तो विद्यालय में लड़को की संख्या ज्ञात कीजिए|
CGL 2019 Tier-II (15-11-2020)
(a) 280
(b) 300
(c) 234
(d) 312

Q39. X and Y enter into a partnership with capital in ratio 3 : 5. After 5 months X adds 50% of his capital , while Y withdraws 60% of his capital. What is share (in ₹ lakhs) of X in the annual profit of ₹6.84 lakhs?
X और Y 3: 5 के अनुपात में पूँजी के साथ साझेदारी करते हैं। 5 महीने के बाद X अपनी पूँजी का 50% जोड़ता है, जबकि Y अपनी पूँजी का 60% निकाल लेता है। ₹6.84 लाख के वार्षिक लाभ में X का (₹लाख में) हिस्सा क्या है
CGL 2019 Tier-II (15-11-2020)
(a) 3.72
(b) 4.2
(c) 3.6
(d) 3.12

Q.40: The sum of the present ages of father and a son is 52 years. Four years hence, the son's age will be $\frac{1}{4}$ that of the father. What will be the ratio of the ages of the son and father, 10 years from now?
पुत्र और पिता की वर्तमान आयु का योग 52 वर्ष है। चार साल बाद, बेटे की उम्र पिता की उम्र की $\frac{1}{4}$ होगी। अब से 10 वर्ष बाद पुत्र और पिता की आयु का अनुपात क्या होगा?
CGL 2019 Tier-II (15-11-2020)
(a) 2 : 7
(b) 2 : 5
(c) 3 : 8
(d) 1 : 3

Q41. The numerator of a fraction is 3 more than the denominator. When 5 is added to the numerator and 2 is subtracted from the denominator, the fraction becomes $\frac{8}{3}$. When the original fraction is divided by $5\frac{1}{2}$, the fraction so obtained is:
एक भिन्न का अंश हर की अपेक्षा में 3 अधिक है। जब 5 को अंश में जोड़ा जाता है और 2 को हर में से घटाया जाता है, तो अंश $\frac{8}{3}$ हो जाता है। जब मूल भिन्न को $5\frac{1}{2}$ से विभाजित किया जाता है, तो प्राप्त होने वाला भिन्न ज्ञात कीजिए
CGL 2019 Tier-II (15-11-2020)
(a) $\frac{2}{3}$
(b) $\frac{1}{4}$

(c) $\frac{1}{2}$
(d) $\frac{3}{4}$

Q42. What x is added to each of 9,15,21 and 31 the number so obtained are in proportion . What is the mean proportion between the numbers (3x - 2) and (5x + 4) ?
9,15,21 और 31 प्रत्येक में x जोड़ा जाय तो प्राप्त संख्या अनुपात में हैं। संख्या (3x - 2) और (5x 4) के बीच माध्य अनुपात क्या है?
CGL 2019 Tier-II (15-11-2020)
(a) 35
(b) 20
(c) 30
(d) 42

Q43. The monthly incomes of A and B are in ratio 3 : 5 and the ratio of their savings is 2 : 3 If the income of B is equal to three times the saving of A, then what is the ratio of the expenditure of A and B?
A और B की मासिक आय 3: 5 के अनुपात में है और उनकी बचत का अनुपात 2 : 3 यदि B की आय A की बचत के तीन गुना के बराबर है, तो A और B के व्यय का अनुपात क्या है?
CGL 2019 Tier-II (15-11-2020)
(a) 5 : 8
(b) 8 : 15
(c) 7 : 11
(d) 3 : 7

Q44. A person divided a certain sum between his three sons in the ratio 3 : 4 : 5. Had he divided the sum in the ratio $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ the son, who got the least share earlier, would have got ₹1,188 more. The sum (in ₹) was :
एक व्यक्ति ने अपने तीनों बेटों के बीच 3: 4: 5. के अनुपात में एक निश्चित राशि को विभाजित किया था। यदि उसने इस अनुपात को $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ में विभाजित किया होता ,तो जिस बेटे को पहले सबसे कम हिस्सा मिला था, उसे ₹1,188 अधिक मिलता । राशि (₹ में) ज्ञात कीजिए
CGL 2019 Tier-II (15-11-2020)
(a) 6,840
(b) 6,768
(c) 7,008
(d) 5,640

Q45. The ratio of the monthly income of X and Y is 5 : 4 and that of their monthly expenditure is 9 : 7 . If the income of Y is equal to the expenditure of X, then what is the ratio of the saving of X and Y?
X और Y की मासिक आय का अनुपात 5: 4 है और उनके मासिक खर्च का अनुपात 9: 7 है। यदि Y की आय X के व्यय के बराबर है, तो X और Y की बचत का अनुपात क्या है ?
CGL 2019 Tier-II (16-11-2020)
(a) 6 : 7
(b) 8 : 9
(c) 7 : 6
(d) 9 : 8

Q46. The denominator of a fraction is 4 more than twice the numerator. When the numerator is increased by 3 and the denominator is decreased by 3, the fraction becomes $\frac{2}{3}$. What is the difference between the denominator and numerator of the original fraction ?
एक भिन्न का हर उसके अंश के दोगुने से 4 अधिक है। जब अंश 3 से बढ़ जाता है और हर में से 3 कम किया जाता है, तो भिन्न $\frac{2}{3}$ हो जाता है। मूल भिन्न के हर और अंश के बीच क्या अंतर होता है?
CGL 2019 Tier-II (16-11-2020)
(a) 13
(b) 11
(c) 12
(d) 10

Q47. A certain sum is divided between A, B, C and D such that the ratio of the shares of A and B is 1 : 3, that of B and C is 2 : 5 and that of C and D is 2 : 3. If the difference between the shares of A and C is ₹3,510, then the share of D is :
एक राशि A, B, C और D के बीच विभाजित की जाती है, जैसे A और B के शेयरों का अनुपात 1: 3 है, B और C का अनुपात 2: 5 है और C और D का अनुपात 2 : 3 है. यदि A और C के शेयरों के बीच अंतर ₹3,510 है, तो D का हिस्सा है
CGL 2019 Tier-II (16-11-2020)
(a) ₹6,075
(b) ₹4,050
(c) ₹4,320
(d) ₹3,240

Q48. A,B and C invested capital in ratio 5 : 7 : 4, the time of their investment being in the ratio x : y : z . If their profits are in the ratio 45 : 42 : 28, then x : y : z =?
A, B और C ने 5: 7: 4 के अनुपात में पूँजी लगाई, उनके निवेश का समय x: y: z के अनुपात में है। यदि उनका लाभ 45: 42: 28 के अनुपात में है, तो x: y: z =?
CGL 2019 Tier-II (16-11-2020)
(a) 9 : 6 : 7
(b) 6 : 7 : 9
(c) 9 : 4 : 7
(d) 7 : 9 : 4

Q49. If a : b : c = $\frac{1}{4}$: $\frac{1}{3}$: $\frac{1}{2}$, then $\frac{a}{b}$: $\frac{b}{c}$: $\frac{c}{a}$ = ?
यदि a : b : c = $\frac{1}{4}$: $\frac{1}{3}$: $\frac{1}{2}$ तो $\frac{a}{b}$: $\frac{b}{c}$: $\frac{c}{a}$ = ?
CGL 2019 Tier-II (16-11-2020)
(a) 12 : 9 : 8
(b) 8 : 9 : 24
(c) 9 : 8 : 24
(d) 9 : 12 : 8

Q50. When x is subtracted from each of 19, 28, 55 and 91, the numbers so obtained in this order are in proportion . What is the

mean proportion between (x + 9) and x^2?
जब x को 19, 28, 55 और 91 में से घटाया जाता है, तो इस क्रम में प्राप्त संख्याएँ अनुपात में होती हैं। (x + 9) और x^2 के बीच माध्य अनुपात क्या है?
CGL 2019 Tier-II (16-11-2020)
(a) 28
(b) 24
(c) 32
(d) 27

Q51. A and B enter into a partnership with capital in the ratio 5 : 6. After 4 months, A withdraws $\frac{1}{5}$ of his capital, while B increases his capital by 33 $\frac{1}{3}$ %. What is the share (in ₹lakhs) of B in the annual profit of ₹6.3 lakhs?
A और B, 5: 6 के अनुपात में पूँजी के साथ साझेदारी करते हैं। 4 महीने के बाद, A अपनी पूँजी में से $\frac{1}{5}$ हिस्सा निकाल लेता है, जबकि B अपनी पूँजी में 33 $\frac{1}{3}$ % की वृद्धि करता है। ₹6.3 लाख के वार्षिक लाभ में B का (₹लाख में) हिस्सा क्या है
CGL 2019 Tier-II (18-11-2020)
(a) 2.34
(b) 2.61
(c) 3.69
(d) 3.96

Q52. The sum of three natural numbers is 280. If the ratio between the first number and second number is 2 : 3 and the ratio between second and third number is 4 : 5, then find the second number.
तीन प्राकृतिक संख्याओं का योग 280 है। यदि पहली संख्या और दूसरी संख्या के बीच का अनुपात 2: 3 है और दूसरी और तीसरी संख्या के बीच का अनुपात 4: 5 है, तो दूसरी संख्या ज्ञात करे ।
CGL 2019 Tier-II (18-11-2020)
(a) 90
(b) 86
(c) 96
(d) 80

Q53. The ratio of boys and girls in a school is 27: 23. If the difference between the number of boys and girls is 200, then find the number of boys .
एक स्कूल में लड़कों और लड़कियों का अनुपात 27: 23 है। यदि लड़कों और लड़कियों की संख्या में अंतर 200 है, तो लड़कों की संख्या ज्ञात कीजिए।
CGL 2019 Tier-II (18-11-2020)
(a) 1250
(b) 1200
(c) 1350
(d) 1300

Q.54 The ratio between the present ages of A and B is 3:5. If the ratio of their ages five years hence becomes 13:20, then the present age of B is :
A और B की वर्तमान आयु के बीच का अनुपात 3: 5 है। पाँच वर्ष बाद उनकी आयु का अनुपात 13:20 हो जाता है, तो B की वर्तमान आयु है
CGL 2019 Tier-II (18-11-2020)
a)32 Years
(b)35 Years
(c)30 Years
(d)40 Years

Q55. Ramesh started a business investing a sum of ₹40,000. Six months later, Kevin joined by investing ₹20,000. If they make a profit of ₹10,000 at the end of year, how much is the share of kevin?
रमेश ने ₹40,000 की राशि का व्यवसाय शुरू किया। छह महीने बाद, केविन ₹20,000 निवेश करके शामिल हो गया। यदि वे वर्ष के अंत में ₹10,000 का लाभ कमाते हैं, तो केविन का हिस्सा कितना है
CGL 2019 Tier-II (18-11-2020)
(a) ₹2,000
(b) ₹4,000
(c) ₹3,000
(d) ₹2,500

SSC CPO 2019
Q56. A, B and C started a business by investing ₹13,750, ₹16,250 and ₹18,750, respectively. If B's share in the profit earned by them is ₹5,200, What is the total profit (in ₹) earned by them together?
A, B और C ने क्रमशः ₹13,750, ₹16,250 और ₹18,750 निवेश करके एक व्यवसाय शुरू किया। यदि उनके द्वारा अर्जित लाभ में से B का हिस्सा ₹5,200 है, तो उनके द्वारा अर्जित कुल लाभ (रु में) ज्ञात करे |
CPO 23-11-2020 (Morning shift)
(a) 15,600
(b) 17,500
(c) 18,200
(d) 16,600

Q57. Seven years ago,the ratio of the ages of A and B was 4 : 5. Eight years hence, the ratio of the ages of A and B will be 9 :10. What is the sum of their present ages in years?
सात साल पहले, A और B की आयु का अनुपात 4: 5 था। आठ साल बाद A और B की आयु का अनुपात 9: 10 होगा। वर्षों में उनके वर्तमान युगों का योग क्या है |
CPO 23-11-2020 (Morning shift)
(a) 41
(b) 82
(c) 32
(d) 56

Q58. A and B started a business investing amounts of Rs. 92,500 and Rs. 1,12,500, respectively. If B's share in the profit earned by them is Rs. 9,000. What is the total profit (in Rs) earned by them together?
A और B ने क्रमशः 92,500 रुपये और 1,12,500 रुपये निवेश करके

एक व्यवसाय शुरू किया। यदि उनके द्वारा अर्जित लाभ में B's की हिस्सेदारी 9,000 रु है। उनके द्वारा अर्जित कुल लाभ (रु में) क्या है

CPO 23-11-2020 (Evening shift)

(a) 19,000
(b) 16,400
(c) 20,000
(d) 21,240

Q59. A sum of Rs.8,200 was divided among A, B and C in such a way that A has 500 more than B and C has Rs.300 more than A. How much was A's share (in Rs.)?

8,200 रुपये की राशि A, B और C के बीच इस तरह विभाजित की गई थी | कि A के पास B से 500 अधिक है और C के पास A से Rs 300 अधिक है।तो A का शेयर कितना था (रु में)

CPO 23-11-2020 (Evening shift)

(a) 2,800
(b) 2,000
(c) 2,300
(d) 3,100

Q60. A and B started a business investing amount of 92,500 and 1,12,500 respectively. If B's share in the profit is 9,000. What is the profit (in Rs.) earned by A?

A और B ने क्रमशः 92,500 और 1,12,500 रुपये निवेश करके एक व्यवसाय शुरू किया। यदि लाभ में B की हिस्सेदारी 9,000 है। A द्वारा अर्जित लाभ (रु में) क्या है

CPO 24-11-2020 (Morning shift)

(a) 10,000
(b) 7,400
(c) 11,240
(d) 9,000

Q61. A sum of Rs.8200 was divided among A, B and C in such a way that A had Rs. 500 more than B and C had Rs.300 more than A . How much was C's alone share (in Rs)?

8,200 रुपये की राशि A, B और C के बीच इस तरह विभाजित की गई थी | कि A के पास B से 500 अधिक है और C के पास A से Rs 300 अधिक है। तो C का शेयर कितना था (रु में)

CPO 24-11-2020 (Morning shift)

(a) 2,000
(b) 2,300
(c) 3,100
(d) 2,800

Q62. Three partners shared the profit in a business in the ratio 8 : 7 : 5. They invested their capitals for 7 months, 8 months and 14 months respectively. What was the ratio of their capitals?

तीन भागीदारों ने 8: 7: 5. के अनुपात में एक व्यवसाय में लाभ साझा किया और उन्होंने क्रमशः 7 महीने, 8 महीने और 14 महीने के लिए अपना धन निवेश किया। उनके धन का अनुपात क्या था ज्ञात करे |

CPO 24-11-2020 (Evening shift)

(a) 49 : 64 : 20
(b) 20 : 64 : 49
(c) 64 : 49 : 20
(d) 20 : 49 : 64

Q63. A, B and C started a business investing amounts of Rs13,750 Rs.16,250 and Rs.18,500 respectively. If B's share in the profit is 5,200. What is the difference in the profit (in Rs.) earned by A and C?

A B और C ने क्रमश 13,750 रुपये 16,250 रुपये और 18,500 रुपये निवेश करके एक व्यवसाय शुरू किया। यदि लाभ में B का शेयर 5,200 है। A और C द्वारा अर्जित लाभ (रुपये में) में क्या अंतर है ज्ञात करे |

CPO 25-11-2020 (Morning shift)

(a) 1,500
(b) 1,600
(c) 1,200
(d) 1,800

Q64. Seven years ago, the ratio of the ages of A and B was 4 : 5. Eight years hence, the ratio of the ages of A and B will be 9 : 10. What is the difference between their present ages in years?

सात साल पहले, A और B की आयु का अनुपात 4: 5 था। आठ वर्षो बाद, A और B की आयु का अनुपात 9: 10 होगा। वर्षों में उनकी वर्तमान आयु में क्या अंतर क्या है ज्ञात करे ?

CPO 25-11-2020 (Morning shift)

(a) 3
(b) 6
(c) 2
(d) 4

Q65. A,B,C subscribe a sum of Rs.75,500 for a business. A subscribes Rs.3,500 more than B, and B subscribes Rs. 4,500 more than C. Out of a total profit of Rs.45,300 how much (in Rs.) does A receive ?

A, B, C एक व्यवसाय के लिए 75,500 रुपये का निवेश करता है। A, B से 3,500 रु अधिक निवेश करता है, और B C से 4,500 रु अधिक निवेश करता है, कुल लाभ में से 45,300 रु में से A को कितना प्राप्त होगा |

CPO 25-11-2020 (Evening shift)

(a) 12,600
(b) 15,000
(c) 17,400
(d) 14,700

Q66. In a school, $\frac{5}{12}$ of the number of students are girls and the rest are boys, $\frac{4}{7}$ of the number of boys are below 14 years of age, and $\frac{2}{5}$ of the number of girls are 14 years or above 14 years of age. If the number of students

below 14 years of age is 1120, then the total number in the school is:

एक स्कूल में, छात्रों की संख्या में से $\frac{5}{12}$ लड़कियाँ हैं और बाकी लड़के हैं, जिनमें से $\frac{4}{7}$ लड़कों की संख्या 14 वर्ष से कम है, और $\frac{2}{5}$ की संख्या में लड़कियाँ 14 वर्ष या 14 वर्ष से अधिक हैं। यदि 14 वर्ष से कम आयु के छात्रों की संख्या 1120 है, तो स्कूल में कुल संख्या है:

CPO 25-11-2020 (Evening shift)

(a) 1820
(b) 1900
(c) 1920
(d) 1290

Pinnacle

SOLUTION

Sol 1. (a) Let the ages of A and B 4 years ago are 4x and 5x respectively.
According to the question
$\frac{4x+12}{5x+12} = \frac{11}{13}$
52x + 156 = 55x + 132
3x = 24
X = 8
Sum of their present age = 4x+4+5x+4 = 9 (8)+8 = 80

Sol 2. (c)
Required proportion:
$\frac{23-x}{39-x} = \frac{32-x}{56-x}$ --- (i)
By hit and trial, we can find that x=5 satisfies the eq. (i)
Mean proportion of (x+4) and (3x+1) i.e. 9 and 16 is $\sqrt{9 \times 16} = 12$

Sol 3. (c)
Let the price of the articles are 400 and 500.
According to the question
$\frac{400\times\frac{100+x}{100}}{500\times\frac{100-30}{100}} = \frac{10}{7}$
$\Rightarrow \frac{4(100+x)}{5\times70} = \frac{10}{7}$
$\Rightarrow$ 400+4x = 500
$\Rightarrow$ x = 25 %

Sol 4. (d)
Given, A:B = 7:12 and B:C = 8:5
Balancing the ratio for B
A:B:C = 14:24:15
$\Rightarrow$ A's share = 14 unit
B's share = 24 unit
C's share = 15 unit
According to the question
(15-14) = 1 unit = 214
Sum (x) = 14+24+15 = 53 unit
= 53 × 214 = 11342

Sol 5. (c)
Mean proportional between 4.8 and 10.8 = $\sqrt{4.8 \times 10.8}$ =7.2
Third proportional to 0.4 and 2.4 = $\frac{2.4\times2.4}{0.4}$ = 1.44
Required ratio = 7.2 : 14.4
= 1 : 2

Sol 6. (c)
Given, a : b = 3 : 2
Let a = 3k and b = 2k
(5a + 2b) : (3a + 4b) $\Rightarrow$ {5(3k)+2(2k)}:{3(3k)+4(2k)}
$\Rightarrow$ 19k : 17K
$\Rightarrow$ 19 : 17

Sol 7. (b)
Given, a : b = 2 : 5 , c : b = 3 : 4
A : B : C
2 : 5
4 : 3
Balancing the ratio for B
A : B : C
2 : 5 × 4
4 : 3 × 5
$\Rightarrow$ A:B:C = 8 : 20 : 15

Sol 8. (d)
Given, (5a - 3b) : (4a - 2b) = 2:3
$\Rightarrow \frac{(5a-3b)}{(4a-2b)} = \frac{2}{3}$
$\Rightarrow$ 3(5a-3b) = 2(4a-2b)
$\Rightarrow$ 15a-8a = -4b+9b
$\Rightarrow$ 7a=5b
$\Rightarrow$ a:b = 5:7

Sol 9. (c)
Actual ratio = 3:4:5:8
$\Rightarrow$ (3+4+5+8) unit = 4360
$\Rightarrow$ 20 unit = 4360
$\Rightarrow$ 1 unit = 218
A's share (3 unit) = 3 × 218 = 654
B's share (4 unit) = 4 × 218 = 872
C's share (5 unit) = 5 × 218 = 1090
D's share (8 unit) = 8 × 218 = 1744
Mistaken ratio = $\frac{1}{3} : \frac{1}{4} : \frac{1}{5} : \frac{1}{8}$
=40:30:24:15
$\Rightarrow$ (40+30+24+15) unit = 4360
$\Rightarrow$ 1 unit = 40
A's share (40 unit) = 40 × 40 = 1600
B's share (30 unit) = 30 × 40 = 1200
C's share (24 unit) = 24 × 40 = 960
D's share (15 unit) = 15 × 40 = 600
Clearly D get 1744-600 = Rs.1144 less

Sol 10. (b)
Let the numbers are 3k and 4k
According to the question
$\frac{3k+30}{4k+30} = \frac{9}{10}$
$\Rightarrow$ 30k+300 = 36k+270
$\Rightarrow$ 6k=30
$\Rightarrow$ k=5
So, the numbers are 3 × 5 = 15 and 4 × 5 = 20 ans

Sol 11. (c)
Let, the incomes of A and B are 2I and 3I respectively.
The expenditure of A and B are 1E and 2E respectively.
According to the question
2I = 2E × $\frac{90}{100}$
$\Rightarrow \frac{I}{E} = \frac{9}{10}$
Saving of A = 2(9)-1(10) = 8 unit
Saving of B = 3(9)-2(10) = 7 unit
Required ratio = 8 : 7 ans

Sol 12. (b)
Let the number of successful candidates and failure candidates 5k and 2k.
According to the question
$\frac{5k-14}{2k+14} = \frac{9}{5}$
$\Rightarrow$ 25k - 70 = 18k + 126
$\Rightarrow$ k = 28
Total number of students = 5k+2k = 7k
= 7 × 28 = 196

Sol 13.(d)
½ : ⅔ : ¾ $\Rightarrow$ 6:8:9
Let the numbers 6k , 8k and 9k
According to the question
9k-6k = 27
$\Rightarrow$ k = 9
Smallest number (6k)= 6 × 9 = 54

Sol 14. (c)
½ : ⅔ : ¾ ⇒ 6:8:9
Let the numbers 6k , 8k and 9k
According to the question
9k-6k = 27
⇒ k = 9
Average of three numbers = $\frac{6k+8k+9k}{3} = \frac{23k}{3}$
= $\frac{23\times9}{3} = 69$

Sol 15. (c)
Given, a:b:c=1:3:5
Let a = k, b=3k and c = 5k
$\frac{4a-b+2c}{3(a+b+c)} \Rightarrow \frac{4(k)-3k+2(5k)}{3(k+3k+5k)}$
= $\frac{11k}{27k} = \frac{11}{27}$

Sol 16.(a)
Ratio of amount received = 15:2:3
Ratio of note's worth = 500 : 200: 100
= 5 : 2 : 1
Number of notes = $\frac{Total\ amount}{note's\ worth}$
Ratio of number of notes = $\frac{15}{5} : \frac{2}{2} : \frac{3}{1}$ = 3:1:3

Sol 17. (d)
fourth proportional of 3, 4, 9 = $\frac{9\times4}{3} = 12$
mean proportional between 2 and 98 = $\sqrt{2\times98} = 14$
Required ratio = 12 : 14
= 6 : 7

Sol 18. (c)
B's share after charging tax = 70% of($\frac{4}{14} \times 110166$) = Rs. 22033.20

Sol 19. (b)
Urban employee = $1200 \times \frac{8}{8+7} = 640$
Rural employee = $1200 \times \frac{7}{8+7} = 560$
Let number of urban employee joined = x
According to question
$\frac{640+x}{560+20} = \frac{5}{4}$
x= 725-640 = 85

Sol 20. (d)
A:B = 2:3
B:C = 1:2
Balancing the ratio for B
A:B:C = 2:3:6
Share of C = $406736 \times \frac{6}{2+3+6}$ = 2,21,856

Sol 21. (a)
A:B:C = 5: 3 : 6
If 5----- 192380
Then, 6 ---- $\frac{192380}{5} \times 6 = 230856$

Sol 22. (c)
Total profit = 2000
Share of B = 600
Share of A = 2000-600 = 1400
Ratio of shares of A : B = 7:3
Amount invested by A = $15000 \times \frac{7}{7+3} = 10500$

Sol 23. (c)
Let total profit = P
According to question
$P \times \frac{96}{100} \times \frac{4}{3+4+5} = 181400$
P = 566875
amount of profit set aside for emergency fund = $566875 \times \frac{4}{100}$ = 22675

Sol 24. (b)

A	:	B	:	C
55000	:	65000	:	75000
11	:	13	:	15

Let total profit earned be x.
Therefore,
$x \times \frac{4}{5} \times \frac{15}{39} = 27000$
Total profit = Rs. 87750

SSC CGL TIER II

Sol 1. (b)
$66\frac{2}{3}\% = \frac{2}{3}$

	A	:	B
Income	5	:	7
Expenditure	2	:	3
Savings	4000	:	5000

Now,
{(5 × 3)-(7 × 2)} unit = (3 × 4000)-(2 × 5000)
1 unit = 2000
Total income of A and B (5+7 = 12 unit) = 12 × 2000
= 24000

Sol 2. (c)
Let (a+b) = 7 unit
(b+c) = 6 unit
(c+a) = 5 unit
Adding all three
(a+b)+(b+c)+(c+a) = (7+6+5) unit
(a+b+c) = 9 unit
According to the question
9 unit = 27
1 unit = 3
⇒ a = (a+b+c)-(b+c)
= 9-6
= 3unit = 3(3) =9
Similarly
b = 12
And c = 6
⇒ $\frac{1}{a} : \frac{1}{b} : \frac{1}{c} = \frac{1}{9} : \frac{1}{12} : \frac{1}{6}$
= 4 : 3 : 6

Sol 3. (c)
According to the question
$\frac{(2+x)}{(3+x)} = \frac{(30+x)}{(35+x)}$
⇒ (2+x)(35+x) = (3+x)(30+x)
⇒ $70+2x+35x+x^2 = 90+3x+30x+x^2$
⇒ 4x = 20
⇒ x=5
mean proportional between (x+7) and (x-2) = $\sqrt{(5+7)(5-2)} = 6$

Sol 4.(a) Profit is always proportional to Amount invested × time period
Let amount invested by A = 14 unit, amount invested by B = 15 unit and the time period for which B invested the amount = t months
⇒ $\frac{14\times3}{15\times t} = \frac{2}{5}$
⇒ t = $\frac{14\times3\times5}{15\times2}$ = 7 months

Sol 5. (c)

Let the age of A and B one year ago be 4x and 3x.
According to the question
$\frac{4x+1+3}{3x+1+3} = \frac{6}{5}$
$\Rightarrow 20x+20 = 18x+24$
$\Rightarrow x=2$
Required ratio
$= 4(2)+1+9 : 3(2)+1+9$
$= 9 : 8$

Sol 6. (c)
the third proportional to 0.4 and 0.8 = $\frac{0.8\times0.8}{0.4} = 1.6$
mean proportional between 13.5 and 0.24 = $\sqrt{13.5 \times 0.24} = 1.8$
Required ratio = 1.6 : 1.8
= 8 : 9

Sol 7. (b)
Let the age of A and B five years ago be 4x and 5x.
According to the question
$\frac{4x+5+5}{5x+5+5} = \frac{6}{7}$
$\Rightarrow 28x+70 = 30x+60$
$\Rightarrow x=5$
Present age of A = 4(5)+5 = 25
Present age of C = 5(5)+5-10 = 20
Required ratio = 25:20
= 5 : 4

Sol 8. (c)
A's share : B's share
6 : 7
B's share : C's share
3 : 2
Balancing the ratio for B's share
A's share : B's share : C's share
18 : 21 : 14
According to the question
(18-14) unit = 540
1 unit = 135
Total amount (x) = (18+21+14)
= 53 unit
= 53 × 135 = 7155

Sol 9. (a)
Profit is always proportional to Amount invested × time period
A : B : C
$2\times4 : 3\times2 : 5\times3$
8 : 6 : 15
According to the question
(15-8) unit = 147000
1 unit = 21000
B's share (6) = $6\times21000 = 126000$

Sol 10. (a)
Case I.
A : B
Last year Income
4 : 3

Case II.

	Last Year	:	Present Year
A	3	:	4
	Last Year	:	Present Year
B	5	:	6

Balancing the ratio for last year income
For A 3 unit (of case II) = 4 (of Case I)
1 unit = $\frac{4}{3}$
4 unit = $\frac{16}{3}$
For B 5 unit (of case II) = 3 (of Case I)
1 unit = $\frac{3}{5}$
6 unit = $\frac{18}{5}$

	A	:	B
Present Income	$\frac{16}{3}$	:	$\frac{18}{5}$
	40	:	27

According to the question
(40+27) unit = 8.04 lakh
1 unit = 0.12 lakh
27 unit = 27 × 0.12 lakh
Last year income of B = $27\times0.12 \times \frac{5}{6} = 2.7$ lakh

Sol 11. (a)
50% = $\frac{1}{2}$
Let initial capital of A = 2 unit
$\Rightarrow$ Increased capital of A = 3 unit
$33\frac{1}{3}\% = \frac{1}{3}$
Let initial capital of B = 3 unit
$\Rightarrow$ Increased capital of B = 4 unit
50% = $\frac{1}{2}$
Let initial capital of C = 5 unit
$\Rightarrow$ Increased capital of C = 2.5 unit

Now,
A : B : C
Profit 2(4)+3(8) : 3(6)+4(6) : 5(8) + 2.5(4)
32 : 42 : 50
16 : 21 : 25
According to the question
(16+21+25) unit = 86800
1 unit = 1400
(25-16) unit = 9 × 1400 = 12600

Sol 12.(*) Let the numbers are 3k and 5k
$\Rightarrow \frac{3k-13}{5k-13} = \frac{10}{21}$
63k - 273 = 50k - 130
k = 11
Required ratio = 3(11)+5 : 5(11)+5
= 19 : 30
Note : Given options are wrong

Sol 13.(b)
Let the savings of A, B and C are 8k, 9k and 20k respectively.
For A
80% = $\frac{4}{5}$
Here 5 unit is income of A and 4 unit is A's expenditure
(5-4) unit = 8k
1 unit = 8k
Income of A(5 unit) = 5 × 8k = 40k
For C
75% = $\frac{3}{4}$
Here 4 unit is income of C and 3 unit is C's expenditure
(4-3) unit = 20k
1 unit = 20k
Income of A(4 unit) = 4 × 20k = 80k
According to the question
80k-40k = 18000
k = 450

For B

$85\% = \frac{17}{20}$

Here 20 unit is income of B and 17 unit is B's expenditure

(20-17) unit = 9k

1 unit = 3k

Income of B(20 unit) = $20 \times 3k = 60k$

$\Rightarrow$ Income of B (60k)= $60 \times 450 = 27000$

Sol 14. (b)

Let a,b and c be the invested amount of A, B and C.

According to the question

3a=2b=4c

$\Rightarrow$ a:b:c = 4:6:3

This will also be the ratio of their profit shares.

$\Rightarrow$ 3 unit = 4863

1 unit = 1621

A's share (4 unit) = $4 \times 1621 = 6484$

Sol 15. (a)

Given, (5x+2y) : (10x+3y) = 5:9

$\Rightarrow \frac{(5x+2y)}{(10x+3y)} = \frac{5}{9}$

$\Rightarrow$ 45x+18y = 50x+15y

$\Rightarrow$ x:y = 3:5

Let x = 3 unit and y = 5 unit

$(2x^2 + 3y^2):(4x^2 + 9y^2)$

$\Rightarrow \{2(3)^2 + 3(5)^2\}:\{4(3)^2 + 9(5)^2\}$

= 31 : 87

Sol 16. (a)

A : B : C : D

2 : 3

1 : 2

3 : 4

Balancing the ratio for B and C

A : B : C : D

2 : 3 : **3 : 3**

1 : 1 : 2 **: 2**

3 : 3 : 3 : 4

6 : 9 : 18 : 24

$\Rightarrow$ A:B:C:D = 2 : 3 : 6 : 8

According to the question

(8-2) unit = 648

1 unit = 108

(2+3+6+8) unit = $19 \times 108 = 2052$

Sol 17.(c)

Let the amount invested by B and C be b and c respectively.

According to the question

$\frac{54000 \times 12}{b \times 8} = \frac{1}{4}$

$\Rightarrow b = 54000 \times 6$

Also,

$\frac{54000 \times 12}{c \times 6} = \frac{1}{5}$

$\Rightarrow c = 54000 \times 10$

Required difference = $54000 \times 10 - 54000 \times 6 = 216000$

Practice Sol

Sol 1. (a)

Let the mean proportional of (x+3) and (4x+1) is b.

$b^2 = (x+3)(4x+1)$

$b = \sqrt{(x+3)(4x+1)}$

According to the question

$\frac{12+x}{28+x} = \frac{21+x}{45+x}$

(12+x)(45+x) = (21+x)(28+x)

$540+57x+x^2 = 588+49x+x^2$

x=6

$b = \sqrt{(6+3)(24+1)} = 15$

Sol 2. (c)

$\frac{21-x}{22-x} = \frac{60-x}{64-x}$

(21-x)(64-x) = (22-x)(60-x)

$1344 - 21x - 64x + x^2 = 1320 - 22x - 60x + x^2$

24 = 3x

x=8

x+1 = 9

7x+8 = 64

Let the mean proportional a

$a^2 = 64 \times 9$

a=24

Sol 3. (c)

Let the present age of A and B be 8x and 9x respectively.

Current age of C = 9x-3

According to the question

$\frac{8x+9}{9x+9} = \frac{19}{21}$

$\Rightarrow$ 168x+189 = 171x + 171

$\Rightarrow$ 3x=18

$\Rightarrow$ x=6

So, Current age of C = 9(6)-3 = 51

Sol 4. (c)

Let the current age of A and B be 8x and 15x.

According to the question

$\frac{8x-8}{15x-8} = \frac{6}{13}$

$\Rightarrow$ 104x-104 = 90x-48

$\Rightarrow$ 14x=56

$\Rightarrow$ x=4

So, current age of A and B is 32 and 60 respectively.

Required ratio = 32+8 : 60+8

= 10 : 17

Sol 5. (b) Let a = 4k and b = 5k

(2a + 3b) : (3a + 2b) $\Rightarrow$ {2(4k)+3(5k)}:{3(4k)+2(5k)}

$\Rightarrow$ 23k : 22k

$\Rightarrow$ 23:22

Sol 6. (d) Let a = 5k and b = 3k

(8a - 5b) : (8a + 5b) $\Rightarrow$ {8(5k)-5(3k)}:{8(5k)+5(3k)}

$\Rightarrow$ 25k : 55k

$\Rightarrow$ 5:11

Sol 7. (a)

Given, a : b = 2 : 3 , c : b = 5 : 6

A : B : C

2 : 3

6 : 5

Balancing the ratio for B

A : B : C

2 : 3 $\times 2$

6 : 5 $\times 1$

$\Rightarrow$ A:B:C = 4 : 6 : 5

Sol 8. (c)

Given, a : b = 5 : 8 , c : b = 4 : 3

A : B : C

5 : 8

3 : 4

Balancing the ratio for B

A : B : C

5 : 8 $\times 3$

3 : 4 $\times 8$

Pinnacle

⇒ A:B:C = 15 : 24 : 32

Sol 9. (d)
Let a = 2k and b = 3k
(5a - 2b) : (5a + 2b) ⇒ {5(2k)-2(3k)}:{5(2k)+2(3k)}
⇒ 4k : 16k
⇒ 1:4

Sol 10. (a)
Let a = 2k and b = 3k
(5a + 3b) : (6a - 2b) ⇒ {5(2k)+3(3k)}:{6(2k)-2(3k)}
⇒ 19k : 6k
⇒ 19:6

Sol 11. (a)
Let a = 5k and b = 7k
(5a - 3b) : (4a - 2b) ⇒ {5(5k)-3(7k)} : {4(5k)-2(7k)}
⇒ 4k : 6k
⇒ 2:3

Sol 12. (c)
Let the age of A and B be 6k and 5k respectively.
According to the question
$\frac{6k-4}{5k-4} = \frac{5}{4}$
⇒ 24k-16 = 25k-20
⇒ k=4
Required ratio = 6(4)+12 : 5(4)+12
= 9 : 8

Sol 13. (c)
Let the ages of A and B 8 years ago were 9k and 10k respectively.
According to the question
$\frac{9k+12}{10k+12} = \frac{12}{13}$
⇒ 117k+156 = 120k+144
⇒ k=4
Present age of A = 9(4)+8 = 44 years
Present age of C = 44+6 = 50 years

Sol 14. (a)
Let the value of A and B be 5k and 2k respectively.
According to the question
$\frac{5k+4}{2k+4} = \frac{9}{4}$
⇒ 20k+16 = 18k+36
⇒ k=10
Required ratio = 5(10)-5 : 2(10)-5
= 3:1

Sol 15. (b)
Let the income of A and B be 5I and 3I respectively.
Let the expenditure of A and B be 9E and 5E.
According to the question
5I = 2(5E)
$\frac{I}{E} = \frac{2}{1}$
Savings of A = 5(2)-9(1) = 1 unit
Savings of B = 3(2)-5(1) = 1unit
Required ratio = 1:1

Sol 16. (d)
Let the numbers are 7k and 5k.
Difference of the numbers = 7k-5k = 2k
According to the question
$\frac{7k-40}{5k-40} = \frac{27}{17}$
⇒ 119k-680 = 135k - 1080
⇒ k=25
Required difference = 2(25) = 50

Sol 17. (a)
Let the numbers are 7k and 5k.
Sum of the numbers = 7k+5k = 12k
According to the question
$\frac{7k-40}{5k-40} = \frac{27}{17}$
⇒ 119k-680 = 135k - 1080
⇒ k=25
Required sum = 12(25) = 300

Sol 18. (a)
Let the numbers are 3k and 4k.
Sum of the numbers = 3k+4k = 7k
According to the question
$\frac{3k+30}{4k+30} = \frac{9}{10}$
⇒ 30k+300 = 36k + 270
⇒ k=5
Required sum = 7(5) = 35

Sol 19. (c)
third proportional of 5, 4 = $\frac{4\times4}{5}$ = 3.2
mean proportional between 14.4 and 3.6 = $\sqrt{14.4 \times 3.6}$ =7.2
Required ratio = 7.2 : 3.2
= 9 : 4

Sol 20. (d)
Mean Proportion = $\sqrt{8.1 \times 3.6}$ = 5.4
Third Proportion = $\frac{3\times3}{2} = \frac{9}{2}$ = 4.5
Therefore, Required Ratio = $\frac{5.4}{4.5}$ = 6 : 5

Sol 21. (d) Mean proportion = $\sqrt{3.6 \times 12.1}$ = 6.6
Third Proportion = $\frac{11\times11}{2}$
Therefore, Required Ratio = $\frac{6.6}{\frac{121}{2}}$ = 6 : 55

Sol 22. (a) Mean proportion = $\sqrt{10.8 \times 4.8}$ = 7.2
Third proportion = 8
Therefore, Sum = 7.2+8 = 15.2

Sol 23. (b) Mean proportion = $\sqrt{1.8 \times 3.2}$ = 2.4
Third Proportion = $\frac{9}{5}$
Therefore, Required Ratio = 2.4: $\frac{9}{5}$ = 4:3

Sol 24. (d) ATQ, $\frac{5x-5}{7x-5} = \frac{5}{8}$
⇒ 5x = 15
⇒ x = 3
Therefore, Their ages are 15 and 21.

Sol 25. (b)
C's share = 8288 × $\frac{9}{5+7+9}$ = 3552

Sol 26. (d)
Value- 0.5 : 0.25 : 1
Number- 5 : 8 : 1
2.5 : 2.00 : 1
= 5.5 unit = 55
1 unit = 10

Pinnacle

Therefore, No. of 25 paise coins (8 unit)= 8x10 = 80

Sol 27. (b) C's share = $\frac{4}{12} \times 780516$ = Rs. 260172

Sol 28. (d) ATQ, $\frac{4x+12}{9x+12} = \frac{11}{21}$
$\Rightarrow x = 8$
Therefore, Sum of numbers = (4+9)x8 = 104

Sol 29. (d) Let the three numbers be a, b & c.
a:b:c = 7:9:21
Therefore, b = $\frac{9}{37} \times 777 = 189$

Sol 30. (c)

A	:	B	:	C
137500	:	162500	:	187500
11	:	13	:	15

Therefore, C's share = $219375 \times \frac{4}{5} \times \frac{15}{39} = Rs.\ 67500$

Sol 31. (d)

A	:	B	:	C
55000	:	65000	:	75000
11	:	13	:	15

=39
Therefore, A's share = $87750 \times \frac{1}{5} + 87750 \times \frac{4}{5} \times \frac{11}{39}$
= 19800 + 17550
= Rs. 37,350

Sol 32. (d)

A	:	B	:	C
27500	:	32500	:	37500
11	:	13	:	15

C's share = 15 ---- 13500
39---- 35100
Therefore, Total Profit = $35100 \times \frac{100}{80} = Rs.\ 43,875/-$

Sol 33. (c)
Let P = 5 unit and Q = 2 unit
So,
(2P - 3Q) : (3P - 5Q) $\Rightarrow$ {2(5) - 3(2)} : {3(5) - 5(2)}
$\Rightarrow$ 4:5

Sol 34.(b)

	Pawan :	Sunil
Income	4 :	3
Expenditure	3 :	2
Savings	4000 :	6000

Now,
{(3 × 3) - (4 × 2)} unit = (3 × 6000)-(2 × 4000)
1 unit = 10000
Total income of Pawan and Sunil (4+3 = 7 unit) = 7 × 10000
= 70000

Sol 35. (a)
Let U = 5 unit and V = 3 unit
According to the question
(5+3) unit = 80
1 unit = 10
(5-3) unit = 10 x 2 = 20 unit

Sol 36. (a)
Let the salary of Mahesh = 7 unit
And Salary of Sumit = 4 unit
According to the question
(7-4) unit = 12000
1 unit = 4000
Salary of sumit = 4 unit = 4 x 4000 = 16000

Sol 37.(d)

	Ram :	Rahim
Income	4 :	3
Expenditure	3 :	2
Savings	5000 :	5000

Now,
{(3 × 3)-(4 × 2)} unit = (3 × 5000)-(2 × 5000)
1 unit = 5000
Income of Ram = 4 unit = 4 x 5000 = 20000
Income of Rahim = 3 unit = 3 x 5000 = 15000

Sol 38. (b)

First	:	Second
2	:	3

Second : Third

4	:	5

Balancing the ratio for second number

First	:	Second	:	Third
8	:	12	:	15

According to the question
(8+12+15) unit = 140
1 unit = 4
Second number (12 unit) = 12 x 4 = 48

Sol 39. (d)
Let the number of 2 rupee coins = 3 unit, the number of 1 rupee coins = 4 unit and the number of 50 paise coins = 5 unit
According to the question
[2(3) + 1(4) + 0.5(5)] units = 250
1 unit = 20
1 rupee coins = 4 unit = 4 x 20 = 80

Sol 40. (d)
Let A = 2 unit and B = 3 unit
So, B-A = (3-2) unit = 28
$\Rightarrow$ A+B = (3+2) unit = 5 x 28 = 140

Sol 41. (d)
Let x = 3 unit, y = 4 unit and z = 5 unit
According to the question
(3+4+5) unit = 96
1 unit = 8
z = 5 unit = 5x8 = 40

Sol 42. (d)
Let the total number of boys = 4 unit and the number of girls = 1 unit
According to the question
(4+1) unit = 150
1 unit = 30
Number of boys = 4 unit = 4x30 = 120
Number of girls = 1 unit = 30
Mean proportion of number of boys and number of girls = $\sqrt{120 \times 30} = 60$

Sol 43.(c)

	A : B
Income	3 : 4
Expenditure	2 : 3
Savings	4000 : 4000

Now,
$\{(3\times3)-(4\times2)\}$ unit = $(3\times4000)-(2\times4000)$
1 unit = 4000
Income of B = 4 unit = 4 x 4000 = 16000

Sol 44. (c)
Given,
x + y = 52 .....(1)
And
x - y = 20 .....(2)
Add (1) and (2)
2x = 72
$\Rightarrow x = 36$
$\Rightarrow y = 52 - 36 = 36 - 20 = 16$
Required ratio = 36 : 16
= 9 : 4

Sol 45. (a)
Let the expenditure of A = 5 unit and expenditure of B = 3 unit
According to the question
12000 - 5unit = 8000 - 3 unit
2 unit = 4000
1 unit = 2000
Required savings = 12000 - 5(2000) = 8000 - 3(2000) = 2000

Sol 46. (d)
Given,
x+y+z = 360 and x:y:z = 4:3:2
Let x = 4 unit, y = 3 unit and z = 2 unit
According to the question
(4+3+2) unit = 360
1 unit = 40
(y+z-x) = (3+2-4) unit = 40

Sol 47. (d)
Given,
X : Y : Z = 1 : 2 : 3 and $X^2 + Y^2 + Z^2 = 224$
Let X = k, Y = 2k and Z = 3k
According to the question
$(k^2 + (2k)^2 + (3k)^2)$ unit = 224
$k^2 = 16$
$\Rightarrow k = 4$
$\Rightarrow$ (X+Y+Z) = (k+2k+3k) = 6 x 4= 24

Sol 48.(b)
Let the number of students in the classes are 3k, 4k and 5k respectively.
According to the question
$\frac{3k+20}{4k+20} = \frac{4}{5}$
$\Rightarrow$ 15k + 100 = 16k + 80
$\Rightarrow$ k=20
Total number of students initially = 3k+4k+5k = 12 x 20 = 240

Sol 49. (c)
Let the numbers are 6 unit and 5 unit.
According to the question
(6+5) unit = 77
$\Rightarrow$ (6-5) unit = 7

Sol 50. (c)
Let X = 13 unit and Y = 12 unit
According to the question
(13-12) unit =1 unit = 2
$\Rightarrow$ X = 13x2 = 26
And Y = 12x2 = 24
2X + 3Y $\Rightarrow$ 2(26)+3(24) = 124

Sol 51. (a)
Let expenditure of A = 2 unit and expenditure of B = 3 unit
According to the question
2 unit = 8000
1 unit = 4000
3 unit = 3x4000 = 12000
sum of their monthly savings = (12000-8000) + (15000-12000) = 7000

Sol 52. (d)
Let the ages of two persons are 3 unit and 4 unit.
According to the question
(4-3) unit = 8 years
Sum of their ages = (4+3) unit = 7x8 = 56 years

Sol 53.(b)

	Mohit : Prakash
Income	2 : 3
Expenditure	3 : 5
Savings	5000 : 5000

Now,
$\{(5\times2)-(3\times3)\}$ unit = $(5\times5000)-(3\times5000)$
1 unit = 10000
Sum of the income of Mohit and Prakash = (2+3) x 10000 = 50000

Sol 54. (b)
Let the two numbers are 5 unit and 7 unit.
Sum of the two numbers = 5+7 = 12 unit. Clearly there actual sum will be the multiple of 12 and going through options only option B satisfies the condition.

Sol 55. (b)
Given,
$X^2 + Y^2 = 100$ and X : Y = 4 : 3
Let X = 4k and Y = 3k
$X^2 + Y^2 = (4k)^2 + (3k)^2 = 25k^2$
$\Rightarrow 25k^2 = 100$
$\Rightarrow k = 2$
So, X = 4x2 = 8 and Y = 3x2 = 6
$X^2 - Y^2 \Rightarrow 8^2 - 6^2 = 28$

Sol 56.(d) Let V1 = 1 unit and V2 = 2 unit
According to the question
V1+V2 = (1+2) unit = 147
1 unit = 49
V1-V2 = (2-1) unit = 49

Sol 57.(b)
Let the shares of Anuj, Bharat and Shekhar are 3 unit, 4 unit and 8 unit.
According to the question
(3+4+8) unit = 975
1 unit = 65
Bharat's share = 4 unit = 4x65 = 260

Sol 58.(d)

Let the number of 5 rupee, 2 rupee, 1 rupee and 50 paise coins are 1unit, 2 unit, 3 unit and 4 unit.
According to the question
[5(1) + 2(2) + 1(3) + 0.5(4)] unit = 168
1 unit = 12
the number of 50 paise coins = 4x12 = 48

Sol 59.(d)
the number of students in three classes is k, 2k and 3k.
According to the question
$\frac{k+20}{2k+20} = \frac{3}{5}$
5k+100=6k+60
$\Rightarrow k = 40$
Total number of students in three classes = k+2k+3k = 6x40 = 240

Sol 60.(c)
Let the age of shyam = 5 unit and age of Ravi = 3 unit
According to the question
(5+3) unit = 32
1 unit = 4
Age of Shyam = 5x4 = 20 years and Age of Ravi = 3x4 = 12
Now,
$\frac{20+x}{12+x} = \frac{7}{5}$
100+5x = 84+7x
$\Rightarrow x=8$

Sol 61.(d)
Mean proportion of 24 and 150 = $\sqrt{24 \times 150} = 60$
the third proportional between 12 and $6\sqrt{5}$ = $\frac{6\sqrt{5}\times 6\sqrt{5}}{12} = 15$
Required ratio = 60 : 15
= 4:1

Sol 62.(b)
Let the age of father after 5 years = 7x and age of the son after 5 years = 4x.
According to the question
(7x-5)+(4x-5) = 78
11x-10 = 78
$\Rightarrow x = 8$
Present age of father = 7x-5 = 7(8)-5 = 51

Sol 63.(c)
Let the numbers are 3k, 4k and 6k
According to the question
$(3k)^2 + (4k)^2 + (6k)^2 = 244$
$(61k)^2 = 244$
$\Rightarrow k = 2$
The largest number = 6k = 6x2 = 12

Sol 64. (b)
Let the number of 1 rupee, 50 paise and 25 paise coins are 5 unit, 7 unit and 9 unit.
[5(1) + 0.50(7) + 0.25(9)] unit = 430
1 unit = 40
Number of 25 paisa coins = 9 x 40 = 360

Sol 65. (a)
Let the age of Manoj = M and sum of the ages of his son = S
According to the question
M = 2S .....(1)
And
M+20 = S+20+20
Put the value of M from equation (1)
2S+20 = S+40
$\Rightarrow$ S= 20
So, age of Manoj = 2S = 2x20 = 40

Sol 66. (b)
Let the age of father = 3k and son = k
According to the question
3k x k = 432
$3k^2 = 432$
$\Rightarrow k = 12$
Required sum = 3k+k = 4x12 = 48

Sol 67. (c)
Let A+B = 11 unit .....(1)
And A-B = 1 unit .....(2)
Add (1) and (2)
(A+B) + (A-B) = 11+1 unit
$\Rightarrow A = 6unit \text{ and } B = 5unit$
Similarly for B+C : B-C = 11:1
$\Rightarrow B = 6unit \text{ and } C = 5unit$
But value of B must be same so balancing the values for B
A = 36 unit, B = 30 unit and C = 25 unit
According to the question
(36+30+25) unit = 18200
1 unit = 200
B's salary = 30 unit = 30x200 = 6000

Sol 68. (d)
Let the selected candidates = 14 unit and the unselected candidates = 25 unit
According to the question
$\frac{(25+14)\ unit - 35}{14\ unit - 10} = \frac{5+3}{3}$
117 unit - 105 = 112 unit - 80
1 unit = 5
Total number of candidates = 39 unit = 39x5 = 195

Sol 69. (a)
Let the salary of A = 1 unit, B = 2 unit and C = 3 unit
New salary of A = 1 x $\frac{105}{100}$ unit
New salary of B = 2 x $\frac{110}{100}$ unit
New salary of C = 3 x $\frac{115}{100}$ unit
Required ratio = 1 x $\frac{105}{100}$: 2 x $\frac{110}{100}$: 3 x $\frac{115}{100}$
= 21 : 44 : 69

Sol 70.(d)
Let the number of 1 rupee, 50 paise and 10 paise coins are 3 unit, 2 unit and 3 unit.
[1(3) + 0.50(2) + 0.10(3)] unit = 25.8
1 unit = 6
Number of 50 paisa coins = 2 x 6 = 12

Sol 71. (b)
Given,
4A = 6B = 5C
LCM of 4,6 and 5 = 60
$\Rightarrow$ A:B:C = 15:10:12

Pinnacle

Sol 72. (b)

A : B

3 : 4

B : C

2 : 3

Balancing the ratio for B

A:B:C

3:4:6

$\Rightarrow$ A + B : B + C : C + A = 3+4 : 4+6 : 6+3

= 7 : 10 : 9

Sol 73.(a)

Let the two parts are a and b.

According to the question

$\frac{4a}{5b} = \frac{14}{15}$

$\Rightarrow a : b = 7 : 6$

According to the question

(7+6) unit = 78

1 unit = 6

The first part = 7unit = 7x6 = 42

Sol 74.(d)

Let the number of 10 rupee, 5 rupee and 2 rupee paise coins are 10 unit, 5 unit and 2 unit.

According to the question

5(5) unit - 2(2) unit = 84

1 unit = Rs. 4

Total number of 10 rupee notes = 10 unit = 10x4 = 40

Total value of 10 rupee notes = 40x10 = 400

Sol 75. (d)

a : b = 2 : 3 and b : c = 2 : 3

Balancing the ratio for b

a:b:c = 4:6:9

Let a = 4k, b= 6k and c = 9k

$(3a^2 + b^2 - c^2) : (a^2 + 2b^2 - c^2) = \{3(4k)^2 + (6k)^2 - (9k)^2\} : \{(4k)^2 + 2(6k)^2 - (9k)^2\}$

$\Rightarrow$

$48k^2 + 36k^2 - 81k^2 : 16k^2 + 72k^2 - 81k^2$

$\Rightarrow$ 3:7

Sol 76.(a)

Let the numbers are 2 unit, 3 unit and 5 unit

According to the question

(2+3+5) unit = $\frac{200}{2}$

1 unit = 10

Largest number = 5 unit = 5x10 = 50

Required square of the number = 50^2 =2500

Sol 77.(b)

a : b : c : d

2 : 5

4 : 7

9 : 14

Balancing the ratio for B and C

a : b : c : d

2 : 5 **: 5 : 5**

4 : 4 : 7 **: 7**

9 : 9 : 9 : 14

72:180:315:490

Sol 78.(b)

The number of students studying in school A = 12 unit

The number of students studying in school B = 15 unit

The number of students studying in school C = 16 unit

Increased number of students studying in school A = $12 \times \frac{150}{100}$ = 18 unit

Increased number of students studying in school B = $15 \times \frac{120}{100}$ = 18 unit

Increased number of students studying in school C = $16 \times \frac{150}{100}$ = 24 unit

Required ratio = 18:18:24 = 3:3:4

Sol 79.(d)

a : b : c : d

2 : 3

4 : 5

6 : 7

Balancing the ratio for B and C

a : b : c : d

2 : 3 **: 3 : 3**

4 : 4 : 5 **: 5**

6 : 6 : 6 : 7

48:72:90:105

16:24:30:35

$\Rightarrow \frac{A+B+C}{D} = \frac{16+24+30}{35} = 2$

Sol 80. (d)

Let the initial number of boys = 6 unit and initial number of girls = 5 unit

According to the question

(6+5) unit = 550

1 unit = 50

Number of boys = 6x50 = 300

Number of girls = 5x50 = 250

Let the required number of girls = k

$\Rightarrow \frac{300}{250+k} = \frac{5}{6}$

$\Rightarrow$ 360 = 250+k

$\Rightarrow k$ = 110

Sol 81.(b)

Let the age of father = f and age of kartik = k

According to the question

f = 4k ……(1)

And

(f-3) = 7(k-3)

Put the value of f from equation (1)

(4k-3) = 7k-21

$\Rightarrow k$ = 6

Sol 82. (b)

Let the initial number of boys = 4 unit and initial number of girls = 5 unit

Increased number of boys = $4 \times \frac{150}{100}$ = 6 unit

Increased number of girls = $5 \times \frac{160}{100}$ = 8 unit

Required ratio = 6:8

= 3:4

Sol 83. (d)

Let X = 4 unit, Y = 7 unit and Z = 9 unit

$\Rightarrow \frac{x}{y} : \frac{y}{z} : \frac{x}{z} = \frac{4}{7} : \frac{7}{9} : \frac{4}{9}$ = 36:49:28

Sol 84. (b)

Let the numbers are 4k and 3k

According to the question

$(4k)^3 - (3k)^3 = 999$

Pinnacle

$\Rightarrow 37k^3 = 999$

$\Rightarrow k = 3$

$\Rightarrow$ Smaller number = 3k = 3x3 = 9

Required square of the number = $9^2 = 81$

Sol 85. (d)

Given,

A : B : C : D = 4 : 8 : 11 : 15

Let A = 4 unit, B=8 unit, C=11 unit and D = 15 unit

According to the question

(15-4) unit = 22000

1 unit = 2000

Required sum = (11+8) unit = 19 x 2000 = 38000

Sol 86. (a)

According to the question

$\frac{0.8}{X} = \frac{5}{8}$

$\Rightarrow$ X=1.28

Sol 87. (c)

Let the three parts are a,b and c

According to the question

3a=6b=8c

$\Rightarrow a : b : c = 8 : 4 : 3$

Let a = 8 unit, b = 4 unit and c = 3 unit

According to the question

8 unit = 1600

1 unit = 200

c = 3 unit = 3x200 = 600

Sol 88. (d)

Let the numbers are a and b.

According to the question

a+b=27 …….(1)

and

a-b = 3 ……(2)

Add eq(1) and eq(2)

(a+b)+(a-b) = 27+3

$\Rightarrow a = 15$

$\Rightarrow b = 27 - a = 27 - 15 = 12$

Required ratio = 15:12

= 5 : 4

Sol 89. (c)

According to the question

x+y=48 …….(1)

and

x-y = 6 ……(2)

Add eq(1) and eq(2)

(x+y)+(x-y) = 48+6

$\Rightarrow x = 27$

$\Rightarrow y = 48 - 27 = 21$

Required ratio = 27:21

= 9 : 7

Sol 90.(a)

Let the sum got by first person = 3 unit and the sum got by 2nd person = 2 unit

According to the question

(3-2) unit = 12

Required sum = (3+2) unit = 5x12 = 60

Sol 91.(a)

Let the two numbers are 2k and k.

According to the question

$\frac{2k+5}{k+5} = \frac{3}{2}$

$\Rightarrow 4k + 10 = 3k + 15$

$\Rightarrow k = 5$

Required sum = 2k+k = 3x5 = 15

Sol 92.(a)

Let the Ram's share = 3 unit and Rahim's share = 2 unit

According to the question

3 unit = 36000

1 unit = 12000

Total sum = (3+2) unit = 5x12000 = 60000

Sol 93. (c)

Let the two numbers are 9k and 7k.

According to the question

$\frac{9k+6}{7k+6} = \frac{21}{17}$

$\Rightarrow 153k + 102 = 147k + 126$

$\Rightarrow k = 4$

Required difference = 9k-7k = 2x4 = 8

Sol 94.(a)

A : B : C : D

2 : 3

4 : 5

1 : 2

Balancing the ratio for B and C

A : B : C : D

2 : 3 : **3 : 3**

4 : 4 : 5 **: 5**

1 : 1 : 1 : 2

8 : 12 : 15 : 30

According to the question

(8+12+15+30) unit = 5200

1 unit = 80

$\Rightarrow$ D-B = (30-12) unit = 18x80 = 1440

Sol 95.(b)

Given,

b : a : d : e

3 : 2

3 : 4

5 : 3

Balancing the ratio for a and d

b : a : d : e

3 : 2 : **2 : 2**

3 : 3 : 4 : **4**

5 : 5 : 5 : 3

45:30:40:24

Required ratio = 24 : 45

= 8 : 15

Sol 96. (a)

Let the present age of A = 5k and present age of B = 3k

According to the question

$\frac{5k-9}{3k-9} = \frac{23}{12}$

$\Rightarrow 60k - 108 = 69k - 207$

$\Rightarrow k = 11$

Present age of A =5k= 5x11 = 55

Present age of B =3k= 3x11 = 33

Required ratio = 55+15 : 33+15

= 35 : 24

Sol 97. (b)

Since x is the mean proportion.

$x = \sqrt{25.6 \times 32.4} = 28.8$

y is the third proportion of 32 and 48

$\Rightarrow \frac{32}{48} = \frac{48}{y}$

$\Rightarrow$ y=72

Required ratio = 3 x 28.8 : 2 x 72

= 3 : 5

Sol 98. (a)
Let the salary of Abhinav = 6s and salary of Rekha = 5s
Let the expenditure of Abhinav = 9e and expenditure of Rekha = 8e
According to the question
6s = 2 × 8e
⇒ s:e = 8:3
Let s = 8 unit and e = 3 unit
Salary of Abhinav = 6x8 = 48 unit
Salary of Rekha = 5x8 = 40 unit
Expenditure of Abhinav = 9x3 = 27 unit
Expenditure of Rekha = 8x3 = 24 unit
Required ratio = 48-27 : 40-24
= 21 : 16

Sol 99. (a)
Case 1:
Son 1 : Son 2 : Son 3 : Total Sum
2 : 3 : 8 : 13
Case 2:
Son 1 : Son 2 : Son 3 : Total Sum
$\frac{1}{2}$: $\frac{1}{3}$: $\frac{1}{8}$
12 : 8 : 3 : 23
Balancing the ratio for total sum
Son1 : Son2 : Son3 : Total Sum
Case 1 46 : 69 : 184 : 13 x 23
Case 2 156: 104 : 39 : 23 x 13
According to the question
(156-46) unit = 2200
1 unit = 20
Total sum = 23 x 13 x 20 = 5980

Sol 100.(a)
Let the required number = x
According to the question
$\frac{4-x}{9-x} = \frac{1}{6}$
24-6x=9-x
⇒ $x = 3$

Sol 101. (d)
According to the question
$\frac{x}{8} = \frac{8}{27}$
⇒ $x = \frac{64}{27}$

Sol 102. (d)
Given, a : b = 2 : 3
Let a=2 unit and b = 3 unit
According to the question
$\frac{3a+4b}{4a+5b} \Rightarrow \frac{3(2)+4(3)}{4(2)+5(3)} = \frac{18}{23}$

Sol 103. (a)
Divisor : Dividend
7 : 12
Divisor : Remainder
3 : 2
Balancing the ratio for Divisor
Divisor : Dividend : Remainder
21 : 36 : 14
According to the question
14 unit = 14
1 unit = 1
21 unit = 21
Required remainder = $\frac{21}{9} = 3$

Sol 104. (b)
A : B
Total students 3 : 4
Girls in class B is 50% of boys.
Let total students in B = 4 unit
50% = $\frac{1}{2}$
So number of boys in B = $4 \times \frac{2}{2+1}$ = $\frac{8}{3}$ unit
Total students in A : Boys in B
3 : $\frac{8}{3}$
9 : 8
A : B
Boys 2 : 3
Balancing the ratio for number of boys in B
⇒ Boys in B = 24 unit
Total students in A = 27 unit
Boys in A = 16 unit
Number of girls in A = 27-16 = 11 unit
Girls in class B = $\frac{24}{2}$ = 12 unit
Required ratio = 11 : 12

Sol 105.(a)
According to the question
$\frac{5}{15} = \frac{x}{90}$
⇒ $x = 30$
And
$\frac{162}{y} = \frac{y}{128}$
⇒ $y^2 = 162 \times 128$
⇒ $y = 144$
Required ratio = 8(30) : 144
= 5 : 3

Sol 106.(a)
Given,
A : B : C : D
4 : 3
5 : 4
6 : 5
Balancing the ratio for B and C
A : B : C : D
4 : 3 : **3 : 3**
5 : 5 : 4 **: 4**
6 : 6 : 6 : 5
_____
120 : 90 : 72 : 60
20 : 15 : 12 : 10
According to the question
(20+15+12+10) unit = 6859
57 unit = 6859
Share of B = 15 unit = $\frac{6859}{57} \times 15 = 1805$

Sol 107.(b)
Let the initial number of males = 6k and initial number of females = 7k
According to the question
$\frac{6k}{7k-15} = \frac{12}{11}$
66k = 84k-180
⇒ $k = 10$
Initial number of males = 6k = 6x10 = 60
Initial number of females = 7k = 7x10 = 70
Required Ratio = 60+6 : 70-15
= 6 : 5

Sol 108. (d)
Let the income of A = 3x and B = 8x
Let the savings of A = 9y and B = 25y
According to the question
3x = 8x-25y

Pinnacle

$\Rightarrow \frac{x}{y} = \frac{5}{1}$

Let x = 5unit and y = 1 unit

Expenditure of A = 3(5)-9(1) = 6 unit

Expenditure of B = 8(5)-25(1) = 15 unit

Required ratio = 6 : 15

= 2 : 5

Sol 109.(c)

According to the question

$\frac{8+x}{14+x} = \frac{20+x}{30+x}$

$\Rightarrow (8+x)(30+x) = (20+x)(14+x)$

$\Rightarrow 240 + 38x + x^2 = 280 + 34x + x^2$

$\Rightarrow x = 10$

x-2 = 10-2 = 8 and 7x+2 = 7(10)+2 = 72

$\frac{8}{x} = \frac{x}{72}$

$x^2 = 576$

$\Rightarrow x = 24$

Sol 110. (d)

According to the question

$\frac{12}{16} = \frac{5}{x}$

$\Rightarrow x = \frac{20}{3}$

Also

$\frac{20}{y} = \frac{15}{21}$

$\Rightarrow y = 28$

6x-y $\Rightarrow 6(\frac{20}{3}) - 28 = 12$

Sol 111. (d)

For A:B:C:D = 4:6:7:3

$\Rightarrow (4 + 6 + 7 + 3)\ unit = 3200$

$\Rightarrow 1\ unit = 160$

Share of A = 4 unit = 4x160 = 640

Share of B = 6 unit = 6x160 = 960

Share of C = 7 unit = 7x160 = 1120

Share of D = 3 unit = 3x160 = 480

For A:B:C:D = 3:5:6:2

$\Rightarrow (3 + 5 + 6 + 2)\ unit = 3200$

$\Rightarrow 1\ unit = 200$

Share of A = 3 unit = 3x200 = 600

Share of B = 5 unit = 5x200 = 1000

Share of C = 6 unit = 6x200 = 1200

Share of D = 2 unit = 2x200 = 400

Only A and D got less amount than the previous one.

%age for A = $\frac{640-600}{640} = 6\frac{1}{4}\%$

%age for B = $\frac{480-400}{480} = 16\frac{2}{3}\%$

Clearly option D is the desired answer.

Sol 112. (d)

the mean proportional between 4.5 and 0.5 = $\sqrt{4.5 \times 0.5} = 1.5$

third proportional to 4.5 and 9.0 = $\frac{9.0 \times 9.0}{4.5} = 18$

Required ratio = 1.5 : 18

= 1 : 12

Sol 113. (c)

Let total profit = P

According to question

$P \times \frac{96}{100} \times \frac{4}{3+4+5} = 181400$

P = 566875

amount of profit set aside for emergency fund = $566875 \times \frac{4}{100}$ = 22675

Sol 114. (d)

Mean Proportion = $\sqrt{8.1 \times 3.6} = 5.4$

Third Proportion of 2 and 3 = $\frac{3 \times 3}{2} = 4.5$

Required ratio = 5.4 : 4.5

= 6:5

Sol 115. (d)

Let x = 1 unit, y = 1 unit and z = 2 unit

According to the question

(1+1+2) unit = 400

1 unit = 100

The value of z = 2 unit = 100 x 2 = 200

Sol 116. (a)

Let the number of boys = 3 unit and number of girls = 2 unit

According to the question

(3+2) unit = 360

1 unit = 72

Number of girls = 2 unit = 72 x 2 = 144

Sol 117.(b)

Let l = k , m = 2k and n = 4k

$\Rightarrow \sqrt{5l^2 + m^2 + n^2} = \sqrt{5(k)^2 + (2k)^2 + (4k)^2} = 5k = 5l$

Sol 118. (d) Let the numbers are x and y.

According to the question

x+y = 27 .....(1)

And x-y = 3 .....(2)

Adding equation (1) and (2)

2x=30

$\Rightarrow x = 15$

So, y = 27-x or x-3 = 12

Required ratio = 15:12

= 5:4

Sol 119.(a)

Given,

u+v = 84 .....(1)

and u-v = 4 .....(2)

Adding equation (1) and (2)

2u = 84+4

$\Rightarrow u = 44$

So, v = 84-u or u-4 = 40

Required ratio = 44:40

= 11 : 10

Sol 120. (c)

Let the fourth item = x

According to the question

$\frac{24}{32} = \frac{48}{x}$

$\Rightarrow x = \frac{48 \times 32}{24} = 64$

Sol 121.(a)

Given,

(2x-y) : (5x+3y) = 3:8

$\frac{(2x-y)}{(5x+3y)} = \frac{3}{8}$

16x-8y = 15x+9y

x=17y

$\Rightarrow \frac{x}{y} = \frac{17}{1}$

$(x^2 + y^2) : (x^2 - y^2) = (17^2 + 1^2) : (17^2 - 1^2)$

= 145 : 144

Sol 122. (b)
Let the age of Ramesh = r and the age of Suresh = s
$\Rightarrow r = 3s$ .....(1)
Also,
(r+2) = 2(s+2)
$\Rightarrow$ r-2s = 2
Put the value of r from 3s
$\Rightarrow$ 3s-2s = 2
$\Rightarrow$ s = 2
So age of ramesh (r) = 3s = 3 x 2 = 6 years

Sol 123. (d)
Let the present age of mother = 4k and age of son = k
According to the question
$\frac{4k+14}{k+14} = \frac{2}{1}$
$\Rightarrow k = 7$
the present age of mother = 4k = 4x7 = 28 years

Sol 124. (b)
Given,
a : b : c
2 : 3
2 : 3
$\Rightarrow$ a:b:c = 4:6:9
Let a=4k, b = 6k and c = 9k
$(3a^2 + b^2 + c^2):(a^2 + 2b^2 + c^2)$
$\Rightarrow \{3(4k)^2 + (6k)^2 + (9k)^2\}:\{(4k)^2 + 2(6k)^2 + (9k)^2\}$
$\Rightarrow$
$(48k^2 + 36k^2 + 81k^2) : 16k^2 + 72k^2 + 81k^2$
$\Rightarrow 165k^2 : 169k^2 = 165:169$

Sol 125. (a)
Let the age of A five years ago = 3k and the age of B five years ago = 4k
According to the question
$\frac{3k+5+5}{4k+5+5} = \frac{4}{5}$
$\Rightarrow 15k + 50 = 16k + 40$
$\Rightarrow k = 10$
Age of A five years ago = 3(10) = 30 years and age of B five years ago = 4(10) = 40 years
A's age after 10 years = 30+5+10 = 45
B's age after 10 years = 40+5+10 = 55
Required ratio = 45 : 55
= 9 : 11

Sol 126. (c)
Let 4 years ago the age of A = 7k and the age of B = 5k
According to the question
$\frac{7k+4+6}{5k+4+6} = \frac{19}{15}$
105k + 150 = 95k + 190
$\Rightarrow k = 4$
Current age of A = 7k+4 = 7(4)+4 = 32
Current age of B = 5k+4 = 5(4)+4 = 24
Required ratio = 32 : 24
= 4 : 3

Sol 127. (c)
Let a = k, b = 3k and c = 5k
$\Rightarrow \frac{4a-b+2c}{3(a+b+c)} = \frac{4(k)-3k+2(5k)}{3(k+3k+5k)} = \frac{11}{27}$

Sol 128. (b)
Rubber : Pen : Pencil : Marker
20 : 3
1 : 2
6 : 5
Balancing the ratio for pen and pencil
Rubber : Pen : Pencil : Marker
3 : 20 : **20** : **20**
2 : 2 : 1 : **1**
5 : **5** : 5 : 6

---

30 : 200 : 100 : 120
6 : 40 : 20 : 24
According to the question
6 unit = 3
1 unit = ½
24 unit = 12

SSC CGL TIER I

Sol 1. (b) It is given that; base radius of 2 cylinders are in the ratio 3:4 and their heights are in the ratio of 4:9.
We know that,
Volume of cylinder = $\Pi r^2 h$
Volume $\propto$ radius^2
Volume $\propto$ height
Hence ratio of their volumes is
$\frac{3\times3\times4}{4\times4\times9} = \frac{1}{4}$

Sol 2. (d) Total students in school = 640
Ratio of number of boys to girls is 5:3 = 8 units in total
8 units = 640
1 unit = 80
Boys are 5 units = 400
Girls are 3 units = 240
On adding 30 more girls, Total girls = 270
Let x boys be added to make ratio of boys to girls 14:9
$\frac{400+x}{270} = \frac{14}{9}$
x = 20

Sol 3. (a) Mean proportional, x= $\sqrt{12.8 \times 64.8} = 28.8$
Third proportional, y= $\frac{57.6\times57.6}{38.4}$ =86.4
Then,
$\frac{2x}{y} = \frac{2\times28.8}{86.4} = \frac{2}{3}$

Sol 4. (b) Ratio of two numbers is 5:7
First number = 5a
Second number = 7a
5a = 20 $\Rightarrow$ a = 4
Second number = 7 × 4 = 28

Sol 5. (c) 2x+1, x+2, 2 and 5 are in proportion.
Thus:
$\frac{2x+1}{x+2} = \frac{2}{5} \Rightarrow 10x+5 = 2x+4 \Rightarrow 8x = -1 \Rightarrow x = -\frac{1}{8}$
$3.5(1-x) = \frac{7}{2}[1-(-\frac{1}{8})] = \frac{7}{2}[\frac{9}{8}] = \frac{7\times9}{16}$
$8(1+x) = 8(1-\frac{1}{8}) = 7$
Mean proportional = $\sqrt{\frac{7\times9}{16} \times 7} = 5.25$

Pinnacle

Sol 6. (d) Let boys be '7x' and girls be '6x'
As per given question:
$\frac{7x+4}{6x-3} = \frac{4}{3} \Rightarrow x = 8$
Initially total number of boys and girls = 13x = 104

Sol 7. (a) A:B:C:D = $\frac{1}{3} : \frac{1}{5} : \frac{1}{6} : \frac{1}{9}$
⇒ A:B:C:D = 30: 18: 15: 10 = 73 units
⇒ B-D = 8 units = ₹832
⇒ 1 unit = 104
73 units = 73*104 = ₹ 7,592

Sol 8. (b) Ratio 8 years ago was = 2:3 …(i) ⇒ difference = 1 unit
Ratio 4 years ago was = 5:7 ⇒ 2 unit …(ii)
Difference in ratio must be the same as both have increased by the same number of years. Thus, multiply (i) by 2;
we get:
Ratio 8 years ago was = 4:6
Ratio 4 years ago was = 5:7
In 4 years, ratio increase by 1,
Thus, 1 ratio = 4 years
And
Age 4 years ago = 20 years and 28 years
Age after 8 years from now will be 32 years and 40 years.
Required ratio = 4:5

Sol 9. (a) $\frac{10+x}{16+x} = \frac{22+x}{32+x}$
⇒ (10+x)(32+x) = (22+x)(16+x)
⇒ x = 8
Mean proportional of (x+1) and (3x+1) is: $\sqrt{(9)(25)} = 15$

Sol 10. (c) Ratio of amount of Sunita, Amit and Vibha = 2x:3x:4x
Total amount = 9x
(Directly check option which is multiple of 9)
4x = ₹ 14416
Then, 9x = $\frac{14416}{4} \times 9 =$ ₹ 32,436

Sol 11. (d) According to question:
2A = 5B = 7C
A:B:C = 35:14:10 = 59 units
59 units = ₹ 1180
1 unit = ₹ 20
A's share = ₹ 700

Sol 12. (c) Notes of ₹ 10 and ₹ 50 are in ratio = 1:2 = 3x
3x = 12 ⇒ x = 4
There are 4 notes of ₹10 and 8 notes of ₹50.
Total money in wallet = 40+400 = ₹ 440

Sol 13. (d) Three numbers are in ratio = 1a :2a :4a
Their square are in ratio = $1a^2$: $4a^2$:$16a^2$
Sum of square of numbers = $21a^2$ = 1029 ⇒ $a^2 = 49$ ⇒ a= 7
Difference between biggest and smallest number = 3a = 21

Sol 14. (a) A:B = 3:5 and B:C = 2:3
A:B:C = 6:10:15

Sol 15. (d) 3A=4B=5C ⇒ A:B:C = 20:15:12

Sol 16. (b) A:B:C = 3x:4x:2x
9x = 990
x = 110
B = 4x = ₹440

SSC CHSL 2019

Sol1 . (b)
X:Y = 7:5 and Y:Z = 4:3
Therefore, x:y:z = 28:20:15
x+y+z = 28+20+15 = 63 units
63 units = Rs. 6300
1 unit = Rs. 100
Y = 20 units = 20 × 100 = Rs. 2000

Sol2.(a)
Seema : Komal : Rita
1.5 : 2
2 : 2.5
---
3 : 4 : 5
Total share = 3+4+7 = 12 unit
Rita's share = $\frac{5}{12}$ × 3600 = *Rs*1500

Sol3. (b)
Given, a : b = 4 : 7 , b : c = 4 : 5
A : B : C
4 : 7
4 : 5
Balancing the ratio for B
A : B : C
16 : 28 : 35
Sum of three numbers = 16+28+35 = 79 Units → 79
= 1 Unit → 1
Second number =28 units → 28 × 1 = 28

Sol4.(c)
2145 : x :: 3003 : 42
$\frac{2145}{x} = \frac{3003}{42}$
x = 30
x : 2508:: y: 11704
$\frac{30}{2508} = \frac{y}{11704}$
y = 140

Sol.5:(c)
$\frac{4x-4}{5x-4} = \frac{11}{14}$
56x-56=55x-44
x=12
Age of man (4 years ago)=48 year
Age of father (4 years ago)=60 year
Age of son (4 years ago)=8 year
After12 years,
Required ratio=(60+12):(8+12)
=18:5

Sol.6:(a)
a : b : c
3 : 5
2 : 3
---
6 : 10 : 15

Sol.7: (d)

Pinnacle

Present age of Ravi, Mohan and Govind = $3 \times 32 + 3 \times 6 = 114$
Sum of ages of four = $4 \times 36 = 144$
The present age of shyam = 144-114 = 30 years

Sol.8: (a)
x : y = 3 : 2
7(x - y) : (x + y)
= 7(3-2): (3+2)
= 7:5

Sol.9:(b)
Amount divided among three people A, B, C in the ratio 3 : 5 : 8,
(3+5+8) units = 16 units → Rs18,144
The amount B gets more than A = 2 units → Rs2,268

Sol.10:(d)
Let, the third number = 100
Second number = 125, then third number = 165
Required ratio = 125:165 = 25:33

Sol.11: (c)
2x+5x+3x = 800
x = 80
Required sum = 5x+3x = 8x = 8 × 80 = 640

Sol.12: (a)
ratio of white marbles to red marbles = 3 : 5
5 unit = 150
3 unit = 90

Sol.13: (c)
Side of the squares = $\sqrt{16} : \sqrt{1} = 4 : 1$
Ratio of perimeter will be = 4 : 1

Sol.14: (c)
fourth proportional = $\frac{10}{12} = \frac{15}{x}$
x = 18

Sol.15: (c)
LCM of 3x, 4x and 5x = 60x
60x = 1800
x = 30
Second number = 4x = 4 × 30 = 120

Sol.16: (a)
$\frac{8+x}{13+x} = \frac{26+x}{40+x}$
Put x = 2
$\frac{10}{15} = \frac{28}{42}$
$\frac{2}{3} = \frac{2}{3}$ (satisfy)

Sol.17: (a)
Go through option (a)
$\frac{5+3}{7+5} = \frac{8}{12} = \frac{2}{3}$ (which satisfy)
$\frac{5+1}{7-3} = \frac{6}{4} = \frac{2}{3}$ (which satisfy)

Sol.18: (d)
14x+19x = 2145
x = $\frac{2145}{33}$ = 65
The number of women in the factory = 19x = 19 × 65 = 1,235

Sol.19:(c)
$\frac{15x-6}{8x-6} = \frac{13}{6}$
90x-36 = 104x-78
42 = 14x
x = 3
Father's age = 15 × 3 = 45

Sol.20:(a)
$\frac{5x+4800}{8x+4800} = \frac{7}{10}$
56x+33,600 = 50x+48,000
6x = 14,400
x = 2400
Vipin's salary = 5x = 5 × 2400 = 12,000

Sol.21:(c)
50% of A = 25% of B
A : B = 1 : 2

Sol.22: (b)
$\frac{a+3b}{2a+4b} = \frac{3}{5}$
5a+15b = 6a+12b
3b = a
$\frac{a}{b} = \frac{3}{1}$

Sol. 23: (c)
Sum of ages of man to son = 2*60 = 120
13x+7x = 120
x = 6
Son's age = 7x = 7 × 6 = 42 years

Sol.24: (c)

A	:	B	:	C
180		120		100

The ratio of the numbers A to B = 3:2

Sol 25. (a)
Perimeter of rectangular field = 32 m
Length : Breadth = 5 : 3
Let length = 5x and breadth = 3x
Perimeter of rectangle = 2(l + b)
= 2 (5x + 3x) = 32
16x = 32
x = 2
Length = 5x = 10 m and breadth = 3x = 6 m

Sol 26. (d)
Age ratio of Fatima and Ahmed = 3:8
Let Fatima age = 3x and Ahmed age = 8x
Sum of their present ages = 11x = 44
x = 4
Difference of their ages = 8x - 3x = 5x = 5 × 4 = 20 years

Sol 27. (c)
When a same number is added to two different numbers, their difference remains the same.
4 : 7 → difference = 3
2 : 3 → difference = 1
Make the difference same, by multiplying 1 by 3.
Therefore,
4 : 7 → difference = 3
6 : 9 → difference = 3
Clearly, 2 must be added to each of 4:7, to make it equal to 2:3.

Pinnacle

Sol 28. (b)
Perimeter = 2(l+b) = 50 cm
$\frac{area}{length} = \frac{5}{1}$
$\Rightarrow \frac{length \times breadth}{length} = \frac{5}{1}$
$\Rightarrow$ breadth = 5
2(l+5) = 50 cm
$\Rightarrow$ l + 5 = 25
$\Rightarrow$ l = 20 cm

Sol 29. (a)
Sum of prices = 14,265 × 3 =
Let the prices are 7x, 9x, 11x
7x+9x+11x = 42,795
x = 1585
The price of costliest item = 11x
= 11 × 1585 = 17,435

Sol 30. (a)
Length:Breadth of a rectangle = 5:3
Length = 5x and Breadth = 3x
Length - Breadth = 8
$\Rightarrow$ 5x - 3x = 8
$\Rightarrow$ 2x = 8
$\Rightarrow$ x = 4
Area of rectangle = Length ×
Breadth = 5x × 3x = $15x^2$ = 15 × $(4)^2$ = 240 m^2
Sol 31. (a)
2(3x+2x) = 730
x = 73
Length = 3x = 3 × 73 = 219
Breadth = 2x = 2 × 73 = 146
Required area = 219 × 146 = 319743

Sol 32. (b)
Number of tables = 7x and chairs = 9x
16x = 560
x = 35
9x = 9 × 35 = 315

Sol 33. (c)
Ratio of income of P and Q = 5 : 6
Income of P = 5x
Income of Q = 6x
Saving of each = Rs. 200
Expenditure ratio of P and Q = 5x - 200 : 6x - 200
Ratio of expenditure of P and Q = 3 : 4
$\Rightarrow \frac{5x-200}{6x-200} = \frac{3}{4}$
$\Rightarrow$ 20x - 800 = 18 x - 600
$\Rightarrow$ 2x = 200
$\Rightarrow$ x = 100
Income of Q = 6x = Rs. 600

Sol 34. (b)
$\Rightarrow \frac{Perimeter}{Length} = \frac{6}{1}$
$\Rightarrow \frac{2 \times (L+B)}{L} = \frac{6}{1}$
$\Rightarrow \frac{(L+B)}{L} = \frac{3}{1}$
$\Rightarrow$ L + B = 3L
$\Rightarrow$ B = 2L
$\Rightarrow$ L : B = 1:2
Length of rectangle = a
Breadth of rectangle = 2a
Area of rectangle = 288 cm^2
L × B = 288
a × 2a = 288
a^2 = 144

Sol 35. (c)
Let three numbers be a, b and c
a = 125% of c
b = 160% of c
a : b = 125 : 160 = 25 : 32

Sol 36. (b)
x:y = 3:2
x = 3a
y = 2a
x+y = 90
3a + 2a = 90
5a = 90
a = $\frac{90}{5}$ = 18
x - y = 3a - 2a = a = 18

Sol 37. (a)
$\frac{16-a}{19-a} = \frac{7}{6}$
On Cross multiplying; we get:
6(16 -a) = 7(19 - a)
96 - 6a = 133 - 7a
a = 133 - 96
a = 37

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Sol:38.(b)
Number of boys = $\frac{5}{8}$
Below 10 boys = $\frac{5}{8} \times \frac{1}{3} = \frac{5}{24}$
Below 10 girls = $\frac{3}{8} \times \frac{2}{3} = \frac{1}{4}$
Below 10 students = $\frac{11}{24}$
Above 10 students = $\frac{13}{24}$
Total students = 260 × $\frac{24}{13}$ = 480
Number of boys =480 × $\frac{5}{8}$ = 300

39.Sol:(a)
X share in investment = 3 × 5 + 4.5 × 7 = 46.5
Y share in investment = 5 × 5 + 2 × 7 =39
Total investment = 85.5
X share = $\frac{46.5}{85.5}$ × 6.84 = 3.72

Sol.40:(d)
Sum of Present age= 52
Sum of their age after 4 years = 60 years
Son age after 4 year = 60 × $\frac{1}{5}$ = 12 years
Present age of son = 8 years
Present age of father = 44 years
After 10 years son = 18 years
After 10 years father = 54 years
Their age ratios = 18 : 54 = 1 : 3

Sol:41.(b)
Let the fraction = $\frac{x+3}{x}$
According to the question
$\frac{x+8}{x-2} = \frac{8}{3}$
3x+24 =8x -16
x = 8
Original Fraction = $\frac{11}{8}$
After dividing it by $\frac{11}{2}$ =
$\frac{11}{8} \times \frac{2}{11} = \frac{1}{4}$

Sol:42.(a)
$\frac{9+x}{15+x} = \frac{21+x}{31+x}$
$279 + x^2 + 40x = 315 + x^2 + 36x$
$4x = 36$
x=9

Mean proportion of 25 and 49 is
$= \sqrt{25 \times 49} = 35$

Sol:43.(b)
Income = saving + expenditure
monthly incomes of A and B = 3 : 5
monthly saving of A and B = 2 : 3
Given that
income of B : saving of A = 3 : 1
Making income of B and saving of A equal
monthly incomes of A and B = (3 : 5) × 2 = 6 :10
monthly saving of A and B =(2 : 3) × 5 = 10 : 15
Making income of B three times the saving of A
monthly incomes of A and B =(6 : 10) × 3 = 18 : 30
monthly saving of A and B = 10 : 15
Ratio of expenditure of A and B = 8 : 15

Sol:44.(b)
$\frac{1}{3}, \frac{1}{4}, \frac{1}{5}$ when multiplied by 60(LCM of 3,4,5)
Ratio = 20 : 15 : 12
Sum of ratio = 20 + 15 + 12 = 47
multiply by 12 =
240 : 180 : 144
Sum of ratio = 3 + 4 + 5 = 12
Multiply by 47= 141 :
188 : 235

Difference of the least share son = 240 - 141 = 99
Total sum = $\frac{12 \times 47}{99}$
$\times 1188 = 6,768$

Sol:45.(d)
ratio of the monthly income of X and Y = 5 : 4
ratio of the monthly expenditure = 9 : 7
According to the question
income of Y = expenditure of X
Multiply income ratio by 9 and expenditure ratio by 4
ratio of the monthly income of X and Y = 45 : 36
ratio of the monthly expenditure = 36 : 28
Saving = income - expenditure
Saving of X : Y = 9 : 8

Sol:46.(b)
Let the fraction be = $\frac{x}{2x+4}$
According to the question
$\frac{x+3}{2x+4-3} = \frac{2}{3}$
3x +9 = 4x + 2
x=7
Fraction = $\frac{7}{18}$
Difference between the numerator and denominator of the fraction
18 - 7 = 11

Sol47:(a)
ratio of the shares of A : B = 1 : 3
ratio of the shares of B : C = 2 : 5
ratio of the shares of C : D = 2 : 3
Ratio of A : B : C : D = 4 : 12 : 30 : 45
Difference between A and C is =
26x = 3510
x = 135
Share of D = 135 × 45 = 6075

Sol:48.(a)
Profit = money invested × investment time
Profit ratio = 5x : 7y : 4z = 45 : 42 : 28
Time = 9 : 6 : 7

Sol:49.(c)
LCM of 4,3 2 is 12
Multiply the ratio by 12
a : b : c = 3 : 4 : 6
$\frac{a}{b} : \frac{b}{c} : \frac{c}{a} = \frac{3}{4} : \frac{4}{6} : \frac{6}{3}$
LCM of 4,6 and 3 is 12
Multiply the ratio by 12
$\frac{a}{b} : \frac{b}{c} : \frac{c}{a} = 9 : 8 : 24$

Sol:50.(a)
According to the question
$\frac{19-x}{28-x} = \frac{55-x}{91-x}$
$1729 - 110x + x^2 = 1540 - 83x + x^2$
189 = 27x
x = 7
mean proportion of 16 and 49 is =
$\sqrt{16 \times 49} = 28$

51.Sol:(d)
Total capital of A = 4 × 5 + 8 × 4 = 52
Total capital of B = 4 × 6 + 8 × 8 = 88
Share of B = $\frac{88}{140} \times 6.3 = 3.96$

Sol:52.(c)
Let three no. are a, b, c.
$\frac{a}{b} = \frac{2}{3}, \frac{b}{c} = \frac{4}{5}$
a : b : c
8 : 12: 15
a=8k, b=12k, c=15k
8k+12k+15k=35k
35k=280
k=8
b=96
Second number =96

Sol:53.(c)
B/G=27/23
B=27K
G=23K
B-G=4K
4K=200
K=50
B=27K=1350

Sol:54.(b)
Present age of A=3x
Present age of B=5x
$\frac{3x+5}{5x+5} = \frac{13}{20}$
x=7
Present age of B=35 Years

55.Sol:(a)
Total investment by Ramesh = ₹40000 × 12=480000
Total investment by Kevin=₹20,000 × 6=120000

Pinnacle

Ratio of their investment = 480000/120000=4:1
Ratio of their share =4/1
Share by Ramesh =4k
Share by Kevin=1k
5k=10000
1k=2000
Share of kevin=2000

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56.Sol:(a)
As we know profit depends on two things time and amount invested
Here time is constant so the ratio now will depend on investment only
Investment ratio of A B and C is 13750:16250:18750
Simplifying it we get
55:65:75 (dividing by 250)
Which can be further simplified to
11:13:15
Given B share of profit=5200
Total profit of A B and C= 11+13+15=39 units
13 units=5200
39 units =5200×3=15600

57.Sol(a)
Ratio of Age of A and B 7years ago=4:5
8 years hence the ratio of their ages=9:10
Difference in ages= 15 years
Difference in ratio= 5 units
So 1 unit=3 years
The sum of ratios of their age 7 years ago=(4+5)=9 units=27 years
Now we have to find out the sum of present ages so we will simply add 2 × 7=14 to 27
The required answer will be 27+14=41 years

58.Sol:.(c)
Total investment = 92,500 + 1,12,500 = 2,05,000
Total profit = $\frac{9000}{1,12,500} \times 2,05,000$ = 16,400

59.Sol:.(a)
Let the share of A = x
Then the share of B = x -500
Share of C = x + 300
Total share of A + B + C = 3x-200 = 8,200
3x = 8,400
x = 2,800

Sol:60.(b)
Total investment = 92,500 + 1,12,500 = 2,05,000
Total profit = $\frac{9000}{1,12,500} \times 92,000$ = 7,400

61.Sol:.(c)
Let the share of A = x
Then the share of B = x -500
Share of C = x + 300
Total share of A + B + C = 3x-200 = 8,200
3x = 8,400
x = 2,800
x + 300 = 3,100

62.Sol:(c)
Profit ratio=8:7:5
Time of investment ratio=7:8:14
Capital ratio=?
We know that capital × investment=profit
Capital ratio= $\frac{8}{7} : \frac{7}{8} : \frac{5}{14}$
Multiplying by 56 we get
64:49:20

63.Sol:(b)
Here time is constant so the ratio now will depend on investment only
Investment ratio of A B and C is 13750:16250:18750
Simplifying it we get
55:65:75 (dividing by 250)
Which can be further simplified to
11:13:15
Given B share of profit=5200
Total profit of A B and C= 11+13+15=39 units
13 units=5200
1 unit=400
Difference in profit earned by A and C is 4 units= 4 × 400= 1600.

64.Sol:(c)
Ratio of A and B 7 years ago=4:5
Ratio of A and B 8 years hence=9:10
Total difference in time = 8+7=15 years
5 units=15 years
1 unit= 3 years
Difference in ages of A and B=1 unit= 3 years
Always remember Difference in ages is always the same irrespective of time

65.Sol:.(c)
Total of A, B and C = 75,500
According to the question
A = B + 3500
B = C + 4500
A = C + 8000
C + 8000 + C + 4500 + C = 75,500
3C + 12,500 = 75,500
C = 21,000
A = 24,500
Share of A = $\frac{24,500}{75,500} \times 45,300$ = 14,700

66.Sol:.(c)
Number of girls = $\frac{5}{12}$
Number of boys = $\frac{7}{12}$
Below 14 girls = $\frac{3}{5}$ of number of girls = $\frac{3}{5} \times \frac{5}{12} = \frac{1}{4}$
Below 14 boys = $\frac{4}{7} \times \frac{7}{12} = \frac{4}{12} = \frac{1}{3}$
Total below 14 = $\frac{1}{4} + \frac{1}{3} = \frac{7}{12}$
Total student = $\frac{12}{7} \times 1120$ = 1,920

Pinnacle

MIXTURE / मिश्रण

Q1. The ratios of copper to Zinc in alloys A and B are 3:4 and 5:9 respectively. A and B are taken in the ratio 2:3 and melted to form a new alloy C. What is the ratio of copper to Zinc in C?
मिश्रधातु A और B में तांबा और जस्ता का अनुपात क्रमशः 3 : 4 और 5 : 9 है | A और B को 2 : 3 के अनुपात में लिया जाता है तथा पिघलाकर एक नयी मिश्रधातु C बनाई जाती है | C में तांबा और जस्ता का क्या अनुपात होगा ?
SSC CGL Tier II 11 September 2019
(a) 8:13
(b) 3:5
(c) 9:11
(d) 27:43

Q2. Alloy A contains copper and Zinc in the ratio of 4:3 and alloy B contains copper and Zinc in the ratio of 5:2. A and B are taken in the ratio of 5:6 and melted to form a new alloy. The percentage of Zinc in the new alloy is closest to :
मिश्रधातु A में तांबा और जस्ता 4 : 3 के अनुपात में हैं तथा मिश्रधातु B में तांबा और जस्ता 5 : 2 के अनुपात में हैं | A और B को 5 : 6 के अनुपात में लिया जाता है तथा उन्हें पिघलाकर एक नयी मिश्रधातु का निर्माण किया जाता है | इस नयी मिश्रधातु में जस्ता का प्रतिशत लगभग कितना है ?
SSC CGL Tier II 12 September 2019
(a) 54
(b) 34.2
(c) 36.8
(d) 35

Q3. A vessel contains a 32 litre solution of acid and water in which the ratio of acid and water is 5:3. If 12 litres of the solution are taken out and $7\frac{1}{2}$ litres of water are added to it, then what is the ratio of acid and water in the resulting solution ?
एक बर्तन में अम्ल और पानी का 32 लीटर विलयन है जिसमें अम्ल और पानी का अनुपात 5 : 3 है | यदि 12 लीटर मिश्रण निकाल लिया जाए और इसमें $7\frac{1}{2}$ लीटर पानी मिला दिया जाए, तो इस प्रकार बनने वाले विलयन में अम्ल और पानी का अनुपात ज्ञात करें |
SSC CGL Tier II 13 September 2019
(a) 4:7
(b) 5:6
(c) 4:9
(d) 8:11

Q4. Fresh fruit contains 68% water and dry fruit contains 20% water. How much dry fruit can be obtained from 100 kg of fresh fruit
ताज़े फल में 68% पानी और सूखे फल में 20% पानी होता है | 100 किलो ग्राम ताज़े फल से कितने किलोग्राम सूखे फल प्राप्त किये जा सकते हैं ?
SSC CPO 16 March 2019 (Morning)
(a) 80
(b) 60
(c) 40
(d) 20

Q5. A milkman uses three containers for selling milk, their capacities being 40L, 30L and 20L respectively. He fills respectively 87.5%, 80% and 90% of the containers with a mix of milk and water in the ratios, 3:2, 5:1 and 7:2 respectively. What is the ratio of total quantity of milk to that of water carried by him ?
एक दूध वाला दूध बेचने के लिए तीन बर्तनों का इस्तेमाल करता है, उनकी धारिता क्रमशः 40 ली०, 30 ली० और 20 ली० है | वह बर्तनों का 87.5%, 80% और 90% भाग दूध और पानी से भरता है जो क्रमशः 3 : 2, 5 : 1 और 7 : 2 के अनुपात में हैं | उसके पास मौजूद दूध और पानी की कुल मात्रा का अनुपात ज्ञात करें |
SSC CHSL 10 July 2019 (Evening)
(a) 7:2
(b) 31:12
(c) 35:9
(d) 5:2

Q6. A mixture has milk and water in the ratio (by volume) of 8:3. If 3 litres of water is added to it, then the new ratio of milk and water becomes 2:1. What are the quantities of milk and water respectively in the mixture initially?
एक मिश्रण में दूध और पानी आयतन के दृष्टिकोण से 8 : 3 के अनुपात में हैं | यदि इसमें 3 लीटर पानी मिला दिया जाए, तो दूध और पानी का नया अनुपात 2 : 1 हो जाता है | आरंभ में मिश्रण में दूध और पानी की मात्रा क्रमशः कितनी थी ?
SSC-MTS 2 August 2019 (Evening)
(a) 24 litres and 9 litres
(b) 32 litres and 12 litres
(c) 40 litres and 15 litres
(d) 16 litres and 6 litres

Q7. The ratio of milk and water in a mixture is 4:3. If we add 2 litres of water, the ratio of milk and water becomes 8:7. What is the quantity of the final mixture?
किसी मिश्रण में दूध और पानी का अनुपात 4 : 3 है | यदि हम 2 लीटर पानी मिला दें, तो दूध और पानी का अनुपात 8 : 7 हो जाता है | अंतिम मिश्रण की मात्रा कितनी है ?
SSC-MTS 5 August 2019 (Morning)
(a) 18 litres
(b) 30 litres
(c) 24 litres
(d) 24 litres

Q8. In the 60 litre mixture of milk and water, the quantities of milk and water are in the ratio of 3 : 2. If we want to make the ratio of the quantities of milk and water 1 : 1, then how much extra water should be put in the mixture ?
दूध और पानी के 60 लीटर मिश्रण में दूध एवं पानी की मात्रा का अनुपात 3:2 है I यदि हम दूध और पानी की मात्रा का अनुपात 1:1 करना चाहता है, तब मिश्रण में कितना और पानी मिलाया जाना चाहिए I
SSC-MTS 5 August 2019 (Afternoon)
(a) 10 litre
(b) 16 litre
(c) 12 litre
(d) 14 litre

Q9. The ratio of Milk and water in a mixture (by volume) is 4 : 3. If 4 litres of water is added to it, then the ratio becomes 1 : 1. What was the quantity of milk in the initial ratio ?
एक मिश्रण में दूध तथा पानी (मात्रा में) का अनुपात 4:3 है I यदि इसमें 4 लीटर पानी मिलाया जाये तो अनुपात 1:1 हो जाता है | शुरुआती मिश्रण में दूध की मात्रा कितनी थी?
SSC-MTS 5 August 2019 (Evening)
(a) 16 litre
(b) 20 litre
(c) 18 litre
(d) 12 litre

Q10. The ratio (by volume) of milk and water in a mixture is 2:1. If we add 12 litres of water in the mixture, then the ratio of milk and water becomes 4:3. What is the quantity of water in the new mixture?
एक मिश्रण में दूध और पानी का अनुपात (मात्रा में) 2 : 1 है | यदि हम मिश्रण में 12 लीटर पानी मिला दें, तो दूध और पानी का अनुपात 4 : 3 हो जाता है | नए मिश्रण में पानी की मात्रा कितनी है ?
SSC-MTS 7 August 2019 (Afternoon)
(a) 84 litres
(b) 24 litres
(c) 48 litres
(d) 36 litres

Q11. In a mixture of 60 litres, the ratio (by volume) of milk and water is 2:1. If X litres of water is added in the mixture, the ratio of milk and water becomes 1:2, then what is the value of X?
60 लीटर के मिश्रण में, दूध और पानी का अनुपात (मात्रा में) 2 : 1 है | यदि मिश्रण में X लीटर पानी मिला दिया जाए, तो दूध और पानी का अनुपात 1 : 2 हो जाता है | X का मान क्या है ?
SSC-MTS 7 August 2019 (Evening)
(a) 40
(b) 56
(c) 20
(d) 60

Q12. In a mixture of 100 litres of milk and water, the ratio of milk and water is 3 : 2. If this ratio is to be 1 : 1, how much more water is to be added to the mixture?
दूध और पानी के 100 लीटर मिश्रण में, दूध और पानी का अनुपात 3 : 2 है | यदि इस अनुपात को 1 : 1 करना है, तो मिश्रण में कितना अतिरिक्त पानी मिलाना होगा ?
SSC MTS 14 August 2019 (Afternoon)
(a) 25 litres
(b) 15 litres
(c) 30 litres
(d) 20 litres

Q13. In a 60 litre solution of acid and water, the ratio of acid and water is 3:7. How much (in litre) acid is to be mixed in the solution so that the ratio of acid and water in the resulting solution is 1:2?
अम्ल और पानी के 60 लीटर विलयन में, अम्ल और पानी का अनुपात 3 : 7 है | विलयन में कितना अम्ल (लीटर में) मिलाया जाना चाहिए ताकि इस प्रकार बनने वाले विलयन में अम्ल और पानी का अनुपात 1 : 2 हो जाए ?
SSC MTS 19 August 2019 (Evening)
(a) $6\frac{1}{2}$
(b) 6
(c) 3
(d) 5

Q14. In a 729 litre solution of Acid and Water, the ratio of acid and water is 7 : 2. To get a solution with the ratio 5 : 3 between acid to water, how many litres of water should be mixed in it ?
अम्ल और पानी के 729 लीटर विलयन में अम्ल और पानी का अनुपात 7:2 है | ऐसा विलयन प्राप्त करने के लिए उसमे कितने लीटर पानी मिलाया जाना चाहिए, जिसमे अम्ल और पानी का अनुपात 5:3 हो?
SSC MTS 20 August 2019 (Morning)
(a) 180.4
(b) 178.2
(c) 182.4
(d) 187.2

Q15. The ratio of spirit and water in solutions in vessels A and B are 3:4 and 5:9 respectively. The contents of A and B are mixed in the ratio 2:3. What is the ratio of water and spirit in the resulting solution?
बर्तन A और B में मौजूद विलयन में स्पिरिट तथा पानी का अनुपात क्रमशः 3 : 4 और 5 : 9 है | A और B की सामग्रियों को 2 : 3 के अनुपात में मिला दिया जाता है | इस प्रकार बनने वाले विलयन में पानी और स्पिरिट का अनुपात क्या होगा ?

SSC MTS 22 August 2019 (Afternoon)

(a) 43:27
(b) 39:16
(c) 8:13
(d) 1:3

Q16. A mixture contains milk and water in the ratio (by volume) 5:3 and another mixture, of the same volume as that of the former, contains water and milk in the ratio (by volume) 1:3. In what ratio, two mixture be mixed in order to obtain a new mixture consisting of milk and water in the ratio (by volume) 7:3 ? किसी मिश्रण में दूध एवं पानी, आयतन के दृष्टिकोण से, 5 : 3 के अनुपात में हैं तथा एक अन्य मिश्रण में, जिसका आयतन पहले मिश्रण के जितना ही है, उसमें पानी और दूध 1 : 3 के अनुपात में हैं | इन मिश्रणों को किस अनुपात में मिलाना चाहिए ताकि प्राप्त होने वाले नए मिश्रण में दूध और पानी (आयतन के अनुसार) 7 : 3 के अनुपात में हो ?

SSC MTS 13 August 2019 (Afternoon)

(a) 2:3
(b) 3:4
(c) 5:6
(d) 3:2

Q17. 57 sweets were distributed among 10 children such that each girl got 6 sweets and each boy got 5 sweets. What is the number of boys ?
10 बच्चों में कुल 57 मिठाइयाँ इस प्रकार बांटी गई कि प्रत्येक लड़की को 6 मिठाइयाँ और प्रत्येक लड़के को 5 मिठाइयाँ मिली | लड़कों कि संख्या है :

SSC MTS 13 August 2019 (Morning)

(a) 3
(b) 6
(c) 4
(d) 5

SSC CGL TIER I

Q1. 25 litres of a mixture contains 30% of spirit and rest water. If 5 litres of water be mixed in it, the percentage of spirit in the new mixture is: / 25 लीटर मिश्रण में 30% स्पिरिट तथा शेष पानी है | यदि 5 लीटर पानी मिला दिया जाए, तो नए मिश्रण में स्पिरिट का प्रतिशत कितना होगा ? **SSC CGL 6 March 2020 (Evening)**

(a) 25%
(b) 45%
(c) $33\frac{1}{3}$ %
(d) $12\frac{1}{2}$ %

Q2. Two bottles of same capacity are 35% and $33\frac{1}{3}$ % full of orange juice, respectively. They are filled up completely with apple juice and then the contents of both bottles are emptied into another vessel. The percentage of apple juice in the mixture is: / समान धारिता वाले दो बोतल क्रमशः 35% और $33\frac{1}{3}$ % संतरे के जूस से भरे हुए हैं | उन्हें पूरी तरह सेब के जूस से भर दिया जाता है तथा फिर दोनों बोतलों की सामग्रियों को एक अन्य बर्तन में उड़ेल दिया जाता है | इस मिश्रण में सेब के जूस का प्रतिशत कितना है ?

SSC CGL 3 March 2020 (Afternoon)

(a) $34\frac{1}{6}$
(b) $64\frac{1}{3}$
(c) $60\frac{2}{3}$
(d) $65\frac{5}{6}$

SSC CGL TIER-II

Q1. A and B are solutions of acid and water. The ratios of water and acid in A and B are 4 : 5 and 1 : 2, respectively If x liters of A is mixed with Y liters of B, then the ratio of water and acid in the mixture becomes 8 : 13. What is x : y ?
A और B एसिड और पानी के मिश्रण हैं। A और B में पानी और एसिड का अनुपात क्रमशः 4: 5 और 1: 2 है, यदि x लीटर A को Y लीटर B के साथ मिलाया जाता है, तो मिश्रण में पानी और एसिड का अनुपात 8: 13. हो जाता है।तो x: y ज्ञात कीजिए |

CGL 2019 Tier-II (15/10/2020)

(a) 5 : 6
(b) 2 : 5
(c) 3 : 4
(d) 2 : 3

Q2. How many kg of the rice costing ₹42 per kg should be mixed with $7\frac{1}{2}$ kg rice costing ₹50 per kg so that by selling the mixture at ₹53.10 per kg, there is a gain of 18%?
कितने किलो चावल जिसकी लागत ₹42 प्रति किलोग्राम है, जिसे $7\frac{1}{2}$ किलोग्राम चावल , जिसकी लागत ₹50 प्रति किलोग्राम है, के साथ मिलाया जाना चाहिए ताकि मिश्रण को ₹53.10 रुपये प्रति किलोग्राम पर बेचकर 18% का लाभ हो|

CGL 2019 Tier-II (15/10/2020)

(a) $12\frac{1}{2}$
(b) $10\frac{1}{2}$
(c) 8
(d) 9

Q3. In what ratio should sugar costing ₹ 40 per kg be mixed with sugar costing ₹ 48 per kg, so that to earn 20% by selling the mixture at ₹ 54 per kg ?
चीनी जिसकी लागत ₹ 40 प्रति किग्रा और चीनी जिसकी लागत ₹ 48 प्रति किग्रा को किस अनुपात में मिलनी चाहिए, ताकि मिश्रण को ₹ 54 प्रति किग्रा बेचकर 20% कमाया जा सके?

CGL 2019 Tier-II (16/10/2020)

(a) 2 : 3
(b) 4 : 7
(c) 3 : 5
(d) 5 : 8

Pinnacle

Q4. A drink of chocolate and milk contains 8% pure chocolate by volume. If 10 liters of pure milk are added to 50 liters of this drink, the percentage of chocolate in the new drink is:
चॉकलेट और दूध का एक पेय में 8% शुद्ध चॉकलेट होता है। यदि इस पेय के 50 लीटर में 10 लीटर शुद्ध दूध मिलाया जाता है, तो नए पेय में चॉकलेट का प्रतिशत होता है:
CGL 2019 Tier-II (16/10/2020)
(a) $5\frac{1}{3}$
(b) $6\frac{1}{3}$
(c) $6\frac{2}{3}$
(d) $5\frac{2}{3}$

Q5: Alloy A contains metal x and y only in the ratio 5 : 2 and alloy B contains these metal in the ratio 3 : 4. Alloy C is prepared by mixing A and B in the ratio 4 : 5. The percentage of x in alloy C is:
मिश्र धातु A में धातु x और y केवल 5: 2 के अनुपात में होते हैं और मिश्र धातु B में ये धातु 3: 4 के अनुपात में होते है। मिश्र धातु C में A और B को 4 : 5 में मिश्रण करके तैयार की जाती है। मिश्रधातु C में x का प्रतिशत है:
CGL 2019 Tier-II (16/10/2020)
(a) $44\frac{4}{9}$
(b) 56
(c) 45
(d) $55\frac{5}{9}$

Q6. A container contains 20 L mixture in which there is 10% sulphuric acid. Find the quantity of sulphuric acid to be added in it to make the solution to contain 25% sulphuric acid.
एक कंटेनर में 20L मिश्रण होता है जिसमें 10% सल्फ्यूरिक एसिड होता है। 25% सल्फ्यूरिक एसिड युक्त घोल बनाने के लिए इसमें कितनी सल्फ्यूरिक एसिड की मात्रा मिलाएँ।
CGL 2019 Tier-II (18/10/2020)
(a) 3L
(b) 5L
(c) 4L
(d) 2L

Q.7 The price of a variety of a commodity is ₹ 7/kg and that of another is ₹ 12/kg. Find the ratio in which two varieties should be mixed so that the price of the mixture is ₹ 10/kg.
एक वस्तु की एक किस्म की कीमत ₹ 7 / किग्रा और दूसरे की ₹ 12 / किग्रा है। उस अनुपात का पता लगाएँ जिसमें दो किस्मों को मिलाया जाना चाहिए ताकि मिश्रण की कीमत 10 / किग्रा हो |
CGL 2019 Tier-II (18/10/2020)
(a) 3:4
(b) 4:5
(c) 2:3
(d) 2:5

Pinnacle

SOLUTION

Sol 1. (d)

	Copper	:	Zinc	:	Total
A	3	:	4	:	7
B	5	:	9	:	14

Balancing the ratio for total quantity and the ratio in which mixtures are taken.

	Copper	:	Zinc	:	Total
A	12	:	16	:	7x2x2
B	15	:	27	:	14x1x3
	27	:	43		

Sol 2.(d)

	Copper	:	Zinc	:	Total
A	4	:	3	:	7
B	5	:	2	:	7

Balancing the ratio for the ratios in which mixtures are taken.

	Copper	:	Zinc	:	Total
A	20	:	15	:	7x5
B	30	:	12	:	7x6
	50	:	27		

Required %Age = $\frac{27}{50+27}$ x 100 ≈ 35

Sol 3. (b)

Let the quantity of acid = 5 unit and quantity of water = 3 unit

According to the question

(5+3) unit = 32

1 unit = 4

5 unit = 20

3 unit = 12

In 12 litres of taken out mixture quantity of acid = 12x $\frac{5}{8}$ = 7 $\frac{1}{2}$ litres

In 12 litres of taken out mixture quantity of water = 12- 7 $\frac{1}{2}$ =4 $\frac{1}{2}$ litres

Required ratio = 20-7 $\frac{1}{2}$: 12-4 $\frac{1}{2}$ +7 $\frac{1}{2}$

= $\frac{25}{2}$:15

= 5 : 6

Sol 4.(c)

68% = $\frac{17}{20}$ and 20% = $\frac{1}{5}$

	Pulp	:	Water
Fresh fruit	8	:	17
Dry fruit	4	:	1

Balancing the ratio for pulp

	Pulp	:	Water
Fresh fruit	32	:	68
Dry fruit	32	:	8

According to the question

(32+68) unit = 100 kg

1 unit = 1 kg

40 unit = 40 kg

Sol 5.(d)

87.5% of 40 = 35 kg

80% of 30 = 24 kg

90% of 20 = 18 kg

Total milk = [35 x $\frac{3}{3+2}$ +24 x $\frac{5}{5+1}$ +18 x $\frac{7}{7+2}$ = 55 kg

Total water = [35+24+18-55] = 22

Required ratio = 55 : 22 = 5:2

Sol 6. (a)

	Milk	:	Water
Initial	8	:	3
New	2	:	1

Only water is added so quantity of milk in both cases will be same. So, Balance the ratio for milk.

	Milk	:	Water
Initial	8	:	3
New	8	:	4

Now,

(4-3) unit = 3

Initial quantity of milk = 8unit = 8x3 = 24 litres

Initial quantity of water = 3unit = 3x3 = 9 litres

Alternate :

Let the initial quantity of milk = 8k and water = 3k

According to the question

$\frac{8k}{3k+3} = \frac{2}{1}$

$\Rightarrow 8k = 6k + 6$

$\Rightarrow k = 3$

the initial quantity of milk = 8k= 8x3 = 24 litres

and the initial quantity of water = 3k = 3x3 = 9 litres

Sol 7. (b)

	Milk	:	Water
Initial	4	:	3
New	8	:	7

Only water is added so quantity of milk in both cases will be same. So, Balance the ratio for milk.

	Milk	:	Water
Initial	8	:	6
New	8	:	7

Now,

(7-6) unit = 2

Final quantity of mixture = (8+7)unit = 15x2 = 30 litres

Alternate:

Let the initial quantity of milk = 4k and water = 3k

According to the question

$\frac{4k}{3k+2} = \frac{8}{7}$

$\Rightarrow 28k = 24k + 16$

$\Rightarrow k = 4$

the initial quantity of mixture = (4+3)k= 7x4 = 28 litres

and the final quantity of mixture = 28+2 = 30 litres

Sol 8. (c)

	Milk	:	Water
Initial	3	:	2
New	1	:	1

Only water is added so quantity of milk in both cases will be same. So, Balance the ratio for milk.

	Milk	:	Water
Initial	3	:	2
New	3	:	3

Now,

(3+2) unit = 60

1 unit = 12

Required quantity of water = (3-2)unit =1unit = 12 litres

Alternate:

the initial quantity of milk = 60 × $\frac{3}{3+2}$ = 36 litres and water = 60 × $\frac{2}{3+2}$ = 24 litres. Let the quantity of water added = x litres

According to the question

Pinnacle

$\frac{36}{24+x} = \frac{1}{1}$

$\Rightarrow 36 = 24 + x$

$\Rightarrow x = 12$

Sol 9. (a)

	Milk : Water
Initial	4 : 3
New	1 : 1

Only water is added so quantity of milk in both cases will be same. So, Balance the ratio for milk.

	Milk : Water
Initial	4 : 3
New	4 : 4

Now,

(4-3) unit = 4

Required quantity of milk = 4 unit = 16 litres

Alternate:

Let the initial quantity of milk = 4k and water = 3k.

According to the question

$\frac{4k}{3k+4} = \frac{1}{1}$

$\Rightarrow 4k = 4 + 3k$

$\Rightarrow k = 4$

the initial quantity of milk = 4x4 = 16 lites

Sol 10.(d)

	Milk : Water
Initial	2 : 1
New	4 : 3

Only water is added so quantity of milk in both cases will be same. So, Balance the ratio for milk.

	Milk : Water
Initial	4 : 2
New	4 : 3

Now,

(4-3) unit = 12

Required quantity of water = 3 unit = 3x12 =36 litres

Alternate:

Let the initial quantity of milk = 2k and water = k.

According to the question

$\frac{2k}{k+12} = \frac{4}{3}$

$\Rightarrow 6k = 48 + 4k$

$\Rightarrow k = 24$

the required quantity of water = 24+12 = 36 lites

Sol 11.(d)

	Milk : Water
Initial	2 : 1
New	1 : 2

Only water is added so quantity of milk in both cases will be same. So, Balance the ratio for milk.

	Milk : Water
Initial	2 : 1
New	2 : 4

Now,

(2+1) unit = 60

1 unit = 20

Required quantity of water x = (4-1) unit = 3 unit = 3x20 =60 litres

Alternate:

the initial quantity of milk = 60 x $\frac{2}{2+1}$ = 40 litres and water = 60 x $\frac{1}{2+1}$ = 20 litres.

According to the question

$\frac{40}{20+X} = \frac{1}{2}$

$\Rightarrow 80 = 20 + X$

$\Rightarrow X = 60$

Sol 12. (d)

	Milk : Water
Initial	3 : 2
New	1 : 1

Only water is added so quantity of milk in both cases will be same. So, Balance the ratio for milk.

	Milk : Water
Initial	3 : 2
New	3 : 3

Now,

(2+3) unit = 100

1 unit = 20

Required quantity of water = (3-2) unit = 1 unit = 20 litres

Alternate:

the initial quantity of milk = 100 x $\frac{3}{2+3}$ = 60 litres and water = 100 x $\frac{2}{2+3}$ = 40 litres. Let the amount of water added = x

According to the question

$\frac{60}{40+x} = \frac{1}{1}$

$\Rightarrow 60 = 40 + x$

$\Rightarrow x = 20$

Sol 13. (c)

	Acid : Water
Initial	3 : 7
New	1 : 2

Only acid is added so quantity of water in both cases will be same. So, Balance the ratio for water.

	Acid : Water
Initial	6 : 14
New	7 : 14

Now,

(6+14) unit = 60

1 unit = 3

Required quantity of acid = (7-6) unit = 1 unit = 3 litres

Alternate:

the initial quantity of acid = 60 x $\frac{3}{3+7}$ = 18 litres and water = 60 x $\frac{7}{3+7}$ = 42 litres. Let the amount of acid added = x litres

According to the question

$\frac{18+x}{42} = \frac{1}{2}$

$\Rightarrow 42 = 36 + 2x$

$\Rightarrow x = 3$

Sol 14.(b)

	Acid : Water
Initial	7 : 2
New	5 : 3

Only water is added so quantity of acid in both cases will be same. So, Balance the ratio for acid.

	Acid : Water
Initial	35 : 10
New	35 : 21

Now,

(35+10) unit = 729

1 unit = 16.2

Required quantity of water = (21-10) unit = 11 unit = 11x16.2 = 178.2 litres

Alternate:

Pinnacle

the initial quantity of acid = 729 x $\frac{7}{2+7}$ = 567 litres and water = 729 x $\frac{2}{2+7}$ = 162 litres. Let the amount of water added = x litres

According to the question

$\frac{567}{162+x} = \frac{5}{3}$

$\Rightarrow 1701 = 810 + 5x$

$\Rightarrow x = 178.5$

Sol 15. (a)

	Spirit	:	Water	:	Total
A	3	:	4	:	7
B	5	:	9	:	14

Balancing the ratio for the ratios in which mixtures are taken.

	Spirit	:	Water	:	Total
A	12	:	16	:	7x2x2
B	15	:	27	:	14x1x3

27 : 43

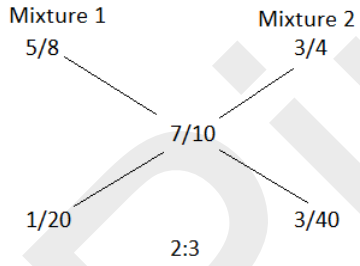
Required ratio = 43 : 27

Sol 16.(a)

Amount of milk in first mixture = $\frac{5}{8}$

Amount of milk in second mixture = $\frac{3}{4}$

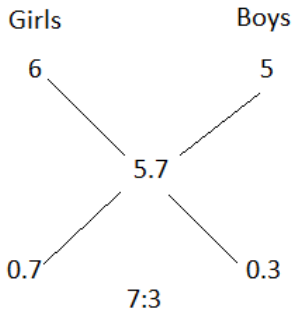
Amount of milk in final mixture = $\frac{7}{10}$



Required ratio = 2:3

Sol 17. (a)

Average sweet distributed per children = $\frac{57}{10}$ = 5.7



According to the question

(7+3) unit = 10

1 unit = 1

Number of boys (3 unit) = 3x1 = 3

SSC CGL TIER I

Sol 1. (a) In 25 litres mixture, water = 70% of 25 = 17.5 litre and spirit = 7.5

After adding 5 litres of water, spirit % = $\frac{7.5}{30} \times 100 = 25\%$

Sol 2. (d)

35% = $\frac{7}{20}$ and 33 $\frac{1}{3}$ % = $\frac{1}{3}$

SSC CGL TIER-II

Sol:1.(c)

Water in solution A = $\frac{4}{9}$

Water in solution B = $\frac{1}{3}$

Water in mixture = $\frac{8}{21}$

A B

$\frac{4}{9}$ $\frac{1}{3}$

$\frac{8}{21}$

$\frac{3}{63}$ $\frac{4}{63}$

Ratio of mixture A and B = 3 : 4

Sol:2.(a)

CP of mixture = $53.1 \times \frac{100}{118} = 45$

A B

42 50

45

5 3

Ratio of mixture A and B = 5 : 3

Quantity of B = $7\frac{1}{2} \times \frac{5}{3} = 12\frac{1}{2}$ kg

Sol:3..(c)

Price after mixing = $54 \times \frac{100}{120}$ = 45

A B

40 48

45

3 5

Sol:4..(c)

% of pure chocolate in 50 litre = 4

After addition of milk total drink =60litre

% of pure chocolate now = $\frac{4}{60} \times 100 = 6\frac{2}{3}\%$

Sol:5..(d)

x in Alloy A = $\frac{5}{7}$

x in alloy B = $\frac{3}{7}$

Taking A and B in ratio 4 : 5 = $\frac{\frac{20}{7}+\frac{15}{7}}{9} = \frac{5}{9}$

Percentage = $\frac{5}{9} \times 100 = 55\frac{5}{9}\%$

Sol:6..(c)

Amount of other components in the mixture is the same in initial and final mixture.

90% of initial(I) = 75% of final(F)

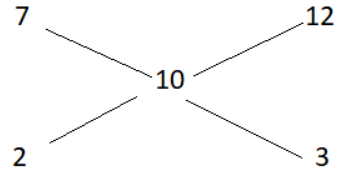
I/F=5/6

I=5K, F=6K

Amount of sulphuric acid to be added= 1k

5k=20L, 1k=4L

Sol:7..(c)



Ratio=2:3

Pinnacle

PERCENTAGE / प्रतिशतता

Key Points:/ प्रमुख बिंदु:

What does a percentage, say 20% mean?

20% simply means $\frac{20}{100}$ of something.Also, you can see $\frac{20}{100} = \frac{1}{5} = 0.2$ i.e. 0.2 of something is same as 20% of that thing.

प्रतिशत, मान लीजिए 20%, का क्या मतलब है?

20% का अर्थ केवल, कुछ मूल्य का $\frac{20}{100}$ है| इसके अलावा, आप देख सकते हैं $\frac{20}{100} = \frac{1}{5} = 0.2$ अर्थात किसी चीज़ का 0.2 उस चीज़ के 20% के समान है|

Important Fractions and their equivalent Percentage

1) $\frac{1}{2} = 50\%$
2) $\frac{1}{3} = 33\frac{1}{3}\% = \frac{100}{3}\%$
3) $\frac{2}{3} = 66\frac{2}{3}\% = \frac{200}{3}\%$
4) $\frac{1}{4} = 25\%$
5) $\frac{1}{5} = 20\%$
6) $\frac{3}{4} = 75\%$
7) $\frac{5}{4} = 125\%$
8) $\frac{1}{8} = 12.5\%$

These fractions are very common and it will be very helpful to learn them.

ये भिन्न बहुत आम हैं और उन्हें सीखना बहुत ही उपयोगी होगा।

Variety Questions

Q1. If decreasing 120 by x% gives the same result as increasing 40 by x% then x% of 210 is what percent less than (x + 20)% of 180?

यदि 120 को x% कम करने से वही परिणाम आता है जो 40 को x% बढ़ाने से आता है, तो 210 का x% 180 के (x+20) % से कितना प्रतिशत कम है ?

SSC CGL 4 June 2019 (Morning)

(a) $33\frac{1}{3}$
(b) 18
(c) $16\frac{2}{3}$
(d) 20

Q2. The income of Raju is 20% more than his expenditure. If his income increases by 60% and his expenditure increases by 70% then by what percent does his savings increase or decrease?

राजू की आय उसके व्यय से 20% अधिक है | यदि उसकी आय 60% बढ़ जाती है और उसके व्यय में 70% की वृद्धि हो जाती है, तो उसकी बचत में कितने प्रतिशत की कमी या वृद्धि होगी ?

SSC CGL 4 June 2019 (Afternoon)

(a) It decreases by 10%/ यह 10% कम हो जाएगी
(b) It decreases by 2%/ यह 2% कम हो जायेगी
(c) It increases by 10%/ यह 10% बढ़ जाएगी
(d) It increases by 2%/ यह 2% बढ़ जाएगी

Q3. The income of A is 25% more than that of B and the income of C is 65% less than the sum of the incomes of A and B. Income of C is what percent less than the income of A?

A की आय B की आय से 25% अधिक है और C की आय A और B की आय के योग से 65% कम है | C की आय A की आय से कितना प्रतिशत कम है ?

SSC CGL 4 June 2019 (Evening)

(a) 28
(b) 32
(c) 35
(d) 37

Q4. The income of A is 50% more than that of B. If the income of A is increased by 40% and the income of B is increased by 90%, then the percentage increase in their combined income will be:

A की आय B की आय से 50% अधिक है | यदि A की आय 40% से बढ़ा दी जाए और B की आय 90% से बढ़ा दी जाए, तो उनकी संयुक्त आय में कितने प्रतिशत की वृद्धि होगी ?

SSC CGL 6 June 2019 (Morning)

(a) 64
(b) 55
(c) 60
(d) 70

Q5. When the price of an item was reduced by 20% , then the sale increased by x% . If there is an increase of 60% in receipt of the revenue , then the value of x is :

जब किसी वस्तु की कीमत 20% कम कर दी गयी, तो इसकी बिक्री x% से बढ़ गयी | यदि आय की प्राप्ति में 60% की वृद्धि होती है, तो x का मान है :

SSC CGL 6 June 2019 (Afternoon)

(a) 120
(b) 96
(c) 100
(d) 80

Q6. A is 20% less than B and C is 30% more than D. If D is 25% less than A, then which of the following is true?

A, B से 20% कम है और C, D से 30% अधिक है | यदि D, A से 25% कम है, तो निम्न में से क्या सही है ?

SSC CGL 7 June 2019 (Morning)

(a) B = 0.39C
(b) C = 0.78B
(c) B = 0.78C
(d) C = 0.39B

Q7. The price of sugar has increased by 20%. A person wants to increase its expenditure by 8% only. By what percent should he decrease his consumption?
चीनी की कीमत 20% से बढ़ जाती है | एक व्यक्ति अपना व्यय केवल 8% बढ़ाना चाहता है | उसे अपनी खपत में कितने प्रतिशत की कमी करनी चाहिए ?
SSC CGL 10 June 2019 (Afternoon)
(a) 10%
(b) 11%
(c) 9%
(d) 12%

Q8. If 85% of a number is added to 75, then the result is the number itself. The number is:
यदि किसी संख्या के 85% को 75 में जोड़ा जाए, तो परिणामस्वरूप वह संख्या स्वयं प्राप्त होती है | वह संख्या है :
SSC CGL 13 June 2019 (Evening)
(a)500
(b)200
(c)300
(d)100

Q9. The price of an article increases by 20% every year. If the difference between the prices at the end of the third and fourth years is Rs. 259.20, then 40% of the price (In Rs.) at the end of the second year is :
एक वस्तु की कीमत हर वर्ष 20% बढ़ जाती है | यदि तीसरे और चौथे वर्ष की कीमतों में 259.20 रुपये का अंतर है, तो दूसरे वर्ष के अंत में इसकी कीमत का 40% होगा :
SSC CHSL 3 July 2019 (Evening)
(a) 484
(b) 432
(c) 384
(d) 472

Q10. Sudha decided to donate 12% of her monthly income to an orphanage. On the day of donation, she changed her decision and donated a sum of Rs. 4800 which was equal to 80% of what she had decided earlier. What is 27% of her monthly income ?
सुधा ने अपनी मासिक आय का 12% एक अनाथालय में दान देने का निर्णय लिया | दान देने के दिन, उसने अपना निर्णय बदल लिया और 4800 रुपये दान दिए जो उसके द्वारा पूर्व में सोची गयी राशि का 80% था | उसकी मासिक आय का 27% ज्ञात करें |
SSC CHSL 4 July 2019 (Morning)
(a) Rs. 13959
(b) Rs. 11934
(c) Rs. 14040
(d) Rs. 13500

Q11. A number is increased by 30%, then decreased by 25%, and then further increased by 25%. What is the net increase/decrease percent in the number (correct to the nearest integer) ?
एक संख्या को पहले 30% से बढ़ाया जाता है फिर 25% कम कर दिया जाता है और इसके बाद पुनः 25% बढ़ाया जाता है | संख्या में शुद्ध प्रतिशत वृद्धि / कमी (निकटतम पूर्णांक में) ज्ञात करें |
SSC CHSL 4 July 2019 (Afternoon)
(a) 22% decrease
(b) 22% increase
(c) 21% decrease
(d) 21% increase

Q12. Two students, A and B, appeared for an examination. A secured 8 marks more than B and the marks of the former was 55% of the sum of their marks. The marks obtained by A and B, respectively, are :
दो छात्र A और B एक परीक्षा में शामिल हुए | A को B से 8 अंक अधिक मिले और A को मिले अंक उनके अंकों के जोड़ का 55% थे | A और B द्वारा प्राप्त किये गए अंक (क्रमशः) ज्ञात करें |
SSC CHSL 5 July 2019 (Evening)
(a) 44, 36
(b) 36, 28
(c) 38, 30
(d) 40, 32

Q13. The sum of salaries of A and B is Rs. 43000. A spends 95% of his salary and B spends 80% of his salary. If their savings are the same, what is A's salary (in Rs.) ? / A और B के वेतन का योग 43000 रुपये है | A अपनी 95% आय और B अपनी 80% आय खर्च कर देता है | यदि उनकी बचत समान है, तो A का वेतन ज्ञात करें |
SSC CHSL 8 July 2019 (Morning)
(a) 10600
(b) 8000
(c) 35000
(d) 34400

Q14. For an examination of a practical based subject, the total marks is 100. The break-up for theory, practical, project and viva voce is 40%, 30%, 20%, 10%. A candidate scored 80% in theory, 70% in practical, 60% in project and 50% in viva voce. What was her aggregate percentage ?
प्रैक्टिकल आधारित विषय की एक परीक्षा के लिए कुल अंक 100 हैं | थ्योरी, प्रैक्टिकल, प्रोजेक्ट और वाइवा के लिए इसमें से 40%, 30% , 20% और 10% तय किये गए हैं | एक छात्र को थ्योरी में 80%, प्रैक्टिकल में 70%, प्रोजेक्ट में 60% और वाइवा में 50% अंक आए | उसका कुल प्रतिशत ज्ञात करें |
SSC CHSL 9 July 2019 (Evening)
(a) 70
(b) 72
(c) 68

(d) 67

Q15. What percentage of Rs.124 is Rs. 49.60 ?
49.60 रुपये 124 रुपये का कितना प्रतिशत है ?
SSC CPO 16 March 2019 (Morning)
(a)123
(b)250
(c)40
(d)16

Q16. The income of A is 24% more than the income of B. By what percent is the income of B less than the income of A? / A की आय B की आय से 24% अधिक है | B की आय A की आय से कितना प्रतिशत कम है ?
SSC CPO 12 March 2019 (Evening)
(a) $\frac{150}{7}$ %
(b) $\frac{600}{29}$ %
(c) $\frac{500}{31}$ %
(d) $\frac{600}{31}$ %

Q17. In an examination, 48% of candidates passed in science and 56% failed in mathematics. If 32% failed in both subjects, then what percent passed in both subjects? / एक परीक्षा में 48% छात्र विज्ञान में उत्तीर्ण हुए जबकि 56% छात्र गणित में अनुत्तीर्ण रह गए | यदि 32% छात्र दोनों विषयों में असफल रहे, तो दोनों विषयों में कितने प्रतिशत उत्तीर्ण हुए ?
SSC CPO 12 March 2019 (Evening)
(a) 24%
(b) 32%
(c) 28%
(d) 22%

Q18. In an examination, 47% passed in science and 51% failed in mathematics. If 42% failed in both subjects, what percentage passed in both subjects?
एक परीक्षा में, विज्ञान में 47% सफल रहे तथा गणित में 51% असफल हो गए | यदि 42% दोनों विषयों में असफल रहे, तो दोनों विषयों में कितने प्रतिशत सफल रहे ?
SSC CPO 13 March 2019 (Evening)
(a)38%
(b)42%
(c)40%
(d)36%

Q19. The population of a town has increased by 5% at the end of the first year and decreased by 4% at the end of second year. If the population at the end of second year was 55,12,248, then the population at the beginning of first year was:
एक शहर की आबादी पहले वर्ष के अंत में 5% बढ़ी है और दूसरे वर्ष के अंत में 4% कम हुई। यदि दूसरे वर्ष के अंत में जनसंख्या 55,12,248 थी, तो पहले वर्ष की शुरुआत में जनसंख्या थी:
SSC CPO 14 March 2019 (Morning)
(a)55,72,950
(b)56,23,012
(c)54,68,500
(d)53,00,420

Q20. If 20% of a = b, then b% of 20 is equal to:
यदि a का 20% = b है, तो 20 का b% किसके बराबर होगा ?
SSC CPO 16 March 2019 (Evening)
(a)4% of a
(b)16% of a
(c)8% of a
(d)2% of a

Q21. A marketing agent earns a commission of 2% on first Rs. 2,00,000, 1.5% on next Rs 2,00,000 and 1% on the remaining amount of sales made in a month. If the sales achieved by the agent for the month of April 2018 are Rs. 5,68,000. The commission earned is
किसी विपणन एजेंट को एक माह में पहले 2,00,000 रुपये की बिक्री पर 2%, अगले 200000 रुपये की बिक्री पर 1.5% तथा बिक्री की शेष राशि पर 1% कमीशन मिलता है | यदि अप्रैल 2018 माह में उस एजेंट ने 5,68,000 रुपये की बिक्री की है, तो उसके द्वारा प्राप्त कमीशन ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a)Rs.8680
(b)Rs.7730
(c) Rs.8240
(d)Rs.7105

Q22. 2.4 converted to percentage is:
2.4 को प्रतिशत में बदलने से क्या आएगा ?
SSC CPO 16 March 2019 (Afternoon)
(a) 0.24%
(b) 24%
(c) 240%
(d) 2.4%

Q23. In an examination, Shreya scored 84 out of 90 in Mathematics, 45 out of 50 in Science, 23 out of 25 in Computer Science and 68 out of 80 in English. In which subject did Shreya score the highest percentage?
एक परीक्षा में श्रेया को गणित में 90 में से 84 अंक, विज्ञान में 50 में से 45 अंक, कंप्यूटर विज्ञान में 25 में से 23 अंक तथा अंग्रेजी में 80 में से 68 अंक मिले | किस विषय में श्रेया का अंक प्रतिशत सर्वाधिक है ?
SSC CPO 16 March 2019 (Afternoon)
(a)Mathematics/ गणित
(b)English/ अंग्रेजी
(c)Science/ विज्ञान
(d)Computer Science/ कंप्यूटर विज्ञान

SSC CGL TIER II

Pinnacle

Q1. If A is 28% more than B and C is 25% less than the sum of A and B, then by what percent will C be more than A (correct to one decimal place) ?
यदि A, B से 28% अधिक है और C, A और B के योग से 25% कम है, तो C, A से कितना प्रतिशत (एक दशमलव स्थान तक सही) अधिक होगा ?
SSC CGL TIER II (11 September 2019)
(a) 32.2%
(b) 28%
(c) 43%
(d) 33.6%

Q2. Raghav spends 80% of his income. If his income increases by 12% and the savings decrease by 10%, then what will be the percentage increase in his expenditure ?
राघव अपनी आय का 80% खर्च करता है | यदि उसकी आय 12% से बढ़ जाती है और बचत 10% कम हो जाती है, तो उसके व्यय में प्रतिशत वृद्धि ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 20.5
(b) 16
(c) 17.5
(d) 22

Q3. The number first increased by 16% and then increased by 14%. The number, so obtained, is now decreased by 30%. What is the net increase or decrease percent in the original number (nearest to an integer) ?
एक संख्या पहले 16% से बढ़ा दी जाती है और फिर 14% बढ़ा दी जाती है | इस प्रकार प्राप्त संख्या को 30% कम कर दिया जाता है | मूल संख्या में शुद्ध प्रतिशत वृद्धि या कमी (निकटतम पूर्णांक तक) ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 6% increase
(b) 7% decrease
(d) No decrease
(d) 9% decrease

Q4. When the price of an item was reduced by 25%, then its sale was increased by x%. If there is an increase of 20% in the receipt of the revenue, then the value of x will be :
जब एक वस्तु की कीमत 25% कम कर दी गयी, तो इसकी बिक्री x% बढ़ गयी | यदि आय प्राप्ति में 20% की वृद्धि हुई है, तो x का मान क्या होगा ?
SSC CGL TIER II (11 September 2019)
(a) 50
(b) 60
(c) 45
(d) 75

Q5. In a constituency, 55% of the total number of voters are males and the rest are females. If 40% of the males are illiterate and 40% of the females are literate, then by what percent is the number of literate males more than that of illiterate females ?
एक निर्वाचन क्षेत्र में, कुल मतदाताओं में से 55% पुरुष हैं तथा शेष महिलाएं हैं | यदि 40% पुरुष अशिक्षित हैं तथा 40% महिलाएं शिक्षित हैं, तो शिक्षित पुरुषों की संख्या अशिक्षित महिलाओं की संख्या से कितना प्रतिशत अधिक है ?
SSC CGL TIER II (11 September 2019)
(a) $22\frac{8}{11}$
(b) $18\frac{2}{9}$
(c) $22\frac{2}{9}$
(d) $18\frac{2}{11}$

Q6. Two-third of the number of employees of a company are males and the rest are females. If ⅜ of the male employees and ⅖ of the female employees are temporary employees and the total number of permanent employees is 740, then 7/15 of the total number of employees exceeds the number of temporary female employees by :
एक कंपनी के दो-तिहाई कर्मचारी पुरुष हैं तथा शेष महिलाएं हैं | यदि पुरुष कर्मचारियों में से ⅜ और महिला कर्मचारियों में से ⅖ कर्मचारी अस्थायी कर्मचारी हैं और स्थायी कर्मचारियों की कुल संख्या 740 है, तो कर्मचारियों की कुल संख्या का 7/15 अस्थायी महिला कर्मचारियों की संख्या से _____ अधिक है |
SSC CGL TIER II (12 September 2019)
(a) 400
(b) 340
(c) 308
(d) 320

Q7. If 60% of a number is 120 more than 20% of the number, then 28% of the number is less than $33\frac{1}{3}$% of the number by :
यदि किसी संख्या का 60% उस संख्या के 20% से 120 अधिक है, तो उस संख्या का 28% उस संख्या के $33\frac{1}{3}$% से कितना कम है ?
SSC CGL TIER II (12 September 2019)
(a) 14
(b) 12
(c) 16
(d) 15

Q8. A is 25% more than B and B is 40% less than C. If C is 30% more than D, then by what percent is A less than D?
A, B से 25% अधिक है और B, C से 40% कम है | यदि C, D से 30% अधिक है, तो A, D से कितना प्रतिशत कम है ? **SSC CGL TIER II (12 September 2019)**
(a) 1.5
(b) 2.5
(c) 4
(d) 5

Q9. In a class, $83\frac{1}{3}$% of the number of students are girls and the rest are boys. If 60% of the number of boys and 80% of the number of girls are present, then what percentage of the total number of students in the class is absent ?
एक कक्षा में, छात्रों की कुल संख्या में से $83\frac{1}{3}$% लड़कियाँ हैं तथा शेष लड़के हैं | यदि 60% लड़के और 80% लड़कियाँ उपस्थित हैं, तो कक्षा के कुल छात्रों का कितना प्रतिशत अनुपस्थिति है ?
SSC CGL TIER II (12 September 2019)
(a) $26\frac{2}{3}$
(b) $22\frac{2}{3}$
(c) $23\frac{1}{3}$
(d) $12\frac{1}{3}$

Q10. A spends 65% of his income. His income has increased by 20.1% and his expenditure has increased by 25%. His savings :
A अपनी आय का 65% खर्च करता है | उसकी आय 20.1% से बढ़ जाती है और व्यय में 25% की वृद्धि हो जाती है | उसकी बचत :
SSC CGL TIER II (12 September 2019)
(a) Increase by 11% / 11% बढ़ जाती है |
(b) Increase by 5%/ 5% बढ़ जाती है |
(c) Decrease by 5%/ 5% कम हो जाती है |
(d) Decrease by 11%/ 11% कम हो जाती है |

Q11. If the price of petrol increases by 19% and Sunitha intends to spend only an additional 12% on petrol, by what percent should she reduce the quantity of petrol purchased (nearest to an integer) ?
यदि पेट्रोल की कीमत 19% बढ़ गयी है और सुनीता पेट्रोल पर केवल 12% ही अतिरिक्त खर्च करना चाहती है, तो उसे पेट्रोल की खरीदी गयी मात्रा को कितने प्रतिशत से कम करना चाहिए ? (निकटतम पूर्णांक तक)
SSC CGL TIER II (12 September 2019)
(a) 7
(b) 6
(c) 5
(d) 8

Q12. Monika spends 72% of her income. If her income increases by 20% and savings increase by 15%, then her expenditure increases by : (correct to 1 decimal place)
मोनिका अपनी आय का 72% खर्च करती है | यदि उसकी आय 20% बढ़ जाए और उसकी बचत 15% बढ़ जाए, तो उसके व्यय में कितने की वृद्धि होगी ? (एक दशमलव स्थान तक सही)
SSC CGL TIER II (13 September 2019)
(a) 20.8%
(b) 20.2%
(c) 21.9%
(d) 19.8%

Q13. The price of oil has increased by 20%. However, its consumption decreased by $8\frac{1}{3}$%. What is the percentage increase or decrease in the expenditure on it ?
तेल की कीमत 20% बढ़ गयी है | हालाँकि, इसकी खपत भी $8\frac{1}{3}$ से कम हो गयी है | इस पर किये गए व्यय में प्रतिशत वृद्धि या कमी ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) Increase by 10%/ 10% की वृद्धि
(b) Increase by 5% 5% की वृद्धि
(c) Decrease by 10% / 10% की कमी
(d) Decrease by 5% / 5% की कमी

Q14. Basir's working hours per day were increased by 15% and his wages per hour were increased by 20%. By how much percent did his daily earnings increase ?
बसीर के कार्य के दैनिक घंटे 15% बढ़ गए और उसकी मजदूरी में प्रति घंटे 20% की वृद्धि हुई | उसकी दैनिक आय में कितने प्रतिशत की वृद्धि हुई ?
SSC CGL TIER II (13 September 2019)
(a) 40
(b) 38
(c) 35
(d) 36

Q15. If 25% of half of x is equal to 2.5 times the value of 30% of one-fourth of y, then x is what per cent more or less than y ?
यदि x के आधे का 25% y के एक-चौथाई के 30% मान के 2.5 गुना के बराबर है, तो x, y से कितना प्रतिशत अधिक या कम है ?
SSC CGL TIER II (13 September 2019)
(a) $33\frac{1}{3}$% more
(b) 50% more
(c) $33\frac{1}{3}$% less
(d) 50% less

Q16. A,B and C start a business. A invests $33\frac{1}{3}$% of the total capital, B invests 25% of the remaining and C invests the rest. If the total profit at the end of a year is Rs. 1,62,000, then A's share in profit is :
A, B और C ने एक व्यवसाय की शुरुआत की | A ने कुल पूँजी का $33\frac{1}{3}$% निवेश किया | B ने शेष का 25% निवेश किया तथा शेष राशि C के द्वारा निवेश की गयी | यदि वर्ष के अंत में कुल लाभ 1, 62, 000 रुपये है, तो इस लाभ में A का हिस्सा है :
SSC CGL TIER II (12 September 2019)
(a) Rs. 81,000
(b) Rs. 60,000
(c) Rs. 54,000

(d) Rs. 90,000

Q17. In an examination, A obtained 10% more marks than B, B obtained 20% more marks than C and C obtained 32% less marks that D. If A obtained 272 more marks than C, then the marks obtained by B is :
किसी परीक्षा में, A ने B से 10 % अधिक अंक हासिल किये | B ने C से 20% अधिक अंक प्राप्त किया और C ने D से 32% कम अंक प्राप्त किया | यदि A को C से 272 अंक अधिक मिले, तो B के द्वारा प्राप्त किये गए अंक ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 850
(b) 816
(c) 1020
(d) 952

Practice Questions

Q1. Sudha saves 15% of her income. If her expenditure increases by 20% and savings increases by 60% , then by what percent has her income increased?
सुधा अपनी आय का 15% बचत करती है | यदि उसका व्यय 20% से बढ़ जाता है तथा बचत में 60% की वृद्धि हो जाती है, तो उसकी आय में कितने प्रतिशत की वृद्धि हुई है ?
SSC CGL 6 June 2019 (Evening)
(a) 26
(b) 35
(c) 24
(d) 30

Q2. A is 20% less than B and C is 20% more than D. If D is 25% less than A , then which of the following is true? / B से 20% कम है और C, D से 20% अधिक है | यदि D, A से 25% कम है, तो निम्न में से कौन सा सही है ?
SSC CGL 7 June 2019 (Afternoon)
(a) B = 0.675C
(b) C = 0.72B
(c) B = 0.72C
(d) C = 0.675B

Q3. Surbhi spends 75% of her income. If her income increases by 20% and savings decreases by 1%, then the percentage increase in her expenditure is :
सुरभि अपनी आय का 75% खर्च करती है | यदि उसकी आय 20% से बढ़ जाए और उसकी बचत में 1% की कमी हो जाए, तो उसके व्यय में हुई प्रतिशत वृद्धि ज्ञात करें |
SSC CGL 7 June 2019 (Evening)
(a) 27
(b) 2.2
(c) 22
(d) 2.7

Q4. The income of A is 40 % more than that of B. A got a 25% rise in his income and B got a 40% rise in his income, then the percentage increase in the combined incomes of A and B is :
A की आय B की आय से 40% अधिक है | A की आय 25% बढ़ गयी और B की आय 40% बढ़ गयी, तो A और B की संयुक्त आय में प्रतिशत वृद्धि ज्ञात करें | **SSC CGL 10 June 2019 (Morning)**
(a) 31.25
(b) 34.5
(c) 28.25
(d) 24.5

Q5. The price of sugar has increased by 18%. A person wants to increase the expenditure by 12% only. By what percent, correct to one decimal place, should he decrease his consumption?
चीनी की कीमत 18% बढ़ जाती है | एक व्यक्ति अपना व्यय केवल 12% बढ़ाना चाहता है| उसे अपनी खपत में कितने प्रतिशत (एक दशमलव स्थान तक सही) की कमी करनी चाहिए ?
SSC CGL 10 June 2019 (Evening)
(a) 6%
(b) 5.1%
(c) 5.3%
(d) 5.6%

Q6. The price of sugar has increased by 22%. A person wants to increase his expenditure by 12% only. By what percent should he decrease his consumption, nearest to one decimal place?
चीनी की कीमत 22% बढ़ जाती है | एक व्यक्ति अपने व्यय में केवल 12% की वृद्धि करना चाहता है | उसे अपनी खपत में कितने प्रतिशत की कमी (एक दशमलव स्थान तक सही) करनी चाहिए ?
SSC CGL 11 June 2019 (Morning)
(a) 10%
(b) 7.8%
(c) 8.2%
(d) 8.6%

Q7. The price of sugar has increased by 17%. A person wants to increase his expenditure by 8% only. By what percent should he decrease his consumption , nearest to one decimal place?
चीनी की कीमत 17% से बढ़ जाती है | एक व्यक्ति अपना व्यय केवल 8% से बढ़ाना चाहता है | उसे अपनी खपत में कितने प्रतिशत (एक दशमलव स्थान तक सही) की कमी करनी चाहिए ?
SSC CGL 11 June 2019 (Afternoon)
(a) 7.9%
(b) 8.3%
(c) 8.1%
(d) 7.7%

Q8. The price of sugar is increased by 21%. A person

wants to increase his expenditure by 12% only. By what percent should he decrease his consumption , nearest to one decimal place?
चीनी की कीमत 21% से बढ़ जाती है | एक व्यक्ति अपना व्यय केवल 12% बढ़ाना चाहता है | उसे अपनी खपत में कितने प्रतिशत (एक दशमलव स्थान तक सही) की कमी करनी चाहिए ? **SSC CGL 11 June 2019 (Evening)**
(a) 7.4%
(b) 7.2%
(c) 7.6%
(d) 7.8%

Q9. The price of sugar is increased by 17%. A person wants to increase his expenditure by 7% only. By what percentage is correct to one decimal place, should he reduce his consumption?
चीनी की कीमत 17% से बढ़ जाती है | एक व्यक्ति अपना व्यय केवल 7% बढ़ाना चाहता है | उसे अपनी खपत में कितने प्रतिशत (एक दशमलव स्थान तक सही) की कमी करनी चाहिए ? **SSC CGL 12 June 2019 (Morning)**
(a) 8.1%
(b) 8.3%
(c) 8.5%
(d) 8.7%

Q10. The price of sugar is increased by 24%. A person wants to increase his expenditure by 15% only. By what percentage, correct to one decimal place, should he reduce his consumption?
चीनी की कीमत 24% से बढ़ जाती है | एक व्यक्ति अपना व्यय केवल 15% से बढ़ाना चाहता है | उसे अपनी खपत में कितने प्रतिशत (एक दशमलव स्थान तक सही) की कमी करनी चाहिए ? **SSC CGL 12 June 2019 (Afternoon)**
(a) 7.3
(b) 7.1
(c) 6.9
(d) 7.5

Q11. The price of sugar has increased by 24%. A person wants to increase his expenditure by 18% only. By approximately what percent should he decrease his consumption?
चीनी की कीमत 24% बढ़ जाती है | एक व्यक्ति अपना व्यय केवल 18% बढ़ाना चाहता है | उसे अपनी खपत में लगभग कितने प्रतिशत की कमी करनी चाहिए ? **SSC CGL 12 June 2019 (Evening)**
(a) 4.6%
(b) 5.1%
(c) 4.8%
(d) 5.3%

Q12. The price of petrol has increased by 28%. A person wants to increase his expenditure by 22% only. By approximately what percent should decrease his consumption?
पेट्रोल की कीमत 28% से बढ़ जाती है | एक व्यक्ति अपना व्यय केवल 22% से बढ़ाना चाहता है | उसे अपनी खपत में लगभग कितने प्रतिशत की कमी करनी चाहिए ?
SSC CGL 13 June 2019 (Morning)
(a)5.3%
(b)4.7%
(c)4.9%
(d)5.1%

Q13.The price of sugar has increased by 17%. A person wants to increase his expenditure by 5% only. By approximately what percent should he decrease his consumption?
चीनी की कीमत 17% से बढ़ जाती है | एक व्यक्ति अपना व्यय केवल 5% से बढ़ाना चाहता है | उसे अपनी खपत में लगभग कितने प्रतिशत की कमी करनी चाहिए ?
SSC CGL 13 June 2019 (Afternoon)
(a)10.3
(b)10.7
(c)10.9
(d)9.9

Q14. A man spends 72% of his income. If his income increased by 28% and his expenditure is increased by 25%, then what is the percentage increase or decrease in his savings (correct to one decimal place)?
एक व्यक्ति अपनी आय का 72% खर्च करता है | यदि उसकी आय 28% से बढ़ जाती है और उसका व्यय 25% से बढ़ जाता है, तो उसकी बचत में प्रतिशत वृद्धि या कमी (एक दशमलव स्थान तक सही) ज्ञात करें |
SSC CHSL 1 July 2019 (Evening)
(a) 26.9% decrease
(b) 38.4% increase
(c) 35.7% increase
(d) 26.3% decrease

Q15. A is 20% more than B, B is 25% more than C, C is 60% less than D and D is 20% more than E. Based on the above information which of the following is true?
A, B से 20% अधिक है, B, C से 25% अधिक है, C, D से 60% कम है और D, E से 20% अधिक है | इस जानकारी के आधार पर निम्न में से कौन सा सही है ?
SSC CHSL 2 July 2019 (Morning)
(a) D is 60% less than B/ D, B से 60% कम है |
(b) E is 28% more than A/ E, A से 28% अधिक है |
(c) A is 40% less than D/ A, D से 40% कम है |
(d) C is 24% less than A/ C, A से 24% कम है |

Q16. In a constituency, 40% of the voters are senior citizens.

40% of the senior citizen voters are illiterates and 25% of the non-senior citizen voters are literates. By what percentage is the number of literate senior citizens voters less than that of illiterate non-senior citizen voters ?
एक निर्वाचन क्षेत्र में, 40% मतदाता वरिष्ठ नागरिक हैं | 40% वरिष्ठ नागरिक मतदाता अशिक्षित हैं तथा 25% गैर-वरिष्ठ नागरिक मतदाता शिक्षित हैं | निरक्षर गैर-वरिष्ठ नागरिक मतदाताओं की तुलना में साक्षर वरिष्ठ वरिष्ठ मतदाताओं की संख्या कितने प्रतिशत कम है?
SSC CHSL 2 July 2019 (Afternoon)
(a) 40
(b) 48 $\frac{1}{3}$
(c) 50
(d) 46 $\frac{2}{3}$

Q17. Anu spends 90% of her income. If her expenditure increases by 25% and savings increases by 30%, then by what percent does her salary increase ?
अनु अपनी आय का 90% भाग खर्च करती है | यदि उसका व्यय 25% से और उसकी बचत 30% बढ़ जाती है, तो उसके वेतन में कितने प्रतिशत की वृद्धि हुई है ?
SSC CHSL 2 July 2019 (Evening)
(a) 25.5%
(b) 24%
(c) 22.5%
(d) 20

Q18. Sudha spends 80% of her income. When her income is increased by 30%, She increases her expenditure by 25%. Her savings are :
सुधा अपनी आय का 80% खर्च करती है | जब उसकी आय 30% बढ़ जाती है, तो वह अपना व्यय 25% से बढ़ा लेती है | उसकी बचत :
SSC CHSL 3 July 2019 (Morning)
(a) Increased by 5%/ 5% से बढ़ जाती है |
(b) Decreased by 30%/ 30% कम हो जाती है |
(c) Decreased by 5%/ 5% कम हो जाती है |
(d) Increased by 50%/ 50% बढ़ जाती है |

Q19. The price of a commodity is increased by 36% and the quantity purchased is decreased by 30%. What is the percentage increase/decrease in the amount spent on the commodity?
एक वस्तु की कीमत 36% बढ़ जाती है और खरीदी गयी मात्रा 30% कम हो जाती है | इस वस्तु पर खर्च की गयी राशि में प्रतिशत वृद्धि या कमी ज्ञात करें |
SSC CHSL 3 July 2019 (Afternoon)
(a) 6%, increase/ 6% वृद्धि
(b) 4.8%, increase/ 4.8% वृद्धि
(c) 6%, decrease/ 6% कमी
(d) 4.8%, decrease/ 4.8 % कमी

Q20. A number is decreased by 30%, then increased by 30%, then further decreased by 10%. What is the net increase / decrease percent in the number (correct to the nearest integer) ?
एक संख्या को 30% कम कर दिया जाता है, फिर 30% बढ़ा दिया जाता है, और इसके बाद पुनः 10% कम कर दिया जाता है | संख्या में शुद्ध प्रतिशत वृद्धि / कमी (निकटतम पूर्णांक तक सही) ज्ञात करें |
SSC CHSL 4 July 2019 (Evening)
(a) 18% increase/ 18% वृद्धि
(b) 19% decrease/ 19% कमी
(c) 19% increase/ 19% वृद्धि
(d) 18% decrease/ 18% कमी

Q21. A number is decreased by 30%, then increased by 30%, then further increased by 30%. What is the net increase/decrease percent in the number (correct to the nearest integer) ?
एक संख्या को 30% कम कर दिया जाता है, फिर 30% बढ़ा दिया जाता है, एवं पुनः 30% बढ़ा दिया जाता है | संख्या में हुई शुद्ध प्रतिशत वृद्धि या कमी (निकटतम पूर्णांक तक सही) ज्ञात करें |
SSC CHSL 5 July 2019 (Morning)
(a) 18% increase/ 18% वृद्धि
(b) 18% decrease / 18% कमी
(c) 19% decrease/ 19% कमी
(d) 19% increase/ 19% वृद्धि

Q22. A number is increased by 30%, then decreased by 30%, then further decreased by 30%. What is the net increase/decrease percent in the number (correct to the nearest integer) ?
एक संख्या को 30% बढ़ा दिया जाता है, फिर 30% कम कर दिया जाता है, और पुनः 30% कम कर दिया जाता है | संख्या में शुद्ध प्रतिशत वृद्धि या कमी (निकटतम पूर्णांक तक सही) ज्ञात करें |
SSC CHSL 5 July 2019 (Afternoon)
(a) 40% increase/ 40% वृद्धि
(b) 36% decrease/ 36% कमी
(c) 36% increase/ 36% वृद्धि
(d) 40% decrease/ 40% कमी

Q23. The sum of the salaries of A and B together is Rs. 43000. A spends 95% of his salary and B spends 80% of his salary. If now their savings are the same, what is B's salary (in Rs.) ?
A और B के वेतन का योग 43000 रुपये है | A अपनी आय का 95% तथा B अपनी आय का 80% भाग खर्च कर देता है | यदि उनकी बचत समान है, तो B का वेतन ज्ञात करें |
SSC CHSL 8 July 2019 (Afternoon)
(a) 8000
(b) 34400
(c) 10600

(d) 8600

Q24. Two students, A and B, appeared for an examination. A secured 8 marks more than B and the marks of the former was 60% of the sum of their marks. The sum of the marks obtained by A and B is :
दो छात्र, A और B एक परीक्षा में शामिल हुए | A को B से 8 अंक अधिक मिले और A का अंक उनके अंकों के योग का 60% था | A और B द्वारा प्राप्त किये गए अंकों का जोड़ है :
SSC CHSL 8 July 2019 (Afternoon)
(a) 45
(b) 50
(c) 40
(d) 75

Q25. The sum of the salaries of A and B together is Rs. 45000. A spends 85% of his salary and B, 70% of his salary. If now their savings are the same, what is B's salary (in Rs) ? / A और B के वेतन का कुल योग 45000 रुपये है | A अपनी आय का 85% तथा B अपनी आय का 70% भाग खर्च करता है | यदि उनकी बचत समान है, तो B का वेतन (रुपये में) ज्ञात करें |
SSC CHSL 8 July 2019 (Evening)
(a) 30,000
(b) 18,000
(c) 12,600
(d) 15,000

Q26. The sum of the salaries of A and B is Rs. 42,000. A spends 75% of his salary and B spends 90% of his salary. Now their savings are the same. What is B's salary (in Rs) ?
A और B के वेतन का योग 42000 रुपये है | A अपने वेतन का 75% तथा B अपने वेतन का 90% खर्च करता है | अब उनकी बचत समान है | B का वेतन ज्ञात करें |
SSC CHSL 9 July 2019 (Morning)
(a) 18,000
(b) 12,600
(c) 15,000
(d) 30,000

Q27. The sum of the salaries of A and B is Rs. 42,000. A spends 75% of his salary and B spends 90% of his salary. Now their savings are the same. What is A's salary (in Rs) ?
A और B के वेतन का योग 42,000 रुपये है | A अपनी आय का 75% तथा B अपनी आय का 90% खर्च कर देता है | उनकी बचत समान है | A का वेतन (रुपये में) ज्ञात करें |
SSC CHSL 9 July 2019 (Afternoon)
(a) 18,000
(b) 12,000
(c) 30,000
(d) 15,000

Q28. Price of tea has increased by 20% but I have decided to increase my expenditure towards tea by 15% only. By what percentage should I reduce my consumption (correct to one place of decimal) in order to be able to maintain the same level of expense towards tea ?vv
चाय की कीमत 20% से बढ़ गयी है लेकिन मैंने चाय पर अपना व्यय केवल 15% बढ़ाने का निर्णय लिया है | चाय पर समान स्तर के व्यय को बनाए रखने के लिए मुझे अपनी खपत में कितने प्रतिशत की कमी (एक दशमलव स्थान तक सही) करनी चाहिए ?
SSC CHSL 10 July 2019 (Morning)
(a) 5.4
(b) 4.2
(c) 5.6
(d) 4.8

Q29. The price of sugar got raised by 25%. To maintain the same level of expenses on sugar, a person reduced the consumption of sugar by 4% and also increased his expenditure on sugar by x%. The value of x is :
चीनी की कीमत 25% से बढ़ गयी है | चीनी पर समान स्तर के व्यय को बनाए रखने के लिए एक व्यक्ति ने अपनी खपत में 4% की कमी कर ली और चीनी पर अपना व्यय भी x % से बढ़ा लिया | x का मान है :
SSC CHSL 10 July 2019 (Afternoon)
(a) 19.5
(b) 21
(c) 20
(d) 18.75

Q30. The price of petrol is increased by 24%. A person wants to increase his expenditure by 14% only. By what percentage (correct to one decimal place), should he decrease his consumption in order to maintain the same level of expenditure ?
पेट्रोल की कीमत 24% से बढ़ गयी है | एक व्यक्ति अपना व्यय केवल 14% बढ़ाना चाहता है | उसे अपनी खपत में कितने प्रतिशत (एक दशमलव स्थान तक सही) की कमी करनी चाहिए ताकि समान स्तर का व्यय बना रहे ?
SSC CHSL 11 July 2019 (Evening)
(a) 8.3
(b) 7.9
(c) 8.1
(d) 7.8

Q 31. A saves 12% of her income. If she spends Rs. 2,16,128 her total income is :
A अपनी आय का 12% धन संचित करता है। यदि वह 2,16,128 रूपये खर्च करती है तो उसकी कुल आय कितनी है?
SSC CPO 16 March 2019 (Morning)
(a) Rs. 2,45,600
(b) Rs.2,43,560

(c) Rs.2,48,000
(d) Rs.2,42,063

Q 32. The price of sugar is decreased by 10%. By percent can a person increase the consumption so that there is no change in the expenditure?
चीनी की कीमत 10% से कम हो जाती है | एक व्यक्ति अपनी खपत में कितने प्रतिशत की वृद्धि कर सकता है ताकि व्यय में कोई परिवर्तन ना आये ?
SSC CPO 12 March 2019 (Evening)
(a) $\frac{100}{11}$ %
(b) $\frac{109}{11}$ %
(c) $\frac{100}{9}$ %
(d) 10 %

Q33. If the income of A is 24% less than income of B, then what percentage is B's income more than that of A ?/ यदि A की आय B की आय से 24% कम है, तो B की आय A की आय से कितना प्रतिशत अधिक है ?
SSC CPO 13 March 2019 (Evening)
(a) $\frac{600}{31}$ %
(b) $\frac{600}{17}$ %
(c) $\frac{600}{29}$ %
(d) $\frac{600}{19}$ %

Q34. The price of sugar has increased by 14%. By what percentage can a person decrease the consumption so that there is an increase in the expenditure by 8% only? (correct to the decimal place)
चीनी की कीमत 14% से बढ़ गयी है | एक व्यक्ति अपनी खपत में कितने प्रतिशत की कमी कर सकता है ताकि व्यय में केवल 8% की वृद्धि ही हो ?
SSC CPO 13 March 2019 (Evening)
(a) 5.9%
(b) 5.3%
(c) 5.7%
(d) 5.5%

Q35. The price of sugar has decreased by 15%. By what percentage can a person increase the consumption so that there is no change in the expenditure?
चीनी की कीमत 15% कम हो गयी है | एक व्यक्ति को अपनी खपत में कितनी वृद्धि करनी चाहिए ताकि व्यय में कोई परिवर्तन ना हो ?
SSC CPO 12 March 2019 (Morning)
(a) $\frac{300}{23}$ %
(b) $\frac{300}{17}$ %
(c) $\frac{50}{3}$ %
(d) $\frac{20}{3}$ %

Q36. If A's income is 40% more than the income of B, then what percentage of B's income is less than income of A?
यदि A की आय B की आय से 40% अधिक है, तो B की आय A की आय से कितना प्रतिशत कम है ? **SSC CPO 12 March 2019 (Morning)**
(a) 27 $\frac{4}{7}$ %
(b) 28 $\frac{5}{7}$ %
(c) 27 $\frac{5}{7}$ %
(d) 28 $\frac{4}{7}$ %

Q37. In an examination, 54% of the candidates passed in science and 42% failed in mathematics. If 32% failed in both subjects, what percentage passed in both subjects?
एक परीक्षा में 54% छात्र विज्ञान में उत्तीर्ण हुए तथा 42% गणित में अनुत्तीर्ण रह गए | यदि 32% दोनों विषयों में अनुत्तीर्ण रहे, तो दोनों विषयों में कितने प्रतिशत उत्तीर्ण हुए ?
SSC CPO 12 March 2019 (Morning)
(a) 56%
(b) 48%
(c) 32%
(d) 44%

Q38. The price of sugar has increased by 18%. By what percentage can a person decrease the consumption so that, there is no change in the expenditure? (correct to one decimal place)
चीनी की कीमत में 18% की वृद्धि हो गयी है | एक व्यक्ति को अपनी खपत कितने प्रतिशत से कम करनी चाहिए ताकि व्यय में कोई भी परिवर्तन नहीं हो ? (एक दशमलव स्थान तक लें)
SSC CPO 13 March 2019 (Morning)
(a) 15.9%
(b) 15.7%
(c) 15.5%
(d) 15.3%

Q39. In an examination, 53% of the candidates failed in science and 48% failed in mathematics. If 40% failed in both subjects, what percentage passed in both subjects?
एक परीक्षा में 53% छात्र विज्ञान में अनुत्तीर्ण हुए तथा 48% गणित में अनुत्तीर्ण रह गए | यदि 40% दोनों विषयों में अनुत्तीर्ण रहे, तो दोनों विषयों में कितने प्रतिशत उत्तीर्ण हुए ?
SSC CPO 13 March 2019 (Morning)
(a) 51%
(b) 39%
(c) 49%
(d) 43%

Q40. If the income of A is 40% more than the income of B, then by what percentage is B's income less than that income of A?
यदि A की आय B की आय से 40% अधिक है, तो B की आय A की आय से कितना प्रतिशत कम है?
SSC CPO 13 March 2019 (Morning)
(a) $\frac{230}{7}$ %
(b) 56%
(c) 25%

Pinnacle

(d) $\frac{200}{7}$ %

Q41. A number which, when increased by 16% becomes 1914. The number is:
किसी संख्या में 16% की वृद्धि करने पर यह 1914 हो जाती है | यह संख्या है -
SSC CPO 14 March 2019 (Morning)
(a)2220
(b)1650
(c)2010
(d)1780

Q42. A number is first decreased by 10% and then increased by 10%. The number so obtained is 100 less than the original number. The original number is:
किसी संख्या में पहले 10% की कमी तथा फिर 10% की वृद्धि की जाती है | इस प्रकार प्राप्त संख्या वास्तविक संख्या से 100 कम है | वास्तविक संख्या ज्ञात करें |
SSC CPO 16 March 2019 (Evening)
(a)100000
(b)100
(c)1000
(d)10000

Q43. 8% of 5 litres is :
5 लीटर का 8% है :
SSC CPO 15 March 2019 (Morning)
(a) 0.4 ml
(b) 400 ml
(c) 40 ml
(d) 4 ml

Q44. The price of petrol was raised by 15%. By how much percentage should a motorist reduce the consumption of petrol so that the expenditure on it does not increase? पेट्रोल की कीमत 15% से बढ़ गयी | एक वाहन मालिक को पेट्रोल की खपत कितनी कम करनी चाहिए ताकि इस पर किये गए व्यय में वृद्धि ना हो ?
SSC CPO 15 March 2019 (Morning)
(a)9 $\frac{2}{11}$ %
(b)15 $\frac{3}{13}$ %
(c)13 $\frac{1}{23}$ %
(d)6 $\frac{7}{8}$ %

Q45.What percent of 2.4 m is 3.2 cm?
3.2 सेमी 2.4 मी का कितना प्रतिशत है ?
SSC CPO 16 March 2019 (Afternoon)
(a)75%
(b)7.5%
(c)1000 $\frac{1}{3}$ %
(d)1 $\frac{1}{3}$ %

Q46.3cm is how much percent of 12 m.
12m में 3 cm कितने प्रतिशत है
SSC CPO 14 March 2019 (Evening)
(a) 0.025
(b) 0.25
(c) 2.5
(d) 25

Q47. A spends 24% of his monthly income on household expenses, 16% on entertainment, 12% on education, and saves the rest. If the savings are 3288, then what is the monthly income of A?
A अपनी मासिक आय से 24% घरेलू खर्च पर , 16% मनोरंजन पर ,12% शिक्षा पर व्यय करता है और बाकि बचा लेता है | यदि बचत 3288 है तो A की मासिक आय कितनी होगी ?
SSC CPO 14 March 2019 (Evening)
(a) Rs 6,654
(b) Rs 6,480
(c) Rs 6,323
(d) Rs 6,850

Q48. Nidhi received 74 marks in Mathematics in 62 English and 70 Science. What should be her score in social science so that he gets a total of 68%?
निधि ने गणित में 74, अंग्रेजी में 62, विज्ञानं में 70 अंक प्राप्त किये | सामाजिक विज्ञानं में उसका स्कोर क्या होना चाहिए ताकि उसे कुल 68 % प्राप्त हो ?
SSC CPO 14 March 2019 (Evening)
(a) 67
(b) 65
(c) 66
(d) 68

Q49. What is 34% of 1.2 kilometers?
1.2 किलोमीटर का 34% क्या है ?
SSC CPO 15 March 2019 (Evening)
(a)40,800 cm
(b)4,08,000 cm
(c)4,080 cm
(d)408 cm

Q50.Salary of A increased by 8% in the year 2015 as compared to 2014 and decreased by 6% in the year 2016 as compared to 2015. If his salary was Rs.2,34,778 in 2016, his salary (round off to nearest whole number) in 2014 was :
A के वेतन में वर्ष 2014 के मुकाबले वर्ष 2015 में 8% की वृद्धि हुई और 2015 के मुकाबले वर्ष 2016 में 6% की कमी हुई | यदि वर्ष 2016 में उसका वेतन रु 2, 34, 778 था तो 2014 में उसका वेतन (निकटतम संपूर्ण संख्या में पूर्णांकित) कितना था ?
SSC CPO 15 March 2019 (Evening)
(a) Rs 2,31,263
(b) Rs 2,38,347
(c) Rs 2,34,987
(d) Rs 2,36,402

Pinnacle

Q51. $\frac{9}{40}$ converted to percentage is: / $\frac{9}{40}$ को प्रतिशत में बदलने पर _____ प्राप्त होगा |
SSC CPO 15 March 2019 (Evening)
(a)2
(b)2 $\frac{1}{2}$
(c)22 $\frac{1}{2}$
(d)22

SSC MTS

Q1. A number is first increased by 20% and then reduced by 15%. If the final value is 2040, then what is the initial value of the numbers ?
एक संख्या को पहले 20% से बढ़ाया जाता है फिर 15% से कम किया जाता है | यदि अंतिम मान 2040 है, तो संख्याओं का आरंभिक मान क्या था ?
SSC MTS 2 August 2019 (Morning)
(a) 2100
(b) 1800
(c) 2000
(d) 1900

Q2. A person spends 10% of his salary on food. He spends 20% of the remaining amount on fuel. If he has Rs. 4680 now, then what is his salary ?
एक व्यक्ति अपने वेतन का 10% भोजन पर खर्च करता है | वह शेष भाग का 20% ईंधन पर खर्च करता है | यदि उसके पास 4680 रूपए शेष है, तो उसका वेतन कितना है ?
SSC MTS 2 August 2019 (Afternoon)
(a) 6000
(b) 5000
(c) 6500
(d) 5500

Q3. A is 20% more than B, which is 25% less than C. Which of the following is true about A and C ?
A, B से 20% अधिक है, जो C से 25% कम है | A और C के बारे में निम्न में से क्या सही है ?
SSC MTS 2 August 2019 (Evening)
(a) A = 0.9 C
(b) A = 1.1 C
(c) A = 0.95 C
(d) A = C

Q4. A number is first increased by 16 $\frac{2}{3}$% and then decreased by 15% to get 238. What is 37.5% of that number ?
एक संख्या को पहले 16 $\frac{2}{3}$% बढ़ाया जाता है और फिर 15% कम कर दिया जाता है जिस से 238 प्राप्त होता है | इस संख्या का 37.5% ज्ञात करें |
SSC MTS 5 August 2019 (Morning)
(a) 150
(b) 75
(c) 120
(d) 90

Q5. A is 20% more than B. B is 25% more than C. What percent C is less than A ?
A, B से 20% अधिक है | B,C से 25% अधिक है | C, A से कितने प्रतिशत कम है ?
SSC MTS 5 August 2019 (Evening)
(a) 33.33%
(b) 37.5%
(c) 50%
(d) 66.66%

Q6. A is 15% more than B. B is what percent less than A ? (correct to the two decimal points)
A, B से 15% अधिक है | B, A से कितने प्रतिशत कम है (दशमलव के दो स्थान तक) ?
SSC MTS 6 August 2019 (Morning)
(a) 9.17 %
(b) 16.14 %
(c) 13.04 %
(d) 6.14%

Q7. 26% of A is 832. What is 31% of A ?
A का 26% = 832 है | A के 31% का मान कितना है ?
SSC MTS 6 August 2019 (Afternoon)
(a) 968
(b) 876
(c) 854
(d) 992

Q8. A number is first increased by 40% and then it is increased by 30%. What is the net percentage increase?
एक संख्या को पहले 40% बढ़ाया जाता है और फिर इसे 30% बढ़ा दिया जाता है | शुद्ध प्रतिशत वृद्धि ज्ञात करें |
SSC MTS 6 August 2019 (Evening)
(a) 82%
(b) 96%
(c) 72%
(d) 70%

Q9. 320 is how much percentage less than 400?
320, 400 से कितना प्रतिशत कम है ?
SSC MTS 7 August 2019 (Afternoon)
(a) 20%
(b) 18%
(c) 12%
(d) 15%

Q10. If A is 200% more than B, then B is how much percentage less than A?
यदि A, B से 200% अधिक है, तो B, A से कितना प्रतिशत कम है ?
SSC MTS 7 August 2019 (Evening)
(a) 33.33%
(b) 50%
(c) 100%
(d) 66.67%

Q11. Manish's salary is half of Ravi's salary. Ravi's salary is how much percentage more than Manish's Salary?
मनीष का वेतन रवि के वेतन का आधा है | रवि का वेतन मनीष के वेतन से कितना प्रतिशत अधिक है ?
SSC MTS 8 August 2019 (Afternoon)
(a) 100%
(b) 25%
(c) 50%
(d) 75%

Q12. Rahul's salary is 40% less than Rakesh's salary. Deepak's salary is 80% more than Rahul's salary. If Deepak's salary is Rs 34560, then what is the salary of Rakesh?
राहुल का वेतन राकेश के वेतन से 40% कम है | दीपक का वेतन राहुल के वेतन से 80% अधिक है | यदि दीपक का वेतन 34560 रुपये है, तो राकेश का वेतन ज्ञात करें |
SSC MTS 8 August 2019 (Evening)
(a) Rs 32000
(b) Rs 24000
(c) Rs 28000
(d) Rs 26000

Q13. The ratio of the number of rural and urban workers (includes men and women only) in an office is 3 : 2. If 20% of rural and 25% of urban are women, the percentage of men is:
किसी कार्यालय में ग्रामीण और शहरी कर्मचारियों (केवल पुरुष और महिला शामिल) की संख्या का अनुपात 3 : 2 है | यदि 20% ग्रामीण तथा 25% शहरी कर्मचारी महिलाएं हैं, तो पुरुषों का प्रतिशत ज्ञात करें |
SSC MTS 9 August 2019 (Morning)
(a) 67.50%
(b) 82.50%
(c) 78%
(d) 58%

Q14. Aman's annual income has increased by Rs 20 lakhs but the tax on income that he has to pay has reduced from 20% to 16%. He now pays the same amount of tax as earlier. What is his new total income (in Rs lakhs)?
अमन की वार्षिक आय 20 लाख रुपये से बढ़ गयी है लेकिन आय पर उसके द्वारा दिया जाने वाला कर 20% से कम हो कर 16% हो गया है | वह अभी भी पहले जितनी राशि ही कर देता है | नयी कुल आय (लाख रुपये में) ज्ञात करें |
SSC MTS 9 August 2019 (Morning)
(a) 100
(b) 120
(c) 80
(d) 60

Q15. If 40% of x equal 50% of y, then y : x is:
यदि x का 40% y के 50% के बराबर है, तो y : x है :
SSC MTS 9 August 2019 (Afternoon)
(a) 4 : 5
(b) 3 : 2
(c) 2 : 3
(d) 5 : 4

Q16. 140 grams is what percent of 5.6 kg ?
5.6 kg का कितना प्रतिशत 140 gram है ?
SSC MTS 13 August 2019 (Morning)
(a) 2.5
(b) 1.8
(c) 2
(d) 1.5

Q17. If 80% of X is 36 more than 60% of Y and 120% of X is equal to Y, then the difference between X and Y is:
यदि X का 80% Y के 60% से 36 अधिक है और X का 120% Y के बराबर है, तो X और Y के बीच अंतर ज्ञात करें |
SSC MTS 13 August 2019 (Afternoon)
(a) 80
(b) 100
(c) 90
(d) 60

Q18. What is the difference between 0.9 and 0.9% ?
0.9 और 0.9% के बीच क्या अंतर है ?
SSC MTS 13 August 2019 (Evening)
(a) 0.981
(b) 0.891
(c) 0.198
(d) 8.91

Q19. A number is 50% less than X and another number is 20% less than X. What is the ratio of both numbers ?
कोई संख्या X से 50% कम है और अन्य संख्या X से 20% कम है | दोनों संख्याओं का अनुपात कितना है ?
SSC MTS 14 August 2019 (Morning)
(a) 5 : 8
(b) 2 : 3
(c) 3 : 8
(d) 3 : 5

Q20. In an examination, there are 800 boys and 600 girls. 40% boys and 60% girls passed the examination. The percentage (correct to two decimal places) of failed students from the total students is:
एक परीक्षा में 800 लड़के और 600 लड़कियाँ हैं | 40% लड़के और 60% लड़कियों ने परीक्षा पास किया | कुल छात्रों में असफल छात्रों का प्रतिशत (दो दशमलव स्थान तक सही) ज्ञात करें |
SSC MTS 14 August 2019 (Evening)
(a) 52.34%
(b) 50.36%
(c) 51.43%
(d) 53.57%

Pinnacle

Q21. 75% of 260 + 30% of 320 = ?
260 का 75% + 320 का 30% = ?
SSC MTS 14 August 2019 (Evening)
(a) 301
(b) 271
(c) 281
(d) 291

Q22. X and Y together have Rs 1300. If Rs 10 less than three-fifth of the amount of X is equal to half of the amount of Y, then how much does X have?
X और Y के पास मिलाकर 1300 रुपये हैं | यदि X की राशि के ⅗ से 10 रुपये कम Y की राशि के आधे के बराबर है, तो X के पास कितनी राशि है ?
SSC MTS 16 August 2019 (Morning)
(a) Rs 700
(b) Rs 600
(c) Rs 550
(d) Rs 650

Q23. A student scored 32% marks and failed by 6 marks. If he had scored 36% then he would have passed by 2 marks. What is the passing marks ?
एक छात्र ने 32% अंक प्राप्त किए और 6 अंकों से फेल हो गया रहा | यदि उसने 36% अंक प्राप्त किए होते, तो वह 2 अंकों से उत्तीर्ण हो गया होता | उत्तीर्ण अंक (स्कोर) कितना है ?
SSC MTS 16 August 2019 (Afternoon)
(a) 66
(b) 75
(c) 80
(d) 70

Q24. An examination was held on five subjects where the maximum marks for each subject was 100. X scored 82, 97, 88 and 91 marks in four subjects. If his total marks were 90% then, find his marks in the fifth subject.
पांच विषयों पर एक परीक्षा आयोजित की गई जहाँ प्रत्येक विषय के लिए अधिकतम अंक 100 थे | X ने 4 विषयों में क्रमश: 82, 97, 88 और 91 अंक प्राप्त किए | यदि उसके कुल अंक 90% थे, तो पांचवें विषय में उसने कितने अंक प्राप्त किए ?
SSC MTS 16 August 2019 (Evening)
(a) 92
(b) 94
(c) 89
(d) 79

Q25. Two numbers are 80% and 35% respectively greater than the third number. What is the ratio of two numbers ?
दो संख्याएँ किसी तीसरी संख्या से क्रमश: 80% और 35% बड़ी हैं | दो संख्याओं का अनुपात कितना है ?
SSC MTS 16 August 2019 (Evening)
(a) 4 : 3
(b) 17 : 6
(c) 8 : 5
(d) 8 : 3

Q26. 12.5% of A = 55, What is the value of A?
A का 12.5% = 55 है | A का मान क्या है ?
SSC MTS 19 August 2019 (Morning)
(a) 480
(b) 500
(c) 440
(d) 550

Q27. What is the value of 12.5% of 30% of 1440 ?
1440 के 30% के 12.5% का मान कितना है?
SSC MTS 19 August 2019 (Afternoon)
(a)64
(b)44
(c)50
(d)54

Q28. In spite of an increase in price of a commodity by 20% the overall expenditure on it increases by 12%. What is the percentage decrease in the quantity of commodity consumed ?
किसी वस्तु की कीमत में 20% वृद्धि के बावजूद इस पर किया जाने वाला कुल खर्च 12% बढ़ता है | वस्तु की खपत की मात्रा में प्रतिशत कमी ज्ञात करें |
SSC MTS 19 August 2019 (Evening)
(a) $7\frac{1}{3}$
(b) $7\frac{1}{2}$
(c) 8
(d) $6\frac{2}{3}$

Q29. 60% of a number is 168, then what is the number ?
किसी संख्या का 60% 168 है | वह संख्या क्या है ?
SSC MTS 8 August 2019 (Morning)
(a) 280
(b) 320
(c) 240
(d) 200

Q30. 0.15 % of $33\frac{1}{3}$ % of 180000 = ?
180000 के $33\frac{1}{3}$ % का 0.15% ज्ञात करें |
SSC MTS 9 August 2019 (Evening)
(a) 9
(b) 90
(c) 150
(d) 900

Q31. The sum of incomes of A and B is 165000. A spends 70% of his income and B spends 80% of his income. If the savings of A is 25% more than that of B, then find the difference between their incomes ?

A और B की आय का योग 165000 है | A अपनी आय का 70% और B अपनी आय का 80% खर्च करते हैं | यदि A की बचत, B की तुलना में 25% अधिक हैं, तो उनकी आय में कितना अंतर् हैं?

SSC MTS 20 August 2019 (Morning)

(a)Rs. 12000
(b)Rs. 18000
(c)Rs. 15000
(d)Rs. 10000

Q32. Sonu decided to donate 12% of his monthly income to a charitable trust. On the day of donation, he changed his decision and donated Rs. 2160 which was equal to 125% of the amount he intended to donate earlier. What is the monthly income of Sonu ?

सोनू ने अपनी मासिक आय का 12% एक धर्मार्थ ट्रस्ट को दान देने का फैसला किया | दान देने के दिन , उसने अपना निर्णय बदल दिया और का 2160 रूपए का दान दिया , जो उसके द्वारा पूर्व में दान देने के फैसले की राशि के 125% के बराबर है | सोनू की मासिक आय कितनी है ?

SSC MTS 20 August 2019 (Afternoon)

(a) Rs. 11200
(b) Rs. 9600
(c) Rs. 14400
(d) Rs. 12800

Q33. One year ago the population of a village was 72,000. Due to migration it decreases by 8% every year. Find the current population of the village.

एक साल पहले किसी गाँव की आबादी 72,000 थी | प्रवास के कारण यह हर साल 8% कम हो जाती है | वर्तमान वर्ष में इस गाँव की आबादी कितनी है ?

SSC MTS 20 August 2019 (Evening)

(a) 68138
(b) 60940
(c) 66240
(d) 61908

Q34. There are 780 bananas in a box out of which 130 bananas are rotten and the remaining ones are of good quality. The percentage (upto two decimal places) of good quality bananas is :

किसी बक्से में 780 केले हैं जिनमें से 130 केले सड़े हुए हैं और शेष अच्छी गुणवत्ता वाले हैं | अच्छी गुणवत्ता वाले केलों का प्रतिशत (दशमलव के दो स्थान तक) है :

SSC MTS 21 August 2019 (Morning)

(a) 71.12%
(b) 65.35%
(c) 83.33%
(d) 53.33%

Q35. If 40% of ⅖ of a number is 24, then the number is :

यदि किसी संख्या के 2/5 का 40% 24 है, तो संख्या है :

SSC MTS 21 August 2019 (Afternoon)

(a) 136
(b) 148
(c) 150
(d) 154

Q36. The price of a commodity increases 15% every year. If the difference between its prices at the end of third and fourth year is 193.20, then which of the following was 90% of its price at the end of second year ?

किसी वस्तु का मूल्य प्रतिवर्ष 15% बढ़ जाता है | यदि तीसरे वर्ष और चौथे वर्ष के अंत में उसके मूल्यों का अंतर 193.20 रूपए है, तो दूसरे वर्ष के अंत में उसके मूल्य का 90% निम्न में से कौन सा था :

SSC MTS 21 August 2019 (Evening)

(a) Rs. 1008
(b) Rs. 1120
(c) Rs. 1064
(d) Rs. 896

Q37. In an examination, 40% of the students who appeared were boys and rest were girls. The pass percentage of the boys was 60% and overall pass percentage was 56%. What was the pass percentage of the girls?

एक परीक्षा में शामिल होने वाले 10% छात्र लड़के थे तथा शेष लड़कियाँ थीं | लड़कों का उत्तीर्णता प्रतिशत 40% था और कुल उत्तीर्णता प्रतिशत 56% था | लड़कियों का उत्तीर्णता प्रतिशत ज्ञात करें |

SSC MTS 22 August 2019 (Morning)

(a) $54\frac{2}{3}$
(b) $54\frac{1}{3}$
(c) $52\frac{2}{3}$
(d) $53\frac{1}{3}$

Q38. A is 25% more than B while B is 20% less than C and C is 10% more than D. Which of the following is not true?

A, B से 25% अधिक है जबकि B, C से 20% कम है और C, D से 10% अधिक है | निम्न में से कौन सा सही नहीं है ?

SSC MTS 22 August 2019 (Afternoon)

(a) B is 22% less than A/ B, A से 22% कम है |
(b) A is 10% more than D/ A, D से 10% अधिक है |
(c) B is 12% less than D/ B, D से 12% कम है |
(d) A=C/ A = C

Q39. If (x + 10)% of 200 is $33\frac{1}{3}$ % more than x % of 180, then 10% of (x + 20) is what percent less than 40% of x?

यदि 200 का (x+10)% 180 के x% से $33\frac{1}{3}$ % अधिक है, तो (x+20) का 10% x के 40% से कितना प्रतिशत कम है ?

SSC MTS 22 August 2019 (Evening)

(a) 55
(b) 60

(c) 70
(d) 65

Q40. If 60% of a number is equal to 3/7 of another number, then what is the ratio of the two numbers ?
यदि किसी संख्या का 60% एक अन्य संख्या के 3/7 के बराबर है, तो इन दो संख्याओं का अनुपात क्या है ?
SSC MTS 14 August 2019 (Afternoon)
(a) 4:7
(b) 5:8
(c) 5:7
(d) 1:2

Q41. The price of a machine got depreciated by 50% in the 1st year, $33\frac{1}{3}$ % in the 2nd year and 25% in the 3rd year. Overall, by how much has the machine depreciated ?
एक मशीन की कीमत पहले वर्ष 50%, दूसरे वर्ष $33\frac{1}{3}$ % और तीसरे वर्ष 25% कम हो गयी | कुल मिलाकर मशीन की कीमत में कितनी कमी आई है ?
SSC MTS 14 August 2019 (Afternoon)
(a) $66\frac{2}{3}$ %
(b) 80%
(c) 75%
(d) 50%

Q42. If 85% of a number is added to 75, then the result is the number itself. The number is :
यदि किसी संख्या के 85% को 75 में जोड़ा जाए, तो परिणामस्वरूप वह संख्या खुद आ जाती है | वह संख्या है -
SSC CGL 13 June 2019 (Evening)
(a) 500
(b) 200
(c) 300
(d) 100

Q43. If x% of y is 150 and y% of z is 300, then the relation between x and z is :
यदि y का x% 150 है और z का y% 300 है, तो x और z में क्या संबंध है ?
SSC CHSL 5 July 2019 (Evening)
(a) z=x
(b) z=x/3
(c) z=x/2
(d) z=2x

Q44. Two students, A and B, appeared for an examination. A secured 8 marks more than B and the marks of the former was 55% of the sum of their marks. The sum of the marks obtained by A and B is:
दो छात्र- A और B एक परीक्षा में शामिल हुए | A ने B से 8 अंक अधिक हासिल किये तथा A के अंक उनके अंकों के जोड़ का 55% थे | A और B के द्वारा प्राप्त किये गए अंक का जोड़ है :
SSC CHSL 8 July 2019 (Morning)
(a) 100
(b) 80
(c) 75
(d) 90

Q45. With reference to a number greater than one, the difference between itself and its reciprocal is 25% of the sum of itself and its reciprocal. By how much percentage (correct one decimal place) is the fourth power of the number greater than its square?
एक से बड़ी किसी संख्या के संदर्भ में, इसके (संख्या) तथा इसके व्युत्क्रम के बीच का अंतर इसके तथा इसके व्युत्क्रम के योग का 25% है | संख्या का चौथा घात (fourth power) इसके वर्ग से कितना प्रतिशत (दशमलव के एक स्थान तक) अधिक है ?
SSC CHSL 11 July 2019 (Morning)
(a) 57.8
(b) 62.5
(c) 64.5
(d) 66.7

Q46. For a number, greater than one, the difference between itself and its reciprocal is 20% of the sum of itself and its reciprocal. By how much percentage (nearest to an integer) is the square of the number less than its cube ?
एक से बड़ी किसी संख्या के संदर्भ में, इसके (संख्या) तथा इसके व्युत्क्रम के बीच का अंतर इसके तथा इसके व्युत्क्रम के योग का 20% है | संख्या का वर्ग इसके घन से कितना प्रतिशत (दशमलव के एक स्थान तक) कम है ?
SSC CHSL 11 July 2019 (Afternoon)
(a) 122
(b) 18
(c) 81
(d) 33

Q47. $\frac{64}{25}$ converted to percentage is :
$\frac{64}{25}$ को प्रतिशत में बदला जाए तो :
SSC CPO 16 March 2019 (Evening)
(a)2.56
(b)25.6
(c) 0.256
(d)256

Q48. An alloy contains 32% copper, 24% nickel and rest zinc. How much zinc is present in 12kg of the alloy? एक मिश्रधातु में 32% तांबा, 24% निकेल और शेष जस्ता है | 12 किलो ग्राम मिश्रधातु में कितना जस्ता मौजूद होगा ?
SSC CPO 14 March 2019 (Morning)
(a)5.28 kg
(b)6.72 kg
(c)528 gm
(d)672 gm

SSC CGL TIER I

Q1. If the length of a rectangle is increased by 40% and the breadth is decreased by 20%, then the area of the rectangle is increased by x%. The value of x is:
यदि किसी आयत की लंबाई 40% बढ़ा दी जाती है तथा चौड़ाई 20% कम कर दी जाती है, तो इस आयत का क्षेत्रफल x % बढ़ जाता है | x का मान है :
SSC CGL 3 March 2020 (Morning)
(a) 20
(b) 12
(c) 16
(d) 8

Q2. If the difference between 62% and 80% of a number is 198, then the difference between 92% and 56% of the number will be:
यदि एक संख्या के 62% और 80% में 198 का अंतर है, तो उस संख्या के 92% और 56% में कितना अंतर होगा ?
SSC CGL 3 March 2020 (Evening)
(a) 360
(b) 1100
(c) 396
(d) 3564

Q3. Sonu saves 15% of her income. If her income increases by 20% and she still saves the same amount as before, then what is the percentage increase in her expenditure?(correct to one decimal place) /
सोनू अपनी आय का 15% भाग बचत करती है | यदि उसकी आय 20% बढ़ जाती है तथा तब भी वह पहले जितनी बचत ही कर पाती है, तो उसके व्यय में कितने प्रतिशत की वृद्धि हुई है ? (दशमलव के एक स्थान तक)
SSC CGL 4 March 2020 (Morning)
(a) 22.8
(b) 23.5
(c) 23.8
(d) 24.2

Q4. The income of A is 60% less than that of B, and the expenditure of A is equal to 60% of B's expenditure. If A's income is equal to 70% of B's expenditure, then what is the ratio of the saving of A and B?
A की आय B की आय से 60% कम है, तथा A का व्यय B के व्यय के 60% के बराबर है | यदि A की आय B के व्यय के 70% के बराबर है, तो A और B की बचत का अनुपात क्या है ?
SSC CGL 4 March 2020 (Afternoon)
(a) 3:8
(b) 5:9
(c) 4:7
(d) 2:15

Q5. A,B and C donate 8%,7% and 9%, of their salaries respectively to a charitable trust. The salaries of A and B are the same and the difference between their donations is ₹259. The total donation of A and B is ₹1,185 more than that of C. The total donation of A and C is what percentage of the total salaries of A,B and C? (Correct to one decimal place)
A, B तथा C अपने वेतन का क्रमशः 8%, 7% तथा 9% भाग एक पुण्यार्थ ट्रस्ट में दान कर देते हैं | A और B के वेतन समान हैं तथा उनके दान में 259 रुपये का अंतर है | A और B का कुल दान C के दान से 1,185 रुपये अधिक है | A और C का कुल दान A, B तथा C के कुल वेतन का कितना प्रतिशत है ?
SSC CGL 4 March 2020 (Evening)
(a) 6.2%
(b) 5.8%
(c) 6.4%
(d) 7.1%

Q6. In an examination in which the full marks were 500, A scored 25% more marks than B. B scored 60% more marks than C and C scored 20% less marks than D. If A scored 80% marks, then the percentage of marks obtained by D is:
एक परीक्षा जिसमें पूर्णांक 500 है, उसमें A को B से 25% अधिक अंक आए हैं | B को C से 60% अधिक अंक मिले हैं तथा C को D से 20% कम अंक मिले हैं | यदि A को 80% अंक प्राप्त हुए हैं, तो D के द्वारा प्राप्त अंक का प्रतिशत ज्ञात कीजिए
SSC CGL 5 March 2020 (Morning)
(a) 60%
(b) 54%
(c) 65%
(d) 50%

Q7. A and B spent 60% and 75% of their incomes, respectively. If the savings of A are 20% more than that of B, then by what percentage is the income of A less than the income of B?
A तथा B ने अपनी आय का क्रमशः 60% तथा 75% हिस्सा खर्च किया | यदि A की बचत B की बचत से 20% अधिक है, तो A की आय B की आय से कितना प्रतिशत कम है ?
SSC CGL 5 March 2020 (Afternoon)
(a) decrease by 1.8%
(b) increase by 2.8%
(c) increase by 1.8%
(d) decrease by 2.8%

Q8. The price of sugar is increased by 20%. By what percentage must one cut down on the consumption of sugar, so that no extra amount has to be incurred on sugar?
चीनी की कीमत 20% बढ़ गयी है | व्यक्ति को चीनी की खपत में कितने प्रतिशत की कटौती करनी चाहिए, ताकि चीनी पर ज़रा भी अतिरिक्त राशि खर्च ना हो ?

Pinnacle

SSC CGL 5 March 2020 (Evening)
(a) 80%
(b) 20%
(c) $16\frac{2}{3}$ %
(d) $83\frac{1}{3}$ %

Q9. The population of a city increased 30% in the first year and decreased by 15% in the next year. If the present population is 11,050 then the population 2 years ago was:
एक शहर की आबादी पहले साल 30% बढ़ी तथा अगले वर्ष 15% कम हो गयी | यदि वर्तमान आबादी 11,050 है, तो 2 वर्ष पहले कितनी आबादी थी ?
SSC CGL 6 March 2020 (Morning)
(a) 10,000
(b) 10,050
(c) 99,000
(d) 99,500

Q10. In a school, 4% of the students did not appear for the annual exams. 10% of the students who appeared for the exams could not pass the exam. Out of the remaining students, 50% got distinction marks and 432 students passed the exam but could not get distinction marks. The total number of students in the school is:
एक विद्यालय में, 4% छात्र वार्षिक परीक्षा में शामिल नहीं हुए | परीक्षा में शामिल होने वाले 10% छात्र परीक्षा पास नहीं कर सके | शेष छात्रों में से, 50% को डिस्टिंक्शन अंक मिले तथा 432 छात्र परीक्षा तो पास कर गए लेकिन उन्हें डिस्टिंक्शन अंक नहीं मिले | विद्यालय में छात्रों की कुल संख्या कितनी है ?
SSC CGL 6 March 2020 (Afternoon)
(a) 960
(b) 1000
(c) 878
(d) 1200

Q11. In an examination, Anita scored 31% marks and failed by 16 marks. Sunita scored 40% marks and obtained 56 marks more than those required to pass. Find the minimum marks required to pass.
एक परीक्षा में, अनीता को 31% अंक मिले तथा वह 16 अंकों से फेल हो गयी | सुनीता को 40% अंक मिले तथा उसके अंक उत्तीर्ण होने के लिए आवश्यक अंक से 56 अधिक थे | उत्तीर्ण होने के लिए न्यूनतम कितने अंकों की आवश्यकता है ?
SSC CGL 7 March 2020 (Morning)
(a) 3116
(b) 3944
(c) 7100
(d) 264

Q12. Anu spends 68% of her monthly income. If her monthly income increases by 20% and her monthly saving increase by $9\frac{3}{8}$ % then the percentage increase in her monthly expenditure is:
अनु अपनी मासिक आय का 68% खर्च करती है | यदि उसकी मासिक आय 20% बढ़ जाती है तथा उसकी मासिक बचत $9\frac{3}{8}$ % बढ़ जाती है, तो उसके मासिक व्यय में कितने प्रतिशत की वृद्धि होगी ?
SSC CGL 7 March 2020 (Afternoon)
(a) 20%
(b) 25%
(c) 22%
(d) 32%

Q13. By what number must the given number be multiplied to increase the number by 25%.
किसी संख्या में 25% की वृद्धि करने के लिए उस संख्या को किस संख्या से गुणा करना चाहिए ?
SSC CGL 7 March 2020 (Evening)
(a) 3
(b) $\frac{2}{5}$
(c) $\frac{5}{4}$
(d) $\frac{3}{4}$

Q14. Ravi scores 72% marks in examinations. If these are 360 marks, then the maximum marks are:
रवि को परीक्षा में 72% अंक आए | यदि ये 360 अंक हैं, तो अधिकतम अंक कितने हैं ?
SSC CGL 9 March 2020 (Morning)
(a) 500
(b) 350
(c) 450
(d) 400

Q15. The price of cooking oil increased by 25%. Find by how much percentage a family must reduce its consumption in order to maintain the same budget? / खाना पकाने के तेल की कीमत में 25% की वृद्धि हुई। उसी बजट को बनाए रखने के लिए एक परिवार को अपनी खपत में कितने प्रतिशत की कमी करनी चाहिए?
SSC CGL 9 March 2020 (Evening)
(a) 70%
(b) 80%
(c) 30%
(d) 20%

SSC CHSL 2019

Q1. Kavita's attendance in her school for the academic session 2018-2019 was 216 days. On computing her attendance, it was observed that her attendance was 90%. The total working days of the school were:
शैक्षणिक सत्र 2018-2019 में कविता के विद्यालय में उसकी उपस्थिति 216 दिन थी। उसकी उपस्थिति की गणना में, यह पाया गया कि उसकी उपस्थिति 90% थी। विद्यालय के कुल कार्य दिवसों की गणना कीजिए।
CHSL 12-10-2020 (Morning shift)

(a) 250
(b) 194
(c) 240
(d) 195

Q2. Mohan offers to sell his articles at a discount of 20%, but he marks his articles by increasing the price of each by 35%. What percentage would his gain be?
मोहन अपनी वस्तुओं को 20% की छूट पर बेचने की पेशकश करता है। लेकिन उसने अपनी वस्तुओं का मूल्य 35% अधिक अंकित किया है। उसके लाभ का प्रतिशत क्या होगा?
CHSL 12-10-2020 (Afternoon shift)
(a) 10%
(b) 7%
(c) 8%
(d) 9%

Q3. If each edge of a cube is increased by 10%, then the percentage increase in its surface area is:
यदि किसी घन के प्रत्येक किनारे को 10% बढ़ा दिया जाता है, तो इसके पृष्ठ क्षेत्रफल में कितने प्रतिशत की वृद्धि होगी?
CHSL 13-10-2020 (Afternoon shift)
(a) 21%
(b) 19%
(c) 22%
(d) 20%

Q4. If 40% of a number is less than its 60% by 30, then the 20% of that number is:
यदि किसी संख्या का 40% उसके 60% से 30 से कम है, तो उस संख्या का 20% है:
CHSL 13-10-2020 (Evening shift)
(a)60
(b)40
(c)50
(d)30

Q5. The length and breadth of a cuboid are increased by 10% and 20%, respectively, and its height is decreased by 20%. The percentage increase in the volume of the cuboid is:
एक घनाभ की लंबाई और चौड़ाई क्रमश 10% और 20% बढ़ जाती है, और इसकी ऊंचाई 20% तक कम हो जाती है। घनाभ के आयतन में प्रतिशत वृद्धि है:
CHSL 14-10-2020 (Morning shift)
(a) $5\frac{4}{5}$ %
(b) $5\frac{1}{5}$ %
(c) $5\frac{2}{5}$ %
(d) $5\frac{3}{5}$ %

Q6. A crate of fruits contains one spoiled fruit for every 25 fruits. 60% of the spoiled fruits were sold. If the seller had sold 48 spoiled fruits, then the number of fruits in the crate were:
फलों के एक टोकरे में हर 25 फलों पर एक खराब फल है। खराब हो चुके फलों के 60% की बिक्री हो गयी। यदि विक्रेता ने 48 खराब फलों की बिक्री की थी, तो टोकरे में फलों की संख्या थी:
CHSL 14-10-2020 (Afternoon shift)
(a) 2000
(b) 2400
(c) 3000
(d) 1200

Q7. Two numbers are respectively 25% and 65% more than a third number. The ratio of the two numbers is:
दो संख्याएँ तीसरी संख्या से क्रमशः 25% और 65% अधिक हैं। दोनों संख्याओं का अनुपात क्या है?
CHSL 14-10-2020 (Evening shift)
(a) 25 : 42
(b) 16 : 17
(c) 16 : 19
(d) 25 : 33

Q8. Sachin scored 120 runs, which included 6 boundaries and 4 sixes. What percentage of his total score did he make by running between the wickets?
सचिन ने 120 रन बनाए, जिसमें 6 चौके और 4 छक्के शामिल थे। उसके कुल रनों का कितना प्रतिशत विकटों के बीच में दौड़ कर आया है?
CHSL 14-10-2020 (Evening shift)
(a) $46\frac{4}{9}$ %
(b) 33 ⅓ %
(c) 60%
(d) 45%

Q9. A student multiplied a number with $\frac{3}{4}$ instead of $\frac{4}{3}$. What is the error percentage?
एक छात्र ने 43 की बजाय 34 के साथ एक संख्या को गुणा किया। त्रुटि प्रतिशत क्या है?
CHSL 15-10-2020 (Afternoon shift)
(a) 59.67%
(b) 43.75%
(c) 67.45%
(d) 39.34%

Q10. Rita's income is 15% less than Richa's income. By what percent is Richa's income more than Rita's income?
रीता की आय ऋचा की आय से 15% कम है। ऋचा की आय, रीता की आय से कितने प्रतिशत अधिक है?
CHSL 15-10-2020 (Evening shift)
(a) $15\frac{11}{17}$%
(b) $17\frac{11}{17}$%
(c) $16\frac{11}{17}$ %
(d) $14\frac{11}{17}$%

Q11. What percentage of the numbers from 101 to 1000 have 9 in the unit's digit?
101 से 1000 तक कितने प्रतिशत संख्याओं में इकाई अंक 9 है?

CHSL 19-10-2020 (Morning shift)
(a) 10%
(b) 12%
(c) 20%
(d) 15%

Q12. 68 is 25% of which of the following numbers?
68 निम्न में से किस संख्या का 25% है?
CHSL 19-10-2020 (Evening shift)
(a) 272
(b) 285
(c) 204
(d) 136

Q13. The difference of two positive numbers is 1020. If 7.6% of the greater number is 12.4% of the smaller number, then the sum of the two numbers is equal to:
दो धनात्मक संख्याओं का अंतर 1020 है। यदि बड़ी संख्या का 7.6% छोटी संख्या का 12.4% है, तो दोनों संख्याओं का योग ज्ञात करें|
CHSL 20-10-2020 (Morning shift)
(a) 3250
(b) 4250
(c) 4520
(d) 3520

Q.14. Ravinder invests Rs.3,750 which is equal to 15% of his monthly salary in a medical insurance policy. Later he invests 25% and 8% of his monthly salary on a child education policy, and mutual funds, respectively. The total amount left with him is:
रविंदर चिकित्सा बीमा पॉलिसी में 3,750 रुपये का निवेश करता है जो उसके मासिक वेतन के 15% के बराबर है। बाद में वह अपने मासिक वेतन के 25% और 8% को क्रमश बाल शिक्षा नीति और म्यूचुअल फंड में निवेश करता है। उसके पास बची हुई कुल राशि है:
CHSL 20-10-2020 (Afternoon shift)
(a) 15000
(b) 12000
(c) 8000
(d) 13000

Q.15. When 50% of a number A is added to B, the second number B increases by 25%. The ratio between the numbers A and B is:
जब संख्या A का 50% B में जोड़ दिया जाता है, तो दूसरी संख्या B 25% बढ़ जाती है। संख्या A और B के बीच का अनुपात है:
CHSL 20-10-2020 (Afternoon shift)
(a) 3:2
(b) 2:3
(c) 1:2
(d) 3:4

Q.16. Richa invests in mutual funds a sum of Rs.559968, which is 19% of her annual income. What is her monthly income?
रिचा म्यूचुअल फंड में 59968 रुपये की राशि का निवेश करती है, जो उसकी वार्षिक आय का 19% है। उसकी मासिक आय क्या है?
CHSL 20-10-2020 (Evening shift)
(a) 445600
(b) 145600
(c) 345600
(d) 245600

Q.17. A reduction of 20% in the price of sugar enables a purchaser to obtain 4 kg more for Rs.160. The original price of sugar per kg is:
चीनी की कीमत में 20% की कमी होने पर एक क्रेता को 160 रुपये में 4 किलो अधिक चीनी मिलती है। प्रति किलो चीनी का मूल मूल्य क्या है?
CHSL 20-10-2020 (Morning shift)
(a) 12
(b) 10
(c) 14
(d) 15

Q.18. The income of Renu is 10% less than the income of Sudha, and the income of Sudha is 10% more than Rs.3000. The income of Renu is:
रेणु की आय सुधा की आय से 10% कम है और सुधा की आय 3000 रुपये से 10% अधिक है। रेणु की आय है:
CHSL 26-10-2020 (Afternoon shift)
(a) 3300
(b) 3070
(c) 2700
(d) 2970

Q.19. The difference between two positive numbers is equal to 30% of the greater number. If the smaller number is 28, then the sum of both the number is:
दो धनात्मक संख्याओं के बीच का अंतर बड़ी संख्या के 30% के बराबर है। यदि छोटी संख्या 28 है, तो दोनों संख्याओं का योग है:
CHSL 26-10-2020 (Evening shift)
(a) 72
(b) 65
(c) 68
(d) 64

Q.20. Sachin's income is 25% more than Dileep's income. By how much percentage is Dileep's Income less than Sachin's income?
सचिन की आय दिलीप की आय से 25% अधिक है। दिलीप की आय सचिन की आय से कितने प्रतिशत कम है?
CHSL 17-03-2020 (Morning shift)
(a) 15%
(b) 20%
(c) 18%
(d) 22%

Pinnacle

Q21. If he length of a rectangle is increased by 12% and the breadth is decreased by 8%, the net effect on the area is:
यदि आयत की लंबाई 12% बढ़ जाती है और चौड़ाई 8% कम हो जाती है, तो क्षेत्रफल पर शुद्ध प्रभाव इस प्रकार है:
CHSL 18-03-2020 (Morning shift)
(a) increase by 3.04%/ 3.04% की वृद्धि
(b) increase by 2.6%/ 2.6% की वृद्धि
(c) decrease by 3.04%/ 3.04% की कमी
(d) decrease by 2.6%/ 2.6% की कमी

Q22. If a% of 240 is c% of a is 117.6, then the value of a + c is:
यदि 240 का a% a का c% है, तो a+c का मान है:
CHSL 18-03-2020 (Morning shift)
(a) 238
(b) 144
(c) 260
(d) 196

Q23. Find x, if 30% of 400 + x% of 70 = 25% of 536.
x ज्ञात कीजिए, यदि 70 के 400+x% का 30%= 536 का 25% है।
CHSL 18-03-2020 (Afternoon shift)
(a) 20
(b) 30
(c) 10
(d) 40

Q24. Two numbers are respectively 25% and 60% more than a third number. The ratio of the two numbers is:
दो संख्याएँ तीसरी संख्या से क्रमशः 25% और 60% अधिक हैं। दोनों संख्याओं का अनुपात है:
CHSL 18-03-2020 (Evening shift)
(a) 20 : 30
(b) 20 : 35
(c) 25 : 32
(d) 21 : 31

Q25. In an election, candidate X got 70% of the overall valid votes. If 20% of the overall votes were declared invalid and the total number of votes is 640000, then find the number of valid votes polled in favour of the candidate.
एक चुनाव में, उम्मीदवार एक्स को कुल वैध मतों का 70% मिला। यदि कुल मतों में से 20% को अवैध घोषित किया गया और कुल मतों की संख्या 640000 है, तो उम्मीदवार के पक्ष में मतदान के वैध मतों की संख्या ज्ञात कीजिए।
CHSL 18-03-2020 (Evening shift)
(a) 358400
(b) 450000
(c) 400000
(d) 358000

Q.26. A woman earns Rs.1,000/day. After some weeks, she earns Rs.1,160/day. By how much percentage did her earnings increase?
एक महिला 1000 रुपये प्रति दिन कमाती है। कुछ हफ्तों के बाद, वह 1,160 रुपये प्रति दिन कमाती है। उसकी कमाई में कितने प्रतिशत की वृद्धि हुई?
CHSL 19-03-2020 (Afternoon shift)
(a) 18%
(b) 15%
(c) 17%
(d) 16%

Q.27. Each side of a rectangular field is increased by 10%. Then the percentage increase in the area of the field is:
एक आयताकार क्षेत्र की प्रत्येक भुजा में 10% की वृद्धि हुई है। फिर क्षेत्र के क्षेत्रफल में प्रतिशत वृद्धि है:
CHSL 19-03-2020 (Evening shift)
(a) 10%
(b) 15%
(c) 18%
(d) 21%

SSC CGL 2019 TIER-II
Q28. A is 80% more than B and C is $48\frac{4}{7}$% less than the sum of A and B. By what percent is C less than A?
A, B से 80% अधिक है और C, A और B के योग से $48\frac{4}{7}$% कम है। C, A से कितना प्रतिशत कम है ?
CGL 2019 Tier-II (15-11-2020)
(a) 20
(b) 25
(c) 30
(d) 15

Q29. If (x+20)% of 250 is 25% more than x% of 220 then 10% of (x+50) is what percent less than 15% of x ?
यदि 250 का (x +20)%, 220 के x% से 25% अधिक है, तो (x +50) का 10%, x के 15% से कितना प्रतिशत कम है?
CGL 2019 Tier-II (15-11-2020)
(a) $13\frac{1}{3}$
(b) $8\frac{1}{3}$
(c) $16\frac{2}{3}$
(d) $33\frac{1}{3}$

Q30. A certain number of students from school X appeared in an examination and 30% students failed. 150% more students than those from school X, appeared in the same examination from school Y. If 80% of the total number of students who appeared from X and Y passed, then what is the percentage of students who failed from Y ?
एक परीक्षा में स्कूल X के कुछ छात्र उपस्थित हुए और 30% छात्र फेल हो गए। स्कूल X के छात्रों की तुलना में

Pinnacle

150% अधिक छात्र, स्कूल Y से उसी परीक्षा में उपस्थित हुए। यदि X और Y से उपस्थित होने वाले छात्रों की कुल संख्या का 80% उत्तीर्ण हो गया, तो Y से फेल हुए छात्रों का प्रतिशत क्या है?

CGL 2019 Tier-II (15-11-2020)

(a) 18
(b) 20
(c) 16
(d) 24

Q31. Anuja owns $66\frac{2}{3}$% of a property. If 30% of the property that she owns is worth ₹1,25,000 then 45% of the value (in₹) of the property is.

अनुजा के पास संपत्ति का $66\frac{2}{3}$% हिस्सा है. यदि उसकी 30% संपत्ति की कीमत ₹1,25,000 है तो उसकी 45% संपत्ति की कीमत(₹ में) कितनी होगी

CGL 2019 Tier-II (15-11-2020)

(a) 2,70,000
(b) 2,62,500
(c) 2,81,250
(d) 2,25,000

Q32. Rishu saves x% of her income. If her income increases by 26% and the expenditure increases by 20%, then her savings increase by 50%. What is the value of x?

रिशु अपनी आय का x% बचाती है। अगर उसकी आय 26% बढ़ जाती है और खर्च 20% बढ़ जाता है, तो उसकी बचत में 50% की वृद्धि होती है। x का मान क्या है

CGL 2019 Tier-II (15-11-2020)

(a) 30
(b) 20
(c) 10
(d) 25

Q33. If A is 40% less than B and C is 40% of the sum of A and B, then by what percentage B is greater than C ?

यदि A, B से 40% कम है, C, A और B के योग का 40% है, तो B, C से कितने प्रतिशत अधिक है ?

CGL 2019 Tier-II (16-11-2020)

(a) 60
(b) $40\frac{1}{8}$
(c) $56\frac{1}{4}$
(d) 36

Q34. $\frac{25\% \text{ of } (50\% \text{ of } 30\% \text{ of } 150)}{40\% \text{ of } 2250}$ is equal to:

$\frac{25\% \text{ of } (50\% \text{ of } 30\% \text{ of } 150)}{40\% \text{ of } 2250}$ का मान क्या होगा

CGL 2019 Tier-II (16-11-2020)

(a) 0.825%
(b) 0.25%
(c) 0.625%
(d) 0.225%

Q35. The monthly salaries of A and B are the same. A, B and C donate 10%, 8% and 9% respectively, of their monthly salaries to a charitable trust. The difference between the donation of A and B is 400. The total donation of A and B is 900 more than that of C. What is the monthly salary of C?

A और B का मासिक वेतन समान है। A, B और C अपने मासिक वेतन का 10%, 8% और 9%, एक धर्मार्थ ट्रस्ट को दान करते हैं। A और B के दान के बीच का अंतर 400 है। A और B का कुल दान C की तुलना में 900 अधिक है। C का मासिक वेतन क्या है

CGL 2019 Tier-II (16-11-2020)

(a) ₹25,000
(b) ₹36,000
(c) ₹30,000
(d) ₹27,000

Q36.. Renu saves 20% of her income. If her expenditure increases by 20% and income increases by 29%, then her saving increased by

रेणु अपनी आय का 20% बचाती है। अगर उसका खर्च 20% बढ़ता है और आय में 29% की वृद्धि होती है, तो उसकी बचत में वृद्धि होती है:

CGL 2019 Tier-II (16-11-2020)

(a) 60%
(b) 65%
(c) 55%
(d) 54%

Q37. If A's income is 60% less than B's income,then B's income is what percentage more than that of A's income?

यदि A की आय B की आय से 60% कम है, तो B की आय A की आय से कितने प्रतिशत अधिक है?

CGL 2019 Tier-II (18-11-2020)

(a) 40%
(b) 80%
(c) 120%
(d) 150%

Q38. The sum of weight of A and B is 80kg, 50% of A's weight is $\frac{5}{6}$ times the weight of B. Find the difference between their weights.

A और B के वजन का योग 80 kg है, A के वजन का 50% B के वजन का $\frac{5}{6}$ गुना है। उनके वजन के बीच का अंतर ज्ञात करें।

CGL 2019 Tier-II (18-11-2020)

(a) 20kg
(b) 10kg
(c) 25kg
(d) 15kg

Q.39 In an examination, 92% of the students passed and 480 students failed. If so, how many students appeared in the examination?

एक परीक्षा में, 92% छात्र उत्तीर्ण हुए और 480 छात्र असफल रहे। परीक्षा में कितने छात्र उपस्थित हुए ?

CGL 2019 Tier-II (18-11-2020)

(a) 5000
(b) 6200
(c) 6000
(d) 5800

Q.40. What is to be added to 15% of 180 so that the sum is equal to 20% of 360?
180 के 15% में क्या जोड़ा जाना चाहिए है ताकि योग 360 के 20% के बराबर हो?
CGL 2019 Tier-II (18-11-2020)
(a) 40
(b) 60
(c) 50
(d) 45

SSC CPO 2019
Q41. If each side of a rectangle is decreased by 11%, then the area will decrease by:
यदि आयत की प्रत्येक भुजा में 11% की कमी होती है, तो क्षेत्रफल में कितनी कमी आएगी?
CPO-2019 23-11-2020 (Morning shift)
(a) 24.31%
(b) 25%
(c) 21.13%
(d) 20.79%

Q42. The price of diesel increased by 16%, A person wants to increase his expenditure on diesel by 10% only. By what percentage, correct to one decimal place, should he reduce his consumption?
डीजल की कीमत में 16% की वृद्धि हुई, एक व्यक्ति डीजल पर अपने खर्च को केवल 10% बढ़ाना चाहता है। किस प्रतिशत तक, एक दशमलव स्थान तक, उसे अपनी खपत कम करनी चाहिए?
CPO-2019 23-11-2020 (Morning shift)
(a) 6.5%
(b) 5.2%
(c) 4.5%
(d) 3.7%

Q43. If decreasing 110 by x% gives the same result as increasing 50 by x%, then x% of 650 is what percentage more than (x + 20) % of 180?
यदि 110 को x% से घटने पर वही परिणाम आता है जो 50 को x% बढ़ाने से आता है, तो 650 का x% 180 के (x + 20)% से कितना प्रतिशत अधिक है?
(correct to nearest integer) / (निकटतम पूर्णांक में)
CPO-2019 23-11-2020 (Morning shift)
(a) 80%
(b) 90%
(c) 136%
(d) 154%

Q44. If A's salary is 60% more than B's salary, then by what percentage is B's salary less than that of A?
यदि A का वेतन B के वेतन से 60% अधिक है, तो B का वेतन, A के वेतन से कितना प्रतिशत कम है ?
CPO-2019 23-11-2020 (Morning shift)
(a) 47.7%
(b) 33.3%
(c) 37.5%
(d) 45%

Q45. A person's salary increased from ₹8,100 to ₹9,000. What is the percentage increase in his salary?
एक व्यक्ति का वेतन ₹8,100 से बढ़कर ₹9,100 हो गया। उसके वेतन में प्रतिशत वृद्धि क्या है?
CPO-2019 23-11-2020 (Evening shift)
(a) $11\frac{1}{9}$ %
(b) $13\frac{7}{9}$ %
(c) $9\frac{1}{9}$ %
(d) $6\frac{1}{9}$%

Q46. The monthly salary of a person was ₹50,000. He used to spend on family expenses(E), Taxes(T), charity(C), and the rest were his savings, E was 60% of the income, T was 20% of E, and C was 15% of T. When his salary got raised by 40%, he maintained the percentage level of E, but T becomes 30% of E, and C becomes 20% of T. The difference between two savings (in Rs) is:
एक व्यक्ति का मासिक वेतन ₹50,000 था। वह परिवार के खर्च (E), कर (T), दान (C) पर खर्च करता था और बाकी उसकी बचत थी। E आय का 60% था, T, E का 20% था, और C, T का 15% था। । जब उसका वेतन 40% बढ़ा, तो उसने E का प्रतिशत स्तर बनाए रखा, लेकिन T, E का 30% हो गया, और C, T का 20% हो गया। दोनों बचत के बीच का अंतर (रु में) है:
CPO-2019 23-11-2020 (Evening shift)
(a) 128
(b) 130
(c) 250
(d) 220

Q47. If the area of a square is decreased by 19%, then the diagonal of the square is decreased by :
यदि वर्ग का क्षेत्रफल 19% कम हो जाता है तो वर्ग का विकर्ण कितना कम हो जाता है|
CPO-2019 23-11-2020 (Evening shift)
(a) 15%
(b) 10%
(c) 5%
(d) 12%

Q48. A person's salary has increased from Rs.7,000 to Rs.12,000. What is the percentage increase in his salary ?
एक व्यक्ति का वेतन 7,000 रुपये से बढ़कर 12,000 रुपये हो गया है। उसके वेतन में प्रतिशत वृद्धि क्या है?
CPO-2019 24-11-2020 (Morning shift)
(a) $76\frac{4}{7}$ %
(b) $61\frac{1}{7}$%
(c) $71\frac{3}{7}$%
(d) $69\frac{1}{7}$ %

Q49. A man spends 75% of his income. If his income increases by 28% and his expenditure increases by 20%, then what is the increase or decrease percentage in his saving ?
एक आदमी अपनी आय का 75% खर्च करता है। यदि उसकी आय में 28% की वृद्धि होती है और उसके व्यय में 20% की वृद्धि होती है, तो उसकी बचत में वृद्धि या कमी का प्रतिशत क्या है?
CPO-2019 24-11-2020
(Morning shift)
(a) 13% increase/ वृद्धि
(b) 52% decrease/ कमी
(c) 52% increase/ वृद्धि
(d) 13% decrease/ कमी

Q50. The monthly salary of a person was 75,000. He used to spend on family expenses(E), Taxes(T), charity(C), and the rest were his savings, E was 60% of the income, T was 20% of E, and C was 15% of T. When his salary got raised by 40%, he maintained the percentage level of E, but T becomes 30% of E and C becomes 20% of T. The ratio of the saving of earlier to that of his present salary is:
एक व्यक्ति का मासिक वेतन ₹50,000 था। वह परिवार के खर्च (E), कर (T), दान (C) पर खर्च करता था और बाकी उसकी बचत थी। E आय का 60% था, T, E का 20% था, और C, T का 15% था। । जब उसका वेतन 40% बढ़ा, तो उसने E का प्रतिशत स्तर बनाए रखा, लेकिन T, E का 30% हो गया, और C, T का 20% हो गया। उसकी पहले की बचत तथा वर्तमान बचत में क्या अनुपात है?
CPO-2019 24-11-2020
(Morning shift)
(a) 337 :325
(b) 655 : 644
(c) 644 : 655
(d) 325 : 337

Q51. If 25% of 400 + 35% of 1260 + 27% of 1800 = 1020 + x, then the value of x lies between:
यदि 400 का 25% + 1260 का 35% + 1800 का 27% = 1020 + x है, तो x का मान किसके बीच होगा ?
CPO-2019 24-11-2020
(Evening shift)
(a) 16 to/से 20
(b) 6 to/से 10
(c) 11 to/से 15
(d) 0 to/से 5

Q52. If 49% of X = Y, then Y% of 50 is :
यदि X का 49% = Y है, तो 50 का Y% ज्ञात करे|
CPO-2019 24-11-2020
(Evening shift)
(a) 24.5% of X
(b) 24.5% of Y
(c) 40% of Y
(d) 50% of X

Q53. A number is first increased by 40% and then decreased by 25%, again increased by 15% and then decreased by 20%, What is the net increase decrease per cent in the number ?
एक संख्या में पहले 40% की वृद्धि हुई है और फिर 25% की कमी हुई, फिर से 15% की वृद्धि हुई और फिर 20% की कमी हुई, संख्या में कुल वृद्धि या कमी के प्रतिशत को ज्ञात करे।
CPO-2019 24-11-2020
(Evening shift)
(a) 7.2% decrease/ कमी
(b) 3.4% increase / वृद्धि
(c) 6.4% increase / वृद्धि
(d) 3.4% decrease/ कमी

Q54. If decreasing 110 by x% gives the same result as increasing 50 by x%, then x% of 650 is what percentage (correct to the nearest integer) more than (x-10)% of 780?
यदि 110 को x% से घटाने पर 50 को x% बढ़ाने के समान परिणाम मिलता है, तो 650 का x% 780 के (x-10)% से कितना प्रतिशत अधिक (निकटतम पूर्णांक तक सही) है?
CPO-2019 25-11-2020
(Morning shift)
(a) 14%
(b) 12%
(c) 17%
(d) 18%

Q55. If A's salary is 30% more than B's salary, then by what percentage is B's salary less than that of A? (correct to one decimal place)
यदि A वेतन B वेतन से 30% अधिक है, तो B वेतन A के मुकाबले कितने प्रतिशत कम है? (एक दशमलव स्थान तक)
CPO-2019 25-11-2020
(Morning shift)
(a) 17.5%
(b) 25%
(c) 23.15
(d) 19.7%

Q56. The price of diesel is increased by 26%, A person wants to increase the expenditure by 15% only. By what percentage, correct to one decimal place, should he decrease his consumption?
डीजल की कीमत में 26% की वृद्धि हुई है, एक व्यक्ति केवल 15% तक खर्च बढ़ाना चाहता है। किस प्रतिशत तक (एक दशमलव स्थान तक) उसे अपनी कितनी खपत कम करनी चाहिए?
CPO-2019 25-11-2020
(Morning shift)
(a) 8.7%
(b) 6.5%
(c) 7.2%
(d) 9.5%

57.Q. Ramesh spends 40% of his monthly salary on food, 18% on house rent, 12% on

entertainment, and 5% on conveyance. But due to a family function he has to borrow Rs. 16,000 from a money lender to meet the expense of 20,000. His monthly salary (in Rs.)is:
रमेश अपने मासिक वेतन का 40% भोजन पर, 18% घर के किराये पर, 12% मनोरंजन पर और 5% वाहन पर खर्च करता है। लेकिन एक पारिवारिक समारोह के कारण उसे 20,000 के खर्च को पूरा करने के लिए एक ऋणदाता से 16,000 रुपये उधार लेने पड़े। उसका मासिक वेतन (रुपये में) क्या है?
CPO-2019 25-11-2020
(Evening shift)
(a) 15,000
(b) 18,000
(c) 16,500
(d) 16,000

58.Q. In an entrance examination at different centres, a total of 25, 30, 40, 45, 60 and 100 students appeared. The pass percentage of the different centres are 20%, 30%, 35% 40% 50% and 75% respectively. The pass percentage of the entrance examination is:(correct to the nearest integer)
विभिन्न केंद्रों पर प्रवेश परीक्षा में कुल 25, 30, 40, 45, 60 और 100 छात्र उपस्थित हुए। विभिन्न केंद्रों का उत्तीर्णता प्रतिशत क्रमशः 20%, 30%, 35% 40% 50% और 75% है। प्रवेश परीक्षा का उत्तीर्णता प्रतिशत क्या है ज्ञात करे : (निकटतम पूर्णांक तक)
CPO-2019 25-11-2020
(Evening shift)
(a) 43%
(b) 59%
(c) 53%
(d) 50%

59.Q. If the numerator of a fraction is increased by 60% and the denominator is increased by 40%, then the resultant fraction is $\frac{16}{63}$ The original fraction is:
यदि किसी भिन्न का अंश 60% बढ़ जाता है और हर 40% बढ़ जाता है, तो परिणामी भिन्न $\frac{16}{63}$ होता है। मूल भिन्न क्या है?
CPO-2019 25-11-2020
(Evening shift)
(a) $\frac{5}{9}$
(b) $\frac{2}{11}$
(c) $\frac{4}{9}$
(d) $\frac{2}{9}$

60.Q A's salary is 35% more than B's salary. How much percent is B's salary less than that of A's?(correct to the nearest integer)
A का वेतन B के वेतन से 35% अधिक है। B का वेतन A से कितना प्रतिशत कम है? (निकटतम पूर्णांक तक)
CPO-2019 25-11-2020
(Evening shift)
(a) 26%
(b) 20%
(c) 35%
(d) 17.5%

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SOLUTION

Variety Questions

Sol 1. (c)
According to the question
$120 \times \frac{100-x}{100} = 40 \times \frac{100+x}{100}$
300-3x = 100 + x
X = 50
50% of 210 = 105
(50+20)% of 180 = 126
Required percentage = $\frac{126-105}{126} \times 100 = 16\frac{2}{3}\%$

Sol 2. (c)
Income : Expenditure Savings
60 : 50 → 10
After increase in Income and Expenditure.
96 : 85 → 11
Therefore, Net Increase in Savings = $\frac{1}{10} \times 100 = 10\%$

Sol 3. (d)
25% = $\frac{1}{4}$
⇒ A : B = 5 : 4
65% = $\frac{13}{20}$
⇒ C : A+B = 7 : 20
Balancing the ratio for A + B
A = 100, B = 80 and C = 63
Required % age = $\frac{100-63}{100} \times 100 = 37$

Sol 4. (c)
50% = $\frac{1}{2}$
A:B = 3:2
Let income of A = 300 unit and B = 200 unit
Total = 300+200 = 500 unit
Increased income of A =$300 \times \frac{140}{100} = 420$
Increased income of B = $200 \times \frac{190}{100} = 380$
Total income of A and B = 420+380 = 800
Required % = $\frac{800-500}{500} \times 100 = 60\%$

Sol 5. (c) 20% = $\frac{1}{5}$
Let the original price = 50 unit
⇒ decreased price = 40 unit
Let the original sale = 100 unit
⇒ New sale = (100+x) unit
Initial revenue = 50 x 100 units
⇒ Increased revenue = 40 × (100+x) units
According to the question
$(50 \times 100) \times \frac{160}{100} = 40 \times (100+x)$
⇒ 200 = 100 + x
⇒ x = 100

Sol 6. (b)
20% = $\frac{1}{5}$, 30% = $\frac{3}{10}$ and 25% = $\frac{1}{4}$
⇒ A:B = 4:5 and C:D = 13 : 10
and A:D = 4 : 3
Balancing the ratio for A and D
A:B:C:D = 40:50:39:30
Let
B = 50 unit and C = 39 unit
Now, $50 \times \frac{78}{100} = 39$
⇒ C is 0.78 of B .

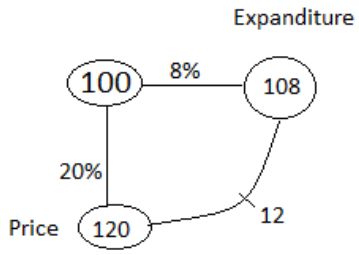
Sol 7. (a)
We know that,
Price x Consumption = Expenditure
20% = $\frac{1}{5}$ and 8% = $\frac{2}{25}$

	Initial : New
Price	5 : 6
Expenditure	25 : 27
Consumption	25/5 : 27/6
	10 : 9

%age decrease in consumption = $\frac{10-9}{10} \times 100 = 10\%$ ans

Alternate :

Direct Trick



Desired percentage = $\frac{12}{120} \times 100 = 10\%$

Sol 8. (a)
85% = $\frac{17}{20}$
Let the original number = 20
According to the question
75 + 17 unit = 20 unit
1 unit = 25
Original number (20 unit) = 25 x 20 = 500

Sol 9. (b)
20% = $\frac{1}{5}$ and 40% = $\frac{2}{5}$
Let the amount at the end of 2nd, third and 4th years be a,b and c respectively.
a : b : c
5 : 6
5 : 6
Balancing the ratio for b
a:b:c = 25 : 30 : 36
According to the question
(36-30) unit = 259.20
1 unit = 43.20
Amount at the end of 2nd year (25 unit) = 43.20 x 25
40% of this amount = 43.20 x 25 x $\frac{2}{5}$ = 432

Sol 10. (d)
Let the income of sudha = A
According to the question
$A \times \frac{12}{100} \times \frac{80}{100} = 4800$
⇒ A = 50,000
27% of A = 50,000 × $\frac{27}{100}$ = 13500

Sol 11.(b)

	Initial : New
30%increase	10 : 13

Pinnacle

25% decrease 4 : 3
25% increase 4 : 5

160 : 195
Desired percentage = $\frac{195-160}{160}$ x 100 = 21.87 ≈ 22%

Sol 12.(a)
A : A+B
55 : 100
11 : 20
Let A+B = 20 unit and A = 11 unit
⇒ B = 20-11 = 9 unit
According to the question
(11-9) unit = 8
1 unit = 4
Marks obtained by A (11 unit) = 11 x 4 = 44
Marks obtained by B (9 unit) = 9 x 4 = 36

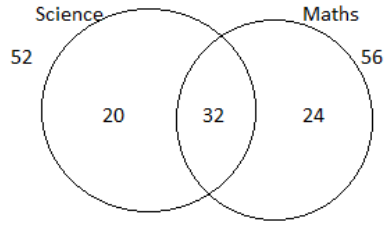
Sol 13. (d)
Let the salaries of A and B are a and b respectively.
According to the question
$a \times \frac{5}{100} = b \times \frac{20}{100}$
$\frac{a}{b} = \frac{4}{1}$
⇒ (4+1) unit = 43000
1 unit = 8600
A's salary (4 unit) = 8600 x 4 = 34400

Sol 14. (a)
Aggregate percentage = $100 \times [\{\frac{40}{100} \times \frac{80}{100}\} + \{\frac{30}{100} \times \frac{70}{100}\} + \{\frac{20}{100} \times \frac{60}{100}\} + \{\frac{10}{100} \times \frac{50}{100}\}]$
= 100 x $\frac{32+21+12+5}{100}$ = 70%

Sol 15. (c)
Let x is the desired percentage
⇒ $124 \times \frac{x}{100} = 49.60$
⇒ x = $\frac{49.60}{124} \times 100 = 40$

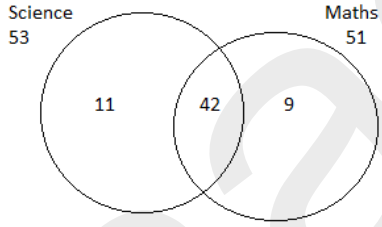
Sol 16. (d) Fractional value of 24% = $\frac{6}{25}$
Therefore, A : B
31 : 25
Desired percentage = $\frac{31-25}{31}$ x 100 = $\frac{600}{31}$ %

Sol 17. (a) Venn diagram for the failed students:



Total failed students = 20+32+24 = 76%
Therefore, Students passed in both subjects = (100-76)% = 24%

Sol 18. (a) Drawing a venn diagram:



Percentage passed in both subjects = 100 - (11+42+9) = 100 - 62 = 38%

Sol19. (c) Let the population at the beginning of first year be x.
ATQ,
$x \times \frac{21}{20} \times \frac{24}{25} = 5512248$
Therefore, x = 5468500

Sol 20. (a)
Let A = 50, then B = $50 \times \frac{20}{100}$ = 10
20% of B = $10 \times \frac{20}{100} = 2$
$\frac{2}{50} \times 100 = 4\%$
Clearly, 2 is 4% of A.

Sol 21. (a)
Total commission = $200000 \times \frac{2}{100}$ + $200000 \times \frac{1.5}{100}$ + $168000 \times \frac{1}{100}$ = 8680

Sol 22. (c)
Required percentage = 2.4×100 = 240

Sol 23. (a)
%age score of mathematics = $\frac{84}{90} \times 100 = 93.33\%$
%age score of science = $\frac{45}{50} \times 100 = 90\%$
%age score of computer science = $\frac{23}{25} \times 100 = 92\%$
%age score of English = $\frac{68}{80} \times 100 = 85\%$

SSC CGL TIER II

Sol 1. (d)
28% = $\frac{7}{25}$ and 25% = $\frac{1}{4}$
A : B
32 : 25
A+B : C
4 : 3
Balancing the ratio for A+B
A : B : C : A+B
128 : 100 : 171 : 228
Desired %age = $\frac{171-128}{128}$ x 100 = 33.6 %

= 24000

Sol 2. (c)
80% = $\frac{4}{5}$
Let the Income = 500,
Expenditure = 400
⇒ Savings = 500-400 = 100
Increased income = $500 \times \frac{112}{100}$ = 560
Decreased savings = $100 \times \frac{90}{100}$ = 90
New expenditure = 560-90 = 470
Desired %age = $\frac{470-400}{400}$ x 100 = 17.5%

Sol 3. (b)
Let the original number = 100
New number = $100 \times \frac{116}{100} \times \frac{114}{100} \times \frac{70}{100}$ = 92.57
%age decrease = $\frac{100-92.57}{100}$ x 100 ≈ 7%

Pinnacle

Alternate :

%age change for 16% and 14% = $16+14 + \frac{16\times14}{100} = 32.24$

Total change = $32.24 - 30 + \frac{32.24\times(-30)}{100} \approx -7\%$

Here, -ve sign shows that number is decreased

Sol 4. (b)

We know that,

Price x sale = Revenue

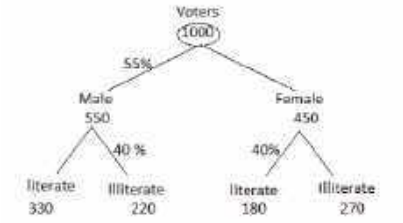
25% = $\frac{1}{4}$ and 20% = $\frac{1}{5}$

	Original	:	New
Price	4	:	3
Revenue	5	:	6
Sale	5/4	:	6/3
	5	:	8

%age increase in sale (x) = $\frac{8-5}{5}$ x 100 = 60%

Sol 5. (c)

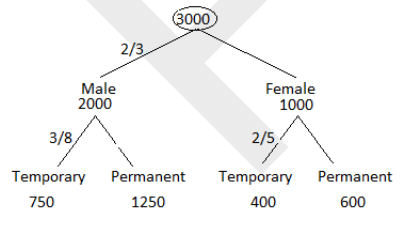
Let the total number of voters = 1000



Desired %age = $\frac{330-270}{270}$ x 100 = $22\frac{2}{9}$ %

Sol 6. (a)

Let the total employees = 3000 unit



Total permanent employees = 1250+600 = 1850

1850 unit = 740

1 unit = $\frac{2}{5}$

Total number of employee = 3000 x $\frac{2}{5}$ = 1200

Temporary female employee = $400 \times \frac{2}{5} = 160$

7/15 of total employee = 1200 x $\frac{7}{15}$ = 560

Desired difference = 560-160 = 400

Sol 7. (c)

According to the question

(60-20)% = 120

1% = 3

$(33\frac{1}{3}-28)\% = 3 \times \frac{16}{3} = 16$

Sol 8. (b)

25% = $\frac{1}{4}$, 40% = $\frac{2}{5}$ and 30% = $\frac{3}{10}$

A : B : C : D

5 : 4

3 : 5

13 : 10

Balancing the ratio for B and C

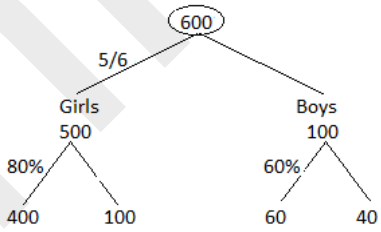
A : B : C : D

195 : 156 : 260 : 200

Desired percentage = $\frac{200-195}{200}$ x 100 = 2.5

Sol 9. (c)

Let the total number of students = 600



Total number of absent students = 100+40 = 140

Desired %age = $\frac{140}{600}$ x 100 = $23\frac{1}{3}$ %

Sol 10. (a)

65% = $\frac{13}{20}$

Let the income = 2000,

Expenditure = 1300

⇒ Savings = 2000-1300 = 700

Increased income = 2000 x $\frac{120.1}{100}$ = 2402

Increased expenditure = 1300 x $\frac{125}{100}$ = 1625

⇒ New savings = 2402-1625 = 777

Desired %age = $\frac{777-700}{700}$ x 100 = 11%

Sol 11. (b)

We know that,

Price x Consumption = Expenditure

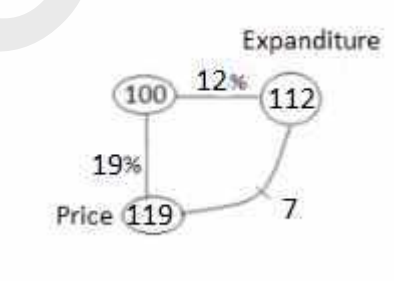
19% = $\frac{19}{100}$ and 12% = $\frac{3}{25}$

	Initial	:	New
Price	100	:	119
Expenditure	25	:	28
Consumption	25/100	:	28/119
	17	:	16

%age decrease in consumption = $\frac{17-16}{17}$ x 100 ≈ 6 % ans

Alternate :

Direct Trick



Desired percentage = $\frac{7}{119}$ x 100 ≈ 6 %

Sol 12. (c)

Let the income = 1000

Expenditure = 720

⇒ Saving = 1000-720 = 280

Increased income = $1000 \times \frac{120}{100}$ = 1200

Increased saving = $280 \times \frac{115}{100}$ = 322

New expenditure = 1200-322 = 878

Desired percentage = $\frac{878-720}{720}$ x 100 = 21.9

Sol 13. (a)

20% = $\frac{1}{5}$ and $8\frac{1}{3}\% = \frac{1}{12}$

	Original	:	New
Price	5	:	6
Consumption	12	:	11

Pinnacle

Expenditure	60	:	66

Desired %age = $\frac{66-60}{60}$ x 100 = 10%

Sol 14. (b)
20% = $\frac{1}{5}$ and 15% = $\frac{3}{20}$

	Original	:	New
Hours	5	:	6
Wages	20	:	23

Earning	100	:	138

Desired %age = $\frac{138-100}{100}$ x 100 = 38%

Sol 15. (b)
According to the question
$x \times \frac{1}{2} \times \frac{25}{100} = y \times \frac{1}{4} \times \frac{30}{100}$ x 2.5
$\frac{x}{y} = \frac{3}{2}$
Desired percentage = $\frac{3-2}{2}$ x 100 = 50%

Sol 16. (c)
$33\frac{1}{3}\% = \frac{1}{3}$ and $25\% = \frac{1}{4}$
Let the total amount = 12 unit
…(LCM of 3 and 4)
⇒ Investment of A = 12 x $\frac{1}{3}$ = 4 unit
Profit will be distributed in the ratio of amount invested as all invested for the same period of time.
Share of A in the profit = 1,62,000 x $\frac{4}{12}$ = 54000

Sol 17.(c)
10% = $\frac{1}{10}$, 20% = $\frac{1}{5}$ and 32% = $\frac{8}{25}$

A : B : C : D
11 : 10
6 : 5
17 : 25
Balancing the ratio for B and C
A : B : C : D
11 : 10 : **10 : 10**
6 : 6 : 5 : **5**
17 : 17 :17 : 25

1122 : 1020 : 850 : 1250
According to the question
(1122-850) unit = 272
1 unit = 1
Marks of B = 1020 unit = 1020 x 1 = 1020

Practice Questions

Sol 1. (a)
15% = $\frac{3}{20}$
Let sudha's income = 2000
⇒ Sudha's saving = 300
⇒ Sudha's expenditure = 2000-300 = 1700
Sudha's increased saving = 300 x $\frac{160}{100}$ = 480
Sudha's increased expenditure = 1700 x $\frac{120}{100}$ = 2040
Sudha's increased income = 2040+480 = 2520
Desired percentage = $\frac{2520-2000}{2000}$ × 100 = 26 %

Sol 2.(b)
20% = $\frac{1}{5}$ and 25% = $\frac{1}{4}$
⇒ A:B = 4:5 and C:D = 6 : 5 and A:D = 4 : 3
Balancing the ratio for A and D
A:B:C:D = 20:25:18:15
Let
B = 25 unit and C = 18 unit
Now, 25 × $\frac{72}{100}$ = 18
⇒ C is 0.72 of B .

Sol 3. (a)
75% = $\frac{3}{4}$
Let the income of Surbhi = 400 unit
⇒ saving of Surbhi = 100 unit
So expenditure of Surbhi = 400-100 = 300 unit
Increased income of surbhi = 400 × $\frac{120}{100}$ = 480 unit
Decreased saving of Surbhi = 100 × $\frac{99}{100}$ = 99 unit
New expenditure of surbhi = 480-99 = 381 unit
Desired %age = $\frac{381-300}{300}$ × 100 = 27 %

Sol 4. (a)
40% = $\frac{2}{5}$
Let the income of B = 500
⇒ The income of A = 700
Total income of A and B = 1200
Increased income of A = 700 × $\frac{125}{100}$ = 875
Increased income of B = 500 × $\frac{140}{100}$ = 700
Total income of A and B = 875+700 = 1575
Desired %age = $\frac{1575-1200}{1200}$ x 100 = 31.25

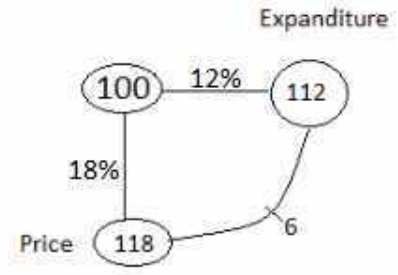
Sol 5. (b)
We know that,
Price x Consumption = Expenditure
18% = $\frac{9}{50}$ and 12% = $\frac{3}{25}$

	Initial	:	New
Price	50	:	59
Expenditure	25	:	28

Consumption	25/50	:	28/59
	59	:	56

%age decrease in consumption = $\frac{59-56}{59}$ x 100 ≈ 5.1% ans

Alternate :
Direct Trick



Desired percentage = $\frac{6}{118}$ x 100 ≈ 5.1%

Sol 6. (c)
We know that,

Pinnacle

Price x Consumption = Expenditure

22% = $\frac{11}{50}$ and 12% = $\frac{3}{25}$

	Initial	:	New
Price	50	:	61
Expenditure	25	:	28

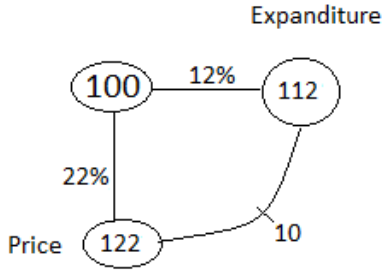
Consumption 25/50 : 28/61

61 : 56

%age decrease in consumption = $\frac{61-56}{61}$ x 100 ≈ 8.2% ans

Alternate :

Direct Trick



Desired percentage = $\frac{10}{122}$ x 100 ≈ 8.2%

Sol 7. (d)

We know that,

Price x Consumption = Expenditure

17% = $\frac{17}{100}$ and 8% = $\frac{2}{25}$

	Initial	:	New
Price	100	:	117
Expenditure	25	:	27

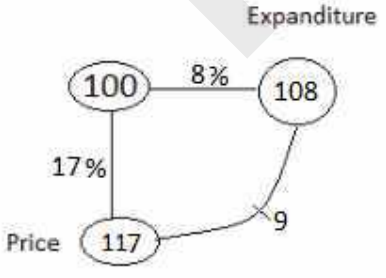
Consumption 25/100 : 27/117

117 : 108

%age decrease in consumption = $\frac{117-108}{117}$ x 100 ≈ 7.7% ans

Alternate :

Direct Trick



Desired percentage = $\frac{9}{117}$ x 100 ≈ 7.7%

Sol 8. (a)

We know that,

Price x Consumption = Expenditure

21% = $\frac{21}{100}$ and 12% = $\frac{3}{25}$

	Initial	:	New
Price	100	:	121
Expenditure	25	:	28

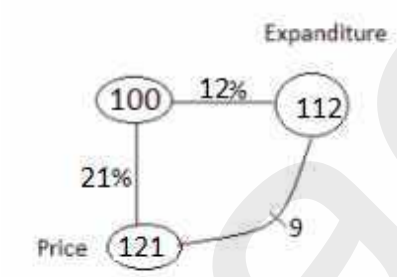
Consumption 25/100 : 28/121

121 : 112

%age decrease in consumption = $\frac{121-112}{121}$ x 100 ≈ 7.4% ans

Alternate :

Direct Trick



Desired percentage = $\frac{9}{121}$ x 100 ≈ 7.4%

Sol 9. (c)

We know that,

Price x Consumption = Expenditure

17% = $\frac{17}{100}$ and 7% = $\frac{7}{100}$

	Initial	:	New
Price	100	:	117
Expenditure	100	:	107

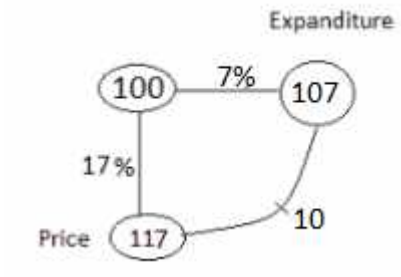
Consumption 100/100 : 107/117

117 : 107

%age decrease in consumption = $\frac{117-107}{117}$ x 100 ≈ 8.5% ans

Alternate :

Direct Trick



Desired percentage = $\frac{10}{117}$ x 100 ≈ 8.5%

Sol 10. (a)

We know that,

Price x Consumption = Expenditure

24% = $\frac{6}{25}$ and 15% = $\frac{3}{20}$

	Initial	:	New
Price	25	:	31
Expenditure	20	:	23

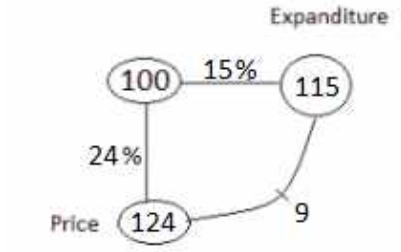
Consumption 20/25 : 23/31

124 : 115

%age decrease in consumption = $\frac{124-115}{124}$ x 100 ≈ 7.3% ans

Alternate :

Direct Trick



Desired percentage = $\frac{9}{124}$ x 100 ≈ 7.3%

Sol 11. (c)

We know that,

Price x Consumption = Expenditure

24% = $\frac{6}{25}$ and 18% = $\frac{9}{50}$

	Initial	:	New
Price	25	:	31
Expenditure	50	:	59

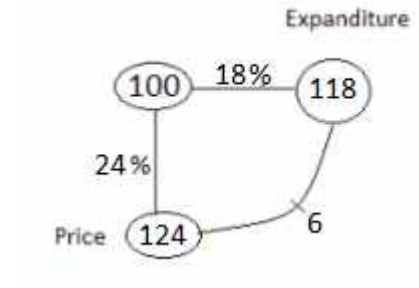
Consumption 50/25 : 59/31

62 : 59

%age decrease in consumption = $\frac{62-59}{62}$ x 100 ≈ 4.8% ans

Pinnacle

Alternate :
Direct Trick

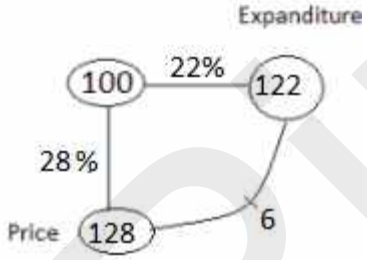


Desired percentage = $\frac{6}{124}$ x 100
≈ 4.8%

Sol 12. (b)
We know that,
Price x Consumption = Expenditure
28% = $\frac{7}{25}$ and 22% = $\frac{11}{50}$

	Initial	:	New
Price	25	:	32
Expenditure	50	:	61

Consumption 50/25 : 61/32
64 : 61
%age decrease in consumption = $\frac{64-61}{64}$ x 100 ≈ 4.7% ans
Alternate :
Direct Trick

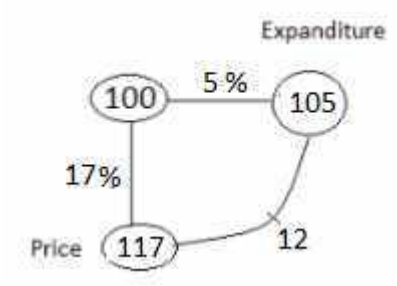


Desired percentage = $\frac{6}{128}$ x 100
≈ 4.7%

Sol 13. (a)
We know that,
Price x Consumption = Expenditure
17% = $\frac{17}{100}$ and 5% = $\frac{1}{20}$

	Initial	:	New
Price	100	:	117
Expenditure	20	:	21

Consumption 20/100 : 21/117
117 : 105
%age decrease in consumption = $\frac{117-105}{117}$ x 100 ≈ 10.3% ans
Alternate :
Direct Trick



Desired percentage = $\frac{12}{117}$ x 100
≈ 10.3%

Sol 14. (c)
Income Expenditure Savings
100 : 72 → 28
After increase in Income and Expenditure.
128 : 90 → 38
Therefore, Net Increase in Savings = $\frac{38-28}{28}$ × 100 = 35.7%

Sol 15. (c)
20% = $\frac{1}{5}$, 25% = $\frac{1}{4}$ and 60% = $\frac{3}{5}$

A : B : C : D : E
6 : 5
5 : 4
2 : 5
6 : 5
Balancing the ratio for C and D
A : B : C : D : E
18 : 15 : 12 : 30 : 25
Now,
$\frac{30-18}{30}$ x 100 = 40 %
Clearly A is 40% less than D.

Sol 16. (d)
Let total number of voters are 100.
⇒ number of senior citizens = 100 x $\frac{40}{100}$ = 40
⇒ number of non senior citizens = 60
⇒ number of illiterate senior citizens = 40 x $\frac{40}{100}$ = 16
⇒ number of literate senior citizens = 40 - 16 = 24
⇒ number of literate non-senior citizens = 60 x $\frac{25}{100}$ = 15
⇒ number of illiterate non-senior citizens = 60 - 15 = 45
Desired %age = $\frac{45-24}{45}$ x 100 = 46 $\frac{2}{3}$

Sol 17. (a)
Income Expenditure Savings
1000 : 900 → 100
After increase in Saving and Expenditure.
1255 : 1125 →130
Therefore, Net Increase in Income =
$\frac{1255-1000}{1000}$ × 100 = 25.5%

Sol 18. (d)
Income Expenditure Savings
1000 : 800 → 200
After increase in Saving and Expenditure.
1300 : 1000 →300
Therefore, Net Increase in Savings = $\frac{300-200}{200}$ × 100 = 50%

Sol 19. (d)

	Original	:	New
Price	25	:	34
Quantity	10	:	7
Expenditure	250	:	238

Now, $\frac{250-238}{250}$ x 100 = 4.8 %

Sol 20. (d)
Let the original number = 100
New number = 100 x $\frac{70}{100}$ x $\frac{130}{100}$ x $\frac{90}{100}$ = 81.9
Clearly the number is decreasing, desired %age
= $\frac{100-81.9}{100}$ x 100 ≈ 18%

Pinnacle

Sol 21. (a)
Let the original number = 100
New number = 100 x $\frac{70}{100}$ x $\frac{130}{100}$ x $\frac{130}{100}$ = 118.3
Clearly the number is increasing, desired %age
= $\frac{118.3-100}{100}$ x 100 ≈ 18%

Sol 22. (b)
Let the original number = 100
New number = 100 x $\frac{130}{100}$ x $\frac{70}{100}$ x $\frac{70}{100}$ = 63.7
Clearly the number is decreasing, desired %age
= $\frac{100-63.7}{100}$ x 100 ≈ 36%

Sol 23. (d)
Let the salaries of A and B are a and b respectively.
According to the question
a × $\frac{5}{100}$ = b × $\frac{20}{100}$
$\frac{a}{b}$ = $\frac{4}{1}$
⇒ (4+1) unit = 43000
B's salary (1 unit) = 8600

Sol 24. (c)
Let the marks of B = k and A = k+8
According to the question
(k+k+8) × $\frac{60}{100}$ = (k+8)
6k+24 =5k+ 40
⇒ k = 16
Sum of the marks of A and B = {16+(16+8)} = 40

Alternate :

60% = $\frac{3}{5}$
According to the question

A+B	:	A
5	:	3

Let A+B = 5 unit and A = 3 unit
⇒ B = 5-3 = 2 unit
According to the question
(3-2) unit = 8
5 unit = 5 x 8 = 40

Sol 25.(d)
Let the salary of A = a and B = b
According to the question
a × $\frac{15}{100}$ = b × $\frac{30}{100}$
⇒ a:b = 2:1
Now,
(2+1) unit = 45000
B's salary (1 unit) = 15000

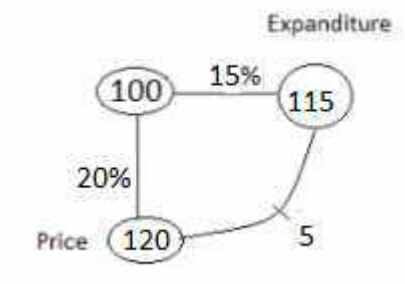
Sol 26. (d)
Let the salary of A = a and B = b
According to the question
a × $\frac{25}{100}$ = b × $\frac{10}{100}$
⇒ a:b = 2:5
Now,
(2+5) unit = 42000
B's salary (5 unit) = 30000

Sol 27.(b)
Let the salary of A = a and B = b
According to the question
a × $\frac{25}{100}$ = b × $\frac{10}{100}$
⇒ a:b = 2:5
Now,
(2+5) unit = 42000
A's salary (2 unit) = 12000

Sol 28. (b)
We know that,
Price x Consumption = Expenditure
20% = $\frac{1}{5}$ and 15% = $\frac{3}{20}$

	Initial	:	New
Price	5	:	6
Expenditure	20	:	23
Consumption	20/5	:	23/6
	24	:	23

%age decrease in consumption = $\frac{24-23}{24}$ x 100 ≈ 4.2% ans
Alternate :
Direct Trick

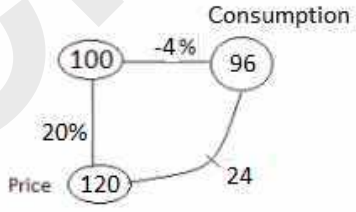


Desired percentage = $\frac{5}{120}$ x 100
≈ 4.2%

Sol 29. (c)
We know that,
Price x Consumption = Expenditure
25% = $\frac{1}{4}$ and 4% = $\frac{1}{25}$

	Initial	:	New
Price	4	:	5
Consumption	25	:	24
Expenditure	100	:	120
	100	:	120

%age increase in expenditure = $\frac{120-100}{100}$ x 100 = 20 % ans
Alternate :
Direct Trick



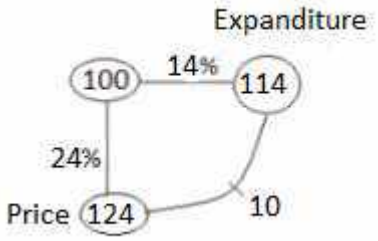
Desired percentage = $\frac{24}{120}$ x 100 = 20 %

Sol 30. (c)
We know that,
Price x Consumption = Expenditure
24% = $\frac{6}{25}$ and 14% = $\frac{7}{50}$

	Initial	:	New
Price	25	:	31
Expenditure	50	:	57
Consumption	50/25	:	57/31
	62	:	57

%age decrease in consumption = $\frac{62-57}{62}$ x 100 ≈ 8.1 % ans

Alternate :
Direct Trick



Desired percentage = $\frac{10}{124}$ x 100 = 8.1 %

Sol 31. (a) Given,
88% = 216128
1 % = 2456
⇒ Total income (100%) = 2,45,600

Sol 32. (c)

	Original : New
Price	10 : 9
Expenditure	1 : 1
Consumption	1/10 : 1/9
	9 : 10

Desired %age = $\frac{10-9}{9}$ x 100 = $\frac{100}{9}$ %

Note : If expenditure is same in both cases ratios of Price and consumption will be reciprocal to each other.

Sol 33. (d) 24% = $\frac{6}{25}$

A	:	B
19	:	25

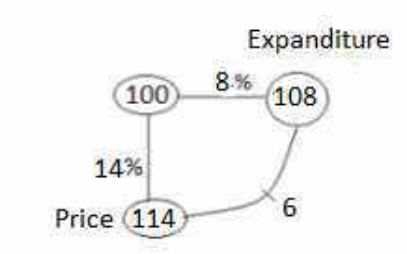
Therefore, B's income more than A = $\frac{6}{19}$ × 100 = $\frac{600}{19}$%

Sol 34. (b)
We know that,
Price x Consumption = Expenditure
8% = $\frac{2}{25}$ and 14% = $\frac{7}{50}$

	Initial : New
Price	50 : 57
Expenditure	25 : 27
Consumption	25/50 : 27/57
	57 : 54

%age decrease in consumption = $\frac{57-54}{57}$ x 100 = 5.3 % ans

Alternate :
Direct Trick



Desired percentage = $\frac{6}{114}$ x 100 = 5.3 %

Sol 35. (b)

	Original : New
Price	20 : 17
Consumption	17 : 20

Therefore, % increase in consumption = $\frac{3}{17}$ × 100 = $\frac{300}{17}$

Sol36. (d)

A	:	B
7	:	5

Therefore, B's income less than A = $\frac{2}{7}$ × 100 = 28$\frac{4}{7}$%

Sol 37. (d) Venn diagram of the given data:



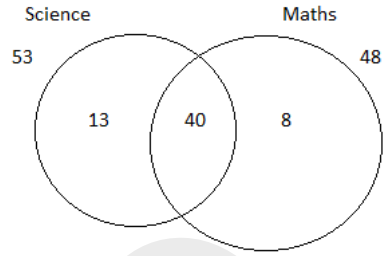
Therefore, Passed in both subjects = 100 - (14+32+10) = 100-56 = 44%

Sol 38. (d)

	Original : New
Price	50 : 59
Consumption	59 : 50

Therefore, reduction in consumption = $\frac{9}{59}$ × 100 ≈ 15.3%

Sol 39. (b) Venn diagram for the given data:



Percentage passed in both subjects = 100 - (13+40+8) = 100 - 61 = 39%

Sol 40. (d) Ratio of income :

A	:	B
7	:	5

Therefore, B's income less than A = $\frac{2}{7}$ × 100 = $\frac{200}{7}$%

Sol 41. (b) 16%=4/25
According to the question
(4+25) unit = 1914
1 unit = 66
Therefore, the no. is (25 unit) = 25 x 66 = 1650

Sol 42. (d)

	Original : New
1st step	10 : 9
2nd step	10 : 11
	100 : 99

According to question
(100-99) = 1 unit = 100
100 unit = 10000

Sol 43. (b) 5 litres = 5000 ml
8% of 5 litres = 5000 × $\frac{8}{100}$ = 400 ml

Sol 44. (c)
15% = $\frac{3}{20}$

Pinnacle

	Old :	New
Price	20 :	23
Consumption	23 :	20

Expenditure	460 :	460

Required %age = $\frac{3}{23} \times 100 = 13\frac{1}{23}\%$

Sol 45. (d)
Required percentage = $\frac{3.2}{240} \times 100 = 1\frac{1}{3}$

Sol 46. (b) Required percentage = $\frac{3}{12\times100} \times 100 = 0.25$

Sol 47. (d) % Savings = 100 - (24+16+12) = 100-52 = 48%
Now, 48% = 3288
$1\% = \frac{137}{2}$
Therefore, Monthly income = 100% = *Rs*. 6850

Sol 48. (c)
Let Nidhi's marks in social science be x.
According to the question
$\frac{74+62+70+x}{400} \times 100 = 68$
$\Rightarrow 206 + x = 272$
Therefore, x=66

Sol 49. (a)
$34\% \text{ of } 1.2km = \frac{34}{100} \times 1.2 \times 1000 \times = 10040800cm$

Sol 50. (a)
Let A's salary in 2014 = I
According to the question
$I \times \frac{108}{100} \times \frac{94}{100} = 234778$
$\Rightarrow I = 234778 \times \frac{100}{108} \times \frac{100}{94} = 231263$ (approx)

Sol 51. (c) $\frac{9}{40} \times 100 = 22\frac{1}{2}\%$

SSC MTS

Sol 1. (c)
Let the original value = x
According to the question
$x \times \frac{120}{100} \times \frac{85}{100} = 2040$
$\Rightarrow$ x = 2000

Alternate :
20% = $\frac{1}{5}$ and 15% = $\frac{3}{20}$

Original	New
5	6
20	17
100	102

According to the question
102 unit = 2040
1 unit = 20
100 unit = 2000

Sol 2. (c)
Let the salary of the person = x
According to the question
$x \times \frac{90}{100} \times \frac{80}{100} = 4680$
$\Rightarrow$ x = 6500

Alternate :
10% = $\frac{1}{10}$ and 20% = $\frac{1}{5}$

Initial	Remaining
10	9
5	4
50	36

According to the question
36 unit = 4680
1 unit = 130
50 unit = 6500

Sol 3. (a)
20% = $\frac{1}{5}$ and 25% = $\frac{1}{4}$
A : B : C
6 : 5
3 : 4
Balancing the ratio for B
A : B : C
18 : 15 : 20
Let A = 18 unit , B = 15 unit and C = 20 unit
$\frac{A}{C} = \frac{18}{20}$
$\Rightarrow$ A = 0.9 C

Sol 4. (d)
$16\frac{2}{3}\% = \frac{1}{6}$ and 15% = $\frac{3}{20}$

Original	New
6	7
20	17
120	119

According to the question
119 unit = 238
1 unit = 2
120 unit = 240
37.5% of 240 = 240 x $\frac{37.5}{100}$ = 90

Sol 5. (a)
20% = $\frac{1}{5}$ and 25% = $\frac{1}{4}$
A : B : C
6 : 5
5 : 4
A : B : C
6 : 5 : 4
Let A = 6 unit , B = 5 unit and C = 4 unit
Desired %age = $\frac{6-4}{6}$ x 100 = 33.33 %

Sol 6. (c)
15% = $\frac{3}{20}$
Let B = 20 unit $\Rightarrow$ A = 23 unit
Desired %age = $\frac{23-20}{23}$ x 100 = 13.04 %

Sol 7. (d)
26 % = 832
1% = 32
31% = 992

Sol 8. (a)
40% = $\frac{2}{5}$ and 30% = $\frac{3}{10}$

Original	New
5	7
10	13
50	91

Desired %age = $\frac{91-50}{50}$ x 100 = 82%

Alternate :
Net percentage Increase = $40+30+\frac{40\times30}{100} = 82\%$

Pinnacle

Sol 9. (a)
Desired %age = $\frac{400-320}{400}$ x 100 = 20%

Sol 10. (d)
200% = $\frac{2}{1}$
Let B = 1 unit
⇒ A= 3 unit
Desired %age = $\frac{3-1}{3}$ x 100 = 66.67%

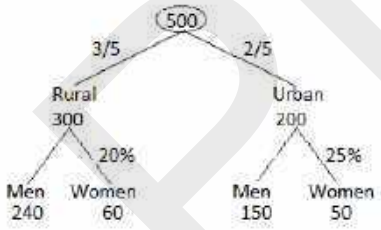
Sol 11. (a)
Let Ravi's salary = 2 unit
⇒ Manish's salary = 1 unit
Desired %age = $\frac{2-1}{1}$ x 100 = 100 %

Sol 12. (a)
40% = $\frac{2}{5}$ and 80% = $\frac{4}{5}$

Rakesh : Rahul : Deepak
5 : 3
5 : 9

Balancing the ratio for Rahul
Rakesh : Rahul : Deepak
25 : 15 : 27
27 unit = 34560
1 unit = 1280
25 unit = 1280 x 25 = 32000

Sol 13. (c)
Let the total number of workers = 500 unit



Desired %age = $\frac{240+150}{500}$ x 100 = 78%

Sol 14. (a)
Let the Aman's original annual income = k
According to the question
(k+2000000) x $\frac{16}{100}$ = k x $\frac{20}{100}$
$\frac{20k}{100}$ - $\frac{16k}{100}$ = 320000
k = 8000000
Total Income = 80 lakh + 20 lakh = 100 lakh

Alternate :
Let the Initial income = k
Extra tax paid due to additional amount of 20 lakh = 20 lakh x $\frac{16}{100}$ = 320000
This tax amount get adjusted due to tax reduction
⇒ k x $\frac{(20-16)}{100}$ = 320000
⇒ k = 80 lakh
Total Income = 80 lakh + 20 lakh = 100 lakh

Sol 15. (a)
According to the question =
$x \times \frac{40}{100} = y \times \frac{50}{100}$
⇒ $\frac{y}{x} = \frac{4}{5}$

Sol 16. (a)
5.6 kg = 5600 gram
Desired percentage = $\frac{140}{5600}$ x 100 = 2.5 %

Sol 17. (c)
According to the question
X × $\frac{120}{100}$ = Y
$\frac{X}{Y} = \frac{5}{6}$
Let X = 5 unit and Y and 6 unit
5 unit × $\frac{80}{100}$ = 6 unit × $\frac{60}{100}$ + 36
⇒ 1 unit = 90
Difference between X and Y = (6-5) unit = 90

Sol 18. (b)
0.9% = 0.009
Desired difference = 0.9 - 0.009 = 0.891

Sol 19. (a)
Let X = 100 unit
⇒ Other two numbers are 50 unit and 80 unit respectively
Desired ratio = 50:80
= 5 : 8 ans

Sol 20. (c)
Number of boys who failed = 800 x $\frac{60}{100}$ = 480
Number of girls who failed = 600 x $\frac{40}{100}$ = 240
Desired %age = $\frac{480+240}{800+600}$ x 100 = 51.43%

Sol 21. (d)
75% of 260 + 30% of 320 = $\frac{75}{100}$ x 260 + $\frac{30}{100}$ x 320
=
195+96 = 291

Sol 22. (b)
Let the amount X have = x and the amount have Y = y
According to the question
x+y = 1300 …….(1)
And
$\frac{3}{5} \times x - 10 = \frac{1}{2} \times y$
6x-5y = 100
……(2)
Multiply equation (1) by 5 add it in equation (2)
11x = 6600
x = 600

Sol 23. (d)
Let the total marks = k and passing marks = p
According to the question
k × $\frac{32}{100}$ + 6 = p
……(1)
And
k × $\frac{36}{100}$ - 2 = p
……(2)
From (1) and (2)
k × $\frac{32}{100}$ + 6 = k × $\frac{36}{100}$ - 2
8 = k × $\frac{36}{100}$ -k × $\frac{32}{100}$
⇒ k = 200
Passing marks (p) = 200 × $\frac{36}{100}$ - 2
or k × $\frac{32}{100}$ +6 = 70

Alternate :
(36-32)% = 6+2
1% = 2
32% = 64
36% = 72
Pass marks = 64+6 or 72-2 = 70

Sol 24. (a)
Total marks = 100 x 5 = 500

Pinnacle

Total marks he got = 500 x $\frac{90}{100}$ = 450
Marks in the fifth subject = 450-82-97-88-91 = 92

Sol 25. (a)
Let the third number is 100 unit
⇒ other two numbers are 180 and 135
Desired ratio = 180 : 135
= 4 : 3

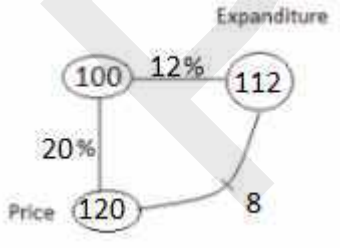
Sol 26. (c)
Given, 12.5% of A = 55
⇒ A = 55 × $\frac{100}{12.5}$ = 440

Sol 27. (d)
Desired value = 1440 × $\frac{30}{100}$ × $\frac{12.5}{100}$ = 54

Sol 28. (d)
We know that,
Price x Consumption = Expenditure
20% = $\frac{1}{5}$ and 12% = $\frac{3}{25}$

	Initial	:	New
Price	5	:	6
Expenditure	25	:	28

Consumption 25/5 : 28/6
15 : 14
%age decrease in consumption = $\frac{15-14}{15}$ x 100 = 6 $\frac{2}{3}$ % ans
Alternate :
Direct Trick



Desired percentage = $\frac{8}{120}$ x 100 = 6 $\frac{2}{3}$ %

Sol 29. (a)
Let the number = k
According to the question
k x $\frac{60}{100}$ = 168
⇒ k = 280

Sol 30. (b)
Desired value = 180000 x $\frac{100}{3\times100}$ x $\frac{0.15}{100}$ = 90

Sol 31. (c)
Let the salary of A = a and B = b
According to the question
a+b = 16500
And
Savings of A = a x $\frac{30}{100}$
Savings of B = b x $\frac{20}{100}$
Now,
a x $\frac{30}{100}$ = $\frac{125}{100}$ x (b x $\frac{20}{100}$)
a × $\frac{3}{10}$ = b × $\frac{1}{4}$
$\frac{a}{b}$ = $\frac{5}{6}$
(5+6) unit = 165000
1 unit = 15000
Difference of their income =(6-5) unit = 1 unit = 15000

Sol 32. (c)
Let the monthly income of sonu = I
According to the question
I × $\frac{12}{100}$ × $\frac{125}{100}$ = 2160
⇒ I = 14400

Sol 33. (c)
8% = $\frac{2}{25}$
Let the last year population of the village = 25 unit
Current year population of the village = 23 unit
According to the question
25 unit = 72000
1 unit = 2880
23 unit = 66,240

Sol 34. (c)
Desired %age = $\frac{780-130}{780}$ x 100 = 83 $\frac{1}{3}$ %

Alternate :

Total	:	Rotten
780	:	130
6	:	1

Banana's of good quality = 6-1 = 5 unit
Desired %age = $\frac{5}{6}$ x 100 = 83 $\frac{1}{3}$ % or 83.33 %

Sol 35. (c)
Let the number = K
According to the question
K × $\frac{2}{5}$ × $\frac{40}{100}$ = 24
⇒ K = 150

Sol 36. (a)
15% = $\frac{3}{20}$
Let,
End of 2nd / Beg. of 3rd = A
End 3rd / Beg. of 4th = B:
End of 4th = C

A	:	B	:	C
20	:	23		
		20	:	23
400	:	460	:	529

(529-460) unit = 193.20
1 unit = 2.8
400 unit = 1120
⇒ Desired value = 1120 × $\frac{90}{100}$ = 1008

Sol 37. (d)
Let the total number of students = 100
⇒ Number of boys = 100 x $\frac{40}{100}$ = 40
⇒ Number of girls = 100-40 = 60
Total students pass =100 x $\frac{56}{100}$ = 56
Number of boys Pass = 40 × $\frac{60}{100}$ = 24
Number of girls pass = 56-24 = 32
Desired %age = $\frac{32}{60}$ x 100 = 53 $\frac{1}{3}$ %

Sol 38. (a)
25% = $\frac{1}{4}$, 20% = $\frac{1}{5}$ and 10% = $\frac{1}{10}$
A : B : C : D

Pinnacle

5 : 4
4 : 5
11 : 10

---

55 : 44 : 55 : 50
Here B is $\frac{55-44}{55}$ x 100 = 20% less than A.
Clearly option A is wrong.

Sol 39. (d)
$33\frac{1}{3}\% = \frac{1}{3}$
According to the question
$200 \times \left(\frac{x+10}{100}\right) = \frac{4}{3} \times (180 \times \frac{x}{100})$
$200(x+10) = 240x$
$\Rightarrow x = 50$
So, 10% of (x + 20) $\Rightarrow$ 10% of (50 + 20) = 7
So, 40% of x $\Rightarrow$ 40% of 50 = 20
Desired %age = $\frac{20-7}{20}$ x 100 = 65

Sol 40. (c)
Let the two numbers are x and y.
According to the question
$x \times \frac{60}{100} = \frac{3}{7} \times y$
$\Rightarrow x : y = 5 : 7$

Sol 41. (c)
50% = $\frac{1}{2}$, $33\frac{1}{3}\% = \frac{1}{3}$ and 25% = $\frac{1}{4}$

	Initial	:	New
First year	2	:	1
2nd Year	3	:	2
3rd Year	4	:	3
	4	:	1

Desired %age = $\frac{4-1}{4}$ x 100 = 75 %

Sol 42. (a)
85% = $\frac{17}{20}$
Let the number = 20 unit
According to the question
75 + 17 unit = 20 unit
1 unit = 25
$\Rightarrow$ So, the number = 20 unit = 20 x 25 = 500

Sol 43. (d)
$y \times \frac{x}{100} = 150$ and $z \times \frac{y}{100} = 300$
$\Rightarrow 2(y \times \frac{x}{100}) = z \times \frac{y}{100}$
$\Rightarrow z = 2x$

Sol 44. (b)
Let marks scored by B = k
$\Rightarrow$ marks scored by A = k+8
According to the question
$(k+8) = \frac{55}{100} \times (k+k+8)$
20k + 160 = 22k + 88
$\Rightarrow k = 36$
Required sum = {36+(36+8)} = 80

Sol 45. (d)
25% = $\frac{1}{4}$
$(x - \frac{1}{x}) = \frac{1}{4}(x + \frac{1}{x})$
$\Rightarrow 4x - \frac{4}{x} = (x + \frac{1}{x})$
$\Rightarrow 3x = \frac{5}{x}$
$\Rightarrow x^2 = \frac{5}{3}$ and $x^4 = \frac{25}{9}$
Required %age = $\frac{\frac{25}{9} - \frac{5}{3}}{\frac{5}{3}} \times 100 =$ 66.7

Sol 46. (b)
20% = $\frac{1}{5}$
$(x - \frac{1}{x}) = \frac{1}{5}(x + \frac{1}{x})$
$\Rightarrow 5x - \frac{5}{x} = (x + \frac{1}{x})$
$\Rightarrow 4x = \frac{6}{x}$
$\Rightarrow x^2 = \frac{3}{2}$ and $x^3 = \frac{3\sqrt{3}}{2\sqrt{2}}$
Required %age = $\frac{\frac{3\sqrt{3}}{2\sqrt{2}} - \frac{3}{2}}{\frac{3\sqrt{3}}{2\sqrt{2}}} \times 100 =$ 18.59 $\approx$ 18%

Sol 47. (d)
Required %age = $\frac{64}{25} \times 100 = 256$

Sol48. (a)
Percentage of zinc in the alloy = (100-32-24) = 44%
Required Amount of Zinc = $12 \times \frac{44}{100} = 5.28\ kg$

SSC CGL TIER I

Sol 1. (b) Let ,
Length of a rectangle is a
Breadth of rectangle is b
Area of rectangle is 'ab'
After 40% increase, length becomes '1.4a'
After 20% decrease, Breadth becomes '0.8b'
Hence, area of rectangle is (1.4a)(0.8b)= '1.12ab'
Thus, %increase in area of rectangle is '12%'

Sol 2. (c) Let the number be 'x'
80% x - 62% x = 198
18% x = 198
1% x = 11
92% x - 56% x = 36% x = 396

Sol 3. (b) Let income of sonu = ₹100.
Her saving = ₹15
Expenditure, E_1= ₹ 85
Increased income = ₹ 120
Increased expenditure, E_2= ₹ 105
% increase in expenditure = $\frac{105-85}{85} \times 100 = 23.5\%$

Sol 4. (d) Income of A and B = 40:100 = 2:5
A's income = 2a
B's income = 5a
Expenditure of A and B = 60:100 = 3:5
A's expenditure = 3b
B's expenditure = 5b
As per given condition:
2a = 70% of 5b
$\Rightarrow \frac{2a}{5b} = \frac{7}{10}$
$\Rightarrow \frac{a}{b} = \frac{7}{4}$
Let a= 7x and b= 4x
Thus,
A's income = 2a = 14x
B's income = 5a = 35x
A's expenditure = 3b = 12x
B's expenditure = 5b = 20x
A's saving = 2x
B's saving = 15x
Required ratio = 2:15

Sol 5. (b) Let salaries of A and B = ₹ x

Pinnacle

As A donated 8% salary and B donated 7% salary and difference between their donation is ₹ 259
1% x = ₹ 259
Salary of each of A and B = ₹ 25900
Total donation of A and B = 15% of ₹ 25900 = ₹ 3885
C's donation = ₹ (3885-1185) = ₹ 2700
C's salary = ₹ 30000
A's donation = ₹ 2072
B's donation = ₹ 1813
Total salary of A,B and C = ₹ 81,800
Donation of A and C = ₹ 4772
Required % = $\frac{4772}{81800} \times 100 = 5.8\%$

Sol 6. (d) According to question:
Marks scored by A:B:C:D = 40:32:20:25
A = 40 x = 80%
Then, D = 50%

Sol 7. (d) Let radius of cylinder be 'r' and height of cylinder be 'h'
Change in 'r' $\Rightarrow 10 \rightarrow 9$
Change in 'h' $\Rightarrow 10 \rightarrow 12$
Volume of cylinder = $\Pi \times r^2 \times h$
Let v_1 and v_2 be volumes of before and after change.
$\Rightarrow \frac{v_1}{v_2} = (\frac{r_1}{r_2})^2 \times (\frac{h_1}{h_2})$
$\Rightarrow \frac{v_2}{v_1} = (\frac{9}{10})^2 \times (\frac{12}{10})$
$\Rightarrow \frac{v_2}{v_1} = (\frac{81}{100}) \times (\frac{12}{10})$
$\Rightarrow \frac{v_2}{v_1} = \frac{972}{1000}$
$\Rightarrow$ % decrease = $\frac{1000-972}{972} \times 100 =$ 2.8%

Sol 8. (c) Price change in sugar = $10 \rightarrow 12$
Price $\propto \frac{1}{consumption}$
$\frac{P_1}{P_2} = \frac{C_2}{C_1} = \frac{10}{12}$
% cut in consumption = $\frac{12-10}{12} \times 100 = 16\frac{2}{3}\%$

Sol 9. (a) Total change% in population = 30-15- $\frac{30\times15}{100}$ = 10.5% increase
Let two years ago, age = x
$\frac{110.5}{100} \times x = 11050$
x = 10,000

Sol 10. (b) Let total number of students = x
$\Rightarrow$ according to question, students who passed but did not get distinction can be represented as:
$\Rightarrow$ $x \times \frac{96}{100} \times \frac{90}{100} \times \frac{50}{100} = 432$
$\Rightarrow$ x = 1000

Sol 11. (d) Let M be the maximum marks
According to question:
31% of M +16 = 40% of M - 56
9% of M = 72
M = 800
Passing marks = 40% of M - 56 = 320-56 = 264

Sol 12. (b) Income : Expenditure : Saving $\Rightarrow$ 100: 68 : 32
Income increase by 20%, and saving by $9\frac{3}{8}\%$
New ratio,
Income : Expenditure : Saving $\Rightarrow$ 120: 85 : 35
% increase in monthly expenditure = $\frac{85-68}{68} \times 100 = 25\%$

Sol 13. (c) Let x be the number
To increase it by 25%, we multiply it by 125 and divide by 100
We get, $\frac{125}{100} \times x = \frac{5}{4} \times x$

Sol 14. (a) 72% of Maximum marks = 360
Then, maximum marks = 360 $\times \frac{100}{72} = 500$

Sol 15. (d) price $\propto \frac{1}{consumption}$
$\frac{P'}{P} = \frac{C}{C'}$
$\frac{125}{100} = \frac{C}{C'}$
$\frac{5}{4} = \frac{C}{C'}$
%reduction = $\frac{5-4}{5} \times 100 = 20\%$

SSC CHSL 2019

Sol:1. (c)
90% = 216
100% = 240

Sol:2. (c)
$x + y + xy/100$ %
35 + (-20) + $\frac{35\times(-20)}{100} = 8\%$

Sol:3.(a)
% increase=10+10+ $\frac{10\times10}{100}$ =21%

Sol:4.(d)
60%-40% = 30
20% = 30
So, 20% of the number = 30

Sol:5.(d)
Let each side=10
volume= 10 × 10 × 10 =1000
New length, breadth and height=11,12,8
New volume= 11 × 12 × 8 =1056
Required percentage= $\frac{56}{1000} \times 100=5.6\%$

Sol:6. (a)
The seller sold 48 spoiled fruit which is 60% of the total spoiled fruits,
So total spoiled fruits are
= 60% → 48
= 100% → 80
A crate of fruits contains one spoiled fruit for every 25 fruits, so
The number of fruits in the crate = 25 × 80 = 2000

Sol:7.(d)
Let, the third number = 100
Second number = 125, then third number = 165
Required ratio = 125:165 = 25:33

Sol:8.(c)

Pinnacle

Total runs = 120
Run including boundaries and sixes = $4 \times 6 + 6 \times 4 = 48$
Run made by running between the wickets = 120-48 = 72
Required percentage = $\frac{72}{120} \times 100$ = 60%

Sol:9. (b)
let the number be x
when multiplied by $\frac{3}{4} = \frac{3x}{4}$
when multiplied by $\frac{4}{3} = \frac{4x}{3}$
difference = $\frac{4x}{3} - \frac{3x}{4} = \frac{7x}{12}$
percentage error = $\frac{\frac{7x}{12}}{\frac{4x}{3}} \times 100 =$ 43.75%

Sol:10.(b)
Let Richa's income = 100
Rita's income = 85
required percentage = $\frac{100-85}{85} \times 100 = 17\frac{11}{17}\%$

Sol:11. (a)
Number of terms = 1000-101 = 899+1 = 900
Number of unit digits = 90
Required percent = $\frac{90}{900} \times 100 =$ 10%

Sol:12. (a)
Let the number = x
$x \times \frac{25}{100} = 68$
x = 272

Sol:13.(b)
7.6% of a = 12.4% of b
$\frac{a}{b} = \frac{124}{76} = \frac{31}{19}$
31x-19x = 1020
12x = 1020
x = 85
so, numbers are = 31x = 31 × 85 = 2635, and 19x = 19 × 85 = 1615
sum of the two numbers = 2635+1615 = 4250

Sol:14.(d)
Let his salary = 100%
15% = 3750
100% = 25000
Investment on Policy and funds = $25000 \times \frac{33}{100} = 8250$
Remaining amount = 25,000-8250-3750 = 13,000

Sol:15.(c)
50% of A = 25% of B
A : B = 1 : 2

Sol:16. (d)
Let the annual income = x
$x \times \frac{19}{100} = 559968$
$x = 29,47,200$
Monthly income = $\frac{2947200}{12} =$ 245600

Sol:17. (b)

	ORIGINAL	FINAL
PRICE	5	4
CONSUMPTION	4	5

1 UNIT = 4 kg
4*4 = 16 kg

The original price of sugar per kg = 160/16 = 10

Sol 18. (d)
Sudha's income = $\frac{11}{10} \times 3000 =$ Rs. 3300
Renu's income = $\frac{9}{10} \times 3300 =$ Rs. 2970

Sol:19. (c)
Let two numbers be a and b of which a be greater.
$a - b = \frac{30}{100} \times a$
$\Rightarrow 10(a - b) = 3 \times a$
$\Rightarrow 10a - 10b = 3a$
$\Rightarrow 7a = 10b$
$\Rightarrow \frac{a}{b} = \frac{10}{7}$
Smaller number, b = 28
$\Rightarrow \frac{a}{28} = \frac{10}{7}$
$\Rightarrow a = 40$
Sum of both numbers = 40 + 28 = 68

Sol: 20. (b)
Let Dileep's income = Rs. 100
Then, Sachin's income = Rs. 125
Dileep's income is less than Sachin's income by = $\frac{125-100}{125} \times 100 = \frac{25}{125} \times 100 = 20\%$

Sol: 21. (a)
Length is increased by 12% and breadth is decreased by 8%.
Net effect on area = $+12 - 8 + \frac{12 \times (-8)}{100} = 4 - .96 = +3.04$
3.04% increase in area.

Sol 22. (a)
a% of 240 = c and c% of a = 117.6
$\Rightarrow \frac{a}{100} \times 240 = c$ and $\frac{c}{100} \times a = 117.6$
$\Rightarrow \frac{a}{c} = \frac{100}{240} = \frac{5}{12}$
$\Rightarrow$ a = 5x and c = 12x
$\frac{c}{100} \times a = 117.6$
$\Rightarrow \frac{12x}{100} \times 5x = 117.6$
$\Rightarrow 60x^2 = 11760$
$\Rightarrow x^2 = 196$
$\Rightarrow$ x = 14
$\Rightarrow$ a = 5x = 70 and c = 12x = 168
a + c = 70 + 168 = 238

Sol 23. (a)
30% of 400 + x% of 70 = 25% of 536.
$\Rightarrow \frac{30}{100} \times 400 + \frac{x}{100} \times 70 = \frac{25}{100} \times 536$
$\Rightarrow 120 + \frac{7x}{10} = 134$
$\Rightarrow \frac{7x}{10} = 134 - 120 = 14$
$\Rightarrow \frac{7x}{10} = 14$
$\Rightarrow$ x = 20

Sol 24. (c)
Let three numbers be a, b and c
a = 125% of c
b = 160% of c
a : b = 125 : 160 = 25 : 32

Sol: 25. (a)
Total number of votes = 64000
Invalid votes = 20% of total votes
$\therefore$ Valid votes = 80% of total votes = $\frac{4}{5} \times 64000 = 51200$

Pinnacle

Candidate X got 70% of valid votes = $\frac{7}{10} \times 51200 = 35840$

Sol: 26. (d)
% increase in income = $\frac{1160-1000}{1000} \times 100 = \frac{160}{1000} \times 100 =$ 16%

Sol: 27. (d)
Required percentage = 10+10+ $\frac{10\times10}{100}$ = 21%

SSC CGL 2019 TIER-II

Sol:28.(a)
According to question
A : B = 9 : 5
C = 51 $\frac{3}{7}$ % of (A+B)
C : (A + B) = $\frac{360}{7}$: 100 =36 : 70
A : B : C = 45 : 25 : 36
C%less than A = $\frac{9}{45} \times 100$ =20 %

Sol:29.(c)
According to the question
$(\frac{x+20}{100} \times 250) \times \frac{100}{125} = \frac{x}{100} \times 220$
x = 200
10% of 250 = 25
15% of 200 = 30
Percentage less = $\frac{5}{30} \times 100 = 16\frac{2}{3}\%$

Sol:30.(c)
Student from school X = x(let)
Student from school Y = x+ 150% of x
= 2.5x
Total students = 3.5x
Passed from school X = 70% of x = 0.7x
Total passed = 80% of 3.5x = 2.8x
Passed from school Y = 2.8x -0.7x = 2.1x
Failed from school Y = 0.4x
Failed percentage from school Y = $\frac{0.4x}{2.5x} \times 100 = 16\%$

Sol:31(c)
30% of anuja property =125000
Anuja property = $12500 \times \frac{100}{30}$
Total property = $(12500 \times \frac{100}{30}) \times \frac{3}{2}$
45% of total property = $(12500 \times \frac{100}{30}) \times \frac{3}{2} \times \frac{45}{100}$
On solving total property =28,1,250

Sol:32.(b)
Let rishu income = 100
Saving = x
Expenditure = 100 - x
New income = 126
New expenditure = 1.2(100 - x)
New saving = 1.5(x)
Income = saving + expenditure
126 = 120 - 1.2x + 1.5x
6 = 0.3x
x= 20%

Sol:33.(c)
Ratio of A : B = 3 : 5
Ratio of C : (A + B) = 2 : 5
Ratio A : B : C = 15 : 25 : 16
B is greater than C by = $\frac{9}{16} \times 100 = 56\frac{1}{4}$

Sol:34.(c)
$\frac{25\% \text{ of } (50\% \text{ of } 30\% \text{ of } 150)}{40\% \text{ of } 2250}$
$\frac{25\% \text{ of } (50\% \text{ of } 45)}{40\% \text{ of } 2250}$
$\frac{25\% \text{ of } (22.5)}{900}$
$\frac{5.625}{900}$
0.625

Sol:34.(c)
Let Monthly salary of A and B= x
A's donation = 0.1x
B's donation = 0.08x
2400= 0.1x-0.08x =0.02x
x=20,000
Total donation of A and B = 18% of 20000 =3600
Donation of C = 2700
Monthly salary of C = 2700 $\times \frac{100}{9} = 30,000$

Sol:36(b)
Let renu income =x
Saving = 0.2x
Expenditure = 0.8x
Expenditure after increment = $0.8x \times \frac{120}{100} = 0.96x$
New income = 1.29x
New saving = 0.33x
Increment in saving = $\frac{0.13}{0.20} \times 100 = 65\%$

Sol:37.(d)
Let B's income = 100
A's income = 40
B's income is 60 more than A's income
So, percentage = (60/40) × 100= 150%

Sol:38.(a)
50% A= (⅝) B
A/2=5B/6
A/B=5/3
A=5k, B=3K
A+B=80kg
5k+3k=50
8k=80kg
k=10kg
Difference ,A-B=2K=20KG

Sol:39.(c)
Failed = 8% = 480
Total student = $\frac{100}{8} \times 480 = 6000$

Sol:40.(d)
20% of 360 = 72
15% of 180 = 27
Difference = 72 - 27 = 45

SSC CPO 2019

Sol:41. (d)
As we know Area $\propto side^2$
Ratio of original side to decreased side
100:89
100:89
Solving this
10000:7921
100:79.21 (by dividing by 100)
Net percentage decrease=100-79.21=20.79%.

Pinnacle

Sol:42.(b)
Expenditure= price × consumption
100:116
X : Y
100:110
X:Y=116:110
Percentage decrease in consumption = $\frac{6}{116} \times 100 = 5.17\%$

43.Sol:(c)
According to the question
$110(\frac{100-X}{100}) = 50(\frac{100+X}{100})$
Solving the equation
We get X=37.5%
Now we have to find out 37.5% of 650 is greater than 57.5% of180 by how much
So to make it simpler we will simply take the ratio as we have to find the percentage change

$\frac{37.5 \times 650}{57.5 \times 180}$
$\frac{243.75}{103.50}$
Required percentage increase= $\frac{243.75-103.50}{103.50} \times 100 = \frac{140.25}{103.50} \times 100 = 135.50\% \cong 136\%$

Sol:44.(c)
Salary of A is 60% more than B's salary
Let B's Salary be 100
A's Salary will be 160
B's salary is less than A's salary by 60 Rs
Percentage reduction in salary = $\frac{60}{160} \times 100 = 37.5$

Sol:45.(a)
Original salary = 8,100
Increment in salary = 9,000 - 8,100 = 900
Percentage increase = $\frac{900}{8100} \times 100 = \frac{1}{9} = 11\frac{1}{9}\%$

Sol:46.(d)
E = 60% of the income = 30,000
T = 20% of E = 6,000
C = 15% of T = 900
saving = 50,000-(30,000 + 6,000 + 900) = 13,100
After increment
New income = 70,000
E = 60% of the income = 42,000
T = 30% of E = 12,600
C = 20% of T = 2,520
His saving now = 70000 -(42,000 + 12,600 + 2,520) = 12,880
Change in saving = 13,100 - 12,880 = 220

Sol:47.(b)
Let the area of the square = 100 units
Side = 10 units
Diagonal = $10\sqrt{2}$ units
After decrement = 81 units
Side = 9 units
diagonal = $9\sqrt{2}$ units
Ratio = $10\sqrt{2} : 9\sqrt{2} = 10 : 9$
Change in diagonal = 1 unit
Percentage change = 10%

Sol:48.(c)
Original salary = 7,000
Increment in salary = 12,000 - 7,000 = 5,000
Percentage increase = $\frac{5000}{7000} \times 100 = \frac{5}{7} = 71\frac{3}{7}\%$

Sol:49.(c)
Let the earning be = 100x
Saving = 25x
Expenditure = 75x
After increment
New earning = 128x
New expenditure = $\frac{120}{100} \times 75x = 90x$
New saving = 128x- 90x = 38x
Saving increased by = 38x -25x = 13x
Increase percentage = $\frac{13x}{25x} \times 100 = 52\%$

Sol:50.(b)
E = 60% of the income = 45,000
T = 20% of E = 9,000
C = 15% of T = 1,350
saving = 75,000-(45,000 + 9,000 + 1,350) = 19,650
After increment
New income =1,05,000
E = 60% of the income = 63,000
T = 30% of E = 18,900
C = 20% of T =3,780
His saving now = 1,05000 -(63,000 + 18,900 + 3,780) = 19320
Ratio of saving = 19,650 : 19,320 = 655 : 644

51.Sol:(b)
25% of 400 + 35% of 1260 + 27% of 1800 = 1020 + x
100+441+486=1020+x
1027=1020+x
x=7 which clearly lies between 6 to 10

52.Sol:(a)
49% of X = Y,
then Y% of 50= 49% of X% of 50= 49% of X × $\frac{50}{100}$

=24.5% of X

53.Sol:(d)
It's easier to apply ratio in case of successive percent change
100 :140
4 : 3
20 : 23
5 : 4
40000:38640
100: 96.6
Net decrease= 100-96.6=3.4%

54.Sol:(a)
According to the question
$110(\frac{100-X}{100}) = 50(\frac{100+X}{100})$
Solving the equation
We get X=37.5%
Now we have to find out 37.5% of 650 is greater than 27.5% of 780 by how much

Pinnacle

So to make it simpler we will simply take the ratio as we have to find the percentage change
Dividing by 13 and simplifying we get
$\frac{15\times5}{6\times11}$
$\frac{75}{66}$
Required percentage increase=
$\frac{9}{66}\times100=13.64=14\%$

55.Sol:(c)
Let B's salary=100
A's salary will be 130
% reduction in B's Salary than A's salary= $\frac{130-100}{130}\times100$
=23.15%

56.Sol:(a)
Expenditure= price × consumption

100	126
X	Y

100:115
X:Y=126:115
Percentage decrease in consumption = $\frac{11}{126}\times100=8.73\%$

57.Sol:.(d)
Total expenditure = 40 + 18 + 12 + 5 = 75%
Saving = 25%
To meet the expenditure of 20,000 he took a loan of 16,000
Means he saves 4,000 per month
4,000 = 25%
100% = 16,000

58.Sol:(d)
The pass percentage of different sections are given.
And the strength of students in different sections is also given
Pass percentage of entire class= average=
$\frac{\times sum\ of(individual\ pass\%\times section\ strength)}{total\ section\ strength}$
=
$\frac{20\%\times25+30\%\times30+35\%\times40+40\%\times45+60\times50\%+100\times75\%}{25+30+35+40+50+75}$
≅50%

59.Sol.(d)
Let the fraction be $\frac{a}{b}$
According to the question
$\frac{a+0.6a}{b+0.4b}=\frac{16}{63}$
$\frac{1.6a}{1.4b}=\frac{16}{63}$
$\frac{a}{b}=\frac{2}{9}$

60.Sol(a)
Let the salary of B = 100x
Then the salary of A = 135x
B is less than A by = $\frac{35x}{135x}\times100$
= 25.92%
Approximately = 26%

Pinnacle

Profit and Loss/ लाभ और हानि

1. There is a Profit when SP (selling price) is more than CP (cost price)./ जब SP (बिक्री मूल्य), CP (क्रय मूल्य) से अधिक है तो लाभ होगा|

2. Selling Price (SP) – Cost Price (CP) = Profit

3. Loss when CP is more than SP i.e. Loss = CP – SP

4. % Profit = $\frac{Profit}{CP} \times 100$

5. % Loss = $\frac{Profit}{CP} \times 100$

6. Profit or Loss is always calculated on cost price.

7. $SP = CP \times \frac{100 \pm profit/loss}{100}$

8. $CP = SP \times \frac{100}{100 \pm profit/loss}$

Note: In case of profit you must add and in case of loss subtract in above two formulas.

Variety Questions

Q1. A person sold an article at a loss of 15%. Had he sold it for Rs. 30.60 more, he would have gained 9%. To gain 10%, he should have sold it for:
एक व्यक्ति ने कोई वस्तु 15% हानि पर बेची | यदि उसने इसे 30.60 रुपये अधिक में बेचा होता, तो उसे 9% का लाभ होता | 10% का लाभ कमाने के लिए, उसे इस वस्तु को किस कीमत पर बेचना चाहिए था ?
SSC CGL 4 June 2019 (Morning)
(a)Rs. 140.25
(b)Rs. 132
(c)Rs. 130
(d)Rs. 128.40

Q2. The marked price of an article is Rs. 315. It is sold for Rs. 288. If there is a loss of 4%, then by what percent above the cost is the article marked?
एक वस्तु की अंकित कीमत 315 रुपये है | इसे 288 रुपये में बेचा जाता है | यदि 4% की हानि होती है, तो इस वस्तु की अंकित कीमत लागत कीमत से कितना प्रतिशत अधिक रखी गयी है ?
SSC CGL 4 June 2019 (Afternoon)
(a)5
(b)8
(c)6 $\frac{1}{2}$
(d)5 $\frac{1}{2}$

Q3. Ram bought an article for Rs. 1,240 and sold it at a loss of 25%. With this amount, she bought another article and sold it at a gain of 40%. His overall percentage profit is:
राम ने एक वस्तु 1,240 रुपये में ख़रीदा और इसे 25% की हानि पर बेच दिया | इस राशि से उसने एक अन्य वस्तु ख़रीदा और इसे 40% लाभ पर बेच दिया | उसका कुल प्रतिशत लाभ है :
SSC CGL 4 June 2019 (Afternoon)
(a)12
(b)6 $\frac{2}{3}$
(c)5
(d)15

Q4. On selling an article for Rs.800, a person loses 20% of its selling price. At what price should he sell it to gain 25% on its cost price?
किसी वस्तु को 800 रुपये में बेचने पर, एक व्यक्ति को इसके विक्रय मूल्य पर 20% की हानि होती है | क्रय मूल्य पर 25% लाभ कमाने के लिए उसे इस वस्तु को किस कीमत पर बेचना चाहिए ?
SSC CGL 4 June 2019 (Evening)
(a)Rs. 1,280
(b)Rs. 1,152
(c)Rs. 1,250
(d)Rs. 1,200

Q5. Anu allows a 20% discount on the marked price of an article and still makes a profit of 25%. If she gains Rs. 44.80 on the sale of the article, then the cost price of the article is: अनु किसी वस्तु के अंकित मूल्य पर 20% छूट देती है और फिर भी 25% लाभ कमाती है | यदि उसे वस्तु को बेचने पर 44.80 रुपये का लाभ होता है, तो इस वस्तु का क्रय मूल्य ज्ञात करें |
SSC CGL 4 June 2019 (Evening)
(a)Rs. 188.80
(b)Rs. 192.80
(c)Rs. 184. 20
(d)Rs. 179.20

Q6. Abhi bought two articles for Rs.624. He sold one at a loss of 14% and the other at a profit of 14%. If the selling price of both the articles is equal, then the difference between their cost prices (in Rs) is:
अभि ने दो वस्तुओं को 624 रुपये में ख़रीदा | उसने एक को 14% की हानि तथा दूसरी को 14% लाभ पर बेच दिया | यदि दोनों वस्तुओं का विक्रय मूल्य समान है, तो उनके क्रय मूल्य में अंतर (रुपये में) ज्ञात करें |
SSC CGL 6 June 2019 (Afternoon)
(a)89.64
(b)87.36
(c)89.68
(d)88.84

Q7.Some fruits are bought at a rate of 11 for Rs.100 and an equal number at a rate of 9 for Rs.100. If all the fruits are sold at a rate of 10 for Rs.100, then what is the gain or loss percent in the entire transaction?

कुछ फल 100 रुपये में 11 की दर से ख़रीदे गए तथा इतने ही फल 100 रुपये में 9 की दर से ख़रीदे गए | यदि सभी फलों को 100 रुपये में 10 की दर से बेचा जाता है, तो पूरे लेन-देन में लाभ या हानि का प्रतिशत ज्ञात करें |

SSC CGL 6 June 2019 (Evening)

(a)Gain, 5%
(b)Loss, 5%
(c)Gain, 1%
(d)Loss, 1%

Q8. Sushma bought 6 tables and 12 chairs for Rs.12000. She sold the tables at a profit of 15% and the chairs at a loss of 10%. If her total gain was 300, then the total cost of the tables was:

सुषमा ने 6 मेज और 12 कुर्सियों को 12000 रुपये में क्रय किया | उसने मेजों को 15% लाभ पर तथा कुर्सियों को 10% हानि पर बेच दिया | यदि उसका कुल लाभ 300 था, तो मेजों की कुल कीमत ज्ञात करें |

SSC CGL 7 June 2019 (Morning)

(a)Rs.6000
(b)Rs.5000
(c)Rs.5400
(d)Rs.4800

Q9. A person sold 25 articles for Rs.2500 and incurred a loss of 10%. How many articles should he sell for Rs2400 to make a profit of 20%?

एक व्यक्ति ने 2500 रुपये में 25 वस्तुएँ बेची और उसे 10% की हानि हुई | उसे 2400 रुपये में कितनी वस्तुएँ बेचनी चाहिए ताकि 20% का लाभ हो ?

SSC CGL 7 June 2019 (Afternoon)

(a)15
(b)20
(c)16
(d)18

Q10. A person sells an article at a profit of 12%. If he had purchased it for 12% less and sold it for Rs.9 less, he would have gained 27%. What is the original cost price of the article?

एक व्यक्ति किसी वस्तु को 12% लाभ पर बेचता है | यदि उसने इसे 12% कम में ख़रीदा होता और इसे 9 रुपये कम में बेचा होता, तो उसे 27% का लाभ होता | इस वस्तु का वास्तविक क्रय मूल्य ज्ञात करें |

SSC CGL 7 June 2019 (Evening)

(a)Rs.4,250
(b)Rs.4,000
(c)Rs.4,500
(d)Rs.3,750

Q11.The marked price of an article is Rs.550. A shopkeeper allows a discount of 20% and still gets a profit of 10%. If he sells it for Rs.470, his profit percentage will be:

एक वस्तु का अंकित मूल्य 550 रुपये है | एक दुकानदार 20% की छूट देता है और फिर भी 10% लाभ कमाता है | यदि वह इसे 470 रुपये में बेचता है, तो लाभ का प्रतिशत क्या होगा ?

SSC CGL 10 June 2019 (Morning)

(a)16.8
(b)18
(c)17.5
(d)16

Q12. Two articles are sold for Rs.9,720 each. On one, the seller gains 8% and on the other, he loses 10%. What is his overall gain or loss?

दो वस्तुएँ 9720 रुपये में एक की दर से बेची जाती हैं | पहली वस्तु पर, विक्रेता को 8% का लाभ होता है तथा दूसरी पर उसे 10% की हानि होती है | उसका कुल लाभ या हानि क्या है ?

SSC CGL 10 June 2019 (Afternoon)

(a)Rs.380 gain
(b)Rs.380 loss
(c)Rs.360 loss
(d)Rs.360 gain

Q13. If the selling price of 40 articles is equal to the cost price of 50 articles, then the percentage loss or gain is:

यदि 40 वस्तुओं का विक्रय मूल्य 50 वस्तुओं के क्रय मूल्य के बराबर है, तो हानि या लाभ का प्रतिशत है :

SSC CGL 13 June 2019 (Evening)

(a)25% gain
(b)25% loss
(c)20% gain
(d)20% loss

Q14. A vendor bought 40 dozen of fruits for Rs2400. Out of these, 30 fruits were rotten and thrown away. At what rate per dozen should he sell the remaining fruits to make a profit of 25%?

एक विक्रेता ने 40 दर्जन फल 2400 रुपये में ख़रीदे | इनमें से 30 फल सड़े हुए थे जो फेंक दिए गए | 25% का लाभ कमाने के लिए उसे शेष फलों को प्रति दर्जन किस दर से बेचना चाहिए ?

SSC CHSL 3 July 2019 (Morning)

(a) Rs 84
(b) Rs 72
(c) Rs 90
(d) Rs 80

Q15. A shopkeeper marks his goods at 25% above the cost price. He sells three-fourth of the goods at the marked price and the remaining at 40% discount on the marked price. His gain/loss percent is:

एक दुकानदार अपनी वस्तुओं की कीमत क्रय मूल्य से 25% अधिक रखता है | वह तीन-चौथाई वस्तुएँ अंकित मूल्य पर तथा शेष वस्तुएँ अंकित मूल्य से 40% छूट पर बेचता है| उसके लाभ या हानि का प्रतिशत है :

SSC CHSL 4 July 2019 (Morning)

(a) Loss, 8.75%
(b) Loss, 12.5%
(c) Gain, 10.5%
(d) Gain, 12.5%

Q16. A person purchased a vehicle for Rs. 5,90,828 and sold it for Rs. 6,52,920. What is the profit percent he earned on this vehicle (correct to two decimal places)?

एक व्यक्ति ने 5,90,828 रुपये में एक वाहन ख़रीदा और इसे 6,52,920 रुपये में बेच दिया | इस वाहन पर उसे कितने प्रतिशत (दशमलव के दो स्थान तक) का लाभ हुआ ?

SSC CHSL 5 July 2019 (Afternoon)

(a) 10.51%
(b) 9.55%
(c) 9.51%
(d) 11.55%

Q17. A man bought three articles for Rs 3,000 each. He sold the articles respectively at 10% profit, 5% profit and 15% loss. The total percentage profit/loss he earned is:

एक व्यक्ति ने तीन वस्तुओं में से प्रत्येक को 3000 रुपये में ख़रीदा | उसने इन वस्तुओं को क्रमशः 10% लाभ, 5% लाभ और 15% हानि पर बेचा | उसके द्वारा प्राप्त कुल लाभ/हानि ज्ञात करें |

SSC CHSL 8 July 2019 (Evening)

(a) 10% loss
(b) 5% loss
(c) 5% profit
(d) No profit no loss

Q18. A bought 38 kg. Rice at Rs. 54.50/kg, 45 Kg rice at Rs. 62/kg, and 55 kg rice at Rs. 48/kg . He sold the mixture at Rs. 65/kg. His loss or profit percentage is:

A ने 54.50 रुपये प्रति किलो की दर से 38 किलो ग्राम चावल, 62 रुपये प्रति किलो की दर से 45 किलो चावल और 48 रुपये प्रति किलो की दर से 55 किलो ग्राम चावल ख़रीदा | उसने मिश्रण को 65 रुपये/किलो ग्राम की दर से बेचा | उसके लाभ या हानि का प्रतिशत है -

SSC CPO 16 March 2019 (Morning)

(a) Loss 1.04 / हानि 1.04
(b) Loss 1.7/ हानि 1.7
(c) Profit 19.6/ लाभ 19.6
(d) Profit 16.8 / लाभ 16.8

Q19. Three partners A, B and C share profit and losses in the ratio 3:4:7 If the profit for the year before charging 30% tax is Rs. 1,10, 166 What is B's share of profit after tax?

तीन साझेदार A, B और C लाभ और हानि का अनुपात 3: 4: 7 में बांटते हैं यदि 30% कर लगाने से पहले वार्षिक लाभ 1,10, 166 है,तो कर के बाद B का लाभांश क्या होगा ?

SSC CPO 16 March 2019 (Morning)

(a) Rs.9442.80
(b) Rs.31476
(c) Rs.22033.20
(d) Rs. 24673.10

Q20. A shopkeeper marks an article at a price such that after giving a discount of 25%, the gains x%. If the cost price and the marked price of the article are Rs 460 and Rs 736 respectively, what is the value of x?

एक दुकानदार अपनी वस्तुओं की कीमत इस प्रकार रखता है कि 25% छूट देने के बाद उसे x% लाभ होता है | यदि इस वस्तु का क्रय मूल्य तथा अंकित मूल्य क्रमशः 460 रुपये और 736 रुपये है, तो x का मान ज्ञात करें |

SSC CPO 13 March 2019 (Morning)

(a) 20%
(b) 18%
(c) 24%
(d) 16%

Q21. A manufacturer sells the product to a wholesaler at 6% profit, the wholesaler sells the product to a retailer at 8% profit and the retailer sells the product to his customer at 10% profit. The price paid by the customer is rs 31,482. The cost of the product to the manufacturer is:

एक निर्माता थोक व्यापारी को 6% लाभ पर वस्तु बेचता है | थोक व्यापारी इसे खुदरा व्यापारी को 8% लाभ पर बेचता है तथा खुदरा व्यापारी इसे ग्राहक को 10% लाभ पर बेच देता है | ग्राहक के द्वारा दी गयी कीमत 31,482 रुपये है, तो निर्माता के लिए इस उत्पाद की कीमत क्या होगी ?

SSC CPO 14 March 2019 (Morning)

(a)28,306
(b)26,524
(c)25,000
(d)26,980

Q22. A cyclist sells 3 cycles at the loss of Rs. 129 per bicycles and 12 cycles on the profit of 516 per cycle. If the total profit on all the bicycles sold is 15%, then what will be the cost per cycle?

एक साईकिल विक्रेता 516 प्रति साईकिल के लाभ पर 12 साइकिलों और 129 प्रति साईकिल के नुकसान पर 3 साइकिले बेचता है | बिक्री की गयी सभी साइकिलों पर यदि कुल

लाभ प्रतिशित 15% है तो प्रति साईकिल का मूल्य क्या होगा ?
SSC CPO 14 March 2019 (Evening)
(a) Rs 2960
(b) Rs 3870
(c) Rs 2580
(d) Rs 4440

Q23. If the selling price of an article is $1\frac{2}{5}$ of its cost price, the percentage gain is :
यदि किसी वस्तु का विक्रय मूल्य इसके क्रय मूल्य का $1\frac{2}{5}$ है, तो प्रतिशत में कितना लाभ होगा ?
SSC CPO 15 March 2019 (Evening)
(a)40
(b)25
(c)20
(d)47

Q24.An article is sold for Rs 6500 so as to earn a profit of 4%. A second article whose cost price is Rs 3750, is sold at a loss of 4%. What is the overall gain or loss percent in the whole transaction?
एक वस्तु 6500 रुपये में बेची गयी ताकि 4% का लाभ हो | एक अन्य वस्तु जिसका क्रय मूल्य 3750 रुपये है, उसे 4% की हानि पर बेचा गया | पूरे लेन-देन में कुल लाभ या हानि का प्रतिशत ज्ञात करें |
SSC MTS 5 August 2019 (Morning)
(a)Gain 45%
(b)Loss 1%
(c)Loss 4%
(d) Gain 1%

Q25. A sold an article on 15% profit for Rs. 1495. He purchased another article whose cost price was equal to that of the first article. He sold this new article at 10% profit. What is the total profit of A ?
A ने किसी वस्तु को 15% लाभ पर रु 1495 में बेचा | उसने एक अन्य वस्तु खरीदी जिसका लागत मूल्य पहले खरीदी गई वस्तु के बराबर है | उसने इस नई वस्तु को 10% के लाभ पर बेचा | A ने कुल कितना लाभ कमाया?
SSC MTS 5 August 2019 (Afternoon)
(a)Rs 325
(b)Rs 450
(c)Rs 375
(d) Rs 425

Q26. The cost prices of article A and article B are Rs. 1200 and Rs. 1600 respectively. The selling price of article A is Rs. 1380 and the total profit after selling both the articles is 25%. What is the profit percentage on the article B ?
वस्तु A और वस्तु B के लागत मूल्य क्रमशः रु 1200 एवं रु 1600 है | वस्तु A का विक्रय मूल्य रु 1380 है तथा दोनों वस्तुओं को बेचने पर कुल लाभ 25% है | वस्तु B को बेचने पर लाभ प्रतिशत कितना है?
SSC MTS 5 August 2019 (Afternoon)
(a)27.5
(b)32.5
(c)29.5
(d) 35.5

Q27. P sold an article to Q at a profit of 20%. Q sold the same article to R at a loss of 25%. R sold the same article to T at a profit of 50%. If P bought the article at Rs 100, then at what price did T buy that article?
P ने एक वस्तु Q को 20% लाभ पर बेची | Q ने यही वस्तु R को 25% हानि पर बेच दी | R ने इसी वस्तु को T को 50% लाभ पर बेचा | यदि P ने यह वस्तु 100 रुपये में खरीदी थी, तो T के लिए इस वस्तु की कीमत क्या रही ?
SSC MTS 6 August 2019 (Evening)
(a)Rs 145
(b)Rs 125
(c)Rs 115
(d) Rs 135

Q28. An article is marked 37.5% above the cost price. If the discount of 9.09% is given, then find the profit percentage (to the nearest integer).
किसी वस्तु पर लागत मूल्य से 37.5% अधिक कीमत अंकित किया जाता है | यदि 9.09% की छूट दी जाती है तो लाभ प्रतिशत (निकटतम पूर्णांक में) है:
SSC MTS 13 August 2019 (Morning)
(a)25
(b)15
(c)10
(d) 20

Q29. A shopkeeper earns the same percent of profit as well as loss by selling two similar pieces of furniture for Rs 18000 and Rs 10000, respectively. At what price should he sell it to earn a profit of 50%?
एक दुकानदार को दो समान फर्नीचर क्रमशः 18000 रुपये और 10000 रुपये में बेचने पर समान प्रतिशत का लाभ और समान प्रतिशत की हानि होती है | 50% का लाभ कमाने के लिए उसे इसे किस कीमत पर बेचना चाहिए ?
SSC MTS 14 August 2019 (Afternoon)
(a)Rs 21,000
(b)Rs 20,250
(c)Rs 21,750
(d)Rs 19,500

Q30. An article is sold for Rs x. If it is sold at $33\frac{1}{3}$ % of this price, there is a loss of 20%. What is the percentage profit when it is sold for Rs x?

कोई वस्तु x रुपये में बेची जाती है | यदि इसे इस कीमत के $33\frac{1}{3}$ % पर बेचा जाता, तो 20% की हानि होती | इसे x रुपये में बेचने पर होने वाला प्रतिशत लाभ ज्ञात करें |

SSC CHSL 3 July 2019 (Evening)

(a) 140
(b) 125
(c) 130
(d) 120

SSC CGL TIER II

Q1. A shopkeeper bought 120 quintals of wheat, 20% of it was sold at 25% loss. At what percent gain should he sell the rest to gain 25% on the whole transaction?

एक दुकानदार ने 120 क्विंटल गेहूँ ख़रीदा | इसकी 20% मात्रा 25% हानि पर बेची गयी | पूरे लेन-देन पर 25% का लाभ कमाने के लिए उसे शेष मात्रा को कितने प्रतिशत लाभ पर बेचना चाहिए ?

SSC CGL Tier 2 11 September 2019 (Morning)

(a)$36\frac{1}{2}$
(b)40
(c) $37\frac{1}{2}$
(d) 35

Q2. Anu sold an article for Rs 480 at some profit. Had she sold it for Rs 400, then there would have been a loss equal to one-third of the initial profit. What was the cost price of the article?

अनु ने एक वस्तु कुछ लाभ पर 480 रुपये में बेच दी | यदि उसने इसे 400 रुपये में बेचा होता, तो आरंभिक लाभ के एक-तिहाई के बराबर हानि हुई होती | वस्तु का क्रय मूल्य ज्ञात करें |

SSC CGL Tier 2 11 September 2019 (Morning)

(a)Rs 450
(b)Rs 430
(c) Rs 425
(d) Rs 420

Q3. A shopkeeper allows a 28% discount on the marked price of an article and still makes a profit of 20%. If he gains Rs 30.80 on the sale of one article, then what will be the cost price of the article?

एक दुकानदार किसी वस्तु के अंकित मूल्य पर 28% की छूट देता है पर फिर भी 20% का लाभ कमाता है | यदि उसे एक वस्तु बेचने पर 30.80 रुपये का लाभ होता है, तो इस वस्तु का क्रय मूल्य ज्ञात करें |

SSC CGL Tier 2 11 September 2019 (Morning)

(a)Rs 164
(b)Rs 145
(c) Rs 160
(d) Rs 154

Q4. When an article is sold for Rs 355, there is a loss of 29%. To gain 21%, it should be sold for Rs:

जब कोई वस्तु 355 रुपये में बेची जाती है, तो 29% की हानि होती है | 21% का लाभ कमाने के लिए, इसे किस कीमत पर बेचा जाना चाहिए ?

SSC CGL Tier 2 11 September 2019 (Morning)

(a)629.20
(b)580.80
(c) 605
(d) 635

Q5. Radha marks her goods 25% above the cost price. She sells 35% of goods at the marked price, 40% at 15% discount and the remaining at 20% discount. What is her overall percentage gain?

राधा अपनी वस्तुओं की कीमत क्रय मूल्य से 25% अधिक रखती है | वह 35% वस्तुएँ अंकित मूल्य पर, 40% वस्तुएँ 15% की छूट पर तथा शेष वस्तुएँ 20% की छूट पर बेचती है | उसका कुल प्रतिशत लाभ ज्ञात करें |

SSC CGL Tier 2 11 September 2019 (Morning)

(a)11.25
(b)10
(c) 11.75
(d) 12.75

Q6. An article is sold at a certain price. If it is sold at $33\frac{1}{3}$ % of this price, there is a loss of $33\frac{1}{3}$ %. What is the percentage profit when it is sold at 60% of the original selling price?

एक वस्तु किसी निश्चित कीमत पर बेची जाती है | यदि इसे इस कीमत के $33\frac{1}{3}$ % पर बेचा जाए, तो $33\frac{1}{3}$ % की हानि होती है | यदि इसे आरंभिक विक्रय मूल्य के 60% पर बेचा जाए, तो **कितने प्रतिशत का लाभ होगा ?**

SSC CGL Tier 2 11 September 2019 (Morning)

(a) 20
(b)30
(c) $33\frac{1}{3}$
(d)$17\frac{1}{3}$

Q7. An article is sold at a certain price. If it is sold at 80% of this price, then there will be a loss of 10%. What is the percentage profit when the article is sold at the original selling price?

एक वस्तु किसी निश्चित कीमत पर बेची जाती है | यदि इसे इस कीमत के 80% पर बेचा जाए, तो 10% की हानि होगी | वस्तु को आरंभिक विक्रय मूल्य पर बेचने पर होने वाला प्रतिशत लाभ ज्ञात करें |

SSC CGL Tier 2 12 September 2019 (Morning)

(a)$15\frac{1}{2}$
(b)$12\frac{1}{2}$
(c) 15
(d) 12

Q8. The marked price of an article is Rs 800 and it is sold at a

discount of 19%. If there is a gain of 8%, then by what percent above the cost price was the article marked?
एक वस्तु का अंकित मूल्य 800 रुपये है और इसे 19% की छूट पर बेचा जाता है | यदि 8% का लाभ होता है, तो इस वस्तु की कीमत क्रय मूल्य से कितना प्रतिशत अधिक अंकित की गयी है ?
SSC CGL Tier 2 12 September 2019 (Morning)
(a)33 $\frac{1}{3}$
(b)35
(c) 27
(d) 36 $\frac{2}{3}$

Q9. By selling two articles for Rs 800, a person gains the cost price of three articles. The profit percent is:
800 रुपये में दो वस्तुओं को बेचने पर एक व्यक्ति को तीन वस्तुओं के क्रय मूल्य के बराबर लाभ होता है | लाभ का प्रतिशत है :
SSC CGL Tier 2 12 September 2019 (Morning)
(a) 125
(b) 140
(c) 120
(d) 150

Q10. When an article is sold at its marked price, it gives a profit of 25%. If a discount of 9.6% is allowed on the marked price, then the profit percent will be:
जब कोई वस्तु अंकित मूल्य पर बेची जाती है, तो 25% का लाभ होता है | यदि अंकित मूल्य पर 9.6% की छूट दी जाए, तो लाभ का प्रतिशत क्या होगा ?
SSC CGL Tier 2 12 September 2019 (Morning)
(a)13
(b)15.4
(c) 15
(d) 16.6

Q11. A man sells his goods at a certain price, 20% of which is his profit. If the price at which he buys the goods increases by 10% and he sells them at an 8% higher price, then what will be his profit percent (correct to one decimal place)?
एक व्यक्ति अपनी वस्तुएँ एक निश्चित कीमत पर बेचता है, जिसका 20% वह लाभ कमाता है | यदि जिस कीमत पर वह वस्तुएँ खरीदता है, वह 10% बढ़ जाए और वह इन वस्तुओं को 8% अधिक कीमत पर बेचे, तो उसके लाभ का प्रतिशत (एक दशमलव स्थान तक सही) क्या होगा ?
SSC CGL Tier 2 12 September 2019 (Morning)
(a)21.8
(b)23.4
(c) 21.4
(d) 22.7

Q12. 35% of goods were sold at a profit of 65%, while the remaining were sold at x% loss. If the overall loss is 12%, then what is the value of x? (correct to one decimal place)
35% वस्तुएँ 65% लाभ पर बेची गयीं जबकि शेष वस्तुएँ x% हानि पर बेची गयीं | यदि कुल हानि 12% है, तो x का मान (दशमलव के एक स्थान तक सही) ज्ञात करें |
SSC CGL Tier 2 13 September 2019 (Morning)
(a)51.8
(b)50.6
(c) 53.5
(d) 52.4

Q13. An article was sold at a profit of 14%. Had it been sold for Rs 121 less, a loss of 8% would have been incurred. If the same article would have been sold for Rs 536.25, then the profit/loss percent would have been:
एक वस्तु 14% के लाभ पर बेची गयी | यदि इसे 121 रुपये कम पर बेचा जाता, तो 8% की हानि हुई होती | यदि इसी वस्तु को 536.25 रुपये में बेचा जाए, तो लाभ या हानि का प्रतिशत क्या होगा ?
SSC CGL Tier 2 13 September 2019 (Morning)
(a)Profit, 5%
(b)Loss, 5%
(c) Loss, 2.5%
(d) Profit, 2.5%

Q14. A shopkeeper allows an 18% discount on the marked price of an article and still makes a profit of 23%. If he gains Rs 18.4040 on the sale of the article, then what is the marked price of the article?
एक दुकानदार किसी वस्तु के अंकित मूल्य पर 18% की छूट देता है और फिर भी 23% लाभ कमाता है | यदि उसे वस्तु की बिक्री पर 18.4040 का लाभ होता है, तो इस वस्तु का अंकित मूल्य ज्ञात करें |
SSC CGL Tier 2 13 September 2019 (Morning)
(a)Rs 140
(b)Rs 125
(c) Rs 120
(d) Rs 146

Q15. Sudha bought 80 articles at the same price. She sold some of them at 8% profit remaining at 12% loss resulting in an overall profit of 6%. The number of items sold at 8% profit is:
सुधा ने समान कीमत पर 80 वस्तुओं को क्रय किया | उसने उनमें से कुछ को 8% लाभ पर तथा शेष को 12% हानि पर बेचा जिसके परिणामस्वरूप कुल 6% का लाभ हुआ | 8% लाभ पर बेची गयी वस्तुओं की संख्या ज्ञात करें |

SSC CGL Tier 2 13 September 2019 (Morning)
(a)64
(b)60
(c) 72
(d) 70

Q16.If the selling price of an article is 32% more than its cost price and the discount on its marked price is 12%, then what is the ratio of its cost price to the marked price?
यदि किसी वस्तु का विक्रय मूल्य इसके क्रय मूल्य से 32% अधिक है और इसके अंकित मूल्य पर दी जाने वाली छूट 12% है, तो इसके क्रय मूल्य और अंकित मूल्य के बीच अनुपात ज्ञात करें |
SSC CGL Tier 2 13 September 2019 (Morning)
(a)4:5
(b)3:8
(c) 2:3
(d) 1:2

Q17. A person marks his goods x% above the cost price and allows a discount of 30% on the marked price. If his profit is 5%, then the value of x will be:
एक व्यक्ति अपनी वस्तुओं की कीमत क्रय मूल्य से x% अधिक रखता है और अंकित मूल्य पर 30% की छूट देता है। यदि उसका लाभ 5% है, तो x का मान क्या होगा?
SSC CGL Tier II 11 September 2019
(a) 50
(b) 60
(c) 45
(d) 35

Q18. Sujata marks an article 36% above the cost price and allows a 40% discount on the marked price. The loss percentage is:
सुजाता अपनी वस्तुओं की कीमत क्रय मूल्य से 36% अधिक रखती है और अंकित मूल्य पर 40% की छूट देती है। हानि का प्रतिशत है:
SSC CGL Tier II 12 September 2019
(a) 15
(b) 16.8
(c) 18.4
(d) 4

Q19. A person sells an article at 16% below its cost price. Had he sold it for Rs.33 more, he would have gained 14%. To gain 25%, he should sell the article for :
एक व्यक्ति किसी वस्तु को इसके क्रय मूल्य से 16% कम पर बेचता है | यदि उसने इसे 33 रुपये अधिक में बेचा होता, तो उसे 14% का लाभ होता | 25% का लाभ कमाने के लिए, उसे इस वस्तु को किस कीमत पर बेचना चाहिए ?
SSC CGL TIER II 12 September 2019
(a) Rs. 128
(b) Rs. 137.5
(c) Rs. 135
(d) Rs. 130.5

Q20. How many kg of salt costing Rs. 28 per kg must be mixed with 6.6 kg of salt costing Rs. 16 per kg, so that selling the mixture at Rs. 29.90, there is a gain of 15%?
28 रुपये प्रति किलो ग्राम लागत वाले कितने किलो नमक को 16 रुपये प्रति किलो ग्राम की लागत वाले 6.6 किलो नमक में मिलाना चाहिए ताकि मिश्रण को 29.90 रुपये प्रति किलो की दर से बेचने पर 15% का लाभ हो ?
SSC CGL TIER II 13 September 2019
(a) 33
(b) 31
(c) 35
(d) 32

Practice Questions

Q1. A person sold an article at a loss of 8%. Had he sold it at a gain of 10.5%. he would have received Rs.92.50 more. To gain 12%, he should have sold it for:
एक व्यक्ति ने कोई वस्तु 8% हानि पर बेच दी | यदि उसने इसे 10.5% लाभ पर बेचा होता, तो उसे 92.50 रुपये अधिक मिले होते | 12% लाभ कमाने के लिए, उसे इसे किस कीमत पर बेचना चाहिए था ?
SSC CGL 6 June 2019 (Morning)
(a)Rs. 540.50
(b)Rs.560
(c)Rs.580
(d)Rs.537.40

Q2. A bought an article for Rs.5400 and sold it at a loss of 30%. With this amount, he bought another article and sold it at a gain of 60%. What was his overall percentage gain or percentage loss?
A एक वस्तु 5400 रुपये में ख़रीदा और इसे 30% हानि पर बेच दिया | इस राशि से उसने एक अन्य वस्तु ख़रीदा और उसे 60% लाभ पर बेच दिया | उसका कुल प्रतिशत लाभ या हानि ज्ञात करें |
SSC CGL 10 June 2019 (Morning)
(a)Gain, 1.2%
(b)Gain, 12%
(c)Loss, 12%
(d)Loss, 1.2%

Q3. Two articles are sold for Rs. 10,384 each. On one, the seller gains 18% and on the other, he loses 12%. What is his overall gain or less ?
दो वस्तुओं में से प्रत्येक को 10384 रुपये में बेचा जाता है | पहली पर, विक्रेता को 18% का लाभ होता है

तथा दूसरी पर उसे 12% की हानि होती है | कुल लाभ या हानि ज्ञात करें |
SSC CGL 10 June 2019 (Evening)
(a)Rs.178 loss
(b)Rs.168 loss
(c)Rs.178 gain
(d)Rs.168 gain

Q4. Two articles are sold for Rs.10,005 each. On one, the seller gains 15% and on the other, he loses 13%. What is his overall gain or loss percent, correct two decimal places?
दो वस्तुएँ 10,005 रुपये में एक की दर से बेची जाती हैं | पहली वस्तु पर, विक्रेता को 15% लाभ होता है तथा दूसरी पर उसे 13% की हानि होती है | दो दशमलव स्थानों तक उसके कुल लाभ या हानि का प्रतिशत ज्ञात करें |
SSC CGL 11 June 2019 (Morning)
(a)1.42% gain
(b)1.42% loss
(c)0.94% loss
(d)0.94% gain

Q5. Two articles are sold for Rs. 5,104 each. On one, the seller gains 16% and on the other, he loses 12%. What is his overall gain percent, nearest to two decimal places?
दो वस्तुएँ 5104 रुपये में एक की दर से बेची जाती हैं | पहली वस्तु पर विक्रेता को 16% लाभ होता है तथा दूसरी पर उसे 12% की हानि होती है | दो दशमलव स्थानों तक उसका कुल लाभ प्रतिशत ज्ञात करें |
SSC CGL 11 June 2019 (Afternoon)
(a)0.08%
(b)0.12%
(c)0.14%
(d)0.10%

Q6. Two articles are sold for Rs.2508 each. On one, there is a gain of 14% and on the other, there is a loss of 12%. What is the overall gain or loss percent to nearest one decimal place? दो वस्तुएँ 2508 रुपये में एक की दर से बेची जाती हैं | पहली वस्तु पर, 14% का लाभ होता है तथा दूसरी पर 12% की हानि होती है | एक दशमलव स्थान के समीप कुल लाभ या हानि का प्रतिशत ज्ञात करें |
SSC CGL 11 June 2019 (Evening)
(a)0.7% gain
(b)0.7% loss
(c)0.5% gain
(d)0.5% loss

Q7. Two articles are sold for Rs.4,956 each. On one, the seller gains 18% and on the other he loses 16%. What is his overall gain or loss percent to the nearest one decimal place?
दो वस्तुएँ 4956 रुपये में एक की दर से बेची जाती हैं | पहली वस्तु पर विक्रेता को 18% का लाभ होता है तथा दूसरी पर उसे 16% की हानि होती है | एक दशमलव स्थान तक उसका कुल लाभ या हानि प्रतिशत ज्ञात करें |
SSC CGL 12 June 2019 (Morning)
(a)2.1% loss
(b)1.9% loss
(c)2.1% gain
(d)1.9% gain

Q8. Two articles are sold for Rs. 4880 each. On one, the seller gains 22% and on the other he loses 20%. What is his overall gain or loss percent ?
दो वस्तुओं में से प्रत्येक को रु 4880 के मूल्य पर बेचा जाता है | उनमें से एक वस्तु पर विक्रेता को 22% लाभ होता है और दूसरी वस्तु पर 20% की हानि होती है | विक्रेता को कुल मिलाकर कितने प्रतिशत लाभ अथवा हानि हुई?
SSC CGL 12 June 2019 (Afternoon)
(a)3.6% profit / लाभ
(b)3.4% loss / हानि
(c)3.6% loss/ हानि
(d)3.4% profit / लाभ

Q9. Two articles are sold for Rs.975 each. On one, the seller gains 30% and on the other, he loses 25%. What is the overall gain or loss percentage, correct to one decimal place?
दो वस्तुएँ 975 रुपये में एक की दर से बेची जाती हैं | पहली वस्तु पर विक्रेता को 30% लाभ होता है तथा दूसरी वस्तु पर उसे 25% की हानि होती है | कुल लाभ या हानि का प्रतिशत ज्ञात करें | (एक दशमलव स्थान तक सही)
SSC CGL 12 June 2019 (Evening)
(a)4.9% loss
(b)5.3% gain
(c)4.9% gain
(d)5.1% loss

Q10. Two articles are sold for Rs.4,752 each. On one, the seller gains 32% and on the other he loses 28%. What is his overall gain or loss percentage, correct to one decimal place?
दो वस्तुएँ 4752 रुपये में एक की दर से बेची जाती हैं | पहली पर, विक्रेता को 32% लाभ होता है और दूसरी पर उसे 28% की हानि होती है | उसके कुल लाभ या हानि का प्रतिशत (एक दशमलव स्थान तक सही) ज्ञात करें |
SSC CGL 13 June 2019 (Morning)
(a)7.3% gain
(b)7.3% loss
(c)6.8% loss
(d)6.8% gain

Q11. Two articles are sold for Rs.962 each. On one, the seller gains 30% and on the other he loses 26%. What is his overall gain or loss percentage, nearest to one decimal place?
दो वस्तुएँ 962 रुपये में एक की दर से बेची जाती हैं | पहली पर, विक्रेता को 30% लाभ होता है और दूरी वस्तु पर उसे 26% की हानि होती है | उसके कुल लाभ या हानि का प्रतिशत (एक दशमलव स्थान के समीप) ज्ञात करें |
SSC CGL 13 June 2019 (Afternoon)
(a)6.0% gain
(b)5.7% loss
(c)5.7% gain
(d)6.0% loss

Q12. The marked price of an article is Rs 600. After allowing a discount of 25% on the marked price, there was a loss of Rs 30. The loss percentage is:
एक वस्तु का अंकित मूल्य 600 रुपये है | अंकित मूल्य पर 25% की छूट देने के बाद, 30 रुपये की हानि होती है | हानि का प्रतिशत है :
SSC CHSL 1 July 2019 (Evening)
(a) 7.50%
(b) 7.25%
(c) 6.25%
(d) 6.50%

Q13. By selling 72 articles, a loss equal to the selling price of 8 articles was incurred. What is the loss percentage?
72 वस्तुएँ बेचने पर 8 वस्तुओं के विक्रय मूल्य के बराबर हानि होती है | हानि का प्रतिशत क्या है ?
SSC CHSL 1 July 2019 (Evening)
(a) 12%
(b) 10%
(c) $9\frac{1}{9}$ %
(d) $11\frac{1}{9}$ %

Q14. A person sold an article at a loss of 8%. Had he sold it at a gain of 10.5%. He would have received Rs 37 more. What is the cost price of the article?
एक व्यक्ति ने कोई वस्तु 8% की हानि पर बेची | यदि उसने इसे 10.5% के लाभ पर बेचा होता, तो उसे 37 रुपये अधिक प्राप्त हुए होते | इस वस्तु का क्रय मूल्य क्या है ?
SSC CHSL 2 July 2019 (Morning)
(a) Rs 200
(b) Rs 250
(c) Rs 240
(d) Rs 210

Q15. When an article is sold for Rs 291, there is a loss of 3%. What will be the selling price of the article, if it is sold at a gain of 8%?
जब किसी वस्तु को 291 रुपये में बेचा जाता है, तो 3% की हानि होती है | यदि इसे 8% लाभ पर बेचा जाए, तो इस वस्तु का विक्रय मूल्य क्या होगा ?
SSC CHSL 2 July 2019 (Afternoon)
(a) Rs308
(b) Rs332
(c) Rs324
(d) Rs316

Q16. Abhi sold two articles for Rs 5,220 each. On one, he gained 16% and on the other, he lost 10%. His profit or loss on the whole was:
अभि ने दो वस्तुओं में से प्रत्येक को 5220 रुपये में बेचा | पहली वस्तु पर उसे 16% का लाभ हुआ तथा दुसुरी वस्तु पर उसे 10% की हानि हुई | पूरे पर उसे कितने लाभ या हानि की प्राप्ति हुई ?
SSC CHSL 2 July 2019 (Evening)
(a) Profit, Rs 140/ लाभ, 140 रुपये
(b) Loss, Rs 125/ हानि, 125 रुपये
(c) Profit, Rs 180/ लाभ, 180 रुपये
(d) Loss, Rs 130/ हानि, 130 रुपये

Q17. By selling an article for Rs2,300, Rekha gains 25%. If she sells it for Rs1955, then her loss/gain percent is:
किसी वस्तु को 2300 रुपये में बेचने पर रेखा को 25% का लाभ होता है | यदि वह इसे 1955 रुपये में बेचे, तो उसके लाभ/हानि का प्रतिशत होगा :
SSC CHSL 3 July 2019 (Afternoon)
(a) Loss, 6.5%
(b) Gain, 6.5%
(c) Gain, 6.25%
(d) Loss, 6.25%

Q18. The marked price of an article is Rs400. After allowing a discount of 20% on the marked price, a shopkeeper makes a profit of Rs 32. His gain percent is:
किसी वस्तु का अंकित मूल्य 400 रुपये है | अंकित मूल्य पर 20% की छूट देने के बाद एक दुकानदार को 32 रुपये का लाभ होता है | उसके लाभ का प्रतिशत है :
SSC CHSL 3 July 2019 (Afternoon)
(a) 9
(b) $11\frac{1}{9}$
(c) $12\frac{1}{9}$
(d) 8

Q19. Three articles are bought at Rs200 each. One of them is sold at a loss of 10%. If the other two articles are sold so as to gain 20% on the whole transaction, then what is the gain percent on the two articles?
तीन वस्तुओं में से प्रत्येक को 200 रुपये में ख़रीदा गया | उनमें से एक को 10% की हानि पर बेचा गया | यदि

अन्य दो वस्तुओं को इस प्रकार बेचा गया कि पूरे लेन-देन पर 20% का लाभ हो, तो इन दो वस्तुओं पर होने वाला प्रतिशत लाभ ज्ञात करें |

SSC CHSL 4 July 2019 (Morning)

(a) 28
(b) 32
(c) 35
(d) 30

Q20. A man bought 2 articles for Rs 2650 each. He sold one article at 10% profit and another at 5% profit. The total profit percentage he earned is:

एक व्यक्ति ने दो वस्तुओं में से प्रत्येक को 2650 रुपये में ख़रीदा | उसने एक वस्तु को 10% लाभ पर तथा दूसरी को 5% लाभ पर बेच दिया | उसके द्वारा प्राप्त कुल लाभ का प्रतिशत ज्ञात करें |

SSC CHSL 4 July 2019 (Afternoon)

(a) 8%
(b) 8.5%
(c) 7.5%
(d) 10%

Q21. A man bought 2 articles for Rs. 3050 each. He sold one article at 10% profit and another at 20% profit. The total profit percentage he earned is:

एक व्यक्ति ने दो वस्तुओं में से प्रत्येक को 3050 रुपये में ख़रीदा | उसने एक वस्तु को 10% लाभ पर तथा दूसरी वस्तु को 20% लाभ पर बेच दिया | उसके द्वारा प्राप्त कुल लाभ का प्रतिशत ज्ञात करें |

SSC CHSL 4 July 2019 (Evening)

(a) 10%
(b) 18%
(c) 15%
(d) 20%

Q22. A man bought 2 articles for Rs3050 each. He sold one article at 10% loss and another at 20% profit. The total profit/loss percentage he earned is:

एक व्यक्ति ने दो वस्तुओं में से प्रत्येक को 3050 रुपये में ख़रीदा | उसने एक वस्तु 10% की हानि पर तथा दूसरी वस्तु 20% लाभ पर बेच दी | उसके द्वारा प्राप्त कुल लाभ / हानि का प्रतिशत ज्ञात करें |

SSC CHSL 5 July 2019 (Morning)

(a) 5% loss
(b) 10% profit
(c) 5% profit
(d) 10% loss

Q23. A man bought 2 articles for Rs4158 each. He sold one article at 15% loss. Then at what percent profit the other article should be sold so that no profit/loss percentage is earned. एक व्यक्ति ने दो वस्तुओं में से प्रत्येक को 4158 रुपये में ख़रीदा | उसने एक वस्तु 15% की हानि पर बेच दी | दूसरी वस्तु को कितने प्रतिशत लाभ पर बेचना चाहिए ताकि ना तो लाभ हो ना ही हानि ?

SSC CHSL 5 July 2019 (Afternoon)

(a) 15%
(b) 10%
(c) 12%
(d) 18%

Q24. A person purchased a vehicle for Rs 4,90,828 and sold it for Rs 5,52,920. What is the percent profit earned on this vehicle (correct to two decimal places)?

एक व्यक्ति ने 4,90,828 रुपये में एक वाहन ख़रीदा और इसे 5,52,920 रुपये में बेच दिया | इस वाहन पर कितने प्रतिशत का लाभ (दो दशमलव स्थानों तक सही) हुआ ?

SSC CHSL 5 July 2019 (Evening)

(a) 15.51%
(b) 11.55%
(c) 19.55%
(d) 12.65%

Q25. A person purchased a vehicle for Rs4,89,828 and sold it for Rs5,89,828. What is the profit percent he earned on this vehicle (correct to two decimal places)?

एक व्यक्ति ने 4,89,828 रुपये में एक वाहन ख़रीदा और इसे 5,89,828 में बेच दिया| इस वाहन पर उसे कितने प्रतिशत का लाभ (दो दशमलव स्थानों तक सही) हुआ ?

SSC CHSL 8 July 2019 (Morning)

(a) 25%
(b) 18.65%
(c) 20.42%
(d) 15%

Q26. A man bought three articles for Rs6,000 each. He sold the articles respectively at 15% profit, 12% profit and 15% loss. The total percentage profit/loss he earned is:

एक व्यक्ति ने तीन वस्तुओं में से प्रत्येक को 6000 रुपये में ख़रीदा | उसने इन वस्तुओं को क्रमशः 15% लाभ, 12% लाभ और 15% हानि पर बेचा | उसे कुल कितने प्रतिशत का लाभ या हानि हुआ/हुई ?

SSC CHSL- 9 July 2019 (Afternoon)

(a) 4% profit
(b) 3% loss
(c) 4% loss
(d) No profit no loss

Q27. Two items are sold for Rs18,602 each. On one item there has been a gain of 31% and on the second item a loss of 29%. What was the overall loss or gain in the transaction?

दो वस्तुओं में से प्रत्येक को 18602 रुपये में बेचा जाता है | पहली वस्तु पर 31% का लाभ होता है तथा दूसरी वस्तु पर 29% की हानि होती है | इस लेन-देन में कुल हानि या लाभ ज्ञात करें |

SSC CHSL- 9 July 2019 (Evening)

(a) Loss 7.91%
(b) Loss 8.25%
(c) Gain 8.25%
(d) Gain 7.91%

Q28. By selling an article for Rs144, a shopkeeper loses 28%. What should be the selling price for bringing down the loss to 14%?
किसी वस्तु को 144 रुपये में बेचने पर एक दुकानदार को 28% की हानि होती है | इस हानि को 14% करने के लिए विक्रय मूल्य क्या होना चाहिए ?

SSC CHSL- 10 July 2019 (Afternoon)

(a) Rs156
(b) Rs182
(c) Rs172
(d) Rs180

Q29. If the cost price of 4 chairs is equal to the selling price of 3 chairs, then the profit or loss percentage is: यदि 4 कुर्सियों का क्रय मूल्य 3 कुर्सियों के विक्रय मूल्य के बराबर है, तो लाभ या हानि का प्रतिशत ज्ञात करें |

SSC CPO 16 March 2019 (Morning)

(a) 25%
(b) 20%
(c) $33\frac{1}{3}$ %
(d) $16\frac{2}{3}$ %

Q30. A shopkeeper sold two articles at Rs. 9831 each, On one he gained 13% and on the other he lost 13% ,What is the overall percentage gain or loss?
एक दुकानदार ने 9831 रुपये की दर से दो वस्तुएं बेची | पहली पर उसे 13% लाभ जबकि दूसरी पर उसे 13 % की हानि हुई | कुल मिलाकर कितने प्रतिशत का लाभ या हानि हुआ ?

SSC CPO 12 March 2019 (Evening)

(a) 6.5% loss
(b) 6.5% gain
(c) 1.69% gain
(d) 1.69% loss

Q31. A shopkeeper marks his good at a price such that after giving a discount of 25%, he gains 20%. If the marked price of the article is Rs. 736, what is the cost price of the article? एक दुकानदार अपनी वस्तुओं की कीमत ऐसी रखता है कि 25% की छूट देने के बाद भी उसे 20% लाभ होता है | यदि वस्तु का अंकित मूल्य 736 रुपये है, तो इस वस्तु का क्रय मूल्य ज्ञात करें |

SSC CPO 12 March 2019 (Evening)

(a) Rs.450
(b) Rs.465
(c) Rs.460
(d) Rs.440

Q32. A shopkeeper marks the price of an article such that after giving a discount of 30%, he gains 20%. If the marked price of the article is Rs 480, what is the cost price of the article?
एक दुकानदार किसी वस्तु की कीमत इस प्रकार रखता है कि 30% की छूट देने के बाद भी उसे 20% लाभ होता है | यदि उस वस्तु का अंकित मूल्य 480 रुपये है, तो उस वस्तु का क्रय मूल्य क्या है ?

SSC CPO 13 March 2019 (Evening)

(a) Rs 280
(b) Rs 300
(c) Rs 250
(d) Rs 260

Q33. A shopkeeper sold two articles for Rs. 9471. On one,he gained 23% and on the other,he lost 23%.What is the overall percentage gain or loss? एक दुकानदार ने 9471 रुपये में दो वस्तुएं बेची | पहली पर उसे 23% का लाभ हुआ तथा दूसरी पर उसे 23% की हानि हुई | कुल मिलाकर लाभ या हानि का प्रतिशत क्या है ?

SSC CPO 12 March 2019 (Morning)

(a) 5.29% loss
(b) 6.29% gain
(c) 5.29% gain
(d) 6.29% loss

Q34. A shopkeeper marks his goods at a price such that after giving a discount of 25% , he gains 20%. If the cost price of the article is Rs. 460, what is its marked price?
एक दुकानदार अपनी वस्तुओं की कीमत इस प्रकार रखता है कि 25% छूट देने के बाद भी उसे 20% का लाभ होता है| यदि उस वस्तु का क्रय मूल्य 460 रुपये है, तो अंकित मूल्य ज्ञात करें |

SSC CPO 12 March 2019 (Morning)

(a) 736
(b) 748
(c) 725
(d) 752

Q35. A shopkeeper sold two articles for Rs 9639 each. On one, he gained 19% and on the other, he lost 19%. What is the overall percentage gain or loss?
एक दुकानदार ने 9639 रुपये में एक की दर से दो वस्तुएं बेची | पहली पर, उसे 19% का लाभ हुआ जबकि दूसरी पर उसे 19% की हानि हुई | कुल लाभ या हानि का प्रतिशत ज्ञात करें |

SSC CPO 13 March 2019 (Morning)
(a) 3.81% loss
(b) 3.61% gain
(c) 3.81% gain
(d) 3.61% loss

Q36. A sells a car to B at 10% loss. If B sells it for rs 5,40,000 and gains 20%, the cost price of the car for A was:
A, B को एक कार 10% की हानि पर बेचता है | यदि B इसे 5,40,000 रुपये में बेच कर 20% लाभ कमाता है, तो A के लिए इस कार का क्रय मूल्य ज्ञात करें |
SSC CPO 16 March 2019 (Evening)
(a)5,00,000
(b)5,40,000
(c)5,10,000
(d)5,20,000

Q37. The marked price of a dress is Rs 2,340 which is 25% above the cost price. If the dress is sold at a profit of 10% the profit earned on the dress is:
एक पोशाक अंकित मूल्य 2,340 रुपये है जो क्रय मूल्य से 25% अधिक है। यदि पोशाक 10% के लाभ पर बेची जाती है, तो पोशाक पर अर्जित लाभ है:
SSC CPO 15 March 2019 (Morning)
(a) Rs 234
(b) Rs 187.20
(c) Rs 197
(d) Rs 175.50

Q38. A watch was sold at a profit of 10%. Had it been sold at rs 77 more the profit percent would have been 12% . The cost price of the watch is :
एक घड़ी 10% के लाभ पर बेची गयी | यदि इसे 77 रुपये अधिक पर बेचा जाता तो लाभ का प्रतिशत 12% होता | इस घड़ी का क्रय मूल्य ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)3760
(b)3850
(c)3945
(d)3900

Q39. The selling price of an article is 2,28,528. A shopkeeper marks its price 15% above its cost price and gives a discount of 10%. The cost price is-
एक वस्तु का विक्रय मूल्य Rs 2, 28, 528 है | एक दुकानदार इसकी कीमत उसकी लागत मूल्य से 15% अधिक अंकित करता है और 10% की छूट देता है | वस्तु का लागत मूल्य है :
SSC CPO 15 March 2019 (Evening)
(a)2,18,650
(b)2,87,390
(c)2,58,740
(d)2,20,800

Q40.By selling an article for 320, a man incurs a loss of 20%. What should be the selling price of an article to gain 20%?
320 रुपये में एक वस्तु को बेचने पर एक व्यक्ति को 20% की हानि होती है | 20% लाभ कमाने के लिए इस वस्तु का विक्रय मूल्य क्या होना चाहिए ?
SSC MTS 2 August 2019 (Morning)
(a)Rs 450
(b)Rs 480
(c)Rs 420
(d) Rs 500

Q41. The difference between the selling prices of an article when sold at 25% profit and 37.5% loss is Rs. 1250. What will be its selling price when it is sold at 12.5% profit ?
किसी वस्तु को 25% लाभ तथा 37.5% हानि पर बेचने से विक्रय मूल्य का अंतर रु 1250 है | जब इसे 12.5% लाभ पर बेचा जाता है तो इसका विक्रय मूल्य कितना होगा?
SSC MTS 2 August 2019 (Morning)
(a) Rs 1800
(b) Rs 2500
(c) Rs 2400
(d) Rs 2250

Q42. An article is sold for Rs. 1725 at 15% profit. If it is sold at 15% loss, then what will be its selling price ?
किसी वस्तु को 15% लाभ पर रु 1725 में बेचा जाता है | यदि इसे 15% की हानि पर बेचा जाता है तो विक्रय मूल्य कितना होगा?
SSC MTS 2 August 2019 (Morning)
(a) Rs 1275
(b) Rs 1475
(c) Rs 1025
(d) Rs 1325

Q43. An article is sold for Rs 2070 at a 15% profit. IF the article is sold for Rs 1890, then what will be the gain/loss percent?
एक वस्तु 15% लाभ पर 2070 रुपये में बेची जाती है | यदि इस वस्तु को 1890 रुपये में बेचा जाए, तो लाभ/हानि का प्रतिशत क्या होगा ?
SSC MTS 2 August 2019 (Evening)
(a)10% loss
(b)5% loss
(c)10% gain
(d) 5% gain

Q44.An article is sold for Rs 810 at a loss of 10%. What should be the selling price if the loss is 20%?
एक वस्तु 10% की हानि पर 810 रुपये में बेची जाती है | यदि हानि 20%

है, तो विक्रय मूल्य कितना होना चाहिए ?

SSC MTS 2 August 2019 (Evening)

(a)Rs 750
(b)Rs 630
(c)Rs 600
(d) Rs 720

Q45. An article is sold at $14\frac{2}{7}$ % profit. what is the ratio of the selling price to the cost price?

एक वस्तु $14\frac{2}{7}$ % लाभ पर बेची जाती है | विक्रय मूल्य और क्रय मूल्य का अनुपात ज्ञात करें |

SSC MTS 5 August 2019 (Morning)

(a)7:5
(b)8:7
(c)8:5
(d) 7:6

Q46. An article was sold at a profit of 22.5%. What is the ratio of the cost price and the selling price ?

किसी वस्तु को 22.5% के लाभ पर बेचा गया | लागत मूल्य तथा विक्रय मूल्य का अनुपात कितना है?

SSC MTS 5 August 2019 (Evening)

(a)31:57
(b)39:69
(c)40:49
(d) 34:63

Q47. Article 1 was sold for Rs. 180. Article 2 was sold for Rs. 240. The profit on article 1 is 20% and the loss on article 2 is 20% . What is the sum of the cost prices of these two articles ?

वस्तु 1 को रु 180 में बेचा गया | वस्तु 2 को रु 240 में बेचा गया | वस्तु 1 पर लाभ 20% है और वस्तु 2 पर हानि 20% है | दोनों वस्तुओं के लागत मूल्यों का योग कितना है?

SSC MTS 5 August 2019 (Evening)

(a)Rs 450
(b)Rs 480
(c)Rs 520
(d) Rs 400

Q48. The difference between the selling prices of an article when sold at 20% profit and 18% loss is Rs. 570. What will be its selling price, when it is sold at 12% loss ?

किसी वस्तु को 20% लाभ पर तथा 18% हानि पर बेचने पर विक्रय मूल्य का अंतर रु 570 है | यदि इसे 12% हानि पर बेचा जाए, तो वस्तु का विक्रय मूल्य कितना होगा?

SSC MTS 6 August 2019 (Morning)

(a) Rs 1760
(b)Rs 1540
(c)Rs 1320
(d) Rs 1650

Q49.The cost price of an article is Rs. 1800. If the profit is 32%, then find the selling price .

किसी वस्तु का लागत मूल्य रु 1800 है | यदि लाभ 32% है, तो विक्रय मूल्य कितना है?

SSC MTS 6 August 2019 (Morning)

(a)Rs 2288
(b)Rs 2376
(c)Rs 2456
(d) Rs 2496

Q50. If the profit is 20% of the selling price, then find the profit is what percent of the cost price ?

यदि लाभ, विक्रय मूल्य का 20% है, तो लाभ, लागत मूल्य का कितना प्रतिशत है?

SSC MTS 6 August 2019 (Afternoon)

(a)15%
(b)25%
(c)22.5%
(d) 20%

Q51. If the selling price of an article is 25% of its cost price, then what will be the loss percentage?

यदि किसी वस्तु का विक्रय मूल्य इसके क्रय मूल्य का 25% है, तो हानि का प्रतिशत क्या होगा ?

SSC MTS 6 August 2019 (Evening)

(a)25%
(b)60%
(c)75%
(d) 50%

Q52.The cost price of two articles is the same. One article among them is sold at a profit of 15% and the other is sold at a profit of 12%. if the difference between their selling prices is Rs 18, what is the cost price of each article?

दो वस्तुओं का क्रय मूल्य समान है | इनमें से एक वस्तु 15% के लाभ पर तथा दूसरी वस्तु 12% के लाभ पर बेची जाती है | यदि उनके विक्रय मूल्य में 18 रुपये का अंतर है, तो प्रत्येक वस्तु का क्रय मूल्य क्या है ?

SSC MTS 7 August 2019 (Morning)

(a)Rs 570
(b)Rs 690
(c)Rs 400
(d) Rs 600

Q53.The difference between the cost price and the selling price of a bat is Rs 180. If there is a profit of 20%, then what is the selling price of the bat?

एक बल्ले के क्रय मूल्य और विक्रय मूल्य में 180 रुपये का अंतर है | यदि लाभ 20% है, तो बल्ले का विक्रय मूल्य कितना है ?

SSC MTS 7 August 2019 (Morning)

(a)Rs 1080

(b)Rs 1240
(c)Rs 1040
(d) Rs 1120

Q54.Ajay sold an article for Rs 84 at a loss of 30%. If he sells the same article at Rs 120, then what will be his profit or loss percentage?
अजय ने कोई वस्तु 30% की हानि पर 84 रुपये में बेच दी | यदि उसने इसी वस्तु को 120 रुपये में बेचा होता, तो उसके लाभ या हानि का प्रतिशत क्या होता ?
SSC MTS 7 August 2019 (Afternoon)
(a)10% loss
(b)15% loss
(c)20% profit
(d) No profit no loss

Q55.Two articles were sold of Rs 2400 each by a shopkeeper. The shopkeeper incurred no profit and no loss on the whole transaction. If one of the two articles sold at a profit of 20%, then what was the loss incurred on the other article?
दो वस्तुओं में से प्रत्येक को एक दुकानदार ने 2400 रुपये में बेचा | दुकानदार को पूरे लेन-देन में ना तो लाभ हुआ ना ही हानि हुई | यदि इनमें से एक वस्तु 20% के लाभ पर बेची गयी, तो दूसरी वस्तु पर कितने रुपये की हानि हुई ?
SSC MTS 7 August 2019 (Afternoon)
(a)Rs 600
(b)Rs 400
(c)Rs 380
(d) Rs 240

Q56.Profit earned on a ball is $\frac{3}{5}$ of its selling price. If the selling price of the ball is Rs 120, then how much profit is earned on this ball?
किसी गेंद पर कमाया गया लाभ इसके विक्रय मूल्य का $\frac{3}{5}$ है | यदि इस गेंद का विक्रय मूल्य 120 रुपये है, तो इस गेंद पर कितना लाभ कमाया गया ?
SSC MTS 7 August 2019 (Evening)
(a)Rs 72
(b)Rs 48
(c)Rs 24
(d) Rs 96

Q57. The cost price of a cycle is Rs 24000. If the profit is 30%, then what will be the selling price?
एक साइकिल का क्रय मूल्य 24000 रुपये है | यदि लाभ 30% है, तो विक्रय मूल्य क्या होगा ?
SSC MTS 7 August 2019 (Evening)
(a)Rs 34100
(b)Rs 33400
(c)Rs 30800
(d) Rs 31200

Q58.The difference in selling prices of an article when sold at 15% profit and 17% loss is Rs 96. If it is sold at 10% profit, then what is the selling price?
जब कोई वस्तु 15% लाभ और 17% की हानि पर बेची जाती है, तो इसके विक्रय मूल्य में 96 रुपये का अंतर आता है | यदि इसे 10% लाभ पर बेचा जाए, तो विक्रय मूल्य क्या होगा ?
SSC MTS 8 August 2019 (Morning)
(a)Rs 345
(b)Rs 360
(c)Rs 315
(d) Rs 330

Q59. Marked price of an article is Rs 2600, wdehich is 30% more than the cost price. If the profit is 45%, then what will be the selling price of the article?
किसी वस्तु का अंकित मूल्य 2600 रुपये है, जो इसके क्रय मूल्य से 30% ज्यादा है | यदि लाभ 45% है, तो इस वस्तु का विक्रय मूल्य क्या होगा ?
SSC MTS 8 August 2019 (Morning)
(a)Rs 3100
(b)Rs 3900
(c)Rs 2700
(d) Rs 2900

Q60.The cost price and the selling price of a shirt are Rs 960 and Rs 1392 respectively. If by way of bargaining a customer can bring the selling price down by 10% of the cost price, then what is the profit percentage?
एक शर्ट का क्रय मूल्य और विक्रय मूल्य क्रमशः 960 रुपये और 1392 रुपये है | यदि मोलभाव करके एक ग्राहक विक्रय मूल्य को क्रय मूल्य के 10% तक नीचे ले आता है, तो लाभ का प्रतिशत क्या होगा ?
SSC MTS 8 August 2019 (Morning)
(a)55%
(b)35%
(c)30%
(d) 45%

Q61.The cost price of an article is $\frac{6}{7}$ of its selling price. What will be the profit or loss percentage?
एक वस्तु का क्रय मूल्य इसके विक्रय मूल्य का $\frac{6}{7}$ है | लाभ या हानि का प्रतिशत क्या होगा ?
SSC MTS 8 August 2019 (Afternoon)
(a)16.67% loss
(b)14.28% profit
(c)16.67% profit
(d) 14.28% loss

Q62. The profit earned on an article is 25%. If profit is calculated on the selling price,

then what will be the profit percentage?
किसी वस्तु पर कमाया गया लाभ 25% है | यदि लाभ की गणना विक्रय मूल्य पर की जाती है, तो लाभ का प्रतिशत क्या होगा ?
SSC MTS 8 August 2019 (Afternoon)
(a)30
(b)10
(c)20
(d) 50

Q63.The ratio of the selling price to the cost price in a transaction is 4:5. If the selling price is Rs 80, then how much is the loss?
एक लेन-देन में विक्रय मूल्य और क्रय मूल्य का अनुपात 4 : 5 है | यदि विक्रय मूल्य 80 रुपये है, तो हानि ज्ञात करें |
SSC MTS 8 August 2019 (Evening)
(a)Rs 16
(b)Rs 15
(c)Rs 20
(d) Rs 30

Q64.The cost price of a pair of shoes is Rs 12000. What should be the marked price (in Rs) on a pair of shoes such that after allowing a discount of 16%, the shopkeeper earns 12% profit?
एक जोड़ी जूते का क्रय मूल्य 12000 रुपये है | एक जोड़ी जूतों का अंकित मूल्य (रुपये में) क्या होना चाहिए ताकि 16% की छूट देने पर दुकानदार को 12% का लाभ हो ?
SSC MTS 9 August 2019 (Morning)
(a)14,330
(b)16,000
(c)13,440
(d) 16,500

Q65. Shuarya marked an article at 40% above its cost price. He sells it after allowing a discount of 15%. The profit percentage of the article is:
शौर्य ने एक वस्तु की कीमत क्रय मूल्य से 40% अधिक तय की | उसने इसे 15% छूट पर बेचा | इस वस्तु पर लाभ का प्रतिशत है:
SSC MTS 9 August 2019 (Afternoon)
(a)20%
(b)17%
(c)19%
(d) 15%

Q66. If 20% of the goods are sold at 50% profit, 40% of the goods at 20% loss, 20% of the goods at 5% loss and the remaining at no loss or no profit, then the overall profit percentage is:
यदि 20% वस्तुएँ 50% लाभ पर बेची जाती हैं, 40% वस्तुएँ 20% हानि पर बेची जाती हैं, 20% वस्तुएँ 5% हानि पर बेची जाती हैं तथा शेष वस्तुएँ ना तो लाभ ना ही हानि पर बेची जाती हैं, तो कुल मिलाकर लाभ का प्रतिशत ज्ञात करें |
SSC MTS 9 August 2019 (Afternoon)
(a)5%
(b)8%
(c)4%
(d) 1%

Q67. A trader gains 25% after selling an article for Rs. 2400. If he had sold the article for Rs. 2160, then What would be his profit or loss percentage ?
एक व्यापारी किसी वस्तु को रु 2400 पर बेचकर 25% लाभ प्राप्त करता है | यदि उसने वस्तु को रु 2160 में बेचा होता, तो उसका लाभ या हानि प्रतिशत कितना था ?
SSC MTS 9 August 2019 (Evening)
(a)12 $\frac{1}{2}$ % Loss
(b)15% Loss
(c)12 $\frac{1}{2}$ % Profit
(d) 15% Profit

Q68. The cost price of an article is Rs. 480. If it is sold at 12.5% profit, then What will be its selling price ?
किसी वस्तु का लागत मूल्य रु 480 है | यदि उसे 12.5% के लाभ पर बेचा जाता है, तो वस्तु का विक्रय मूल्य कितना होगा?
SSC MTS 13 August 2019 (Morning)
(a)Rs 500
(b)Rs 560
(c)Rs 540
(d) Rs 492.5

Q69. A buys a water cooler at some price and sells it to B at 20% profit. B sells it to C at a 10% profit. If C bought it at Rs. 6666, then Find the cost price for B.
A एक वाटर कूलर कुछ मूल्य पर खरीदता है और उसे 20% लाभ पर B को बेच देता है | B इसे 10% लाभ पर C को बेच देता है | यदि C ने उसे रु 6666 में खरीदा, तो B का लागत मूल्य है:
SSC MTS 13 August 2019 (Morning)
(a)Rs 5400
(b)Rs 6060
(c)Rs 5600
(d) Rs 6400

Q70. Parikh sold his pen at a profit of Rs 11. He calculated the profit percentage on selling price and found it to be 25%. the cost price (in Rs) of the pen is:
पारीख ने अपना पेन 11 रुपये के लाभ पर बेचा | उसने अपने लाभ के प्रतिशत की गणना विक्रय मूल्य पर की और इसे 25% पाया | पेन का क्रय मूल्य (रुपये में) ज्ञात करें |
SSC MTS 13 August 2019 (Afternoon)

(a)33
(b)24
(c)36
(d)44

Q71.If an article is sold at 23% profit instead of 14% profit, then the profit would be Rs 189 more. What is the cost price?
यदि कोई वस्तु 14% लाभ के बजाय 23% लाभ पर बेची जाती है, तो 189 रुपये का अतिरिक्त लाभ होता है | क्रय मूल्य ज्ञात करें |
SSC MTS 13 August 2019 (Afternoon)
(a)Rs 2100
(b)Rs 2105
(c)Rs 2340
(d) Rs 1800

Q72.The ratio of cost price and selling price of an article is c:d. If d is 150% of c then the percentage of profit on cost price is:
एक वस्तु के क्रय मूल्य और विक्रय मूल्य में c : d का अनुपात है | यदि d, c का 150% है, तो क्रय मूल्य पर लाभ का प्रतिशत ज्ञात करें |
SSC MTS 13 August 2019 (Evening)
(a)150%
(b)50%
(c)100%
(d) 75%

Q73. A man bought three articles for Rs3,000 each. He sold the articles respectively at 15% profit, 10% profit and 15% loss. The total percentage profit/loss he earned is:
एक व्यक्ति ने 3 वस्तुओं में से प्रत्येक को 3000 रुपये में ख़रीदा | उसने इन वस्तुओं को क्रमशः 15% लाभ, 10% लाभ और 15% हानि पर बेच दिया | उसके द्वारा प्राप्त कुल लाभ/हानि का प्रतिशत ज्ञात करें |
SSC CHSL 9 July 2019 (Morning)
(a) No profit no loss
(b) $\frac{10}{3}$ % profit
(c) $\frac{10}{3}$ % loss
(d) 10% loss

Q74. A shopkeeper gains 400% on a transaction. If the cost increases by 100% and there is no change in the selling price, then find the ratio between new profit and selling price. किसी ट्रांसेक्शन पर एक दुकानदार लागत पर 400% मुनाफा कमाता है | यदि लागत 100% बढ़ जाती है और विक्रय मूल्य में परिवर्तन नहीं होता है, तो नए लाभ और विक्रय मूल्य के बीच का अनुपात है:
SSC MTS 14 August 2019 (Morning)
(a)1:3
(b)2:5
(c)3:5
(d) 1:2

Q75. If the selling price of an article is 3/4 times its cost price, the profit/loss percent is:
यदि किसी वस्तु का विक्रय मूल्य इसके क्रय मूल्य का ¾ गुना है, तो लाभ/हानि का प्रतिशत है :
SSC MTS 14 August 2019 (Evening)
(a)25% profit
(b)25% loss
(c)33 $\frac{1}{3}$ % profit
(d) 33 $\frac{1}{3}$ % loss

Q76. 30 dozens of nuts were bought for Rs 14400. If the nuts are sold in a packet of 5 for Rs 250, then how much profit is earned?
30 दर्जन बादाम 14400 रुपये में ख़रीदे गए | यदि इन बादामों को 5 के पैकेट में 250 रुपये में बेचा जाता है, तो कितना लाभ होता है ?
SSC MTS 16 August 2019 (Morning)
(a)Rs 3200
(b)Rs 3600
(c)Rs 4000
(d) Rs 1440

Q77. An article was sold for Rs. 500. If the selling price was 10% less, then the profit would be 12.5%. Find the cost price of this article.
किसी वस्तु को रु 500 में बेचा गया | यदि विक्रय मूल्य 10% कम रहता, तो लाभ 12.5% होता | वस्तु का लागत मूल्य कितना है?
SSC MTS 16 August 2019 (Afternoon)
(a)Rs 360
(b)Rs 480
(c)Rs 400
(d) Rs 420

Q78. 30 dozens of nuts were purchased for Rs. 14400 and 32 packets of nuts (20 nuts in each packet) were purchased for Rs. 57600. If these nuts are combined and sold in a packet of 5 for Rs. 432, then find the profit percentage.
30 दर्जन अखरोट (नट) रु 14400 में खरीदे गए और 32 पैकेट अखरोट (प्रत्येक पैकेट में 20 अखरोट) रु 57600 में खरीदा गया | यदि अखरोटों को मिलाकर एक पैकेट में पांच के हिसाब से 432 रूपए में बेचा गया, तो लाभ प्रतिशत कितना था? **SSC MTS 16 August 2019 (Evening)**
(a)10%
(b)15%
(c)20%
(d) 25%

Q79. The cost of two bikes is Rs. 40,000 each. One of them was sold for Rs. 48000. At what price should the second bike be sold so

that a total gain of 25% can be obtained ?
दो बाइक प्रत्येक की लागत रु 40000 है | उनमें से एक को रु 48000 में बेचा गया | दूसरी बाइक को कितने में बेचा जाए ताकि 25% का समग्र लाभ प्राप्त किया जा सके?
SSC MTS 16 August 2019 (Evening)
(a)Rs 60000
(b)Rs 48000
(c)Rs 52000
(d) Rs 50000

Q80. Cost price of an article is Rs 1440 and its selling price is Rs 1800. What is the profit percentage?
एक वस्तु का क्रय मूल्य 1440 रुपये है तथा इसका विक्रय मूल्य 1800 रुपये है | लाभ प्रतिशत क्या है ?
SSC MTS 19 August 2019 (Morning)
(a)15%
(b)25%
(c)20%
(d)12.5%

Q81.The difference between the selling price of an article is Rs 1440, when it is sold at 20% profit and 17.5% loss. What will be the selling price when it is sold at 15% profit? एक वस्तु के विक्रय मूल्य में 1440 रुपये का अंतर है जब इसे 20% लाभ और 17.5% हानि पर बेचा जाता है | इसका विक्रय मूल्य क्या होगा जब इसे 15% लाभ पर बेचा जाता है ?
SSC MTS 19 August 2019 (Morning)
(a) Rs 4108
(b) Rs 4218
(c) Rs 4612
(d) Rs 4416

Q82. The sum of cost prices of A and B is Rs. 1200. The sum of the selling prices of A and B is Rs. 1390. If the profit of 10% and 20% is obtained on A and B respectively, then find the ratio between the cost prices of A and B.
A तथा B के लागत मूल्यों का योग रु 1200 है | A तथा B के विक्रय मूल्यों का योग रु 1390 है | यदि A तथा B पर क्रमशः 10% तथा 20% लाभ कमाया जाता है, तो A तथा B के लागत मूल्यों का अनुपात कितना है?
SSC MTS 19 August 2019 (Afternoon)
(a)5:7
(b)5:9
(c)7:13
(d) 6:11

Q83. A bought an article for Rs. 1400. He sold it to B at the profit of 25%. B sold it to C at the profit of 20%. C sold it to D at the loss of 15%. What is the cost price for D.
A ने किसी वस्तु को रु 1400 में खरीदा | उसने उसे B को 25% लाभ पर बेच दिया | B ने उसे C को 20% लाभ पर बेच दिया | C ने उसे D को 15% हानि पर बेच दिया | D का क्रय मूल्य कितना है?
SSC MTS 19 August 2019 (Afternoon)
(a)Rs 1785
(b)Rs 2025
(c)Rs 1900
(d) Rs 1665

Q84.A trader sells two articles for Rs 9520 each, one at a profit of 12% and the other at a loss of 15%. His overall percentage loss (correct to one decimal place) is:
एक व्यापारी दो वस्तुओं में से प्रत्येक को 9520 रुपये में बेचता है जिसमें से एक पर 12% लाभ तथा दूसरी पर 15% की हानि होती है | उसकी कुल प्रतिशत हानि (एक दशमलव स्थान तक सही) है :
SSC MTS 19 August 2019 (Evening)
(a) 4.4
(b) 3.1
(c) 3.4
(d) 3.8

Q85. An item is sold for Rs 702 at a profit of Rs 162. If an additional profit of 10% is to be made, then the new selling price will be
एक वस्तु162 रुपये के लाभ पर 702 रुपये में बेची गयी। यदि 10% का अतिरिक्त लाभ कमाना है, तो नया विक्रय मूल्य क्या होगा?
SSC MTS 19 August 2019 (Evening)
(a)Rs 756
(b)Rs 729
(c)Rs 810
(d) Rs 750

Q86. A shopkeeper allows 10% discount on the marked price of an article and still makes a profit of 8%. If the marked price is Rs 480, then what is the cost price (in Rs) of the article?
एक दुकानदार किसी वस्तु के अंकित मूल्य पर 10% की छूट देता है तथा फिर भी 8% का लाभ कमाता है | यदि अंकित मूल्य 480 रुपये है, तो क्रय मूल्य ज्ञात करें |
SSC MTS 19 August 2019 (Evening)
(a)350
(b)360
(c)420
(d) 400

Q87. If two-thirds of the articles is sold at 25% profit, 20% of them is sold at a loss of 20% and the remaining articles are sold at a profit of 20%, then the profit of

Rs. 3312 is obtained. Find the cost price of the articles.
यदि वस्तुओं का दो-तिहाई हिस्सा 25% लाभ पर, 20% हिस्सा 20% की हानि पर और शेष हिस्सा 20% के लाभ पर बेचा जाता है, तो रु 3,312 का लाभ होता है | वस्तुओं का लागत मूल्य है:
SSC MTS 20 August 2019 (Morning)
(a)Rs 18,600
(b)Rs 21,400
(c)Rs 21,600
(d) Rs 20,000

Q88. Sujata sold 25 articles for Rs. 1250 and she incurred a loss of 10%. How many articles should she sell in Rs. 2600 so that she can get a profit of 17% ?
सुजाता ने रु 1,250 में 25 वस्तुएं बेचीं और उसे 10% की हानि हुई | उसे रु 2600 में कितनी वस्तुएं बेचनी चाहिए, ताकि वह 17% का लाभ कमा सकें ?
SSC MTS 20 August 2019 (Morning)
(a)26
(b)40
(c)25
(d) 42

Q89. The marked price of an article is 20% above its cost price. After giving x% discount on the marked price, the shopkeeper incurred a loss of 10%. What is the value of x ?
किसी वस्तु का अंकित मूल्य उसके लागत मूल्य से 20% अधिक है | अंकित मूल्य पर x% छूट देने के बाद दुकानदार को 10% की हानि होती है | x का मान कितना है?
SSC MTS 20 August 2019 (Morning)
(a) 30
(b) 28
(c) 20
(d) 25

Q90.When a shopkeeper sells an article for Rs. 230, he gets a loss of 20%. Find his profit percentage If he sells this article for Rs. 339.25.
एक दुकानदार जब किसी वस्तु को रु 230 में बेचता है तो उसे 20% की हानि होती है | यदि वह उस वस्तु को रु 339.25 में बेचता है तो उसे कितने प्रतिशत का लाभ होगा?
SSC MTS 20 August 2019 (Afternoon)
(a)20
(b)18
(c)12
(d) 15

Q91. The cost of 21 cycles is equal to the selling price of 20 cycles. What is the percentage of loss or profit in the sale of one cycle ?
21 साइकिलों की कीमत 20 साइकिलों के विक्रय मूल्य के बराबर है | एक साइकिल के विक्रय में हानि या लाभ प्रतिशत कितना है?
SSC MTS 20 August 2019 (Evening)
(a)Profit 20% / लाभ 20%
(b)Loss 20% / हानि 20%
(c)Loss 5% / हानि 5%
(d)Profit 5% / लाभ 5%

Q92. Abh ay sold his car at a loss of 30%. If he had sold it for Rs. 950 more, then he would have got the profit of 8%. What is the cost price ?
अभय ने अपनी कार 30% की हानि पर बेच दी | यदि उसने उसे रु 950 अधिक में बेचा होता तो उसको 8 % का लाभ प्राप्त होता | लागत मूल्य क्या है?
SSC MTS 20 August 2019 (Evening)
(a)Rs 2500
(b)Rs 3500
(c)Rs 2000
(d) Rs 1500

Q93. The cost price of a camera is 90% of its selling price. Find the profit percentage. / एक कैमरे का क्रय मूल्य उसके विक्रय मूल्य का 90% है | लाभ प्रतिशत है:
SSC MTS 21 August 2019 (Morning)
(a)11 $\frac{1}{9}$ %
(b)10%
(c)12%
(d) 9 $\frac{1}{11}$ %

Q94. Two articles are purchased on the same price. One is sold at a profit of 20% while the other is sold at a loss of 10%. What is the total percentage of profit/loss ?
दो वस्तुएं समान कीमत पर खरीदी जाती है | एक वस्तु को 20% लाभ पर बेचा जाता है और दूसरे को 10% हानि पर बेचा जाता है | कुल लाभ/हानि प्रतिशत है:
SSC MTS 21 August 2019 (Morning)
(a)5% loss / 5% हानि
(b)5%Profit / 5% लाभ
(c)10% Profit / 10% लाभ
(d)10% loss / 10% हानि

Q95. A person bought a bike and a car for Rs. 500000. He sold the bike at a profit of 20% and the car at a loss of 10% and in the whole deal he managed to get a profit of 5%. Find the cost (in Rs) of the Bike.
किसी व्यक्ति ने रु 500000 में एक बाइक और एक कार खरीदी | उसने बाइक को 20% लाभ पर और कार को 10% हानि पर बेच दिया और इस प्रकार पुरे सौदे में उसे 5% का लाभ प्राप्त हुआ | बाइक की कीमत (रु में) है:
SSC MTS 21 August 2019 (Afternoon)

(a)180000
(b)250000
(c)200000
(d) 150000

Q96. A green grocer bought some mangoes and sold 33 $\frac{1}{3}$ % of them at 22.5 % profit, 25% at a loss of 25% and remaining at a loss of 3%. His overall gain or loss is :
एक सब्ज़ी विक्रेता ने कुछ आम खरीदे और उनमें से 33 $\frac{1}{3}$ % को 22.5% लाभ पर, 25% को 25% हानि पर और शेष को 3% हानि पर बेच दिया | उसका समग्र लाभ या हानि है:
SSC MTS 21 August 2019 (Evening)
(a) No profit and No loss / कोई लाभ या हानि नहीं
(b) 3 $\frac{1}{3}$ % of Profit / 3 $\frac{1}{3}$ % का लाभ
(c) 5 $\frac{1}{2}$ % of loss / 5 $\frac{1}{2}$ % की हानि
(d) 3 $\frac{1}{3}$ % of loss / 3 $\frac{1}{3}$ % की हानि

Q97. Sonu sold his bike at a loss of 13.5%. If he had sold it for Rs. 8900 more, then he would have obtained a profit of 31%. If he had sold it for Rs. 20740, then what profit or loss would he get ?
सोनू ने अपनी बाइक को 13.5% हानि पर बेचा | अगर वह उसे रु 8900 अधिक में बेचता तो उसे 31% लाभ मिलता | अगर उसने उसे रु 20740 में बेचा होता, तो उसका लाभ या हानि होता:
SSC MTS 21 August 2019 (Evening)
(a)Profit of 3.9% / 3.9% का लाभ
(b)Profit of 3.7% / 3.7% का लाभ
(c)Loss of 3.2% / 3.2% की हानि
(d) Loss of 3.7% / 3.7% की हानि

Q98.When an article is sold at a discount of 40% on its marked price, the profit is 25%. What is the ratio of the cost price to the marked price of the article?
जब कोई वस्तु अपने अंकित मूल्य से 40% छूट पर बेची जाती है, तो 25% का लाभ होता है | इस वस्तु के क्रय मूल्य और अंकित मूल्य में अनुपात ज्ञात करें |
SSC MTS 22 August 2019 (Morning)
(a)12:25
(b)4:5
(c)5:8
(d) 8:13

Q99. By selling an article for Rs 300, a person incurred a loss of 6.25%. What is his profit, if it is sold for Rs 352?
किसी वस्तु को 300 रुपये में बेचने पर एक व्यक्ति को 6.25% की हानि होती है | यदि इसे 352 रुपये में बेचा जाए, तो कितना लाभ होगा ?
SSC MTS 22 August 2019 (Afternoon)
(a)Rs 38
(b)Rs 42
(c)Rs 32
(d) Rs 28

Q100. By selling 30 articles, a shopkeeper gains the selling price of 9 articles. His gain percent is:
30 वस्तुओं को बेचने पर, एक दुकानदार को 9 वस्तुओं के विक्रय मूल्य के बराबर लाभ होता है | उसके लाभ का प्रतिशत है :
SSC MTS 22 August 2019 (Afternoon)
(a)30
(b)39
(c)42 $\frac{6}{7}$
(d) 40 $\frac{3}{7}$

Q101. Amit bought an article for Rs 310 and sold it at a loss of 25%. With this money, he bought another article and sold it at a gain of 40%. What was his overall gain or loss percent? अमित ने एक वस्तु 310 रुपये में ख़रीद कर इसे 25% की हानि पर बेच दिया | इस राशि से उसने एक वस्तु को ख़रीदा और उसे 40% लाभ पर बेच दिया | कुल लाभ या हानि का प्रतिशत ज्ञात करें|
SSC MTS 22 August 2019 (Evening)
(a) Loss 2.5%
(b) Gain 8%
(c) Loss 4%
(d) Gain 5%

Q102.The marked price of an article is Rs 882. It is sold for Rs 806.40. If there is a loss of 4%, then by what percent above the cost was the article maked?
किसी वस्तु का अंकित मूल्य 882 रुपये है | इसे 806.40 रुपये में बेचा जाता है | यदि 4% की हानि होती है, तो इस वस्तु का अंकित मूल्य क्रय मूल्य से कितना प्रतिशत अधिक था ?
SSC MTS 22 August 2019 (Evening)
(a)8
(b)6
(c)4
(d) 5

Q103. A shopkeeper wrongly calculates his profit on the selling price of an article and finds it to be 40%. What is his actual profit percentage?
एक दुकानदार गलत तरीके से अपने लाभ की गणना वस्तु के विक्रय मूल्य पर करता है तथा इसे 40%. पाता है | उसका वास्तविक लाभ प्रतिशत ज्ञात करें |
SSC MTS 22 August 2019 (Morning)
(a)64 $\frac{1}{3}$
(b)56 $\frac{1}{3}$
(c)66 $\frac{2}{3}$
(d)60 $\frac{2}{3}$

Q104. A purchased two articles for Rs 200 and Rs300 respectively and sold at gains of 5% and 10%

respectively. What was his overall gain percentage?
A ने क्रमशः 200 और 300 रुपये में दो वस्तुएँ खरीदी और उन्हें क्रमशः 5% और 10% के लाभ पर बेच दिया | उसका कुल लाभ प्रतिशत ज्ञात करें |
SSC CHSL 11 July 2019 (Morning)
(a) 6
(b) 9
(c) 5
(d) 8

Q105. A man loses 20% by selling an article for Rs 96. For what amount should he have sold the article to gain 15%?
एक व्यक्ति को किसी वस्तु को 96 रुपये में बेचने पर 20% की हानि होती है | 15% का लाभ कमाने के लिए उसे इस वस्तु को किस कीमत पर बेचना चाहिए ?
SSC CHSL 11 July 2019 (Afternoon)
(a) Rs120
(b) Rs115
(c) Rs138
(d) Rs140

Q106. The selling price of 24 articles is equal to the cost price of 26 articles. What is the gain percentage (correct to one decimal place) in such a situation?
24 वस्तुओं का विक्रय मूल्य 26 वस्तुओं के क्रय मूल्य के बराबर है | ऐसी स्थिति में लाभ का प्रतिशत (एक दशमलव स्थान तक सही) क्या है ?
SSC CHSL 11 July 2019 (Evening)
(a) $\frac{25}{3}$ %
(b) $\frac{105}{13}$ %
(c) $\frac{100}{13}$ %
(d) $\frac{26}{3}$ %

Q107. After allowing a discount of 10% on the marked price of an article, it is sold for Rs360. Had the discount not been given, the profit would have been 25%. What is the cost price of the article?
एक वस्तु के अंकित मूल्य पर 10% की छूट की देने के बाद, इसे 360 रूपए में बेचा जाता है। अगर छूट नहीं दी गई होती, तो लाभ 25% होता। वस्तु की लागत मूल्य क्या है?
SSC CHSL 2 July 2019 (Morning)
(a) Rs350
(b) Rs360
(c) Rs320
(d) Rs325

Q108. The cost price of an article is Rs 425. A shopkeeper gives a discount of 20% and still gains 16%. What is the marked price of the article?
एक वस्तु की लागत मूल्य 425 रूपए है। एक दुकानदार 20% की छूट देता है और फिर भी 16% प्राप्त करता है। वस्तु का अंकित मूल्य क्या है?
SSC CHSL 11 July 2019 (Evening)
(a) Rs605.75
(b) Rs620.50
(c) Rs624.50
(d) Rs616.25

Q109. A shopkeeper marks his goods at 40% more than their cost price and allows a discount of 25% on the marked price. His gain or loss percent is:
एक दुकानदार अपनी वस्तुओं की कीमत क्रय मूल्य से 40% अधिक रखता है और अंकित मूल्य पर 25% की छूट देता है। उसका लाभ या उसकी हानि ज्ञात करें।
SSC CGL 6 June 2019 (Morning)
(a) 5% loss
(b) 15% gain
(c) 10% loss
(d) 5% gain

Q110. A trader marks his goods at 40% above the cost price. He sells 70% of the goods at the marked price and the rest, he sells by allowing a 40% discount on the marked price. His percentage profit is:
एक विक्रेता अपनी वस्तुओं की कीमत क्रय मूल्य से 40% अधिक रखता है | वह 70% वस्तुएँ अंकित मूल्य पर बेचता है तथा शेष वस्तुएँ वह अंकित मूल्य से 40% की छूट पर बेचता है | उसका लाभ प्रतिशत है :
SSC CGL 6 June 2019 (Afternoon)
(a) 23.4
(b) 24.2
(c) 23.2
(d) 24.4

Q111. A trader marked up his articles 25% more than the cost price. If he offered a discount of 10%, then what will be his profit percentage?
एक व्यापारी अपनी वस्तुओं की कीमत क्रय मूल्य से 25% अधिक रखता है। यदि उसने 10% की छूट की पेशकश की, तो उसका लाभ प्रतिशत क्या होगा?
SSC MTS 6 August 2019 (Evening)
(a) 10%
(b) 12.5%
(c) 25%
(d) 37.5

Q112. On selling 36 mobiles, a mobile vendor got a loss equivalent to the selling price of four mobiles. The loss percent is :
36 मोबाइल बेचने पर, एक मोबाइल विक्रेता को चार मोबाइल के विक्रय मूल्य के बराबर हानि हुई | हानि का प्रतिशत था :
SSC MTS 9 August 2019 (Morning)

(a) 10%
(b) 12.50%
(c) 8.50%
(d) 8%

Q113. Renu bought an article for Rs. 1240 and sold it at a loss of 25%. With this amount, she bought another article and sold it at a gain of 40%. Her overall percentage profit is :
रेणु ने एक वस्तु 1240 रुपये में खरीदकर उसे 25% की हानि पर बेच दिया | इस राशि से, उसने एक अन्य वस्तु क्रय किया और उसे 40% के लाभ पर बेच दिया | उसका कुल लाभ प्रतिशत है :
SSC CGL 4 June 2019 (Afternoon)
(a) 12
(b) $6\frac{2}{3}$
(c) 5
(d) 15

Q114. The total cost price of two articles is Rs. 2000. One of them is sold at a profit of 12% and the other at a loss of 12%. The overall gain in the transaction is 1.2%. The cost price of the article for which there was a profit was :
दो वस्तुओं का कुल क्रय मूल्य 2000 रुपये है | उनमें से एक को 12% लाभ पर तथा दूसरी को 12% हानि पर बेचा जाता है | लेन-देन में कुल लाभ 1.2% का होता है | जिस वस्तु पर लाभ हुआ, उसका क्रय मूल्य था :
SSC CHSL 10 July 2019 (Morning)
(a) Rs. 1050
(b) Rs. 1100
(c) Rs. 1120
(d) Rs. 1080

Q115. Seema purchased mobile and got 20% discount on it. Had she got 25% discount, she would have saved Rs 1,000 more. How much did she pay for the mobile?
सीमा ने एक मोबाइल ख़रीदा और उसे इस पर 20% की छूट मिली | यदि उसे 25% की छूट मिली होती, तो उसने 1000 रुपये और बचाए होते | उसने मोबाइल के लिए कितना भुगतान किया ?
SSC CPO 16 March 2019 (Evening)
(a)25,000
(b)22,000
(c)16,000
(d)20,000

Q116. A shopkeeper sold two articles for Rs 9,879 each. On one, he gained 11% and on the other, he lost 11%. What is the overall percentage gain or loss?
एक दुकानदार ने 9879 रुपये प्रति वस्तु की दर से दो वस्तुएं बेची | पहली पर उसे 11% का लाभ हुआ तथा दूसरी पर उसे 11% की हानि हुई | कुल लाभ या हानि का प्रतिशत क्या है ?
SSC CPO 13 March 2019 (Evening)
(a) 1.21% loss
(b) 1.21% gain
(c) 1.25% loss
(d) 1.25% gain

Q117. The difference between the selling prices of an article is Rs. 1250 when it is sold at 25% profit and 37.5% loss. What will be its selling price, if it is sold at a profit of 12.5% ?
किसी वस्तु को 25% लाभ तथा 37.5% हानि पर बेचने से विक्रय मूल्य का अंतर 1250 रूपए है | जब इसे 12.5% लाभ पर बेचा जाता है तो इसका विक्रय मूल्य कितना होगा ?
SSC MTS 2 August 2019 (Afternoon)
(a) Rs. 1800
(b) Rs. 2500
(c) Rs. 2400
(d) Rs. 2250

Q118. An article is sold at a profit of 15% for Rs. 1725. What will be its selling price if it is sold at a loss of 15% ?
किसी वस्तु को 15% लाभ पर 1725 रूपए में बेचा जाता है | यदि इसे 15% की हानि पर बेचा जाता है तो विक्रय मूल्य कितना होगा ?
SSC MTS 2 August 2019 (Afternoon)
(a) Rs. 1275
(b) Rs. 1475
(c) Rs. 1025
(d) Rs. 1325

Q119. If the selling price of an article is 25% of its cost price, then what will be the loss percentage ?
यदि किसी वस्तु का विक्रय मूल्य इसके क्रय मूल्य का 25% है, तो हानि का प्रतिशत ज्ञात करें |
SSC MTS 6 August 2019 (Evening)
(a) 25%
(b) 60%
(c) 75%
(d) 50%

Q120. The cost price and the selling price of a similar shirt are Rs. 960 and Rs. 1392 respectively. If by way of bargaining a customer can bring the selling price down by 10% of the cost price, then what is the profit percentage ?
एक जैसी शर्ट का क्रय मूल्य और विक्रय मूल्य क्रमशः 960 रुपये तथा 1392 रुपये है | यदि मोलभाव करके एक ग्राहक विक्रय मूल्य को क्रय मूल्य के 10% तक कम करवा लेता है, तो लाभ का प्रतिशत क्या होगा ?
SSC MTS 8 August 2019 (Morning)

(a) 56%
(b) 35%
(c) 30%
(d) 45%

Q121. Shiva bought a table for Rs. 135000 and sold it for Rs. 110000. What is the loss percentage ?
शिव ने एक मेज Rs. 135000 में खरीदी और उसे Rs. 110000 में बेच दिया, हानि प्रतिशत क्या है ?
SSC MTS 9 August 2019 (Evening)
(a) $\frac{500}{27}$%
(b) 30%
(c) $\frac{270}{22}$%
(d) $\frac{2200}{27}$%

Q122. A scooter was bought for Rs. 30000 and Rs. 3000 was spent on its repairs. It was sold for Rs. 39600. The profit percentage was :
एक स्कूटर 30000 रूपए में ख़रीदा गया और उसकी मरम्मत के लिए 3000 रूपए खर्च किये गए | उसे 39600 रूपए में बेच दिया गया | लाभ प्रतिशत कितना था ?
SSC MTS 9 August 2019 (Morning)
(a) 15
(b) 25
(c) 20
(d) 10

Q123.If selling price of a product is multiplied by 2, the resultant profit is 6 times the original profit, then find the original profit ?
यदि किसी उत्पाद के विक्रय मूल्य को 2 से गुना करने पर परिणामी लाभ मूल लाभ का 6 गुना होता है , तो मूल लाभ प्रतिशत कितना है ?
SSC MTS 16 August 2019 (Afternoon)
(a) 25
(b) 20
(c) 10
(d) 15

Q124. A retailer bought 22 kg of rice at Rs. 35 per kg and bought 13 kg of rice at Rs. 30 per kg. If he mixed the two varieties and sold it for Rs. 40 per kg, then what profit (in the nearest integer) did he get ?
कोई खुदरा विक्रेता 22 kg चावल 35 रूपए प्रति की दर से ख़रीदा और 13 kg चावल 30 रूपए प्रति kg की दर से ख़रीदा | जब उसने दोनों किस्मो को मिश्रित कर 40 रूपए प्रति kg की दर से बेच दिया तो उसने कितना लाभ (निकटतम पूर्णांक में) प्राप्त किया ?
SSC MTS 21 August 2019 (Afternoon)
(a) 20
(b) 21
(c) 25
(d) 18

Q125. A person sold an article at a loss of 12%. Had he sold it for Rs. 162 more, he would have gained 24%. If the article is sold for Rs. 360 then loss percent is :
एक व्यक्ति ने को वस्तु 12% की हानि पर बेची | यदि उसने इसे 162 रुपये अधिक में बेचा होता, तो उसे 24% लाभ हुआ होता | यदि इस वस्तु को 360 रुपये में बेचा जाए, तो हानि का प्रतिशत क्या होगा ?
SSC MTS 22 August 2019 (Evening)
(a) 18
(b) 20
(c) 25
(d) 15

Q126. A shopkeeper purchased 120 pears for Rs. 15 each. However, 10 pears were rotten and thrown away. The remaining sold at Rs. 18 each. What will be the percentage profit ? एक दुकानदार ने 120 नाशपाती 15 रुपये में एक की दर से ख़रीदा | हालाँकि, 10 नाशपाती सड़े हुए थे और उन्हें फेंक दिया गया | शेष को 18 रुपये में एक की दर से बेचा गया | प्रतिशत लाभ क्या होगा ?
SSC MTS 14 August 2019 (Evening)
(a) 20%
(b) 10%
(c) 50%
(d) 30%

Q127. For every Rs. 5 worth of revenue, a retailer earns Rs. 1. If the cost of the goods was Rs. 4800, then how much did he earn?
प्रत्येक 5 रुपये की आय में, एक खुदरा विक्रेता को 1 रुपये का लाभ होता है | यदि वस्तुओं की कीमत 4800 रुपये थी, तो उसे कितना लाभ हुआ ?
SSC MTS 16 August 2019 (Morning)
(a) Rs. 600
(b) Rs. 900
(c) Rs. 1200
(d) Rs. 1120

SSC CGL TIER I

Q1. A person sells an article at 10% below its cost price. Had he sold it for ₹332 more, he would have made a profit of 20%. What is the original selling price (in ₹) of the article?
एक व्यक्ति किसी वस्तु को इसके क्रय मूल्य से 10% कम पर बेचता है | यदि उसने इसे 332 रुपये अधिक में बेचा होता, तो उसे 20% का लाभ हुआ होता | इस वस्तु का आरंभिक विक्रय मूल्य (रुपये में) कितना था ?
SSC CGL 3 March 2020 (Morning)
(a) 896
(b) 1,328
(c) 1,028
(d) 996

Q2. Anu fixes the selling price of an article at 25% above its cost of production. If the cost of production goes up by 20% and she raises the selling price by 10%, then her percentage profit is (correct to one decimal place):
अनु किसी वस्तु का विक्रय मूल्य इसके उत्पादन लागत से 25% अधिक निर्धारित करती है | यदि उत्पादन की लागत 20% बढ़ जाती है एवं वह विक्रय मूल्य 10% बढ़ा देती है, तो उसका प्रतिशत लाभ होगा : (दशमलव के एक स्थान तक)
SSC CGL 3 March 2020 (Afternoon)
(a) 16.4%
(b) 14.6%
(c) 13.8%
(d) 15.2%

Q3. A dealer sold 6 sewing machines for ₹63,000 with a profit of 5%. For how much should he sell 8 machines if he intends to earn 15% profit?
एक विक्रेता ने 6 सिलाई मशीन 63000 रुपये में बेची तथा उसे 5% का लाभ हुआ | यदि वह 15% लाभ कमाना चाहता है, तो उसे 8 मशीनें किस कीमत पर बेचनी चाहिए ?
SSC CGL 3 March 2020 (Evening)
(a) ₹88,200
(b) ₹92,000
(c) ₹69,300
(d) ₹92,400

Q4. A person buys 5 tables and 9 chairs for ₹15,400. He sells the tables at 10% profit and chairs at 20% profit. If his total profit on selling all the tables and chairs is ₹2,080, what is the cost price of 3 chairs? /
एक व्यक्ति 5 मेज और 9 कुर्सियों को 15,400 रुपये में ख़रीदा | उसने मेजों को 10% लाभ पर तथा कुर्सियों को 20% लाभ पर बेच दिया | यदि सभी मेज एवं कुर्सियों को बेचकर उसका कुल लाभ 2,080 रुपये का था, तो 3 कुर्सियों का क्रय मूल्य कितना है ?
SSC CGL 4 March 2020 (Morning)
(a) ₹1,890
(b) ₹1,740
(c) ₹1,800
(d) ₹1,860

Q5. One-third of the goods are sold at a 15% profit, 25% of the goods are sold at a 20% profit and rest at a 20% loss. If the total profit of ₹138.50 is earned on the whole transaction, then the value (in ₹) of the goods is: /
एक-तिहाई वस्तुएँ 15% लाभ पर बेची जाती हैं, 25% वस्तुएँ 20% लाभ पर तथा शेष वस्तुएँ 20% हानि पर बेची जाती हैं | यदि पूरे लेनदेन पर कुल 138.50 रुपये का लाभ होता है, तो वस्तुओं का मूल्य (रुपये में) है :
SSC CGL 4 March 2020 (Afternoon)
(a) ₹8,587
(b) ₹8,030
(c) ₹7,756
(d) ₹8,310

Q6. A sells an article to B at a loss of 20%. B sells it to C at a profit of 12.5% and C sells it to D at a loss of 8%. If D buys it for ₹248.40, then what is the difference between the loss incurred by A and C?
A ने एक वस्तु B को 20% की हानि पर बेची | B ने उस वस्तु को C को 12.5% लाभ पर बेच दिया तथा C ने वह वस्तु D को 8% की हानि पर बेची | यदि D ने उसे 248.40 रुपये में ख़रीदा, तो A और C को हुई हानि के बीच क्या अंतर है ?
SSC CGL 4 March 2020 (Evening)
(a) ₹36.80
(b) ₹38.40
(c) ₹42.60
(d) ₹39.20

Q7. Sudha sold an article to Renu for ₹576 at a loss of 20%. Renu spent a sum of ₹224 on its transportation and sold it to Raghu at a price which would have given Sudha a profit of 24%. The percentage of gain for Renu is:
सुधा ने 20% हानि पर रेणु को एक वस्तु 576 रुपये में बेच दी | रेणु ने इसके परिवहन पर 224 रुपये खर्च किये तथा रघु को उस कीमत पर बेच दिया जिस कीमत पर सुधा को 24% का लाभ होता | रेणु के लिए प्रतिशत लाभ है :
SSC CGL 5 March 2020 (Morning)
(a) 10.5%
(b) 11.6%
(c) 12.9%
(d) 13.2%

Q8. Reena sold 48 articles for ₹2,160 and suffered a loss of 10%. How many articles should she sell for ₹2,016 to earn a profit of 12%?
रीना ने 48 वस्तुओं को 2,160 रुपये में बेचा तथा उसे 10% की हानि हुई | 12% का लाभ कमाने के लिए उसे 2016 रुपये में कितनी वस्तुओं को बेचना चाहिए ?
SSC CGL 5 March 2020 (Afternoon)
(a) 36
(b) 40
(c) 32
(d) 28

Q9. Sudhir purchased a laptop for ₹42,000 and a scanner-cum-printer for ₹8,000. He sold the laptop for a 10%

profit and scanner-cum-printer for a 5% profit. What is his profit percentage?
सुधीर ने 42,000 रुपये में एक लैपटॉप तथा 8,000 रुपये में स्कैनर सह प्रिंटर ख़रीदा | उसने लैपटॉप को 10% लाभ पर तथा स्कैनर सह प्रिंटर को 5% लाभ पर बेच दिया | लाभ का प्रतिशत कितना है ?
SSC CGL 5 March 2020 (Evening)
(a) $7\frac{1}{2}$ %
(b) $9\frac{2}{5}$ %
(c) 15%
(d) $9\frac{1}{5}$ %

Q10. An article was sold at a gain of 18%. If it had been sold for ₹ 49 more, then the gain would have been 25%. The cost price of the article is:
एक वस्तु 18% के लाभ पर बेची गयी | यदि उसे 49 रुपये अधिक में बेचा गया होता, तो लाभ 25% होता | इस वस्तु का क्रय मूल्य कितना है ?
SSC CGL 6 March 2020 (Morning)
(a) ₹ 570
(b) ₹ 890
(c) ₹ 700
(d) ₹ 650

Q11. A manufacturer sells cooking gas stoves to shopkeepers at 10% profit, and in turn they sell the cooking gas stoves to customers to earn 15% profit. If a customer gets a cooking gas stove for ₹ 7,590, then what is its manufacturing cost?
एक विनिर्माता कुकिंग गैस स्टोव को दुकानदार को 10% लाभ पर बेचता है | तथा फिर दुकानदार इस कुकिंग गैस स्टोव को ग्राहकों को 15% लाभ पर बेच देते हैं | यदि एक ग्राहक इस कुकिंग गैस स्टोव को 7590 रुपये में खरीदता है, तो विनिर्माण की लागत कितनी है ?
SSC CGL 6 March 2020 (Afternoon)
(a) ₹ 6,500
(b) ₹ 6,000
(c) ₹ 5,000
(d) ₹ 5,090

Q12. An article was sold at a gain of 16%. If it had been sold for ₹36 more, the gain would have been 20%. The cost price of the article is:
एक वस्तु 16% के लाभ पर बेची गयी | यदि उसे 36 रुपये अधिक में बेचा गया होता, तो लाभ 20% का होता | इस वस्तु का क्रय मूल्य कितना है ?
SSC CGL 6 March 2020 (Evening)
(a) ₹862
(b) ₹720
(c) ₹810
(d) ₹900

Q13. By selling 18 table fans for ₹ 11,664 a man incurs a loss of 10%. How many fans should he sell for ₹ 17,424 to earn 10% profit?
18 टेबल पंखों को 11,664 रुपये में बेचने के बाद एक व्यक्ति को 10% की हानि होती है | 10% का लाभ कमाने के लिए उसे 17,424 रुपये में कितने पंखे बेचने चाहिए ?
SSC CGL 7 March 2020 (Morning)
(a) 23
(b) 18
(c) 20
(d) 22

Q14. A man buys two watches 'A' and 'B' at a total cost of ₹800. He sells both watches at the same selling price, and earns a profit of 18% on watch 'A' and incurs a loss of 22% on watch 'B'. What are the cost prices of the two watches? (two places after decimal).
एक व्यक्ति दो घड़ी 'A' और 'B' को कुल 800 रुपये की लागत में क्रय करता है | वह दोनों घड़ियों को समान विक्रय मूल्य पर बेच देता है तथा घड़ी A पर 18% का लाभ कमाता है जबकि घड़ी B पर उसे 22% की हानि होती है | दोनों घड़ियों का क्रय मूल्य कितना है ?
SSC CGL 7 March 2020 (Afternoon)
(a) A = ₹350.32 and B = ₹ 450.68
(b) A = ₹318.37 and B = ₹ 481.63
(c) A = ₹220 and B = ₹ 580
(d) A = ₹317 and B = ₹483

Q15. A man sold two gifts at ₹30 each. On one gift he gained 18% and on the other he lost 18%. What is his overall gain/loss (in ₹)?
एक व्यक्ति ने दो उपहारों में से प्रत्येक को 30 रुपये में बेचा | पहले उपहार पर उसे 18% का लाभ हुआ तथा दूसरे उपहार पर उसे 18% की हानि हुई | उसका कुल लाभ/हानि (रुपये में) क्या है ?
SSC CGL 7 March 2020 (Evening)
(a) Gain of ₹1.75
(b) Gain of ₹2.00
(c) Loss of ₹2.00
(d) Loss of ₹2.50

Q16. Ram makes a profit of 30% by selling an article. What would be the profit percent if it were calculated on the selling price instead of the cost price? (Correct to one decimal place.)
राम किसी वस्तु को बेचकर 30% लाभ कमाता है | यदि लाभ की गणना क्रय मूल्य के बजाय विक्रय मूल्य पर की जाए, तो लाभ का प्रतिशत क्या

होगा ? (दशमलव के एक स्थान तक)

SSC CGL 9 March 2020 (Morning)

(a) 22.4%
(b) 23.1%
(c) 20.1%
(d) 24.2%

Q17. A shopkeeper buys two books for ₹300. He sells the first book at a profit of 20% and the second book at a loss of 10%. What is the selling price of the first book, if in the whole transaction there is no profit no loss?

एक दुकानदार ने दो पुस्तकों को 300 रुपये में ख़रीदा | उसने पहली पुस्तक 20% के लाभ पर तथा दूसरी पुस्तक 10% की हानि पर बेच दी | पहली पुस्तक का विक्रय मूल्य कितना है, यदि पूरे लेनदेन में ना तो लाभ ना ही हानि हुई है ?

SSC CGL 9 March 2020 (Afternoon)

(a) ₹125
(b) ₹115
(c) ₹110
(d) ₹120

Q18. A car dealer purchased an old car for ₹1,08,500 and spent some amount on its maintenance. He sold it for ₹1,56,250, thereby earning a profit of 25%. How much money did he spend on the maintenance of the car?

एक कार विक्रेता ने 1,08,500 रुपये में एक पुरानी कार खरीदी तथा कुछ राशि उसकी मरम्मत पर खर्च की | उसने उस कार को ₹1,56,250 में बेचा, जिससे उसे 25% का लाभ हुआ | उसने कार की मरम्मत पर कितनी राशि खर्च की है ?

SSC CGL 9 March 2020 (Evening)

(a) ₹16,500
(b) ₹20,625
(c) ₹8,687.5
(d) ₹47,750

SSC CHSL 2019

Q1. List the price of a bike is 15% more than its cost price. It is sold at a discount of 20%. Find the dealer's loss or profit percentage.

एक बाइक का अंकित मूल्य उसके क्रय मूल्य से 15% अधिक है। इसे 20% की छूट पर बेचा जाता है। विक्रेता के लाभ या हानि का प्रतिशत ज्ञात कीजिए।

CHSL 12-10-2020 (Morning shift)

(a) Profit/ लाभ 8%
(b) Loss/ हानि 9%
(c) Profit/ लाभ 9%
(d) Loss/ हानि 8%

Q2. Ram sold a motorcycle for Rs 70000 at 25% profit. For what price should he sell a motorcycle to gain 30% profit?

राम ने 25% लाभ पर 70000 रुपये में एक मोटरसाइकिल बेची। 30% लाभ कमाने के लिए उसे मोटरसाइकिल किस कीमत पर बेचनी चाहिए ?

CHSL 12-10-2020 (Morning shift)

(a) Rs 72,800
(b) Rs 72, 700
(c) Rs 72,900
(d) Rs 72, 600

Q3. On selling a bike for Rs 2500 a seller incurs a loss of 20%. What price would have caused him to lose 30%?

2500 रुपये में एक बाइक बेचने के बाद, विक्रेता को 20% की हानि होती है। कितनी कीमत पर उसे 30% की हानि होती ?

CHSL 12-10-2020 (Afternoon shift)

(a) Rs 2185.5
(b) Rs 2188.5
(c) Rs 2186.5
(d) Rs 2187.5

Q4. Kishore had a loss of 20% on selling an article for Rs7,160. At what price should he have sold the item to make a profit of 30%?

किशोर को 7,160 रुपये में एक वस्तु को बेचने पर 20% की हानि हुई। उसे इस वस्तु को किस कीमत पर बेचना चाहिए था ताकि 30% का लाभ कमा सके?

CHSL 12-10-2020 (Evening shift)

(a) Rs11,635
(b) Rs12,007
(c) Rs10,678
(d) Rs8,988

Q5. A person purchases 40 items at 10 each. He sells a part of them at 25% profit and the remaining at 10% loss. The net profit is 4% in this transaction. The number of items he sold at a loss, is:

एक व्यक्ति 40 वस्तुओं में से प्रत्येक को 10 में खरीदता है। वह उसका एक हिस्सा 25% लाभ पर तथा शेष हिस्सा 10% हानि पर बेचता है। इस लेनदेन में शुद्ध 4% का लाभ होता है। उसने हानि पर कितनी वस्तुओं को बेचा?

CHSL 13-10-2020 (Morning shift)

(a)16
(b)22
(c)18
(d)24

Q6. A sells an item at 20% profit to B, B sells the same at 10% profit to C and receives 1,32,000. Had C purchased the same item from A, he would have spent 5% less than what he spent with B. What profit would A have made then?

A किसी वस्तु को B से 20% के लाभ पर बेचता है। B इसी वस्तु को C को बेच देता है तथा 1,32,000 रुपये प्राप्त करता है। यदि C ने इसी वस्तु को A से क्रय किया होता, तो उसे B को भुगतान की गयी राशि की तुलना में 5% कम खर्च करना पड़ता। A को कितना लाभ हुआ ?

CHSL 13-10-2020 (Morning shift)

(a)Rs 25,400
(b)Rs 24,450
(c)Rs 25,540
(d)Rs 24,540

Q7. If Ravi sels an old scooter for Rs 18,000 then his loss incurred is 10%. If he sells it to gain a profit of 15%, then the selling price is:

अगर रवि 18,000 रुपये में पुराना स्कूटर खरीदता है तो उसका नुकसान 10% है। यदि वह इसे 15% का लाभ प्राप्त करने के लिए बेचता है, तो विक्रय मूल्य है:

CHSL 13-10-2020 (Evening shift)

(a)Rs 20,000
(b)Rs 22,000
(c)Rs 24,000
(d)Rs 23,000

Q8. The cost price of 12 pens is equal to the selling price of 8 pens. The profit percentage is:

12 पेन की लागत मूल्य 8 पेन की विक्रय मूल्य के बराबर है। लाभ प्रतिशत है:

CHSL 14-10-2020 (Morning shift)

(a) 45%
(b) 55%
(c) 50%
(d) 40%

Q9. The difference between the selling prices of some articles if sold for Rs 12 per article instead of Rs 9 per article is Rs 150. If the cost price of these articles is Rs250, then find the selling price of 21 articles if profit earned is 20%.

कुछ वस्तुओं की विक्रय की कीमतों के बीच अंतर, अगर 9 रुपये के बजाय 12 रुपये प्रति वस्तु के हिसाब से बेचा जाता है तो 150 रुपये है। यदि इन वस्तुओं की लागत मूल्य रु 250 है, तो लाभ अर्जित होने पर 21 वस्तुओं की विक्रय मूल्य 20% है ।

CHSL 14-10-2020 (Afternoon shift)

(a) Rs 126
(b) Rs 136
(c) Rs 125
(d) Rs 130

Q10.The cost price of 15 pens is equal to the selling price of 20 pens. The loss or profit percentage is:

15 पेन की लागत मूल्य 20 पेन की विक्रय मूल्य के बराबर है। नुकसान या लाभ प्रतिशत है:

CHSL 15-10-2020 (Morning shift)

(a)20% loss
(b)25% loss
(c)20% profit
(d)25% profit

Q11. If a saree is sold for Rs 3,060, the seller will face 15% loss, at what price should he sell the saree to gain a 20% profit?

यदि एक साड़ी 3,060 रुपये में बेची जाती है, तो विक्रेता को 15% हानि का सामना करना पड़ेगा, 20% लाभ प्राप्त करने के लिए उसे किस कीमत पर साड़ी बेचनी चाहिए?

CHSL 15-10-2020 (Afternoon shift)

(a) Rs 4,650
(b) Rs 3,600
(c) Rs 3,440
(d) Rs 4,320

Q12. A man sold his furniture at a 25% gain. Had he sold it at 15% loss, he would have received Rs800 less. Find the cost price of the furniture.

एक आदमी ने अपने फर्नीचर को 25% लाभ पर बेचा। अगर उसने इसे 15% नुकसान पर बेचा होता, तो उसे 800 रुपये कम मिलते। फर्नीचर की कीमत ज्ञात करें ।

CHSL 15-10-2020 (Evening shift)

(a) Rs2,500
(b) Rs1,500
(c) Rs2,000
(d) Rs3,000

Q13. If the gain is one-fifth of the selling price, then the gain percentage is:

यदि लाभ विक्रय मूल्य का एक-पांचवाँ हिस्सा है, तो लाभ प्रतिशत है:

CHSL 16-10-2020 (Morning shift)

(a) 80%
(b) 20%
(c) 16%
(d) 25%

Q14. A shopkeeper allows a discount of 20% on an article and still makes a profit of 25%. What does he pay for an article whose marked price is ₹ 800?

एक दुकानदार एक वस्तु पर 20% की छूट देता है और फिर भी 25% का लाभ कमाता है। वह उस वस्तु के लिये कितना भुगतान करता है जिसका अंकित मूल्य ₹ 800 है|

CHSL 16-10-2020 (Morning shift)

(a) ₹492
(b) ₹512
(c) ₹800
(d) ₹640

Q15. Salma buys an article and then sells it for ₹ 810. If she loses 10%, then at what price should she sell it to gain 4%?
सलमा एक वस्तु खरीदती है और फिर उसे ₹ 810 बेचती है। यदि उसे 10% की हानि होती है, फिर तो 4% लाभ प्राप्त करने के लिए किस कीमत पर बेचना चाहिए?
CHSL 16-10-2020 (Afternoon shift)
(a) ₹ 864
(b) ₹ 729
(c) ₹ 936
(d) ₹ 900

Q16. The cost price of 33 books is the same as the selling price of 'x' books. If the profit is 10%, then the value of 'x' is:
33 पुस्तकों की लागत मूल्य 'x' पुस्तकों के विक्रय मूल्य के समान है। यदि लाभ 10% है, तो 'x' का मान है:
CHSL 16-10-2020 (Evening shift)
(a) 30
(b) 20
(c) 10
(d) 40

Q17. The percentage profit earned by selling a mobile for ₹ 12,000 is equal to the percentage loss incurred by selling the same mobile for ₹ 9,000. At what price should the mobile be sold to make 20% profit?
₹ 12,000 में एक मोबाइल बेचकर अर्जित प्रतिशत लाभ, ₹ 9,000 में उसी मोबाइल बेचकर अर्जित प्रतिशत नुकसान के बराबर है । 20% लाभ कमाने के लिए मोबाइल को किस कीमत पर बेचा जाना चाहिए?
CHSL 19-10-2020 (Morning shift)
(a) ₹ 18,800
(b) ₹ 16,200
(c) ₹ 12,600
(d) ₹ 15,400

Q18. The marked price of a shirt was ₹1,800. A man bought the same shirt for ₹ 1,200 after getting two successive discounts. If the first discount was 12%, what was the second discount rate? (Correct to two decimal places)
एक शर्ट का अंकित मूल्य ₹1,800 था एक व्यक्ति ने लगातार दो छूट प्राप्त करने के बाद उसी शर्ट को ₹ 1,200 खरीदी। यदि पहली छूट 12% थी, तो दूसरी छूट की दर क्या थी? (दो दशमलव स्थानों के लिए)
CHSL 19-10-2020 (Morning shift)
(a) 25.25%
(b) 22.22%
(c) 24.24%
(d) 20.20%

Q19. Anil bought some articles at 6 for Rs 8 and sold them at 10 for Rs12. His percentage loss or gain is:
अनिल ने 8 रुपये में 6 की दर से कुछ वस्तु खरीदे और 12 रुपये में उन्हें 10 की दर से बेच दिया। उसका नुकसान या लाभ प्रतिशत है:
CHSL 19-10-2020 (Afternoon shift)
(a) 10% loss
(b) 8% loss
(c) 10% gain
(d) 8% gain

Q20. Marked price of an article is 20% more than its cost price. At what percent less should it be sold for no profit and no loss?
एक वस्तु का अंकित मूल्य उसकी लागत मूल्य से 20% अधिक है। इसे कितने प्रतिशत कम पर बेचा जाना चाहिए ताकि न तो लाभ हो और न ही हानि ?
CHSL 19-10-2020 (Afternoon shift)
(a) $14\frac{1}{3}$ %
(b) $14\frac{2}{3}$ %
(c) $16\frac{1}{3}$ %
(d) $16\frac{2}{3}$ %

Q21. Prem purchased an old printer for Rs 3,200 and spent Rs 600 on its repair. He sold it for Rs 4,280. His profit per cent is closest to: (correct upto two decimal places)
प्रेम ने 3,200 रुपये में एक पुराना प्रिंटर खरीदा और इसकी मरम्मत पर 600 रुपये खर्च किए। उन्होंने इसे 4,280 रुपये में बेचा। उसका लाभ प्रतिशत निकटतम है: (दो दशमलव स्थानों तक)
CHSL 19-10-2020 (Evening shift)
(a) 16.92%
(b) 12.63%
(c) 15.78%
(d) 18.45%

Q.22. When an article is sold for Rs.720, there is a profit of x%. When the same article is sold for Rs.750, profit is (x+5)%. What is the value of x?
जब कोई वस्तु Rs.720 में बेचा जाता है, तो x% का लाभ होता है। जब एक ही वस्तु को Rs.750 में बेचा जाता है, तो लाभ (x+ 5)% होता है। x का मान ज्ञात करे ?
CHSL 21-10-2020 (Morning shift)
(a) 20
(b) 18
(c) 25
(d) 15

Q.23. On selling 26 balls for Rs.1350, there is a loss equal to the cost price of eight balls. The cost price of a ball is:

26 गेंदों को 1,350 रुपये में बेचने पर, आठ गेंदों की लागत मूल्य के बराबर नुकसान होता है। एक गेंद की लागत मूल्य है|

CHSL 21-10-2020 (Afternoon shift)

(a) 70
(b) 65
(c) 60
(d) 75

Q.24. The marked price of an article is 25% more than its cost price. If a 10% discount is given on the marked price, then what is the profit percentage?

एक वस्तु की अंकित मूल्य उसकी लागत मूल्य से 25% अधिक है। यदि अंकित मूल्य पर 10% की छूट दी जाती है, तो लाभ प्रतिशत क्या है |

CHSL 21-10-2020 (Afternoon shift)

(a) 12%
(b) 11.5%
(c) 10%
(d) 12.5%

Q.25. The profit made by selling an article for Rs.8,800 is equal to the amount of loss incurred on selling the same article for Rs.7,200. What will be the profit per cent, if it was sold for Rs.9,600?

8,800 रुपये में एक वस्तु को बेचकर किया गया लाभ, उसी वस्तु को 7,200 रुपये में बेचने पर हुई हानि के बराबर है। अगर इसे 9,600 रुपये में बेचा जाता तो लाभ प्रतिशत कितने होता |

CHSL 21-10-2020 (Evening shift)

(a) 20%
(b) 25%
(c) 18%
(d) 15%

Q.26. An article is sold at a profit of 30%. If both cost price and selling price of the article are decreased by Rs.100, the profit now would be 45%. The original cost price of the article is:

एक वस्तु 30% के लाभ पर बेचा जाता है। यदि वस्तु की लागत मूल्य और विक्रय मूल्य दोनों को 100 रुपये कम किया जाता है, तो अब लाभ 45% होगा। वस्तु की मूल लागत मूल्य ज्ञात करें |

CHSL 26-10-2020 (Morning shift)

(a) 400
(b) 250
(c) 300
(d) 500

Q.27. The profit made by selling an article for Rs.13400 is equal to the amount of loss incurred on selling the same article at Rs.11600. What will be the profit if it is sold for Rs.14,750 (in Rs.)

एक वस्तु को 13400 रुपये में बेचने से होने वाला लाभ, 11600 रुपये में उसी वस्तु को बेचने पर हुए नुकसान के बराबर है। अगर इसे Rs.14,750 (रु। में) बेचा जाता है तो क्या लाभ होगा।

CHSL 26-10-2020 (Evening shift)

(a) 2000
(b) 2520
(c) 2500
(d) 2250

Q.28. Sohan sold a plot for Rs.2,55,000 at a 15% loss. At what price should he sell the plot to gain a 10% profit?

सोहन ने 15% की हानि पर 2,55,000 रुपये में एक प्लॉट बेचा। 10% लाभ प्राप्त करने के लिए उसे किस कीमत पर प्लॉट बेचना चाहिए?

CHSL 17-03-2020 (Morning shift)

(a) 3,33,000
(b) 3,30,000
(c) 3,33,300
(d) 3,00,000

Q29. If the cost price of 25 articles is equal to the selling price of 35 articles, find the profit/loss percentage.

यदि 25 वस्तुओं की लागत मूल्य 35 वस्तुओं के विक्रय मूल्य के बराबर है तो लाभ / हानि प्रतिशत ज्ञात करें।

CHSL 17-03-2020 (Afternoon shift)

(a) Loss - 28.57%
(b) Profit - 28.57%
(c) Loss - 18.93%
(d) Profit - 18.93%

Q30. A shopkeeper purchased pens in bulk for Rs28 each. He sold each for Rs40. What was his profit percentage?

एक दुकानदार ने थोक में प्रत्येक 28 रुपए में पेन खरीदे। उन्होंने प्रत्येक को 40 रुपये में बेचा। उसका लाभ प्रतिशत क्या था?

CHSL 17-03-2020 (Afternoon shift)

(a) 42.85%
(b) 28.40%
(c) 38.75%
(d) 48.12%

Q31. A chair was purchased for Rs785 and sold at a profit of 22%. What was the selling price?

एक कुर्सी 785 रुपये में खरीदी गई और 22% के लाभ पर बेची गई। विक्रय मूल्य क्या था?

CHSL 17-03-2020 (Afternoon shift)

(a) Rs 987.4
(b) Rs 768.3
(c) Rs 857.9
(d) Rs 957.7

Q32. By selling an article for 600, a shopkeeper makes a profit of 20%. At what price should he sell the article to incur a loss of 20%?

रु 600 में एक वस्तु बेचकर एक दुकानदार 20% का लाभ कमाता है। 20% का नुकसान उठाने के लिए उसे किस मूल्य पर वस्तु बेचना चाहिए?
CHSL 17-03-2020 (Evening shift)
(a) ₹600
(b) ₹400
(c) ₹300
(d) ₹500

Q33. A shopkeeper pays 12% of the cost price as tax while purchasing an item whose cost is Rs 500. He wants to earn a profit of 20% after giving a discount of 16% on the marked price. So, the marked price should be:
एक दुकानदार किसी वस्तु को खरीदते समय लागत मूल्य का 12% कर के रूप में चुकाता है जिसकी लागत 500 रुपये है। वह अंकित मूल्य पर 16% की छूट देने के बाद 20% का लाभ अर्जित करना चाहता है। तो, अंकित मूल्य होना चाहिए:
CHSL 18-03-2020 (Morning shift)
(a) Rs 840
(b) Rs 780
(c) Rs 960
(d) Rs 800

Q34. A person purchased 40 items at some price. He sold some items at a profit of 30% by selling them at a price equal to the cost price of 26 items. The remaining items are sold at 18% profit. The total profit percentage is:
एक व्यक्ति ने कुछ कीमत पर 40 आइटम खरीदे। उन्होंने कुछ वस्तुओं को 30% के लाभ पर 26 वस्तुओं की कीमत के बराबर मूल्य पर बेचकर बेच दिया। शेष वस्तुओं को 18% लाभ पर बेचा जाता है। कुल लाभ प्रतिशत है|
CHSL 18-03-2020 (Morning shift)
(a) 27%
(b) 28%
(c) 25%
(d) 24%

Q35. The selling price of a book, including the sales tax, is Rs956.34. The rate of sales tax is 10%. If the shopkeeper has made a profit of 15%, then the cost price of the book is:
विक्रय कर सहित एक पुस्तक का विक्रय मूल्य 956.34 रुपये है। विक्रय कर की दर 10% है। यदि दुकानदार ने 15% का लाभ कमाया है, तो पुस्तक का लागत मूल्य है:
CHSL 18-03-2020 (Afternoon shift)
(a) Rs756
(b) Rs797.34
(c) Rs845.98
(d) Rs836

Q36.. A tradesman marks his products 35% above the cost price and allows his customers 15% reduction on their bills. What percentage of profit does he make?
एक व्यापारी लागत मूल्य से 35% ऊपर अपने उत्पादों को अंकित करता है और अपने ग्राहकों को उनके बिलों पर 15% की छूट देता है। वह कितने प्रतिशत लाभ कमाता है?
CHSL 18-03-2020 (Evening shift)
(a) 14.25
(b) 14
(c) 14.75
(d) 14.10

Q.37. Ravi sells a chair to Mohan at a profit 10% and Mohan sells it to Govind at profit 20%. If Govind pays Rs.1320 for it. Then the cost price for Ravi is:
रवि मोहन को 10% के लाभ पर एक कुर्सी बेचता है और मोहन उसे गोविंद को 20% के लाभ पर बेचता है। यदि गोविंद इसके लिए रु 1,320 का भुगतान करता है तो रवि के लिए लागत मूल्य है:
CHSL 19-03-2020 (Morning shift)
(a) 980
(b) 1,000
(c) 900
(d) 800

Q.38. A man sold his bike for Rs.25000 at 25% profit. At what price would it have sold if he had incurred a loss of 15%?
एक आदमी ने अपनी बाइक 25% लाभ पर 25000 रुपये में बेची। अगर वह 15% का नुकसान उठाता है तो वह किस कीमत पर बेचेगा ?
CHSL 19-03-2020 (Evening shift)
(a) 16,000
(b) 19,000
(c) 18,000
(d) 17,000

SSC CGL TIER-II
Q39. On selling an article for ₹ 123.40, the gain is 20% more than the amount of loss incurred on selling it for ₹108. If the article is sold for ₹120.75, then what is the gain/loss per cent?
₹123.40 में एक वस्तु को बेचने पर, लाभ ₹108 में इसे बेचने पर हुए नुकसान की राशि से 20% अधिक है। यदि वस्तु ₹120.75 में बेचा जाता है, तो लाभ / हानि प्रतिशत क्या है?
CGL 2019 Tier-II (15-11-2020)
(a) Gain 2.5% / 2.5% लाभ
(b) Gain 5% / 5% लाभ
(c) Loss 2.5% / 2.5% हानि
(d) Loss 5% / 5% हानि

Q40. The marked price of an article is 40% above the cost

price. If its selling price is $73\frac{1}{2}\%$ of the marked price, then the profit percentage is:
एक वस्तु का अंकित मूल्य लागत मूल्य से 40% अधिक है। यदि इसका विक्रय मूल्य अंकित मूल्य का $73\frac{1}{2}\%$ है, तो लाभ प्रतिशत ज्ञात कीजिए।
CGL 2019 Tier-II (15-11-2020)
(a) 2.7%
(b) 2.4%
(c) 2.9%
(d) 3.1%

Q41. Remi earns a profit of 20% on selling an article of a certain price. If she sells the article for ₹8 more, she will gain 30%.What is the original price of 16 such articles ?
रेमी एक वस्तु को एक निश्चित कीमत पर बेचने पर 20% का लाभ कमाती है। यदि वस्तु को ₹8 अधिक में बेचती है, तो वह 30% लाभ प्राप्त करेगी। ऐसी 16 वस्तुओं का मूल मूल्य कितना है?
CGL 2019 Tier-II (15-11-2020)
(a) ₹1,280
(b) ₹1,152
(c) ₹1,120
(d) ₹1,200

Q42. Shashi sells two articles for ₹5,000 each with no loss and no profit in the overall transaction. If one article is sold at $16\frac{2}{3}\%$ loss, then the other is sold at a profit of:
शशि ने बिना किसी नुकसान के ₹5,000 में दो वस्तुओं को बेचा और समग्र लेनदेन में उसे कोई लाभ या हानि नहीं हुई। यदि एक वस्तु को $16\frac{2}{3}\%$ हानि पर बेचा जाता है, तो दूसरे पर लाभ ज्ञात कीजिए ?
CGL 2019 Tier-II (15-11-2020)
(a) 24%
(b) 25%
(c) $16\frac{2}{3}\%$
(d) $18\frac{1}{3}\%$

Q43. A sold a watch to B at a profit of 20%, B sold it to C at 30% profit C sold it to D at 10% loss. If B's profit is ₹80 more than that of A, then D bought it for:
A ने B को 20% के लाभ पर एक घड़ी बेची, B ने उसे C को 30% लाभ पर बेच दिया, C ने उसे 10% हानि पर D को बेच दिया। यदि B का लाभ A की तुलना में 80 रुपये अधिक है, तो D ने इसे कितने में ख़रीदा?
CGL 2019 Tier-II (15-11-2020)
(a) ₹652
(b) ₹702
(c) ₹700
(d) ₹680

Q44. A T.V is sold at 8% gain . Had it been sold for ₹714 more, the gain would have been 15%. To gain 18% the selling price of the T.V should be:
एक T.V 8% लाभ पर बेचा जाता है। अगर इसे ₹714 अधिक में बेचा जाता, तो लाभ 15% होता। 18% लाभ हासिल करने के लिए T.V का विक्रय मूल्य होना चाहिए:
CGL 2019 Tier-II (16-11-2020)
(a) ₹12,138
(b) ₹12,036
(c) ₹11,934
(d) ₹12,240

Q45. A sold an item to B at 20% gain, B sold it to C at 8% gain. C sold it to D at 25% loss. If the difference between the profit of A and B is ₹260, then D bought it for :
A ने एक वस्तु को B को 20% लाभ पर बेचा, B ने इसे C को 8% लाभ पर बेचा। C ने इसे 25% नुकसान पर D को बेच दिया। यदि A और B के लाभ के बीच अंतर ₹260 है, तो D ने कितने का खरीदा है:
CGL 2019 Tier-II (16-11-2020)
(a) ₹2,200
(b) ₹2,430
(c) ₹2,480
(d) ₹2,268

Q.46.Anil bought two articles A and B at a total cost of ₹10,000. He sold the article A at 15% profit and the article B at 10% loss. In the whole deal, he made no profit or no loss. Find the selling price of the article A.
अनिल ने ₹10,000 की कुल कीमत पर दो वस्तुओं A और B को क्रय किया। उसने वस्तु A को 15% लाभ पर और वस्तु B को 10% हानि पर बेचा। पूरे सौदे में, उसने कोई लाभ नहीं कमाया और न ही कोई नुकसान हुआ। वस्तु A के विक्रय मूल्य का पता लगाएं।
CGL 2019 Tier-II (18-11-2020)
(a) ₹5400
(b) ₹4500
(c) ₹4600
(d) ₹4200

Q.47. On selling 38 balls at ₹2,240, there is a loss equal to the cost price of 6 balls. The cost price of a ball is equal to:
38 गेंदों को ₹2,240 में बेचने पर, 6 गेंदों के क्रय मूल्य के बराबर नुकसान होता है। एक गेंद का क्रय मूल्य बराबर है
CGL 2019 Tier-II (18-11-2020)
(a) ₹50
(b) ₹80
(c) ₹70
(d) ₹60

Q.48. A dealer sold an article at a loss of 2%. Has he sold it for ₹44 more, he would have gained 20%. Find the cost price of the article.
एक डीलर ने 2% की हानि पर एक वस्तु को बेचा। यदि उसने इसे 44 रुपये अधिक में बेच दिया होता तो

उसे 20% का लाभ होता। वस्तु का क्रय मूल्य ज्ञात कीजिए।

CGL 2019 Tier-II (18-11-2020)

(a) ₹ 250
(b) ₹ 400
(c) ₹ 200
(d) ₹ 300

Q49. A man sells two articles at ₹ 9,975 each. He gains 5% on one article and loses 5% on the other. Find his overall gain or loss.

एक आदमी 9,975 रुपये में दो वस्तुओं को बेचता है। वह एक वस्तु पर 5% लाभ कमाता है और दूसरी पर 5% हानि होती है। उसका समग्र लाभ या हानि ज्ञात करें।

CGL 2019 Tier-II (18-11-2020)

(a) Profit ₹ 60
(b) Loss ₹ 50
(c) Loss ₹ 60
(d) Profit ₹ 50

SSC CPO 2019

Q50. A person sold an article at a loss of 16%. Had he sold it for Rs. 660 more, he would have gained 8%. What should be the selling price (in Rs.) to gain a profit of 12%?

एक व्यक्ति ने 16% की हानि पर एक वस्तु को बेचा। अगर उसने इसे 660 रुपये अधिक में बेचा होता तो उसे 8% का लाभ होता। 12% का लाभ प्राप्त करने के लिए विक्रय मूल्य (रु में) क्या होना चाहिए?

CPO 2019 23-11-2020
(Morning shift)

(a) 3,080
(b) 3,200
(c) 2,750
(d) 2,950

Q51. A man bought an article and sold it at a gain of 10%. If he had bought the article at 20% less and sold it for Rs1,000 more, he would have made a profit of 40%. The cost price of the article (in Rs.) is:

एक आदमी ने एक वस्तु को खरीदा और उसे 10% की लाभ पर बेचा। यदि उसने 20% कम में वस्तु खरीदा होता और इसे 1,000 रुपये अधिक में बेचा होता, तो उसने 40% का लाभ कमाया होता। वस्तु का क्रय मूल्य (रुपये में) ज्ञात करे।

CPO 2019 23-11-2020
(Evening shift)

(a) 50,000
(b) 25,000
(c) 60,000
(d) 40,000

Q52. A man bought an article and sold it at a gain of 10%. If he had bought the article at 20% less and sold it for Rs1,000 more, he would have made a profit of 40%. The earlier selling price of the article (in Rs.) is:

एक आदमी ने एक वस्तु को ख़रीदा और उसे 10% की लाभ पर बेचा। यदि उसने 20% कम में वस्तु ख़रीदा होता और इसे 1,000 रुपये अधिक में बेचता, तो उसने 40% का लाभ कमाया होता। वस्तु का आरंभिक विक्रय मूल्य (रुपये में) है:

CPO 2019 24-11-2020
(Morning shift)

(a) 40,000
(b) 60,000
(c) 50,000
(d) 55,000

Q53. If the selling price of 50 articles is equal to the cost price of 42 articles, then what is the approximate loss or profit percentage ?

यदि 50 वस्तुओ का विक्रय मूल्य 42 वस्तुओ के लागत मूल्य के बराबर है, तो हानि या लाभ प्रतिशत क्या है|

CPO 2019 24-11-2020
(Evening shift)

(a) 8% profit/ लाभ
(b) 16% loss/ हानि
(c) 20% profit/ लाभ
(d) 10% loss/ हानि

Q54. A person sold an article at a loss of 16%. Had he sold it for Rs. 660 more, he would have gained 8%. If the article is sold at Rs. 3,080, then how much profit percentage is gained?

एक व्यक्ति ने 16% की हानि पर एक वस्तु को बेचा। अगर उसने इसे 660 रुपये अधिक में बेचा होता तो उसे 8% का लाभ होता। यदि वस्तु को 3,080 रुपये में बेचा जाता है, तो कितना लाभ प्रतिशत प्राप्त होता है

CPO 2019 25-11-2020
(Morning shift)

(a) 10%
(b) 15%
(c) 20%
(d) 12%

Q55. An article was sold at a loss of 13.5%, If it was sold for Rs. 1,104 more, then there would have been a profit of 9.5%, The cost price (in Rs.)of the article was:

एक वस्तु को 13.5% की हानि पर बेचा गया था, यदि इसे 1,104 रुपये अधिक में बेचा जाता, तो 9.5% का लाभ होता, तो वस्तु का लागत मूल्य (रुपये में) थी ज्ञात करे।

CPO 2019 25-11-2020
(Evening shift)

(a) 4,800
(b) 4,400
(c) 4,600
(d) 4,200

Variety Questions

Sol 1. (a)
Let the CP = 100 unit
Old SP = 85 unit
New SP = 109 unit
According to the question
109-85 unit = 30.60
1 unit = $\frac{30.60}{24}$
100 unit = $\frac{3060}{24}$
Desired Sale Price = $\frac{3060}{24}$ x $\frac{110}{100}$ = Rs. 140.25
Alternate :
(15+9)% = 30.60
1% = $\frac{30.60}{24}$
110% = $\frac{3060}{24\times100}$ x 110 = 140.25

Sol 2. (a)
Let the CP = 100 unit
Loss = 4%
Sale Price = 100 × $\frac{100-4}{100}$ = 96 unit
According to the question
96 unit = 288
1 unit = 3
100 unit = 300
Desired percentage = $\frac{315-300}{300}$ x 100 = 5%
Alternate :
4% = $\frac{1}{25}$
Let the CP = 25 unit
⇒ SP = 24 unit
According to the question
24 unit = 288
1 unit = 12
25 unit = 25 x 12 = 300
Desired percentage = $\frac{315-300}{300}$ x 100 = 5%

Sol 3. (c)
25% = $\frac{1}{4}$
Let the CP = 4 unit and SP = 3 unit
4 unit = 1240
1 unit = 310
3 unit = 930
Now, 40% = $\frac{2}{5}$
Let CP of New article = 5 unit ,
⇒ SP = 7 unit
According to the question
5 unit = 930
1 unit = 186
7 unit = 1302
Desired Profit %age = $\frac{1302-1240}{1240}$ x 100 = 5%
Alternate :
Desired Profit %age = (-25)+(40)+ $\frac{(-25)\times40}{100}$ = 5%

Sol 4. (d)
Let the SP = 100 unit
Since loss is calculate on SP, CP = 120 unit
According to the question
100 unit = 800
1 unit = 8
120 unit = 960
Desired Sale Price = 960 × $\frac{125}{100}$ = 1200
Alternate :
20% = $\frac{1}{5}$ and 25% = $\frac{1}{4}$
Old SP : CP : New SP
5 : 6
4 : 5
Balancing the ratio for CP
Old SP : CP : New SP
10 : 12 : 15
According to the question
10 unit = 800
1 unit = 80
15 unit = 15 x 80 = 1200

Sol 5. (d)
Let the Mark price = 100 unit
⇒ Sale price = 100 × $\frac{80}{100}$ = 80 unit
⇒ Cost Price = 80 × $\frac{100}{125}$ = 64 unit
According to the question
(80-64) unit = 44.80
1 unit = 2.80
CP (64 unit) = 64 x 2.80 = 179.20

Alternate :
20% = $\frac{1}{5}$ and 25% = $\frac{1}{4}$
MP : SP : CP
5 : 4
5 : 4
Balancing the ratio for SP
MP : SP : CP
25 : 20 : 16
According to the question
(20-16) unit = 44.80
1 unit = 11.20
CP (16 unit) = 11.20 x 16 = 179.20

Sol 6. (b)
14% = $\frac{7}{50}$
CP : P/L : SP
1st article 50 : -7 : 43
2nd article 50 : 7 : 57
Balancing the ratio for SP
CP : P / L : SP
1st article 50 x 57 : -7 x 57 : 43 x 57
2nd article 50 x 43 : 7 x 43 : 57 x 43
According to the question
[50 x 57 + 50 x 43] unit = 624
1 unit = $\frac{624}{50\times(57+43)}$
Desired difference = [50 x 57 - 50 x 43] unit
= [50 (57 - 43)] x $\frac{624}{50\times(57+43)}$ = 87.36

Sol 7. (d)

Article	→	Price
11		100
9		100

Balancing the number of articles

Article	→	Price
11 x 9		100 x 9
9 x 11		100 x 11
Total	198	2000

Now,

Article	→	Sale Price
10		100
⇒ 198		1980

Clearly there is a loss of 2000-1980 = Rs. 20
%age loss = $\frac{20}{2000}$ x 100 = 1%

Sol 8. (a)
Let the cp of a table = t and cp of a chair = c
According to the question
6t + 12c = 12000 ……(1)
Also
6t × $\frac{15}{100}$ - 12c × $\frac{10}{100}$ = 300
⇒ 9t-12c = 3000 ……..(2)
Adding eq (1) and (2)
15 t = 15000
t = 1000
Total CP of 6 tables = 6 x 1000 = 6000

Sol 9. (d)
Sale Price of one article = $\frac{2500}{25}$ = Rs. 100
Cost price of one article = 100 x $\frac{100}{90}$ = $\frac{1000}{9}$
Sale Price of the article at 20% profit = $\frac{1000}{9}$ x $\frac{120}{100}$ = $\frac{400}{3}$
⇒ Number of articles sold in 2400 = $\frac{2400}{400/3}$ = 18
Alternate :
Desired Number of Articles = $\frac{S_N \times N_O \times (100 \pm K)}{S_O \times (100 \pm M)}$
= $\frac{2400 \times 25 \times (100-10)}{2500 \times (100+20)}$ = 18

S_N = New Sale Price

S_O= Old Sale Price

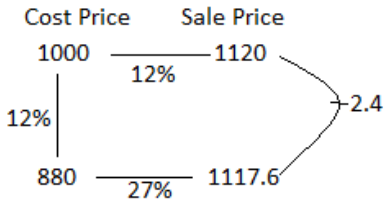
N_O = number of article

k = Old Profit/Loss

M = New Profit/Loss

Sol 10. (d)

Let the CP = 1000



According to the question
2.4 unit = 9
1 unit = $\frac{90}{24}$
1000 unit = $\frac{90}{24}$ x 1000 = 3750

Sol 11. (c)
Let the Mark price = 100 unit
⇒ Sale price = 100 × $\frac{80}{100}$ = 80 unit
⇒ Cost Price = 80 × $\frac{100}{110}$ = $\frac{800}{11}$ unit
According to the question
100 unit = 550
1 unit = 5.5
CP (800/11 unit) = $\frac{800}{11}$ x 5.5 = 400
Profit earned = 470-400 = 70
%age profit = $\frac{70}{400}$ x 100 = 17.5%

Alternate :

20% = $\frac{1}{5}$ and 10% = $\frac{1}{10}$
MP : SP : CP
5 : 4
11 : 10
Balancing the ratio for SP
MP : SP : CP
55 : 44 : 40
According to the question
55 unit = 550
⇒ 40 unit = 400
Profit earned = 470-400 = 70
%age profit = $\frac{70}{400}$ x 100 = 17.5%

Sol 12. (c)
8% = $\frac{2}{25}$ and 10% = $\frac{1}{10}$

	CP	:	P/L	:	SP
1st article	25	:	2	:	27
2nd article	10	:	-1	:	9

Balancing the ratio for SP

	CP	:	P / L	:	SP
1st article	25	:	2	:	27
2nd article	30	:	-3	:	27
Total	55	:	-1	:	54

According to the question
27 unit = 9720
Total Loss (1 unit) = 360

Sol 13. (a)
According to the question
40 x SP = 50 x CP
⇒ $\frac{SP}{CP}$ = $\frac{5}{4}$
Let the SP = 5 unit and CP = 4 unit
⇒ Profit = 5-4 = 1 unit
%age profit = $\frac{5-4}{4}$ x 100 = 25 %

Sol 14. (d)
Total fruits = 40 x 12 = 480
Total CP = 2400
Total SP = 2400 x $\frac{125}{100}$ = 3000
Fruits sold = 480-30 = 450
SP of fruit per dozen = $\frac{3000}{450}$ x 12 = 80

Sol 15. (d)
Let the total number of articles = 4 and CP of an article = 100 unit
Total CP = 4 x 100 = 400 unit
MP = 100 × $\frac{125}{100}$ = 125 unit
Discounted Price = 125 × $\frac{60}{100}$ = 75 unit
Total SP = 3 x 125 + 1 x 75 = 450 unit
Profit earned = 450-400 = 50 unit
Desired %age = $\frac{50}{400}$ x 100 = 12.5

Sol 16. (a)
CP of a Vehicle = 5,90,828
SP of a vehicle = 6,52,920
Profit = 652920-590828 = 62092
Profit %age = $\frac{62092}{590828}$ x 100 = 10.51

Sol 17. (d)
Profit on first article = 3000 × $\frac{10}{100}$ = 300

Profit on 2nd article = $3000 \times \frac{5}{100}$ = 150

Loss on 3rd article = $3000 \times \frac{15}{100}$ = 450

Total Profit or loss = 300+150-450 = 0

Clearly there is no profit and no loss.

Sol 18. (c)

Average price of rice = $\frac{38\times54.50+45\times62+55\times48}{38+45+55} = \frac{7501}{138}$ = 54.35

Profit earned = 65-54.35 = 10.65

%age profit = $\frac{10.65}{54.35}$ x 100 = 19.59 or 19.6

Sol 19. (c)

B's share of the profit = $\frac{4}{14}$ x 110166

B's share after charging tax = $\frac{4}{14}$ x 110166 × $\frac{70}{100}$ = Rs. 22033.20

Sol 20. (a)

According to the question

$MP \times \frac{3}{4} = CP \times \frac{100+x}{100}$

$\Rightarrow 736 \times \frac{3}{4} = 460 \times \frac{100+x}{100}$

$\Rightarrow 100 + x = 120$

$\Rightarrow x = 20\%$

Sol 21. (c)

Let the manufacturer's cost = M

According to the question

$M \times \frac{106}{100} \times \frac{108}{100} \times \frac{110}{100} = 31482$

Therefore, Manufacturer's cost = Rs. 25,000

Sol 22. (c) Net profit on 15 cycles = Rs. 387

Now, 15% of CP= 387

Therefore, C.P per cycle = $\frac{387}{15} \times 100 = Rs.\ 2580$

Sol 23. (a) Given, SP = $\frac{7}{5}$ x CP

$\Rightarrow \frac{SP}{CP} = \frac{7}{5}$

Let the SP = 5 unit and CP = 5 unit

Profit = 7-5 = 2 unit

Therefore, Profit% = $\frac{2}{5}$ = 40%

Sol 24. (d)

4% = $\frac{1}{25}$

Let cp of first article = 25 unit

$\Rightarrow$ SP of first article = 26 unit

According to the question

26 unit = 6500

1 unit = 250

25 unit = 6250

Similarly

Let cp of first article = 25 unit

$\Rightarrow$ SP of first article = 24 unit

According to the question

25 unit = 3750

1 unit = 150

24 unit = 3600

Total SP = 6500+3600 = 10100

Total CP = 6250+3750 = 10000

Desired Profit % = $\frac{10100-10000}{10000}$ x 100 = 1%

Sol 25. (a)

15% = $\frac{3}{20}$ and 10% = $\frac{1}{10}$

Let the CP = 20 unit

$\Rightarrow$ SP = 23 unit

According to the question

23 unit = 1495

1 unit = 65

20 unit = 1300

Profit earned (3 unit) = 195

Now,

CP of 2nd article (10 unit) = 1300

Profit (1 unit) = 130

SP of 2nd article (11 unit) = 1430

Total profit earned = 195+130 = 325

Sol 26. (b)

Total CP = 1200+1600 = 2800

25% = $\frac{1}{4}$

Let the total CP = 4 unit

$\Rightarrow$ Total SP = 5 unit

According to the question

4 unit = 2800

1 unit = 700

5 unit = 5 x 700 = 3500

SP of 2nd article = 3500-1380 = 2120

%age Profit earned on 2nd article = $\frac{2120-1600}{1600}$ x 100 = 32.5

Sol 27. (d)

20% = $\frac{1}{5}$, 25% = $\frac{1}{4}$ and 50% = $\frac{1}{2}$

CP	:	SP
5	:	6
4	:	3
2	:	3
40	:	54

According to the question

40 unit = 100

1 unit = $\frac{5}{2}$

54 unit = 135

Alternate :

$100 \times \frac{120}{100} \times \frac{75}{100} \times \frac{150}{100} = 135$

Sol 28. (a)

37.5 = $\frac{3}{8}$ and 9.09 = $\frac{1}{11}$

SP	:	MP	:	CP
10	:	11		
		11	:	8
10	:	11	:	8

Desired profit % = $\frac{10-8}{8}$ x 100 = 25%

Sol 29. (a)

Since the both pieces are similar there cp must be same. Since CP, profit and loss % are same, profit and loss amount will also be the same.

Let the profit amount = loss amount = k

According to the question

18000-10000 = k+k

k = 4000

Pinnacle

CP of the articles = 18000-4000 or 10000+4000 = 14000
Now, 50% = $\frac{1}{2}$
CP (2 unit) = 14000
1 unit = 7000
SP (3 unit) = 7000 x 3 = 21000

Sol 30. (a)
$33\frac{1}{3}$ %= $\frac{1}{3}$ and 20% = $\frac{1}{5}$
X : New SP : CP
3 : 1
4 : 5
Balancing the ratio for SP
X : New SP : CP
12 : 4 : 5
Desired profit % = $\frac{12-5}{5}$ x 100 = 140

SSC CGL TIER II

Sol 1. (c)

Let the CP per quintal = 100 unit
Total CP = 120 x 100 = 12000
Quantity sold on 25% loss = 120 × $\frac{20}{100}$ = 24
Sale price of 24 quintal = 24 x 75 = 1800
Sale price of 120 quintal = 120 x 125 = 15000
Sale price of 96 quintal = 137.5
Profit %age = $\frac{137.5-100}{100}$ x 100 = 37.5%

Alternate :
20% = $\frac{1}{5}$
Let the total quantity = 5 unit
Total profit on 5 unit = 5 x 25% = 125%
Loss on 1 unit = 1 x 25% = -25%
Total Profit to be gained on remaining 4 units = 125 -(-25) = 150 %
Desired %age = $\frac{150}{4}$ = $37\frac{1}{2}$ %

Sol 2. (d)
Let the initial profit = 3 unit
⇒ The loss occurred = 3 x $\frac{1}{3}$ = 1 unit
According to the question
(3+1) unit = 480-400
1 unit = 20
⇒ CP of the article = (400 + 20) or [480 - 3(20)] = 420

Sol 3. (d)
20% of the CP = 30.80
⇒ CP = $\frac{30.80}{20}$ x 100 = 154

Sol 4. (c)
Let the CP = 100 unit
SP of the article = 100 x $\frac{100-29}{100}$ = 71 unit
According to the question
71 unit = 355
1 unit = 5
100 unit = 500
Desired Sale price = 500 x $\frac{121}{100}$ = 605

Sol 5. (a)
35% = $\frac{7}{20}$ and 40% = $\frac{2}{5}$
Let the total number of goods = 20 unit and CP of per unit good = 100
⇒ MP = 100 × $\frac{125}{100}$ = 125
Total CP = 20 x 100 = 2000
Goods sold at MP = 20 × $\frac{7}{20}$ = 7 unit
Goods sold at 15% discount = 20 x $\frac{2}{5}$ = 8
Money earned from the goods sold at MP = 7 x 125 = 875
Money earned from the goods sold at 15% discount = 8 x 125 × $\frac{85}{100}$ = 850
Money earned from the goods sold at 20% discount = 5 x 125 × $\frac{80}{100}$ = 500
Total earning = 875 + 850 + 500 = 2225
Desired %age gain = $\frac{2225-2000}{2000}$ x 100= 11.25

Sol 6. (a)
$33\frac{1}{3}$ % = $\frac{1}{3}$
Initial SP : New SP : CP
3 : 1
2 : 3
Balancing the ratio for New SP
Initial SP : New SP : CP
6 : 2 : 3
Let the initial SP = 6 unit
60% of the initial SP = 6 × $\frac{60}{100}$ = 3.60
CP = 3 unit
Desired profit % = $\frac{3.6-3}{3}$ x 100 = 20%

Sol 7. (b)
80% = $\frac{4}{5}$ and 10% = $\frac{1}{10}$
Initial SP : New SP : CP
5 : 4
9 : 10
Balancing the ratio for New SP
Initial SP : New SP : CP
45 : 36 : 40
Let the initial SP = 45 unit
CP = 40 unit
Desired profit % = $\frac{45-40}{40}$ x 100 = $12\frac{1}{2}$ %

Sol 8. (a)
19% = $\frac{19}{100}$ and 8% = $\frac{2}{25}$
MP : SP : CP
100 : 81
27 : 25
Balancing the ratio for SP
MP : SP : CP
100 : 81 : 75
Desired %age = $\frac{100-75}{75}$ x 100 = 33 $\frac{1}{3}$ %

Sol 9. (d)
Let CP of the article = x
Total CP of the 2 articles = 2x
Profit earned = 3x

Sale Price = Cost Price + Profit
Sale price of two articles = 800
$\Rightarrow 2x+3x = 800$
$\Rightarrow x = 160$
Total CP (2x) = 2 x 160 = 320
Profit earned = 3 x 160 = 480
Desired percentage = $\frac{480}{320}$ x 100 = 150 %

Alternate :
Let the CP of 1 article = 1 unit
$\Rightarrow$ CP of 2 articles = 2 unit
$\Rightarrow$ Profit earned = 3 unit
Desired %age = $\frac{3}{2}$ x 100 = 150 %

Sol 10. (a)
9.6% = $\frac{12}{125}$ and 25% = $\frac{1}{4}$

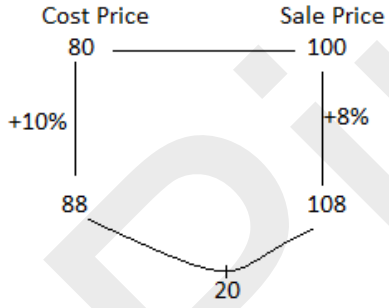
SP : MP : CP
113 : 125
5 : 4

Balancing the ratio for MP

MP : SP : CP
125 : 113 : 100

Desired %age = $\frac{113-100}{100}$ x 100 = 13 %

Sol 11. (d)
Let the SP = 100 unit
$\Rightarrow$ CP = 80



Desired %age = $\frac{20}{88}$ x 100 = 22.72%

Sol 12. (c)
35% = $\frac{7}{20}$
Let the total number of goods = 20 and CP of a good = 100 unit
Total CP = 20 x 100 = 2000 unit
Total SP = 2000 $\times \frac{100-12}{100}$ = 1760
SP of 35% (7 unit) goods = 7 x 100 $\times \frac{165}{100}$ = 1155
SP of remaining 13 goods = 1760-1155 = 605
SP of 1 good = $\frac{605}{13} \approx 46.5$
Value of x = 100-46.5 = 53.5

Sol 13. (c)
According to the question
(14+8) % of CP = 121
$\Rightarrow$ CP = $\frac{121}{22}$ x 100 = 550
Loss = 550-536.25 = 13.75
Desired %age = $\frac{13.75}{550}$ x 100 = 2.5 %

Sol 14. (c)
18% = $\frac{9}{50}$ and 23% = $\frac{23}{100}$

MP : SP : CP
50 : 41
123 : 100

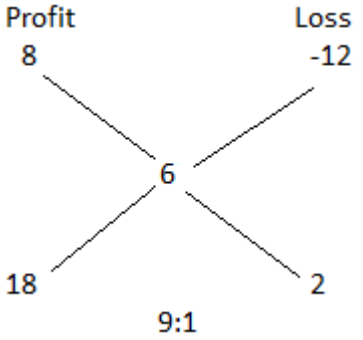
Balancing the ratio for MP

MP : SP : CP
150 : 123 : 100

According to the question
123-100 unit = 18.4040
1 unit = $\frac{184040}{10000 \times 23}$
MP (150 unit) = $\frac{184040}{10000 \times 23}$ x 150 = 120.026 $\approx$ 120

Sol 15. (c)
Let the number of articles sold at 8% profit = x
According to the question
6% of 80 = 8% of x - 12% of (80-x)
$\Rightarrow 480 = 8x - 960+12x$
$\Rightarrow x = 72$

Alternate



(9+1) unit = 80
1 unit = 8
9 unit = 72

Sol 16. (c)
32% = $\frac{8}{25}$ and 12% = $\frac{3}{25}$

MP : SP : CP
25 : 22
33 : 25

Balancing the ratio for SP

MP : SP : CP
75 : 66 : 50

Desired ratio = 50 : 75
= 2 : 3

Sol 17. (a)
30%= $\frac{3}{10}$ and 5% = $\frac{1}{20}$

MP : SP : CP
10 : 7
21 : 20

Balancing the ratio for SP

MP : SP : CP
30 : 21 : 20

Let the MP = 30 unit and CP = 20 unit
$\Rightarrow x = \frac{30-20}{20}$ x 100 = 50 %

Sol 18. (c)
36%= $\frac{9}{25}$ and 40% = $\frac{2}{5}$

SP : MP : CP
3 : 5
34 : 25

Balancing the ratio for MP

MP : SP : CP
170 : 102 : 125

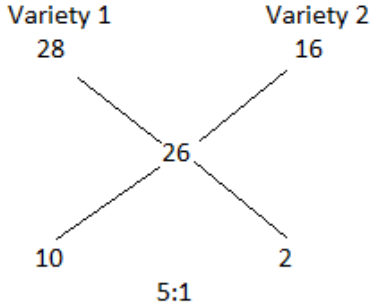
Let the SP = 102 unit and CP = 125 unit

Pinnacle

$\Rightarrow$ Loss % = $\frac{125-102}{125}$ x 100 = 18.4 %

Sol 19. (b)
According to the question
(14+16)% of CP = 33
$\Rightarrow$ CP = $\frac{33}{30}$ x100 = 110
Required SP = 110 x $\frac{125}{100}$ = 137.50

Sol 20. (a)
15% = $\frac{3}{20}$
Let cp = 20 unit and sp = 23 unit
According to the question
23 unit = 29.90
1 unit = 1.3
20 unit = 26



According to the question
1 unit = 6.6 kg
5 unit = 6.6 x 5 = 33 kg

Practice Questions

Sol 1. (b)
According to the question
(10.5+8) % of CP = 92.50
1 % of CP = 5
112% of CP (Desired SP) = 112 x 5 = 560

Sol 2. (b)
CP = 5400
Loss % = 30
SP = 5400 × $\frac{70}{100}$ = 3780
Final SP = 3780 × $\frac{160}{100}$ = 6048
Desired Profit % = $\frac{6048-5400}{5400}$ x 100 = 12%
Alternate :
Desired Profit % = (-30) + 60 + $\frac{(-30)\times 60}{100}$ = 12%

Sol 3. (d)
18% = $\frac{9}{50}$ and 12% = $\frac{3}{25}$

CP	P/L	SP
50	9	59
25	-3	22

Balancing the ratio for SP

CP	P/L	SP
	1100	198
1298		
	1475	-177
1298		
	2575	21
2596		

According to the question
1298 unit = 10384
1 unit = 8
21 unit = 21 x 8 = 168

Sol 4. (c)
15% = $\frac{3}{20}$ and 13% = $\frac{13}{100}$

CP	P/L	SP
20	3	23
100	-13	87

Balancing the ratio for SP

CP	P/L	SP
	1740	261
2001		
	2300	-299
2001		
	4040	-38
4002		

According to the question
2001 unit = 10005
1 unit = 5
4040 unit = 20200
38 unit = 38 x 5 = 190
Desired loss %age = $\frac{190}{20200}$ x 100 = 0.94% loss

Sol 5. (a)
16% = $\frac{4}{25}$ and 12% = $\frac{3}{25}$

CP	P/L	SP
25	4	29
25	-3	22

Balancing the ratio for SP

CP	P/L	SP
	550	88
638		
	725	-87
638		
	1275	1
1276		

According to the question
638 unit = 5104
1 unit = 8
1275 unit = 10200
Desired loss %age = $\frac{8}{10200}$ x 100 $\approx$ 0.08%

Sol 6. (b)
14% = $\frac{7}{50}$ and 12% = $\frac{3}{25}$

CP	P/L	SP
50	7	57
25	-3	22

Balancing the ratio for SP

CP	P/L	SP
	1100	154
1254		
	1425	-171
1254		
	2575	-17
2508		

According to the question
1254 unit = 2508
1 unit = 2
17 unit = 34
2575 unit = 5150
Desired loss %age = $\frac{34}{5150}$ x 100 $\approx$ 0.07%

Sol 7. (b)
18% = $\frac{9}{50}$ and 16% = $\frac{4}{25}$

CP	P/L	SP
50	9	59
25	-4	21

Balancing the ratio for SP

Pinnacle

CP	P/L	SP
	1050	189
1239		
	1475	-236
1239		

	2525	-47
2478		

According to the question
1239 unit = 4956
1 unit = 4
47 unit = 188
2525 unit = 10100
Desired loss %age = $\frac{188}{10100}$ x 100
≈ 1.9%

Sol 8. (b)
22% = $\frac{11}{50}$ and 20% = $\frac{1}{5}$

CP	P/L	SP
50	11	61
5	-1	4

Balancing the ratio for SP

CP	P/L	SP
	200	44
244		
	305	-61
244		

	505	-17
488		

According to the question
244 unit = 4880
1 unit = 20
17 unit = 340
505 unit = 10100
Desired loss %age = $\frac{340}{10100}$ x 100
≈ 3.4%

Sol 9. (a)
30% = $\frac{3}{10}$ and 25% = $\frac{1}{4}$

CP	P/L	SP
10	3	13
4	-1	3

Balancing the ratio for SP

CP	P/L	SP
	30	9
39		
	52	-13
39		

	82	-4
78		

According to the question
39 unit = 975
1 unit = 25
4 unit = 100
82 unit = 2050
Desired loss %age = $\frac{340}{10100}$ x 100
≈ 4.9%

Sol 10. (c)
32% = $\frac{8}{25}$ and 28% = $\frac{7}{25}$

CP	P/L	SP
25	8	33
25	-7	18

Balancing the ratio for SP

CP	P/L	SP
	150	48
198		
	275	-77
198		

	425	-29
396		

According to the question
198 unit = 4752
1 unit = 24
29 unit = 696
425 unit = 10200
Desired loss %age = $\frac{696}{10200}$ x 100
≈ 6.8%

Sol 11. (b)
30% = $\frac{3}{10}$ and 26% = $\frac{13}{50}$

CP	P/L	SP
10	3	13
50	-13	37

Balancing the ratio for SP

CP	P/L	SP
	370	111
481		
	650	-169
481		

	1020	-58
962		

According to the question
481 unit = 962
1 unit = 2
58 unit = 116
1020 unit = 2040
Desired loss %age = $\frac{116}{2040}$ x 100
≈ 5.7%

Sol 12. (c)
25% = $\frac{1}{4}$
Let MP = 4 unit
⇒ SP = 3 unit
Now,
4 unit = 600
1 unit = 150
SP (3 unit) = 450
CP = 450+30 = 480
Loss % = $\frac{30}{480}$ x 100 = 6.25 %

Sol 13. (b)
Let the Sale Price of = 1 unit
Total SP = 72 unit
Loss = 8 unit
Total CP = 72+8 = 80 unit
Loss % = $\frac{8}{80}$ x 100 = 10%

Sol 14. (a)
According to the question
(8+10.5) % of CP = 37
⇒ CP = $\frac{37}{18.5}$ x 100 = 200

Sol 15. (c)
3% = $\frac{3}{100}$ and 8% = $\frac{2}{25}$

SP1	CP	SP2
97		100
25		27

Balancing the ratio for CP

SP1	CP	SP2
97	100	108

Now, 97 unit = 291
1 unit = 3

Pinnacle

108 unit = 324

Alternate :

According to the question
97% of CP = 291
CP = $\frac{291}{97}$ x 100
Desired Sale price = 108% of CP
= $\frac{291}{97}$ x 100 × $\frac{108}{100}$ = 324

Sol 16. (a)
16% = $\frac{4}{25}$ and 10% = $\frac{1}{10}$

	CP	P/L	SP
	25	4	29
	10	-1	9

Balancing the ratio for SP

	CP	P/L	SP
		225	36
261			
		290	-29
261			

		515	7
522			

According to the question
261 unit = 5220
1 unit = 20
7 unit = 140

Sol 17. (c)
According to the question
125% of CP = 2300
CP = $\frac{2300}{125}$ x 100 = 1840
Profit earned = 1955-1840 = 115
Desired %age = $\frac{115}{1840}$ x 100 = 6.25 %

Sol 18. (b)
20% = $\frac{1}{5}$

MP	:	SP
5	:	4

According to the question
5 unit = 400
1 unit = 80
SP (4 unit) = 320
Profit = 32
⇒ CP = 320-32 = 288
Desired Profit % = $\frac{32}{288}$ x 100 = 11 $\frac{1}{9}$ %

Sol 19. (c)
Profit earned on the whole transaction = 600 x $\frac{20}{100}$ = 120
Loss on one article = 200 x $\frac{10}{100}$ = 20
Profit earned on remaining two articles = 120+20 = 140
Desired profit % = $\frac{140}{400}$ x 100 = 35

Alternate :

10% = $\frac{1}{10}$ and 20% = $\frac{1}{5}$

	CP	P/L	SP
One Article	10	-1	9
Three Articles	5	1	6

Balancing the ratio for CP

CP	P/L	SP
10	-1	9
30		6

36
According to the question
30 unit = 600
1 unit = 20
6 unit = 120
Total profit earned on 2 articles = 120+20 = 140
Desired profit % = $\frac{140}{400}$ x 100 = 35

Sol 20. (c)
10% = $\frac{1}{10}$ and 5% = $\frac{1}{20}$

	CP	P/L	SP
	10	1	11
	20	1	21

Balancing the ratio for CP

CP	P/L	SP
20	2	22
20	1	21

		40	3	43

According to the question
20 unit = 2650
1 unit = 132.5
3 unit = 397.5
40 unit = 5300
Desired Profit % = $\frac{397.5}{5300}$ x 100 = 7.5%

Sol 21. (c)
10% = $\frac{1}{10}$ and 20% = $\frac{1}{5}$

CP	P/L	SP
10	1	11
5	1	6

Balancing the ratio for CP

CP	P/L	SP
10	1	11
10	2	12

		20	3	23

According to the question
10 unit = 3050
1 unit = 305
3 unit = 915
20 unit = 6100
Desired Profit % = $\frac{915}{6100}$ x 100 = 15%

Sol 22. (c)
10% = $\frac{1}{10}$ and 20% = $\frac{1}{5}$

CP	P/L	SP
10	-1	9
5	1	6

Balancing the ratio for CP

CP	P/L	SP
10	-1	9
10	2	12

		20	1	21

According to the question
10 unit = 3050
1 unit = 305
20 unit = 6100
Desired Profit % = $\frac{305}{6100}$ x 100 = 5%

Sol 23. (a)
Loss on one article = 4158 x $\frac{15}{100}$ = 623.70

Pinnacle

Profit to be earned on 2nd article so that no profit/loss = 623.70
Profit % = $\frac{623.70}{4158}$ x 100 = 15%

Alternate :

Since CP is same for both the articles for our convenience we can assume any value of CP to find the profit/loss percentage.
For example assume CP = Rs. 100
Loss on one article = 100 x $\frac{15}{100}$ = 15
Profit to be earned on 2nd article so that no profit/loss = 15
Profit % = $\frac{15}{100}$ x 100 = 15%

Sol 24. (d)
CP = 4,90,828
SP = 5,52,920
Profit earned = 62092
Desired Profit % = $\frac{62092}{4,90,828}$ x 100 = 12.65%

Sol 25. (c)
CP = 4,89,828
SP = 5,89,828
Profit earned = 1,00,000
Desired Profit % = $\frac{1,00,000}{4,89,828}$ x 100 = 20.42%

Sol 26. (a)
Total Profit earned = 6000 x ($\frac{15}{100}$ + $\frac{12}{100}$ - $\frac{15}{100}$) = 720
⇒ Total profit percentage = $\frac{720}{18000}$ x 100 = 4%

Sol 27. (a)
31% = $\frac{31}{100}$ and 29% = $\frac{29}{100}$

CP	P/L	SP
100	31	131
100	-29	71

Balancing the ratio for SP

CP	P/L	SP
7100	2201	9301
13100	-3799	9301
20200	-1598	18602

According to the question
9301 unit = 18602
1 unit = 2
1598 unit = 3196
20200 unit = 40400
Desired Loss % = $\frac{3196}{40400}$ x 100 = 7.91%

Sol 28. (c)
According to the question
72% of CP = 144
CP = $\frac{144}{72}$ x 100
Desired SP = 86% of CP = $\frac{144}{72}$ x 100 × $\frac{86}{100}$ = 172

Sol 29. (c)
According to the question
4 × CP = 3 × SP
⇒ $\frac{CP}{SP} = \frac{3}{4}$
Let CP = 3 unit and SP = 4 unit
⇒ Profit earned = 4-3 = 1 unit
Profit %age = $\frac{1}{3}$ × = 33 $\frac{1}{3}$ %

Sol 30. (d)
13% = $\frac{13}{100}$

CP	P/L	SP
100	-13	87
100	13	113

Balancing the ratio for SP

CP	P/L	SP
11300	-1469	9831
8700	1131	9831
20000	-338	19662

According to the question
9831 unit = 9831
1 unit = 1
338 unit = 338
20000 unit = 20000
Desired Profit % = $\frac{338}{20000}$ x 100 = 1.69%

Alternate :

Trick : When SP, Loss and Profit percentage are same
Loss % = $\frac{13\times13}{100}$ = 1.69

Sol 31. (c)
25% = $\frac{1}{4}$ and 20% = $\frac{1}{5}$

MP	SP	CP
4	3	
	6	5

Balancing the ratio for SP

MP	SP	CP
8	6	5

According to the question
8 unit = 936
1 unit = 92
5 unit = 460

Sol 32. (a)
30% = $\frac{3}{10}$ and 20% = $\frac{1}{5}$

MP	SP	CP
10	7	
	6	5

Balancing the ratio for SP

MP	SP	CP
60	42	35

According to the question
60 unit = 480
1 unit = 8
35 unit = 8 × 35 = 280

Sol 33. (a)
23% = $\frac{23}{100}$

CP	P/L	SP
100	-23	77
100	23	123

Balancing the ratio for SP

CP	P/L	SP
12300	-2829	9471
7700	1771	9471
20000	-1058	18942

According to the question

9471 unit = 9471
1 unit = 1
1058 unit = 1058
20000 unit = 20000
Desired Profit % = $\frac{1058}{20000}$ x 100 = 5.29%

Alternate :
Trick : When SP, Loss and Profit percentage are same
Loss % = $\frac{23\times23}{100}$ = 5.29

Sol 34. (a)
25% = $\frac{1}{4}$ and 20% = $\frac{1}{5}$
MP : SP : CP
4 : 3
6 : 5
Balancing the ratio for SP
MP : SP : CP
8 : 6 : 5
According to the question
5 unit = 460
1 unit = 92
8 unit = 8 × 92 = 736

Sol 35. (d)
19% = $\frac{19}{100}$

CP	P/L	SP
100	-19	81
100		19

119
Balancing the ratio for SP

CP	P/L	SP
11900	-2261	9639
8100	1539	9639
20000	-722	19278

According to the question
9639 unit = 9639
1 unit = 1
722 unit = 722
20000 unit = 20000
Desired Profit % = $\frac{722}{20000}$ x 100 = 3.61 %

Alternate :
Trick : When SP, Loss and Profit percentage are same
Net loss = $\frac{19\times19}{100}$ = 3.61 %

Sol 36. (a)
20% = $\frac{1}{5}$
10% = $\frac{1}{10}$
SP of A is cp of B and sp of B is cp of C

A : B : C
10: 9
5 : 6
Balancing the ratio for B

	A : B : C
CP	50 : 45 : 54

54 unit = 540000
1 unit = 10,000
50 unit = 5,00,000

Sol 37. (b)
25% = $\frac{1}{4}$ and 10% = $\frac{1}{10}$
MP : CP : SP
5 : 4
10 : 11
Balancing the ratio for CP
MP : CP : SP
25 : 20 : 22
25 unit = 2340
1 unit = 93.6
Profit earned (2 unit) = 187.2

Sol 38. (b)
According to the question
(12-10) % of CP = 77
CP = $\frac{77}{2}$ x 100 = 3850

Sol 39. (d)
15% = $\frac{3}{20}$ and 10% = $\frac{1}{10}$
CP : MP : SP
20 : 23
10 : 9
Balancing the ratio for MP
CP : MP : SP
200 : 230 : 207
According to the question
207 unit = 228528
1 unit = 1104
200 unit = 220800

Sol 40. (b)
20% = $\frac{1}{5}$
SP1 : CP : SP2
4 : 5
5 : 6
4 unit = 320
1 unit = 80
6 unit = 480
Alternate :
According to the question
80% of CP = 320
CP = $\frac{320}{80}$ x 100
Desired SP = 120% of CP = $\frac{320}{80}$ x 100 x $\frac{120}{100}$ = 480

Sol 41. (d)
25% = $\frac{1}{4}$ and 37.5% = $\frac{3}{8}$
SP1 : CP : SP2
5 : 4
8 : 5
Balancing the ratio for CP
SP1 : CP : SP2
10 : 8 : 5
According to the question
(10-5) unit = 1250
1 unit = 250
CP (8 unit) = 8 x 250 = 2000
Desired SP = 2000 × $\frac{112.5}{100}$ = 2250

Alternate :
(37.5+25) % of CP = 1250
⇒ CP = $\frac{1250}{62.5}$ x 100
Desired SP = 112.5% of CP = $\frac{1250}{62.5}$ x 100 x $\frac{112.5}{100}$ = 2250

Sol 42. (a)
15% = $\frac{3}{20}$
SP1 : CP : SP2
23 : 20
20 : 17
Balancing the ratio for CP
SP1 : CP : SP2

Pinnacle

23 : 20 : 17
According to the question
23 unit = 1725
1 unit = 75
Desired SP = 17 x 75 = 1275

Alternate :
115 % of CP = 1725
$\Rightarrow$ CP = $\frac{1725}{115}$ x 100
Desired SP = 85% of CP = $\frac{1725}{115}$ x 100 x $\frac{85}{100}$ = 1275

Sol 43. (d)
15% = $\frac{3}{20}$
23 unit = 2070
1 unit = 90
CP (20 unit) = 20 x 90 = 1800
Profit earned =1890-1800 = 90
Desired gain % = $\frac{90}{1800}$ x 100 = 5%

Alternate :
115 % of CP = 2070
$\Rightarrow$ CP = $\frac{2070}{115}$ x 100 = 1800
Profit earned =1890-1800 = 90
Desired gain % = $\frac{90}{1800}$ x 100 = 5%

Sol 44. (d)
10% = $\frac{1}{10}$ and 20% = $\frac{1}{5}$
SP1 : CP : SP2
9 : 10
5 : 4
Balancing the ratio for CP
SP1 : CP : SP2
9 : 10 : 8
According to the question
9 unit = 810
1 unit = 90
8 unit = 8 x 90 = 720

Alternate :
90 % of CP = 810
$\Rightarrow$ CP = $\frac{810}{90}$ x 100
Desired SP = 80% of CP = $\frac{810}{90}$ x 100 x $\frac{80}{100}$ = 720

Sol 45. (b)
Let the CP = 100 unit
$\Rightarrow$ SP = 100 x $\frac{(100+\frac{100}{7})}{100}$ = $\frac{800}{7}$
Desired Ratio = $\frac{800}{7}$: 100
= 8 : 7

Alternate :
14 $\frac{2}{7}$ % = $\frac{1}{7}$
Let the CP = 7 unit
$\Rightarrow$ Profit = 1 unit
So, SP = 7+1 = 8 unit
$\Rightarrow$ Desired ratio = 8 : 7 ans

Sol 46. (c)
Let the CP = 100 unit
$\Rightarrow$ SP = 100 x $\frac{(100+22.5)}{100}$ = 122.5
Desired Ratio = 100 : 122.5
= 40 : 49

Alternate :
22.5 % = $\frac{9}{40}$
Let the CP = 40 unit
$\Rightarrow$ Profit = 9 unit
So, SP = 40+9 = 49 unit
$\Rightarrow$ Desired ratio = 40 : 49 ans

Sol 47. (a)
20% = $\frac{1}{5}$

	CP	P/L	SP
Article 1	5	1	6
Article 2	5	-1	4

For article 1
6 unit = 180
1 unit = 30
5 unit = 5 x 30 = 150
For article 2
4 unit = 240
1 unit = 60
5 unit = 5 x 60 = 300
Total CP of two articles = 150+300 = 450

Sol 48. (c)
According to the question
(18+20) % of CP = 570
CP = $\frac{570}{38}$ x 100 = 1500
Desired SP = 1500 x $\frac{88}{100}$ = 1320

Sol 49. (b)
CP of the article = 1800
Profit % = 32
Desired SP = 1800 x $\frac{132}{100}$ = 2376

Alternate :
32% = $\frac{8}{25}$
According to the question
25 unit = 1800
1 unit = 72
SP (33 unit) = 33 x 72 = 2376

Sol 50. (b)
20% = $\frac{1}{5}$
Let the SP = 5 unit and Profit = 1 unit
$\Rightarrow$ CP = 5-1 = 4 unit
Profit % = $\frac{1}{4}$ x 100 = 25 %

Sol 51.(c)
25% = $\frac{1}{4}$
Let the CP = 4 unit and SP = 1 unit
$\Rightarrow$ Loss = 4-1 = 3 unit
Loss % = $\frac{3}{4}$ x 100 = 75 %

Sol 52. (d)
15% = $\frac{3}{20}$ and 12% = $\frac{3}{25}$

CP	P/L	SP
20	3	23
25	3	28

Balancing the ratio for CP

CP	P/L	SP
100	15	115
100	12	112

According to the question
(115-112) unit = 18
1 unit = 6
CP (100 unit) = 600

Sol 53. (a)
20% = $\frac{1}{5}$
Let the CP = 5 unit and Profit = 1 unit
$\Rightarrow$ SP = 5+1 = 6 unit
According to the question
(6-5) unit = 180
SP (6 unit) = 6 x 180 = 1080

Pinnacle

Sol 54. (d)
30% = $\frac{3}{10}$
Let the CP = 10 unit and loss = 3 unit
⇒ SP = 10-3 = 7 unit
According to the question
7 unit = 84
1 unit = 12
CP (10 unit) = 10 x 12 = 120
Clearly if the article is sold at Rs. 120, there will be no profit and no loss.

Sol 55. (b)
20% = $\frac{1}{5}$
Let the CP = 5 unit and profit = 1 unit
⇒ SP = 5+1 = 6 unit
According to the question
6 unit = 2400
1 unit = 400
⇒ There was profit of Rs. 400 on one article but overall there was no profit and no loss so the loss on the other article must be Rs. 400.

Sol 56. (a)
Given,
Profit = $\frac{3}{5}$ of Sale Price
Let the sale price = 5 unit
⇒ Profit = 3 unit
According to the question
5 unit = 120
1 unit = 24
⇒ 3 unit = 72

Sol 57. (d)
30% = $\frac{3}{10}$
Let the CP = 10 unit and Profit = 3 unit
⇒ SP = 13 unit
According to the question
10 unit = 24000
1 unit = 2400
13 unit = 31200

Sol 58. (d)
According to the question
(17+15)% of CP = 96
CP = $\frac{96}{32}$ x 100
Desired SP = $\frac{96}{32}$ x 100 × $\frac{110}{100}$ = 330

Sol 59. (d)
30% = $\frac{3}{10}$ and 45% = $\frac{9}{20}$
MP : CP : SP
13 : 10
20 : 29
Balancing the ratio for CP
MP : CP : SP
26 : 20 : 29
According to the question
26 unit = 2600
1 unit = 100
29 unit = 2900

Sol 60. (b)
10% of CP = 960 × $\frac{10}{100}$ =96
New SP = 1392-96 = 1296
Profit earned = 1296-960 = 336
Desired %age of profit = $\frac{336}{960}$ x 100 = 35%

Sol 61. (c)
Given,
CP = $\frac{6}{7}$ of Sale Price
Let the sale price = 7 unit and cost price = 6 unit
⇒ profit = 1 unit
Profit % = $\frac{1}{6}$ x 100 = 16.67 %

Sol 62. (c)
25% = $\frac{1}{4}$
Let the CP = 4 unit and Profit = 1 unit
⇒ SP = 4+1 = 5 unit
Desired %age = $\frac{1}{5}$ x 100 = 20%

Sol 63. (c)
SP : CP
4 : 5
Let the SP = 4 unit and CP = 5 unit
⇒ Loss = 5-4 = 1 unit
According to the question
4 unit = 80
1 unit = 20

Sol 64. (b)
16% = $\frac{4}{25}$ and 12% = $\frac{3}{25}$
MP : SP : CP
25 : 21
28 : 25
Balancing the ratio for CP
MP : SP : CP
100 : 84 : 75
According to the question
75 unit = 12000
1 unit = 160
MP (100 unit) = 160 x 100 = 16000

Sol 65. (c)
40% = $\frac{2}{5}$ and 15% = $\frac{3}{20}$
CP : MP : SP
5 : 7
20 : 17
Balancing the ratio for CP
CP : MP : SP
100 : 140 : 119
Desired Profit % = $\frac{119-100}{100}$ x 100 = 19 %

Sol 66. (d)
Let the total number of goods are 5 unit and Price of each good = 100
Total CP = 5 x 100 = 500
20% of 5 = 1
40% of 5 = 2
Sale Price of 20% of goods sold at 50% profit = 1 x 100 x $\frac{150}{100}$ = 150
Sale Price of 40% of goods = 2 x 100 x $\frac{80}{100}$ = 160
Sale Price of 20% of goods sold at 5% loss = 1 x 100 x $\frac{95}{100}$ = 95
Sale of remaining goods = 1 x 100 = 100

Total Sale Price = 150+160+95+100 = 505
Profit earned = 505-500 = 5
%age profit = $\frac{5}{500}$ x 100 = 1%

Sol 67. (c)
25% = $\frac{1}{4}$
Let the CP = 4 unit and Profit = 1 unit
⇒ SP = 4+1 = 5 unit
According to the question
5 unit = 2400
1 unit = 480
4 unit = 4 x 480 = 1920
Profit earned = 2160-1920 = 240
Desired profit % = $\frac{240}{1920}$ x 100 = 12 $\frac{1}{2}$ %

Sol 68. (c)
12.5% = $\frac{1}{8}$
Let the CP = 8 unit and Profit = 1 unit
⇒ SP = 8+1 = 9 unit
According to the question
8 unit = 480
1 unit = 60
9 unit = 9 x 60 = 540

Sol 69. (b)
20% = $\frac{1}{5}$ and 10% = $\frac{1}{10}$

A	B	C
5	: 6	
	10	: 11
50	: 60	: 66

According to the question
66 unit = 6666
1 unit = 101
60 unit = 6060

Sol 70. (a)
25% = $\frac{1}{4}$
Let the SP = 4 unit and Profit = 1 unit
⇒ CP = 4-1 = 3 unit
According to the question
1 unit = 11
3 unit = 3 x 11 = 33

Sol 71. (a)
According to the question
(23-14) % of CP = 189
⇒ CP = $\frac{189}{9}$ x 100 = 2100

Sol 72. (b)
According to the question
c:d = 100:150
Let the CP (c) = 100 unit
And SP (d) = 150 unit
Profit earned = 150-100 = 50 unit
Desired Profit % = $\frac{50}{100}$ x 100 = 50%

Sol 73. (b)
Total Profit / Loss earned = 3000 × ($\frac{15}{100}$ + $\frac{10}{100}$ - $\frac{15}{100}$) = 300
Note : Positive sign indicates that there was profit on the whole transaction.
Total CP = 3 x 3000 = 9000
Desired Profit % = $\frac{300}{9000}$ x 100 = $\frac{10}{3}$ %

Alternate :
15% = $\frac{3}{20}$ and 10% = $\frac{1}{10}$

	CP	SP
Article 1	20	23
Article 2	10	11
Article 3	20	17
Balancing the ratio for CP		
	CP	SP
Article 1	20	23
Article 2	20	22
Article 3	20	17
+		
Total	60	62

Desired Profit % = $\frac{62-60}{60}$ x 100 = $\frac{10}{3}$ %

Sol 74. (c)
Let the CP = 100 unit
Profit earned = 100 × $\frac{400}{100}$ = 400 unit
⇒ SP = 100+400 = 500 unit
New CP = 100 + (100 × $\frac{100}{100}$) = 200 unit
Profit earned = 500-200 = 300 unit
Desired ratio = 300 : 500
3 : 5

Alternate :
400% = $\frac{4}{1}$

CP	SP
1	5

Let the CP = 1 unit
⇒ SP = 5 unit
After 100% increment new CP = 2 unit
Profit earned = 5-2 = 3 unit
Desired ratio = 3 : 5

Sol 75. (b)
According to the question

CP		SP
4	:	3

Let the CP = 4 unit
And SP = 3 unit
Loss = 4-3 =1 unit
Loss% = $\frac{1}{4}$ x 100 = 25%

Sol 76. (b)
Total number of nuts = 30 x 12 = 360
Total CP = 14400
SP of 5 nuts = 250
SP of 360 nuts = 250 x 72 = 18000
Profit earned = 18000-14400 = 3600

Sol 77. (c)
10% = $\frac{1}{10}$ and 12.5% = $\frac{1}{8}$
According to the question

SP1		SP2	:	CP
10	:	9		
		9	:	8
10	:	9	:	8

Now,
10 unit = 500
1 unit = 50
8 unit = 8 x 50 = 400

Sol 78. (c)
Total Nuts = (30 x 12 + 32 x 20) = 1000
Total CP = 14400+57600 = 72000
SP of 5 nuts = 432
⇒ SP of 1000 nuts = 432 x 200 = 86400
Profit earned = 86400-72000 = 14400
Desired Profit % = $\frac{14400}{72000}$ x 100 = 20%

Sol 79. (c)
Total CP = 2 x 40000 = 80000
Total SP = 80000 x $\frac{125}{100}$ = 100000
⇒ SP of second bike = 100000-48000 = 52000
Alternate :
%age profit earned on first bike = $\frac{48000-40000}{40000}$ x 100 = 20%
Let the %age profit earned on 2nd bike = x %
According to the question
$\frac{20+x}{2}$ = 25
...(Cost Price of the bikes are same)
⇒ x = 30 %
SP of the 2nd bike = 40000 x $\frac{130}{100}$ = 52000

Sol 80. (b)
Desired %age of profit = $\frac{1800-1440}{1440}$ x 100 = 25%

Sol 81. (d)
According to the question
(20+17.5) % of CP = 1440
CP of the article = $\frac{1440}{37.5}$ x 100
New SP of the article = $\frac{1440}{37.5}$ x 100 × $\frac{115}{100}$ = 4416

Sol 82. (a)
Let the CP of A = a and B = b
According to the question
a+b = 1200 …….(1)
And
$a \times \frac{110}{100} + b \times \frac{120}{100} = 1390$
11a + 12b = 13900 …….(2)
Multiply equation 1 by 11 and subtract it from (2)

11a + 12b = 13900
11a + 11b = 13200
-
b = 700

⇒ a = 1200-700 = 500
Desired ratio = 500 : 70
= 5 : 7

Sol 83. (a)
Cost price of D = 1400 × $\frac{125}{100}$ × $\frac{120}{100}$ × $\frac{85}{100}$ = 1785
Alternate :
25% = $\frac{1}{4}$, 20% = $\frac{1}{5}$ and 15% = $\frac{3}{20}$

4	5
5	6
20	17
400	510

According to the question
400 unit = 1400
1 unit = 3.5
510 unit = 1785

Sol 84. (c)
12% = $\frac{3}{25}$ and 15% = $\frac{3}{20}$

CP	P/L	SP
25	3	28
20	-3	17

Balancing the ratio for SP

CP	P/L	SP
425	51	476
560	-84	476
985	-33	952

According to the question
476 unit = 9520
1 unit = 20
985 unit = 19700
33 unit = 660
Desired Loss %age = $\frac{660}{19700}$ x 100 = 3.35% ≈ 3.4%
Note : To calculate %age data we don't need to find the exact values. For example here
CP = 985 unit
Loss = 33 unit
Desired Loss %age = $\frac{33}{985}$ x 100 = 3.35% ≈ 3.4%

Sol 85. (a)
SP = 702
Profit = 162
CP = 702-162 = 540
Extra profit to be earned = 540 × $\frac{10}{100}$ = 54
Desired SP = 702 + 54 = 756

Sol 86. (d)
10% = $\frac{1}{10}$ and 8% = $\frac{2}{25}$

MP	SP	CP
10	:	9
27	:	25

Balancing the ratio for SP

MP	SP	CP
30	: 27	: 25

According to the question
30 unit = 480
1 unit = 16
25 unit = 400

Sol 87. (c)
Two third = $\frac{2}{3}$ and 20% = $\frac{1}{5}$
Let the total number of articles = 15 …..(LCM of 3 and 5)
and the CP of each article = 100 unit
CP of the two-third of the articles = 15 × $\frac{2}{3}$ x 100 = 1000 unit
Profit earned on two-third of the articles = 1000 × $\frac{25}{100}$ = 250 unit
Loss on the two-third of the articles (3 articles) = 3 x 100 × $\frac{20}{100}$ = 60 unit

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Profit earned on the remaining articles (2 articles) = 2 x 100 × $\frac{20}{100}$ = 40 unit
Total profit earned = 250-60+40 = 230 unit
According to the question
270 unit = 3312
1 unit = 14.4
Total CP (1500) = 14.4 x 1500 = 21600

Sol 88. (b)
Sale Price of one article = $\frac{1250}{25}$ = Rs. 50
Cost price of one article = 50 x $\frac{100}{90}$ = $\frac{500}{9}$
Sale Price of the article at 17% profit = $\frac{500}{9}$ x $\frac{117}{100}$ = 65
⇒ Number of articles sold in 2600 = $\frac{2600}{65}$ = 40
Alternate :

Desired Number of Articles = $\frac{S_N \times N_O \times (100 \pm K)}{S_O \times (100 \pm M)}$

= $\frac{2600 \times 25 \times (100-10)}{1250 \times (100+17)}$ = 40

S_N = New Sale Price

S_O= Old Sale Price

N_O = number of article

k = Old Profit/Loss

M = New Profit/Loss

Sol 89. (d)
10% = $\frac{1}{10}$ and 20% = $\frac{1}{5}$

MP	CP	SP
6	5	
	10	9

Balancing the ratio for CP

MP	CP	SP
12	10	9

%age Discount = $\frac{12-9}{12}$ x 100 = 25%

Sol 90. (b)
20% = $\frac{1}{5}$
Let the CP = 5 unit
Loss = 1 unit
⇒ SP =5-1 = 4 unit
According to the question
4 unit = 230
1 unit = 57.5
5 unit = 57.5 x 5 = 287.5
New SP = 339.25
Profit earned = 339.25-287.50 = 51.75
%age Profit = $\frac{51.75}{287.50}$ x 100 = 18

Sol 91. (d)
21 x CP = 20 x SP
$\frac{CP}{SP} = \frac{20}{21}$
Let the CP = 20 unit and SP = 21 nit
Profit = 21-20 = 1 unit
%age profit = $\frac{1}{20}$ x 100 = 5 %

Sol 92. (a)
According to the question
(30+8) % of CP = 950
⇒ CP = $\frac{950}{38}$ x 100 = 2500

Sol 93. (a)
90% = $\frac{9}{10}$
Let the SP = 10 unit and CP = 9 unit
⇒ Profit = 10-9 = 1 unit
%age profit = $\frac{1}{9}$ x 100 = 11 $\frac{1}{9}$ %

Sol 94. (b)
20% = $\frac{1}{5}$ and 10% = $\frac{1}{10}$

CP	P/L	SP
5	1	6
10	-1	9

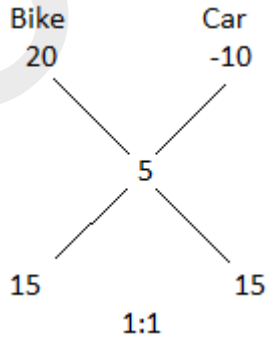
Balancing the ratio for CP

CP	P/L	SP
10	2	12
10	-1	9
20	1	21

Desired Profit %age = $\frac{1}{20}$ x 100 = 5

Sol 95. (b)
Let the CP of Car = c and Bike = b
According to the question
c + b = 500000 …….(1)
Also
20% of b - 10% of c = 5% of 500000
2b - c = 250000 ……(2)
Adding (1) and (2)
3b = 750000
b = 250000

Alternate :



According to the question
(1+1) unit = 500000
1 unit = 250000

Sol 96. (a)
33 $\frac{1}{3}$ % = $\frac{1}{3}$ and 25% = $\frac{1}{4}$
Let the total number of mangoes = 12 and cp of a mango = 100 unit
Mangoes sold at 22.5% of profit = 12 × $\frac{1}{3}$ = 4
Profit earned on the mangoes sold at 22.5% of profit = 400 x $\frac{22.5}{100}$ = 90
Mangoes sold at 22.5% of profit = 12 × $\frac{1}{4}$ = 3
Loss on the mangoes sold at 25% of loss = 300 x $\frac{25}{100}$ = 75

Loss on the remaining article = 500 x $\frac{3}{100}$ = 15
Total profit/loss on the whole transaction = 90-75-15 = 0
Clearly there is no profit and no loss.

Sol 97. (b)
According to the question
(13.5 + 31) % of CP = 8900
⇒ CP = $\frac{8900}{44.5}$ x 100 = 20000
Profit earned= 20740-20000 = 740
%age profit = $\frac{740}{20000}$ x 100 = 3.7 %

Sol 98. (a)
40% = $\frac{2}{5}$ and 25% = $\frac{1}{4}$
According to the question
MP : SP : CP
5 : 3
5 : 4
Balancing the ratio for SP
MP : SP : CP
25 : 15 : 12
Desired ratio = 12 : 25

Sol 99. (c)
6.25% = $\frac{1}{16}$
Let the CP = 16 unit and SP = 15 unit
According to the question
15 unit = 300
1 unit = 20
16 unit = 320
Profit earned = 352-320 = 32

Sol 100. (c)
Let the SP of a article = 1
SP of 30 articles = 30
SP of 9 articles = Profit = 9
CP of 30 articles = 30-9 = 21
%age profit = $\frac{9}{21}$ x 100 = 42 $\frac{6}{7}$

Sol 101. (d)
25% = $\frac{1}{4}$ and 40% = $\frac{2}{5}$
CP : SP : New SP
4 : 3
5 : 7
Balancing the ratio for SP
CP : SP : New SP
20 : 15 : 21
Desired gain % = $\frac{21-20}{20}$ x 100 = 5%

Sol 102. (d)
4% = $\frac{1}{25}$
Let the CP =25 unit and loss = 1 unit
⇒ SP = 25-1 = 24 unit
According to the question
24 unit = 806.40
1 unit = 33.6
25 unit = 840
Desired %age = $\frac{882-840}{840}$ x 100 = 5%

Sol 103. (c)
40% = $\frac{2}{5}$
Since profit is calculated on the sale price.
Let SP = 5 unit and Profit = 2 unit
⇒ CP = 5-2 = 3 unit
Actual %age of profit = $\frac{2}{3}$ x 100 = 66 $\frac{2}{3}$ %

Sol 104. (d)
Total profit earned = $200 \times \frac{5}{100} + 300 \times \frac{10}{100} = 40$
Desired %age of profit = $\frac{40}{200+300}$ x 100 = 8%

Sol 105. (c)
20% = $\frac{1}{5}$
Let the CP = 5 unit and loss = 1 unit
⇒ SP = 5-1 = 4 unit
According to the question
4 unit = 96
1 unit = 24
5 unit = 120
Desired sale price = 120 x $\frac{115}{100}$ = 138

Sol 106. (a)
According to the question
24 x sp = 26 x cp
$\frac{sp}{cp} = \frac{13}{12}$
Let the cp = 12 unit and sp = 13 unit
⇒ profit = 13-12 = 1 unit
Desired %age of profit = $\frac{1}{12}$ x 100 = $\frac{25}{3}$ %

Sol 107. (c)
10% = $\frac{1}{10}$ and 25% = $\frac{1}{4}$
SP : MP : CP
9 : 10
5 : 4
Balancing the ratio for MP
SP : MP : CP
9 : 10 : 8
According to the question
9 unit = 360
1 unit = 40
8 unit = 8 x 40 = 320

Sol 108. (d)
20% = $\frac{1}{5}$ and 16% = $\frac{4}{25}$
MP : SP : CP
5 : 4
29 : 25
Balancing the ratio for SP
MP : SP : CP
145 : 116 : 100
According to the question
100 unit = 425
1 unit = $\frac{17}{4}$
145 unit = $\frac{17}{4}$ x 145 = 616.25

Sol 109.
40% = $\frac{2}{5}$ and 25% = $\frac{1}{4}$
SP : MP : CP
3 : 4
7 : 5
Balancing the ratio for MP
MP : SP : CP
28 : 21 : 20
Let CP = 20 unit and SP = 21 unit

Desired gain % = $\frac{21-20}{20}$ x 100 = 5%

Sol 110. (c)
Let the total number of goods = 10 and cp of a good = 100 unit
⇒ MP = 140 unit
Total CP = 10 x 100 = 1000 unit
Sp of 70% goods = 7 x 140= 980 unit
SP of remaining goods = 3 x 140 x $\frac{60}{100}$ = 252 unit
Total SP = 980+252 = 1232 unit
Desired %age of profit = $\frac{1232-1000}{1000}$ x 100 = 23.2 %

Sol 111. (b)
25% = $\frac{1}{4}$ and 10% = $\frac{1}{10}$
SP : MP : CP
9 : 10
5 : 4
Balancing the ratio for MP
MP : SP : CP
10 : 9 : 8
Desired profit %age = $\frac{9-8}{8}$ x 100 = 12.5 %

Sol 112. (a)
Let the sale price of a mobile = 1 unit
Total sale price = 36 x 1 = 36 unit
Loss amount = 4 unit
Cost price of the article = 36+4 = 40 unit
Required loss % = $\frac{4}{40}$ x 100 = 10%

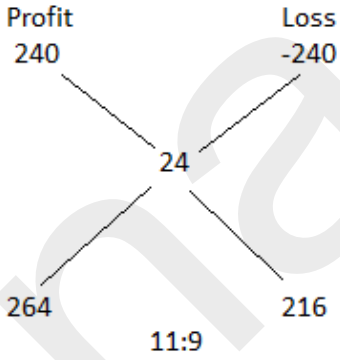
Sol 113. (c)
25% = $\frac{1}{4}$ and 40% = $\frac{2}{5}$
CP : SP1 : SP2
4 : 3
5 : 7
Balancing the ratio for SP1
CP : SP1 : SP2
4 : 3 : **3**
5 : 5 : 7

---

20 : 15 : 21
Required profit %age = $\frac{21-20}{20}$ x 100 = 5%

Alternate :
Final sale price of the article = 1240 x $\frac{75}{100}$ x $\frac{140}{100}$ = 1302
Required profit %age = $\frac{1302-1240}{1240}$ x 100 = 5%

Sol 114. (b)
Had both articles were sold on 12% profit, total profit = 2000 x $\frac{12}{100}$ = 240
Had both articles were sold on 12% loss, total loss = 2000 x $\frac{12}{100}$ = 240
Overall profit on the both transaction = 2000 x $\frac{1.2}{100}$ = 24



According to the question
(11+9) unit = 2000
1 unit = 100
11 unit = 11x100 = 1100

Sol 115. (c)Let the cp of mobile = x
According to question
x(25-20)% = 1000
X = 20000
Initial paid = 20000 × $\frac{80}{100}$ = 16000

Sol 116. (a) Overall loss % = $\frac{11\times11}{100}$ = 1.21%

Sol 117. (d)
25% = $\frac{1}{4}$ and 37.5% = $\frac{3}{8}$
CP : P/L : SP
4 +1 5
8 -3 5
Balancing the ratio for CP
CP : P/L : SP
8 +2 10
8 -3 5
According to the question
(10-5) unit = 1250
1 unit = 250
8 unit = 250 x 8 = 2000
Required SP = 2000 x $\frac{112.5}{100}$ = 2250

Sol 118. (a)
15% = $\frac{3}{20}$
CP : SP1 : SP2
20 : 23 : 17
According to the question
23 unit = 1725
1 unit = 75
17 unit = 1275

Sol 119. (c)
25% = $\frac{1}{4}$
Let the cost price = 4 unit
⇒ the sale price = 1 unit
Required %age = $\frac{4-1}{4}$ × 100 = 75%

Sol 120. (b)
Cost Price = 960
Sale Price = 1392
Effective sale price = (1392 - 960 x $\frac{10}{100}$) = 1296
Required profit %age = $\frac{1296-960}{960}$ x 100 = 35%

Sol 121. (a)
Cost Price = 1,35,000
Sale Price = 1,10,000
Required %age = $\frac{135000-110000}{135000}$ x 100 = $\frac{500}{27}$ %

Sol 122. (c) Total cost of the scooter = 30000+3000 = 33,000
Sale Price = 39,600

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Required %age = $\frac{39600-33000}{33000}$ x 100= 20%

Sol 123. (a)
Profit earned = Sale Price - Cost Price
According to the question
6(SP-CP) = (2SP-CP)
⇒ 5 CP = 4 SP
⇒ $\frac{CP}{SP} = \frac{4}{5}$
Required profit %age = $\frac{5-4}{4} \times 100 = 25\%$

Sol 124. (b)
Total Cost price of Rice = (22x35 + 13x30) = 1160
Total Sale price of Rice = (22+13) x 40 = 1400
Required %age = $\frac{1400-1160}{1160} \times 100$
$\approx 20.7 = 21\%$

Sol 125.(b)
According to the question
(12+24)% of CP = 162
⇒ Cost Price = 450
Required loss % = $\frac{450-360}{450}$ x 100 = 20%

Sol 126. (b)
Total Cost price = 120 x 15 = 1800
Total Sale price = 110 x 18 = 1980
Required profit %age = $\frac{1980-1800}{1800}$ x 100 = 10%

Sol 127. (c)
Revenue = Rs. 5
Earning = Rs. 1
Cost price = 5-1 = Rs.4
For CP of Rs. 4, earning = Rs. 1
For CP of Rs.1, earning = Rs. $\frac{1}{4}$
For CP of Rs. 4800, earning = 4800 x $\frac{1}{4}$ = 1200

SSC CGL 2019 TIER I

Sol 1. (d) Let the original cost price of article is 100 units
At 10% loss on CP, SP is 90 units
If article is sold at ₹332 more, there is 20% profit, ie. SP = 120 units
120-90 = 30 units = ₹ 332
1 unit = $\frac{332}{30}$
Original SP = 90 units = $\frac{332}{30} \times 90$ = ₹ 996

Sol 2. (b) Let cost price of article be ₹100
Then SP after 25% increment = ₹125
If CP raise by 20% = ₹120
And SP raise by 10% = ₹ 137.50
% profit= $\frac{137.5-120}{120} \times 100$
= 14.58%

Sol 3. (b) Let CP of machine be x
At 5% profit, on 6 sewing machines
$6 \times (\frac{105}{100}$ of x) = ₹63000
X = ₹ 10000
Cost price for 8 machines= 8 × ₹10000 = ₹80,000
To earn 15% profit,
Selling price of 8 machines = $\frac{115}{100} \times 80{,}000$ = ₹ 92,000

Sol 4. (c) Let cost price of 1 table be 't' and cost price of 1 chair be 'c'
5t + 9c = ₹ 15,400
As 5 tables are sold at 10% profit and 9 chairs at 20% profit, total profit is ₹ 2080
If all the articles would have been sold at 10% profit, actual profit would have been ₹ 15,40. But the extra ₹ 5,40 profit is due to 10% more profit on 9 chairs.
For 9 chairs, 1% of profit = ₹ 54
For 1 chairs, 1% of profit = ₹6
Thus, cost price of 1 chair = ₹ 600
Cost price of 3 chairs = ₹ 1,800

Sol 5. (d) Let there be 12 goods of 100 unit each
Total CP = 1200 unit
One third of goods= 4, which are sold at 15% profit i.e. for 115 unit each
SP_1 = 460unit
25% of goods = 3 which are sold at 20% profit i.e for 120 unit each
SP_2 = 360unit
Remaining goods = 5 are sold at 20% loss i.e. for 80unit each
SP_3 = 400unit
Total Selling price = 1220units

Total profit = 20unit
As per condition given in question:
20 unit = ₹ 138.50
1 unit = ₹ 6.925
1200 units = ₹ 8,310

Sol 6. (b) Let cost price of A =100 units
According to question:
At 20% loss, CP for B = 80 units
At 12.5% profit, CP for C = 90 unit
At 8% loss, CP for D = 82.80 unit
82.80 units = ₹ 248.40
1 units = ₹ 3
Now, loss incurred by A = 20 units; and loss incurred by C = 7.20 units
Required difference = 12.80 units = ₹38.40

Sol 7. (b) C.P for Sudha = ₹ 576 × $\frac{100}{80}$ = ₹ 720
C.P. for Renu = ₹ (576+224) = ₹ 800
C.P for Raghu = ₹ $\frac{124}{100} \times 720$ = ₹ 892.80
Renu profit % = $\frac{892.80-800}{800} \times 100$ = 11.6%

Sol 8. (a) Cost price of 48 articles $= \frac{2160}{90} \times 100 = ₹\ 2400$
CP of 1 article = ₹ 50
Number of articles in ₹ 2016 = $\frac{2016}{50}$
Profit% $= \frac{CostQuantitative - SellingQuantitative}{sellingQuantitative} \times 100$
$\Rightarrow \frac{12}{100} = \frac{\frac{2016}{50} - S}{S} \Rightarrow \frac{6}{50} = \frac{\frac{2016}{50} - S}{S}$
$\Rightarrow$ S = 36 articles

Sol 9. (d) CP of laptop = ₹ 42,000
CP of scanner-cum-printer = ₹ 8,000
Total CP = ₹ 50,000
SP of laptop = ₹ 46,200
SP of scanner-cum-printer = ₹ 8,400
Total SP = ₹ 54,600
Total Profit = ₹ 4,600
Profit % = $\frac{4600}{50000} \times 100 = 9\frac{1}{5}\%$

Sol 10. (c) Let CP of article = 100 %
₹ 49 change occur due to 7% change in price
1% = ₹ 7
100% = ₹ 700

Sol 11. (b) Let the manufacturing cost = ₹ x
$\Rightarrow x \times \frac{110}{100} \times \frac{115}{100} = ₹\ 7590$
$\Rightarrow$ x = ₹ 6000

Sol 12. (d) Due to 4% change in profit%, there is a difference of ₹36.
1% of CP = ₹ 9
CP = ₹ 900

Sol 13. (d) CP of 18 tables = $\frac{111664}{90} \times 100$ = ₹12960
CP of 1 table = ₹ 720
Number of tables for ₹ 17,424 = $\frac{17424}{720} = 24.2$
To earn 10% profit, number of table that can be sold for ₹ 17,424
$\Rightarrow \frac{10}{100} = \frac{24.2 - S}{S}$
S = 22 tables

Sol 14. (b) Let the cost price of two watches be ₹ A and ₹ B respectively.
118% of A = 78% of B
Therefore, $\frac{A}{B} = \frac{78}{118} = \frac{39}{59}$
A = 39 units and B = 59 units
A+B = ₹ 800
98 units = ₹ 800
1 units = ₹ 8.163
A = ₹ 39 × 8.163 = ₹ 318.37
B = ₹ 59 × 8.163 = ₹ 481.63

Sol 15. (c) $SP_1 = SP_2$
Overall gain/loss% = 18-18-$\frac{18\times18}{100}$ = 3.24 loss
If total CP = 100, loss = 3.24 and SP = 96.76
But total SP = 60, then, Loss = $\frac{60}{96.76} \times 3.24 \approx$ ₹ 2 (approx.)

Sol 16. (b) Let CP = 10 units, then SP = 13 units
profit% at SP = $\frac{13-10}{13} \times 100 = 23.1\%$

Sol 17. (d) Let the cost price of the first book = ₹x. Then, cost price of second book = ₹(300-x)
120% of x + 90% of (300-x) = 300
30% x + 270 = 300
x = ₹100
Selling price of first book = 120% of x = ₹120

Sol 18. (a)
Cost price of car = ₹1,08,500
Let maintenance cost = ₹ x
Selling price = ₹ 1,56,250
$\frac{125}{100} \times (108500 + x) = 156250$
$\frac{5}{4} \times (108500 + x) = 156250$
x = ₹ 16,500

SSC CHSL 2019

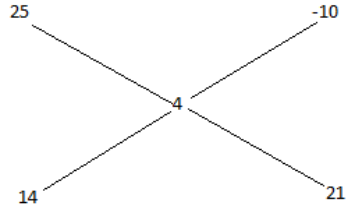
Sol:1. (d)
Let the cost price = 100
List price = 115
Selling price = $115 \times \frac{80}{100} = 92$
loss percent = 8%

Sol:2. (a)
According to the question
125% of CP = 70,000
130% of CP = $\frac{130}{125} \times 70000 =$ 72,800

Sol:3. (d)
If CP of bike = 100
Then, SP = 80 (20% loss)
And we have to find the price of bike at a loss of 30%(it means SP = 70)
If 80 → Rs 2500
Then 70 → Rs 2187.5

Sol:4. (a)
Let CP of article = 100
Then, SP at a loss of 20% = 80 → Rs7,160
SP at a profit of 30% = 130 → Rs 11,635

Sol:5.(d)



Ratio of both types = 14 : 21 = 2 : 3
Items at loss = $\frac{3}{5} \times 40 = 24$

Sol:6.(a)
Let A purchased the item = 100
B purchased the item from A at price = 120 (A sells the item at 20% profit to B)
C purchased the item from B at price = 132 (B sells the item at 10% profit to C)
Had C purchased the item from A at price = 125.4 (C spent 5% less than what he spent with B)

So Profit made by A = 125.4 - 100 = 25.4
We know that
132 → *Rs* 132000
25.4 → Rs 25400

Sol:7.(d)
90%=18000
115%=230000

Sol:8. (c)
cost price × 12 pen = selling price × 8
$\frac{CP}{SP} = \frac{2}{3}$
profit percent = $\frac{3-2}{2} \times 100 = 50\%$

Sol:9. (a)
Number of articles = $\frac{150}{3} = 50$
Cost Price of one article = $\frac{250}{50}$ = Rs 5
the selling price of 21 articles if profit earned is 20% = 21 × 5 × 120% = Rs126

Sol:10.(b)
cost price × 15 = selling price × 20
$\frac{CP}{SP} = \frac{4}{3}$
Loss percent = $\frac{4-3}{4} \times 100 = 25\%$

Sol:11. (d)
85% = 3060
120% = 4320
selling price = 4320

Sol:12. (c)
Difference between 25% gain and 15% loss = 40%
40% = 800
100% = 2000
so, the cost price = 2000

Sol:13. (d)
If selling price = 5 unit, then profit = 1 unit
Cost price = 5-1 = 4 unit
Profit percentage = $\frac{1}{4} \times 100 =$ 25%

Sol:14. (b)
Selling price after discount = 800 × $\frac{80}{100} = 640$
Profit = 25%
Cost price = 640 × $\frac{100}{125} = 512$

Sol:15. (c)
Let cost price = 100
90% = 810
104% = 936
So, selling price = 936

Sol:16. (a)
cost price × 33 = selling price × *x*
$\frac{CP}{SP} = \frac{x}{33}$
profit = 33-x
$10 = \frac{33-x}{x} \times 100$
x = 30

Sol:17. (c)
Let the profit or loss = x
So, 12000-x = 9000+x
x = 1500
Cost price = 12000-1500 = 10500
Selling price = 10,500 × $\frac{120}{100}$ = 12,600

Sol:18. (c)
After first discount = 1800 × $\frac{88}{100}$ = 1584
Additional discount = 1584-1200 = 384
Required percentage = $\frac{384}{1584} \times 100 = 24.24\%$

Sol:19. (a)
6 in Rs.8 and 10 in Rs.12
First, make quantity equal
Let, total quantity = 30 (LCM of 6 and 10)
if 6 in Rs.8 then 30 in Rs.40
if 10 in Rs.12 then 30 in Rs.36
Loss = 40-36 = 4
Percent loss = $\frac{4}{40} \times 100 = 10\%$

Sol:20. (d)
Let the cost price = 100
Marked price = 120
Discount = 120-100 = 20
required percentage = $\frac{20}{120} \times 100 = 16\frac{2}{3}$ **%**

Sol:21. (b)
Total cost price of printer = 3200+600 = 3800
Profit = 4280-3800 = 480
Profit percent = $\frac{480}{3800} \times 100 =$ 12.63%

Sol:22. (a)
(x+5)% - x% = 750-720 = 30
5% = Rs30
CP(100%) = Rs.600
Profit on article when it is sold at Rs.720 = 720-600 = Rs.120
Profit % = $\frac{120}{600} \times 100 = 20\%$

Sol:23. (d) On selling 26 balls for Rs.1350, there is a loss equal to the cost price of eight balls, it means in this money I can purchase 8 balls less than 26 balls
So in Rs.1350 I can purchase 18 balls.
cost price of a ball = 1350/ 18 = Rs.75

Sol:24.(d)
Let the CP is 100
Then, MP = 125 (marked price of an article is 25% more than its cost price)
Discount = 25%
So, SP = 112.5
Hence , Profit is 12.5%

Sol:25. (a)
CP of the article = (8800 + 7200)/2 = Rs.8000
Profit when article is sold at Rs.9600 = 9600-8000 = Rs.1600

Pinnacle

Profit % = 1600/8000 × 100 = 20%

Sol:26. (c)
Let the CP of the article is 10x and SP is 13x
According to the question
13x-100 - 10x+100 = 45%(10x-100)
1.5x = 45
$x = 30$
The original cost price of the article = 10x = Rs.300

Sol:27. (d)
Let the cost price of an article = Rs. C
According to the question:-
13400 - C = C - 11600
⇒ 2C = 13400 + 11600 = 25000
⇒ C = 12500
Profit when selling price is Rs. 14750 = 14750 – 12500 = 2250

Sol:28. (b)
Let CP = C
Loss = 15%
$C \times \frac{85}{100} = 255000$
$C = 255000 \times \frac{100}{85} = 300000$
To earn 10% profit, Selling price = $300000 \times \frac{110}{100}$ = Rs. 330000

Sol:29. (a)
C.P × 25 = S.P × 35
$\frac{CP}{SP} = \frac{7}{5}$
loss = 7-5 = 2
required loss = $\frac{2}{7} \times 100 = 28.57\%$

Sol:30. (a)
Cost price of each pen = Rs. 28
Selling price of each pen = Rs. 40
Profit % = $\frac{40-28}{28} \times 100$ = 42.85%

Sol:31. (d)
Cost price = Rs. 785
Profit % = 22%
Selling price = $\frac{122}{100} \times 785$ = Rs. 957.7

Sol:32. (b)
Let the cost price be 100
120% = 600
80% = 400
So, required selling price = 400

Sol:33. (d)
Cost price = Rs. 500
Tax paid by shopkeeper = 12% of CP = $\frac{12}{100} \times 500 = 60$
Actual cost of item for shopkeeper = 500 + 60 = Rs. 560
Profit %= 20%
Discount = 16% of marked price
Selling price = actual CP + profit
$= 560 + \frac{20}{100} \times 560 = 560 + 112 = 672$
Selling price = $\frac{100-16}{100} \times MP = \frac{84}{100} \times MP$
$672 = \frac{84}{100} \times MP$
Marked price, MP = $\frac{100}{84} \times 672$ = Rs. 800

Sol:34. (d)
Total items = 40
Let the cost price of each item be Rs. 1.
Total cost of 40 items = Rs. 40
Cost price of x items = Rs. x
Let the man sell 'x' items at 30% profit equal to cost price of 26 items; i.e.
Selling price of x items = Rs. 26
$\frac{130}{100} \times x = 26$
x = 20
Therefore, 20 items are sold at 30% profit.
Remaining items = 40 - x = 40 - 20 = 20
Remaining 20 items are sold at 18% profit.
Selling price of remaining 20 items = $\frac{118}{100} \times 20$ = Rs. 23.6
Total selling price of 40 items = 26 + 23.6 = Rs. 49.6
Profit % = $\frac{49.6-40}{40} \times 100 = \frac{9.6}{40} \times 100 = 24\%$

Sol:35. (a)
Let the cost price of the book = Rs. C
As the shopkeeper earned 15% profit, Selling price, S = $\frac{115}{100} \times C$ …. (i)
Sales tax rate = 10%
Let the selling price = Rs. S
Selling price = Rs. 956.34 including the sales tax
Therefore, 956.34 = S + $\frac{1}{10} \times S = \frac{11}{10} \times S$ …. (ii)
From (i) and (ii):-
$\frac{11}{10} \times S = 956.34$
$\frac{11}{10} \times \frac{115}{100} \times C = 956.34$
$C = 956.34 \times \frac{100}{115} \times \frac{10}{11}$ = Rs. 756

Sol 36. (c)
Marks up in cost price = 35%
Discount = 15%
Profit % = $35 - 15 + \frac{35 \times (-15)}{100} = 20 - \frac{35 \times (15)}{100} = 20 - 5.25 = 14.75\%$

Sol 37. (b)
Let the cost price of chair for Ravi = Rs. x
Cost price of chair for Mohan = $\frac{11x}{10} = 1.1x$
Cost price of chair for Govind = $\frac{12\,(1.1x)}{10} = 1.32x$
1.32x = Rs. 1320
x = Rs 1000

Sol 38. (d)
Let the cost price of bike = Rs. C
At 25% profit, $C \times \frac{125}{100} = 25000$
$C = 25000 \times \frac{100}{125}$ = Rs. 20,000
To incur a loss of 15%: SP = $20000 \times \frac{85}{100}$ = Rs. 17000

SSC CGL TIER-II

Sol39:(b)
Difference in the selling price = 123.4 - 108 = 15.4
Gain = loss + 20% of loss
Let loss = x
Then profit = 1.2x
Total profit + loss = 2.2x
2.2x=15.4
x=7
Loss = 7
Cost price = 108 + 7 = 115
Profit = 120.75 -115 = 5.75
P% = $\frac{5.75}{115} \times 100 = 5\%$

Sol:40.(c)
Let CP = x
MP = 1.4 x
SP = 1.4x × $\frac{73.5}{100}$ = 1.029x
Profit = 0.029x
Profit percentage = 2.9%

Sol:41.(a)
Let CP = x
At 20% profit = 1.2x
At 30% profit = 1.3x
According to question 1.3x - 1.2x =8
0.1x=8
x = 80
16x = 1280

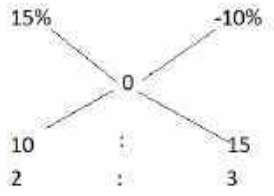
Sol:42.(b)
CP of first article = 5000 × $\frac{100}{(100-16\frac{2}{3})}$ = 6000
Loss = 1000
CP of another article =5000 - 1000 = 4000
P% = $\frac{1000}{4000} \times 100 = 25\%$

Sol:43.(b)
Let CP of A = x
CP of B = SP of A = 1.2x
CP of C = SP of B = 130% of 1.2x = 1.56x
CP of D = SP of C = 90% of 1.56x = 1.404x
Profit of B= 0.36 x
Profit of A = 0.2x
According to question
0.36x-0.2x = 80
x= 500
1.404x= 702

Sol:44.(b)
Let CP = x
At 8% gain = 1.08x
At 15% gain = 1.15x
According to the question
1.15x-1.08x = 714
0.07x = 714
x = 10200
At 18% profit = $\frac{118}{100} \times 10200 = 12036$

Sol:45.(b)
Let CP of A = x
SP of A = CP of B = 1.2x
SP of B = CP of C = 1.2x × $\frac{108}{100}$ = 1.296x
SP of C = CP of D = 1.296x × $\frac{75}{100}$ = 0.972x
Profit of A =1,2x -x =0.2x
Profit of B = 1.296x- 1.2x = 0.096x
Difference in profit = 260 = 0.104x
0.104x= 260
x= 2500
CP of D 0.972x = 2500 × 0.972 = 2,430

Sol:46(c)



Ratio of C.P=2:3
C.P of A= 4000
Profit on A= 15%2000=600
Selling Price=4600

Sol:47.(c)
38S.P. + 6C.P.=38C.P.
C.P/ S.P=19/16
S.P. of one ball =2240/38
C.P of one ball = $\frac{2240\times19}{38\times16}$ =70

Sol:48.(c)
Let cost price of article is 100%
If he sold at 2%Loss, selling price is 98%
If he sold at 20% Profit, selling price is 120%
22%= 44
Cost price, 100%=200

Sol:49.(b)
CP of first article = $\frac{9975}{105} \times 100 = 9500$
CP of second article = $\frac{9975}{95} \times 100 = 10500$
Total CP = 20000
Total SP = 19950
Loss = 50

SSC CPO 2019

Sol:50.(a)
When the article is sold at 8% gain instead of 16% loss the net change in sp is equal to 660 Rs
Net difference in percentage = 24%=660
1%=27.5
100%=2750
112%=3080

Sol:51.(a)
Let the CP be 100x
Then SP = 110x
If CP was 20% less then CP = 80x
If SP was 1000 more than SP = 110x + 1000
Now, SP = 140x
According to the question
$\frac{110x+1000}{80x} = 140x$
x = 500
So, CP = 50,000

Pinnacle

Sol:52.(d)
Let the CP be 100x
Then SP = 110x
If CP was 20% less then CP = 80x
If SP was 1000 more than SP = 110x + 1000
Now, SP = 140x
According to the question
$\frac{110x + 1000}{80x} = 140x$
x = 500
So, CP = 50,000
Earlier selling price = 110x = 55,000

Sol:53.(b)
SP of 50 articles=CP of 42 articles
SP:CP=42:50
loss= 50-42=8
loss%= $\frac{8}{50} \times 100$=16% loss

Sol:54.(d)
When the article is sold at 8% gain instead of 16% loss the net change in sp is equal to 660 Rs
Net difference in percentage = 24%=660
1%=27.5
100%=2750
When the article is sold at 3080 then net profit= 3080-2750=330
Net profit percentage= $\frac{330}{2750} \times 100$ =12%

Sol:55.(a)
According to the question
23% = 1,104
100% = $\frac{1104}{23} \times 100 = 4,800$

Pinnacle

Discount / छूट

Key Points:/ प्रमुख बिंदु:

1. Market Price/बाज़ार-भाव: The price on the label of a product, also called printed price or advertising price.
किसी उत्पाद के लेबल पर कीमत, जिसे मुद्रित मूल्य या विज्ञापन मूल्य भी कहते हैं|

2. Discount/ छूट: Amount of rebate on a fixed price is called discount./ निश्चित कीमत पर छूट की राशि को छूट कहा जाता है।

3. Selling Price = Market Price – Discount
Let us say Rs. 100 is the market price (MRP)./ मान लीजिये कि रु100 बाजार मूल्य (एमआरपी) है।
Discount is 10% i.e. 10 Rs/ डिस्काउंट 10% यानी 10 रुपये है,
Therefore, selling price = 100 – 10 = Rs. 90

4. Discount is given/ calculated on market price./ डिस्काउंट बाजार मूल्य पर दिया जाता है|

$$Discount\% = \frac{Market\ Price - Selling\ Price}{Market\ Price} \times 100$$

Or, $\frac{Discount}{Market\ Price} \times 100$

5. Selling Price $= \frac{Market\ Price \times (100 - Discount\%)}{Market\ Price}$

6. Successive Discount/ क्रमिक छूट: When two or more than two discount are given./ जब दो या दो से अधिक छूट दी जाती है|

20% and 10% discount given successively. What does it mean?
क्रमशः 20% और 10% छूट दी गई| इसका क्या मतलब है?

Let MRP or market price be Rs. 100

$100 - 20\% \rightarrow 80 - 10\% \rightarrow 72$

∴ Total discount is Rs.28 i.e. 28% of 100.

∴ Successive discount of 20% and 10% is equivalent to 28% ./ 20% और 10% की लगातार छूट 28% के बराबर है|

The above concept can be interpreted as successive % concept.

Equivalent percentage $= \left(x + y - \frac{xy}{100}\right)\%$

Here,

$\left(20 + 10 - \frac{200}{100}\right)\% = 30 - 2 = 28\%$

Example: What will be equivalent discount for three successive discounts of 20%, 20%, and 10%?
20%, 20% और 10% की लगातार तीन छूट के समतुल्य क्या छूट होगी?

Solution: First calculate equivalent discount for any two of the three, lets take 20% and 20%.
पहले तीन में से किसी भी दो के लिए समतुल्य छूट की गणना करें, चलो 20% और 20% लेते हैं| अब 36% और 10% के समतुल्य छूट की गणना करें।

$\left(20 + 20 - \frac{400}{100}\right)\% = 40 - 4 = 36\%$

Now calculate equivalent discount of 36% and 10%.

$\left(36 + 10 - \frac{360}{100}\right)\% = 46 - 3.6 = 42.4\%$

42.4% is the equivalent discount.

Variety Questions

Q1. After giving two successive discounts, each of x%, on the marked price of an article, the total discount is Rs 259.20. If the marked price of the article is Rs720, then the value of x is:
एक वस्तु के अंकित मूल्य पर x% की दो क्रमिक छूट देने के बाद कुल छूट 259.20 रुपये है | यदि वस्तु का अंकित मूल्य 720 रुपये है, तो x का मान ज्ञात करें |
SSC CGL 4 June 2019 (Morning)
(a) 18
(b) 24
(c) 20
(d) 25

Q2. An article is sold for Rs.528 after successive discounts of 20% and 12%. What is the marked price of the article?
एक वस्तु 20% और 12% की क्रमिक छूट के बाद 528 रुपये में बेची जाती है | इस वस्तु का अंकित मूल्य क्या है ?
SSC CGL 10 June 2019 (Afternoon)
(a)Rs.760
(b)Rs.740
(c)Rs.750
(d)Rs.780

Q3. A man purchases 100 copies of a book from the publisher and gets a discount of 25%. He buys 50 copies from a retailer at a discount of 10%. He got an overall discount of:
एक व्यक्ति प्रकाशक से किसी पुस्तक की 100 प्रतियाँ खरीदता है और 25% की छूट प्राप्त करता है | वह खुदरा विक्रेता से 50 प्रतियाँ खरीदता है और 10% की छूट प्राप्त करता है | उसे कुल कितनी छूट प्राप्त हुई ?
SSC CGL 4 June 2019 (Evening)
(a) 16.5%
(b) 17.5%
(c) 20%

(d) 35%

Q4. A dealer buys an article at a discount of 20% on its list price and marks it at 25% above the list price. If he allows a 20% discount on the new list price, then his profit percent is :
एक व्यापारी किसी वस्तु को इसके सूची मूल्य से 20% की छूट पर खरीदता है और फिर इसका मूल्य सूची मूल्य से 25% अधिक तय करता है | यदि वह नए सूची मूल्य पर 20% की छूट देता है, तो उसके लाभ का प्रतिशत ज्ञात करें |
SSC CGL 7 June 2019 (Morning)
(a) 24
(b) 25
(c) 20
(d) 27

Q5. A shopkeeper sells an item for Rs 492 after allowing 18% discount on its marked price. Had he not allowed any discount, he would have earned a profit of 20% on the cost price. What is the cost price of the item?
एक दुकानदार एक वस्तु को इसके अंकित मूल्य पर 18% की छूट देने के बाद 492 रुपये में बेचता है | यदि वह किसी प्रकार की छूट नहीं देता, तो उसे क्रय मूल्य पर 20% का लाभ हुआ होता | इस वस्तु का क्रय मूल्य ज्ञात करें |
SSC CGL 7 June 2019 (Afternoon)
(a) Rs 500
(b) Rs 640
(c) Rs 540
(d) Rs 600

Q6. By how much above the cost price should an article be marked up for sale so that after allowing two successive discounts of 20% and 6.25% on it, a net gain of 20% is made on the cost?
एक वस्तु की कीमत क्रय मूल्य से कितनी अधिक होनी चाहिए ताकि इस पर 20% और 6.25% की दो क्रमिक छूट देने के बाद क्रय मूल्य पर 20% का शुद्ध लाभ हो ?
SSC CGL 7 June 2019 (Evening)
(a) $66\frac{2}{3}$ %
(b) $46\frac{1}{4}$ %
(c) 50%
(d) 60%

Q7. An article is sold for Rs 612 after successive discounts of 25% and x%. If the marked price of the article is Rs 960, what is the value of x?
एक वस्तु 25% और x% की दो क्रमिक छूट के बाद 612 रुपये में बेची जाती है | यदि वस्तु का अंकित मूल्य 960 रुपये है, तो x का मान ज्ञात करें |
SSC CGL 12 June 2019 (Evening)
(a) 10
(b) 12
(c) 14
(d) 15

Q8. What is the difference between a single discount of 30% and a single discount equivalent to two successive discounts of 25% and 5%, being given on shopping of Rs2,000?
30% की एकल छूट और 25% तथा 5% की दो क्रमिक छूटों के समतुल्य एकल छूट के बीच अंतर ज्ञात करें, यदि 2000 रुपये की ख़रीदारी की जाती है |
SSC CGL 13 June 2019 (Evening)
(a) Rs25
(b) Rs15
(c) Rs20
(d) No difference

Q9. An article is marked at a price which is 1.2 times its cost price. After allowing a certain discount on the marked price, the profit reduces to 10%. The discount percent is:
एक वस्तु की कीमत इसके क्रय मूल्य से 1.2 गुना रखी जाती है | अंकित मूल्य पर एक निश्चित छूट देने के बाद लाभ कम होकर 10% हो जाता है | छूट का प्रतिशत है :
SSC CHSL 3 July 2019 (Morning)
(a) $8\frac{1}{3}$
(b) 9
(c) 10
(d) $8\frac{2}{3}$

Q10. A man gets a discount of 30% and then 20% on his food bill. How much equivalent single discount does he get?
एक व्यक्ति को उसके भोजन के बिल पर 30% और फिर 20% की छूट मिलती है | उसे एकल छूट के समतुल्य कितनी छूट मिली ?
SSC CHSL 3 July 2019 (Afternoon)
(a) 44%
(b) 50%
(c) 40%
(d) 35%

Q11. There was 25% off on shirts. A lady bought that shirt and got an additional 20% discount for paying in cash and further 10% discount for being a loyal customer. She paid Rs324. What was the price tag (in Rs) on the shirt?
शर्ट पर 25% की छूट थी | एक महिला ने वह शर्ट ख़रीदा और उसे नकद में भुगतान करने के कारण 20% की अतिरिक्त छूट प्राप्त हुई तथा इसके बाद निष्ठावान ग्राहक होने के कारण उसे 10% की छूट और मिली | उसने 324 रुपये का भुगतान किया | इस शर्ट का अंकित मूल्य (रुपये में) ज्ञात करें |

SSC CHSL 5 July 2019 (Afternoon)
(a) 650
(b) 725
(c) 600
(d) 750

Q12. A dealer buys an article marked at Rs20000 with two successive discounts of 20% and 5%. He spends Rs1000 for its repair and sells it for Rs20000. What is his profit/loss percent (correct to two decimal places)?
एक विक्रेता 20000 रुपये अंकित मूल्य वाली कोई वस्तु 20% और 5% की दो क्रमिक छूट पर खरीदता है | वह इसके मरम्मत पर 1000 रुपये खर्च करता है तथा इसे 20000 रुपये में बेच देता है | उसके लाभ या हानि का प्रतिशत (दशमलव के दो स्थान तक) ज्ञात करें |
SSC CHSL 8 July 2019 (Morning)
(a) 25.64% profit
(b) 23.64% loss
(c) 23.46% profit
(d) 25.64% loss

Q13. Three successive discounts on the marked price of an article turns out to be equivalent to a single discount of 19%. If the rates of the first and second discount are 10% and 4% respectively, what is the rate of the third discount?
किसी वस्तु के अंकित मूल्य पर दी गयी तीन क्रमिक छूट 19% के एकल छूट के समतुल्य है | यदि पहली और दूसरी छूट की दर क्रमशः 10% और 4% है, तो तीसरी छूट की दर ज्ञात करें |
SSC CHSL 10 July 2019 (Morning)
(a) 7.50%
(b) 5.25%
(c) 6.25%
(d) 6.00%

Q14. A shopkeeper normally allows a discount of 10% on the marked price of each article. During a sale season, he decides to give two more discounts, the first being at a rate of 50% of the original and the second at a rate of 40% of the first. What is the percentage rate of the equivalent single discount (correct up to two decimal places)?
एक दुकानदार आमतौर पर प्रत्येक वस्तु के अंकित मूल्य पर 10% की छूट देता है | बिक्री के मौसम में, वह दो अतिरिक्त छूट देने का निर्णय लेता है जिसमें एक की दर प्रारंभिक छूट का 50% तथा दूसरी छूट की दर पहली छूट का 40% है | समतुल्य एकल छूट की प्रतिशत दर (दो दशमलव स्थानों तक सही) ज्ञात करें |
SSC CHSL 10 July 2019 (Afternoon)
(a) 11.25
(b) 16.21
(c) 14.85
(d) 13.27

Q15. A customer gets a discount of Rs. 90 which is 12%. The selling price is:
एक ग्राहक को 90 रुपये की छूट मिलती है जो कि 12% है। विक्रय मूल्य क्या है?
SSC CPO 16 March 2019 (Morning)
(a) Rs.660
(b) Rs.580
(c) Rs.540
(d) Rs. 770

Q16. The successive discounts of 25% , 20% and 10% is equivalent to a single discount of:
25%, 20% तथा 10% की क्रमिक छूट _____ एकल छूट के बराबर है |
SSC CPO 12 March 2019 (Evening)
(a) 46%
(b) 48%
(c) 54%
(d) 44%

Q17.A trader gives a discount of 4% for purchases above Rs.25,000, 6% for purchases above Rs.35000 and 8% for purchases above Rs. 50,000. If the price of an item is marked Rs.38,500. What would be the amount of discount?
एक व्यापारी 25,000 रुपये से अधिक की खरीद पर 4%, 35000 रुपये से अधिक की खरीद पर 6% तथा 50,000 रुपये से अधिक की खरीद पर 8% की छूट देता है | यदि किसी वस्तु का मूल्य 38,500 रुपये अंकित किया गया है, तो छूट की राशि क्या होगी ?
SSC CPO 15 March 2019 (Morning)
(a)Rs.3740
(b)Rs.1810
(c) Rs.3080
(d)Rs.2310

Q18.The price of a refrigerator is Rs 22000. A shopkeeper marks its price 15% above its cost price and gives a discount of 8%. The discount is: किसी रेफ्रीजिरेटर का मूल्य 22,000 रुपये है | एक दुकानदार इसका मूल्य क्रय मूल्य से 15% अधिक निर्धारित करता है तथा 8% की छूट देता है | छूट की राशि है -
SSC CPO 15 March 2019 (Morning)
(a) Rs.1960
(b) Rs. 1824
(c) Rs. 1672
(d) Rs. 2024

SSC CGL TIER II

Q1. The marked price of an article is Rs 1500. If two successive discounts, each of x%, on the marked price is equal to a single discount of Rs 587.40, then what will be the selling price of the article if a single discount of x% is given on the marked price?
एक वस्तु का अंकित मूल्य 1500 रुपये है | यदि अंकित मूल्य पर x % की दो क्रमिक छूटें 587.40 रुपये की एकल छूट के बराबर है, तो वस्तु का विक्रय मूल्य ज्ञात करें यदि अंकित मूल्य पर x% की एकल छूट दी जाती है |
SSC CGL Tier 2 13 September 2019 (Morning)
(a)Rs 1025
(b)Rs 1155
(c)Rs 1170
(d)Rs 1200

Practice Questions

Q1. An article is sold for Rs.642.60 after successive discounts of 15% and 10%. What is the marked price of the article?
एक वस्तु 15% और 10% की दो क्रमिक छूट के बाद 642.60 रुपये में बेची जाती है | इस वस्तु का अंकित मूल्य ज्ञात करें |
SSC CGL 10 June 2019 (Evening)
(a)Rs.840
(b)Rs.820
(c)Rs.800
(d)Rs.880

Q2.An article is sold for Rs.657.90 after successive discounts of 15% and 10%. What is the marked price of the article?
एक वस्तु 15% और 10% की दो क्रमिक छूट के बाद 657.90 रुपये में बेची जाती है| इस वस्तु का अंकित मूल्य ज्ञात करें |
SSC CGL 11 June 2019 (Morning)
(a)Rs.920
(b)Rs.860
(c)Rs.900
(d)Rs.880

Q3. An article is sold for Rs1,680 after two successive discounts of 20% and 16%. What is the marked price of the article?
एक वस्तु 20% और 16% की दो क्रमिक छूटों के बाद 1680 रुपये में बेची जाती है | इस वस्तु का अंकित मूल्य ज्ञात करें |
SSC CGL 11 June 2019 (Afternoon)
(a) Rs2,300
(b) Rs2,200
(c) Rs2,500
(d) Rs2,400

Q4. An article is sold for Rs535.50 after two successive discounts of 25% and 15%. What is the marked price of the article?
एक वस्तु 25% और 15% की दो क्रमिक छूटों के बाद 535.50 रुपये में बेची जाती है | इस वस्तु का अंकित मूल्य ज्ञात करें |
SSC CGL 11 June 2019 (Evening)
(a) Rs800
(b) Rs830
(c) Rs820
(d) Rs840

Q5. An article is sold for Rs547.40 after successive discounts of 30% and 15%. What is the marked price of the article?
एक वस्तु 30% और 15% की दो क्रमिक छूटों के बाद 547.40 रुपये में बेची जाती है | इस वस्तु का अंकित मूल्य ज्ञात करें |
SSC CGL 12 June 2019 (Morning)
(a) Rs920
(b) Rs960
(c) Rs900
(d) Rs940

Q6. An article is sold for Rs 612 after successive discounts of 25% and 15%. What is the marked price of the article?
एक वस्तु 25% और 15% की दो क्रमिक छूटों के बाद 612 रुपये में बेची जाती है | इस वस्तु का अंकित मूल्य ज्ञात करें |
SSC CGL 12 June 2019 (Afternoon)
(a) Rs1000
(b) Rs940
(c) Rs980
(d) Rs960

Q7. An article is sold for Rs288 after successive discounts of 20% and 25%. What is the marked price of the article?
एक वस्तु 20% और 25% की दो क्रमिक छूटों के बाद 288 रुपये में बेची जाती है | इस वस्तु का अंकित मूल्य ज्ञात करें |
SSC CGL 13 June 2019 (Morning)
(a) Rs520
(b) Rs480
(c) Rs460
(d) Rs500

Q8. An article is sold for Rs 288 after successive discounts of 25% and x%. If the marked price of the article is Rs 480, what is the value of x?
एक वस्तु 25% और x% की दो क्रमिक छूटों के बाद 288 रुपये में बेची जाती है | यदि वस्तु का अंकित मूल्य 480 रुपये है, तो x का मान ज्ञात करें |
SSC CGL 13 June 2019 (Afternoon)
(a) 20
(b) 16
(c) 15
(d) 18

Pinnacle

Q9. A man gets a discount of 30% and then 20% on his food bill of Rs1,250. How much does he have to pay?
एक व्यक्ति को उसके 1250 रुपये के भोजन बिल पर 30% और फिर 20% की छूट मिलती है | उसे कितने का भुगतान करना पड़ा ?
SSC CHSL 3 July 2019 (Evening)
(a) Rs700
(b) Rs550
(c) Rs350
(d) Rs500

Q10. There was 29% off on bags. A lady bought a bag and got a 12% discount for paying in cash. She paid Rs 312.40. What is the price tag (in Rs) on the bag?
थैलों पर 29% की छूट थी | एक महिला ने एक थैला ख़रीदा और उसे नकद में भुगतान करने के लिए 12% की छूट मिली | उसने 312.40 रुपये का भुगतान किया | थैले का अंकित मूल्य क्या था ?
SSC CHSL 4 July 2019 (Afternoon)
(a) 600
(b) 625
(c) 450
(d) 500

Q11. There was 29% off on bags. A lady bought a bag and got 13% discount for paying in cash. She paid Rs 617.70. What was the price tag (in Rs) on the bag?
थैलों पर 29% की छूट थी | एक महिला ने एक थैला ख़रीदा और उसे नकद में भुगतान करने के कारण 13% की अतिरिक्त छूट मिली | उसने 617.70 रुपये का भुगतान किया | इस थैले का अंकित मूल्य (रुपये में) ज्ञात करें |
SSC CHSL 4 July 2019 (Evening)
(a) 750
(b) 1000
(c) 800
(d) 925

Q12. A man gets a discount of 30% and then 20% on his food bill of Rs1,500. How much discount, in rupees, did he get?
एक व्यक्ति को उसके 1500 रुपये के भोजन बिल पर 30% और फिर 20% की छूट मिलती है | उसे कितने रुपये की छूट मिली ?
SSC CHSL 4 July 2019 (Evening)
(a) 700
(b) 360
(c) 660
(d) 500

Q13. There was 25% off on bags. A lady bought a bag and got additional 20% discount for paying in cash. She paid Rs480, what was the price tag (in Rs) on the bag?
थैलों पर 25% की छूट थी | एक महिला ने एक थैला ख़रीदा और उसे नकद में भुगतान करने के कारण 20% की अतिरिक्त छूट मिली | उसने 480 रुपये का भुगतान किया | इस थैले का अंकित मूल्य (रुपये में) ज्ञात करें |
SSC CHSL 5 July 2019 (Morning)
(a) 800
(b) 825
(c) 750
(d) 950

Q14. There was 25% off on shirt. A lady bought a shirt and got an additional 20% discount for paying in cash and further 10% discount for being a loyal customer. She paid Rs 405. What was the price tag (in Rs) on the shirt?
शर्ट पर 25% की छूट थी | एक महिला ने एक शर्ट ख़रीदा और उसे नकद में भुगतान करने के कारण 20% की अतिरिक्त छूट मिली | इसके बाद निष्ठावान ग्राहक होने के नाते उसे 10% की छूट और मिली | उसने 405 रुपये का भुगतान किया | इस शर्ट का अंकित मूल्य (रुपये में) ज्ञात करें |
SSC CHSL 5 July 2019 (Evening)
(a) 650
(b) 600
(c) 750
(d) 725

Q15. A dealer buys an article marked at Rs20000 with two successive discounts of 10% and 8%. He spends Rs1440 on repairs and sells it for Rs20000, what is his profit/loss percent (correct to one decimal place)?
एक व्यापारी ने 20000 रुपये अंकित मूल्य वाली किसी वस्तु को 10% और 8% की दो क्रमिक छूट पर ख़रीदा | उसने मरम्मत पर 1440 रुपये खर्च किये और इसे 20000 रुपये में बेच दिया | उसके लाभ या हानि का प्रतिशत (एक दशमलव स्थान तक सही) ज्ञात करें |
SSC CHSL 8 July 2019 (Afternoon)
(a) 12.3% Profit
(b) 12.3% loss
(c) 11.1% Profit
(d) 11.1% loss

Q16. A dealer buys an article marked at Rs20000 with two successive discounts of 20% and 5%. He spends Rs1800 on repairs and sells it for Rs20000, what is his profit/loss percent (correct to one decimal place)?
एक व्यापारी ने 20000 रुपये अंकित मूल्य वाली किसी वस्तु को 20% और 5% की दो क्रमिक छूट पर ख़रीदा | उसने मरम्मत पर 1800 रुपये खर्च किये और इसे 20000 रुपये में बेच दिया | उसके लाभ या हानि का

प्रतिशत (एक दशमलव स्थान तक सही) ज्ञात करें

SSC CHSL 8 July 2019 (Evening)

(a) 23.46% profit
(b) 17.65% profit
(c) 17.65% loss
(d) 23.64% loss

Q17. A dealer buys an article marked at Rs30000 with two successive discounts of 20% and 5%. He spends Rs1200 on repairs and sells it for Rs30000, what is his profit/loss percent?

एक व्यापारी ने 30000 रुपये अंकित मूल्य वाली किसी वस्तु को 20% और 5% की दो क्रमिक छूट पर ख़रीदा | उसने मरम्मत पर 1200 रुपये खर्च किये और इसे 30000 रुपये में बेच दिया | उसके लाभ या हानि का प्रतिशत ज्ञात करें

SSC CHSL 9 July 2019 (Morning)

(a) 25% loss
(b) 25% profit
(c) 20% profit
(d) 20% loss

Q18. A dealer buys an article marked at Rs5000 with two successive discounts of 20% and 5%. He spends Rs200 on repairs and sells it for Rs5000, what is his profit/loss percent?

एक व्यापारी ने 5000 रुपये अंकित मूल्य वाली किसी वस्तु को 20% और 5% की दो क्रमिक छूट पर ख़रीदा | उसने मरम्मत पर 200 रुपये खर्च किये और इसे 5000 रुपये में बेच दिया | उसके लाभ या हानि का प्रतिशत ज्ञात करें |

SSC CHSL 9 July 2019 (Afternoon)

(a) 25% profit
(b) 25% loss
(c) 20% profit
(d) 20% loss

Q19. An article is sold for Rs 688.16 after two successive discounts of 12% and 8% respectively. What is its marked price?

एक वस्तु क्रमशः 12% और 8% की दो क्रमिक छूट के बाद 688.16 रुपये में बेची जाती है | इसका अंकित मूल्य ज्ञात करें |

SSC CHSL 9 July 2019 (Evening)

(a) Rs800
(b) Rs900
(c) Rs820
(d) Rs850

Q20. A shopkeeper bought an article for Rs100 and marked its price 25% above the cost price. How much discount percentage should he announce in order to make a profit of 15%?

एक दुकानदार ने किसी वस्तु को 100 रुपये में क्रय किया और इसकी कीमत क्रय मूल्य से 25% अधिक रखी | 15% का लाभ कमाने के लिए उसे कितने प्रतिशत छूट की घोषणा करनी चाहिए ?

SSC CHSL 10 July 2019 (Evening)

(a) 8.25
(b) 8.5
(c) 8
(d) 10

Q21. An article is subject to two successive discounts of 10% and 5% before being sold. If its marked price is Rs 800, then its selling price is:

किसी वस्तु को बेचने से पहले 10% और 5% की दो क्रमिक छूट दी जाती है | यदि इसका अंकित मूल्य 800 रुपये है, तो इसका विक्रय मूल्य क्या होगा ?

SSC CHSL 10 July 2019 (Evening)

(a) Rs722
(b) Rs684
(c) Rs703
(d) Rs680

Q22. An article having marked price, Rs900, was sold for Rs648 after two successive discounts. The first discount was 20%. What was the percentage rate of the second discount?

एक वस्तु, जिसका अंकित मूल्य 900 रुपये था, दो क्रमिक छूट के बाद 648 रुपये में बेची गयी | पहली छूट 20% की थी | दूसरी छूट की प्रतिशत दर क्या थी ?

SSC CHSL 11 July 2019 (Morning)

(a) 5
(b) 15
(c) 10
(d) 12.5

Q23. A shopkeeper decides to raise the marked price of an article by 10%. How much discount should he allow so as to be able to sell the article at the original marked price? एक दुकानदार किसी वस्तु के अंकित मूल्य में 10% की वृद्धि करने का निर्णय लेता है | वस्तु को प्रारंभिक अंकित मूल्य पर बेचने के लिए उसे कितने प्रतिशत की छूट देनी चाहिए?

SSC CHSL 11 July 2019 (Afternoon)

(a) $9\frac{1}{11}$ %
(b) $8\frac{1}{9}$ %
(c) $9\frac{1}{2}$ %
(d) 10%

Q24. The successive discounts of 30%, 25% and 15% is equivalent to a single discount of:

30%, 25% और 15% की क्रमिक छूट किस एकल छूट के बराबर है ?

SSC CPO 13 March 2019 (Evening)

(a) 60.275%
(b) 54.625%
(c) 55.375%

(d) 60.725%

Q25. The successive discount of 20%, 10% and 15% is equivalent to a single discount of:
20%, 10% और 15% की क्रमिक छूट किस एकल छूट के बराबर होगी ?
SSC CPO 12 March 2019 (Morning)
(a) 43.5%
(b) 42.2%
(c) 38.8%
(d) 44.5%

Q26. The successive discounts of 20%, 10% and 8% is equivalent to a single discount of: / 20%, 10% और 8% की क्रमिक छूट किस एकल छूट के बराबर है ?
SSC CPO 13 March 2019 (Morning)
(a) 66.24%
(b) 32.84%
(c) 38%
(d) 33.76%

Q27. A trader marks the products 25% above the cost price and allows a discount of 15%. If the cost price is rs 2,080, then the selling price is:
एक व्यापारी वस्तुओं का मूल्य क्रय मूल्य से 25% अधिक रखता है तथा 15% की छूट देता है | यदि क्रय मूल्य 2080 रुपये है, तो विक्रय मूल्य ज्ञात करें |
SSC CPO 14 March 2019 (Morning)
(a)2210
(b)1809
(c)2392
(d)2600

Q28.The single discount equivalent to two successive discounts of 12% and 8% is(rounded off)
12% और 8% के दो क्रमिक छूट कितनी एकल छूट के बराबर है
SSC CPO 14 March 2019 (Morning)
(a)17%
(b)18%
(c)19%
(d)20%

Q29. Seema purchased mobile and got 20% discount on it. Had she got 25% discount, she would have saved Rs 1,000 more. How much did she pay for the mobile?
सीमा ने एक मोबाइल ख़रीदा और उसे इस पर 20% की छूट मिली | यदि उसे 25% की छूट मिली होती, तो उसने 1000 रुपये और बचाए होते | उसने मोबाइल के लिए कितना भुगतान किया ?
SSC CPO 16 March 2019 (Evening)
(a)25,000
(b)22,000
(c)16,000
(d)20,000

Q30. A man could not decide between discount of 30% or two successive discounts of 25% and 5%, both given on a shopping of Rs 2,000. What is the difference between both the discounts?
एक व्यक्ति 2000 की खरीदारी पर मिलने वाली 30% की छूट अथवा 25% एवं 5% की क्रमिक छूट को लेकर निर्णय नहीं ले पा रहा था | दोनों छूट के बीच अंतर ज्ञात करें |
SSC CPO 16 March 2019 (Evening)
(a)20
(b)15
(c)No difference/ कोई अंतर नहीं
(d)25

Q31. A shopkeeper buys a book for Rs 2,500 and marks its price at 15% above cost. He allows a discount of Rs 345. The discount percentage is:
एक दुकानदार किसी पुस्तक को 2500 रुपये में खरीदता है तथा इसकी कीमत लागत से 15% अधिक रखता है | वह 345 रुपये की छूट देता है | छूट का प्रतिशत है-
SSC CPO 16 March 2019 (Afternoon)
(a)10
(b)12
(c) 11
(d)13

Q32. A trader allows a discount of 8% on marked price. If the selling price is Rs 667, the discount in rupee is:
एक व्यापारी अंकित मूल्य पर 8% की छूट देता है | यदि विक्रय मूल्य 667 रुपये है, तो छूट (रुपये में) ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)47
(b)54
(c)58
(d)43

Q33.Mobile cover with a cost of Rs.264 is available at a 12% discount. What will be the sale price of such 4 mobile covers
264 रूपए की लागत वाला मोबाइल कवर 12 % की छूट पर उपलब्ध है | ऐसे 4 मोबाइल कवरो का विक्रय मूल्य क्या होगा ?
SSC CPO 14 March 2019 (Evening)
(a) 929.28
(b) 940.46
(c) 936.72
(d) 934.04

Q34. A car merchant marks 24% more than the cost of a car and gives a discount of 15%. If the discount is 2,23, 200, the cost of the car will be:

एक व्यापारी कार की लागत से 24 % अधिक कीमत अंकित करता है और 15 % की छूट देता है | यदि छूट 2,23 ,200 है , तो कार का लागत मूल्य होगा :

SSC CPO 14 March 2019 (Evening)

(a) Rs 11,60,000
(b) Rs 14,25,000
(c) Rs 15,80,000
(d) Rs 12,00,000

Q35. A dealer allows a discount of 12% on the marked price. If the selling price is 924, the discount is:

एक वितरक अंकित मूल्य पर 12% की छूट देता है | यदि विक्रय मूल्य Rs 924 है, तो उसपर छूट कितने रुपये की होगी ?

SSC CPO 15 March 2019 (Evening)

(a)126
(b)110.90
(c)119.20
(d)114

Q36. The marked price of an article is Rs. 2500. It is sold at two successive discounts of 12% and 10%. What is the selling price ?

किसी वस्तु का अंकित मूल्य रु 2500 है | उसे क्रमशः 12% तथा 10% की दो क्रमिक छूटों पर बेचा जाता है | विक्रय मूल्य कितना है?

SSC MTS 2 August 2019 (Afternoon)

(a) Rs 1870 / रु 1870
(b) Rs 2090 / रु 2090
(c) Rs 1760 / रु 1760
(d) Rs 1980 / रु 1980

Q37. What is a single discount equivalent to two successive discounts of 10% and 15%?

10% और 15% की दो क्रमिक छूटों के बराबर कितनी एकल छूट होती है ?

SSC MTS 2 August 2019 (Morning)

(a) 21.5%
(b) 23.5%
(c) 25%
(d) 26.5%

Q38. An article is sold for Rs7650 after two successive discounts of 15% and 25%. What is the marked price of the article?

एक वस्तु 15% और 25% की दो क्रमिक छूट के बाद 7650 रुपये में बेची जाती है | इस वस्तु का अंकित मूल्य ज्ञात करें |

SSC MTS 2 August 2019 (Evening)

(a) Rs15000
(b) Rs10000
(c) Rs14000
(d) Rs12000

Q39. Marked price and cost price of an article are in ratio 5 : 4. If the profit earned by selling the article is 12.5%, then what is the discount percentage?

एक वस्तु का अंकित मूल्य और क्रय मूल्य 5 : 4 के अनुपात में है | यदि वस्तु को बेचने पर 12.5% का लाभ होता है, तो छूट का प्रतिशत ज्ञात करें |

SSC MTS 5 August 2019 (Morning)

(a) 12.5
(b) 15
(c) 8
(d) 10

Q40. The price of an article was Rs. 10000. It was sold to a retailer after three successive discounts for Rs. 7866 out of which the first two discounts were 10% and 8%. Find the rate of third discount.

किसी वस्तु की कीमत Rs 10,000 थी | इसे तीन क्रमिक छूटों के बाद Rs7866 में किसी खुदरा विक्रेता को बेच दिया गया, जिसमें से पहली दो छूट 10% और 8% थी | तीसरी छूट का प्रतिशत कितना था ?

SSC MTS 5 August 2019 (Evening)

(a) 5
(b) 3
(c) 6.5
(d) 4.5

Q41. The marked price of an article is Rs. 2800. The selling price of the article is Rs. 2408. Find the discount percentage.

एक वस्तु का अंकित मूल्य रु 2800 है | वस्तु का विक्रय मूल्य रु 2408 है | छूट प्रतिशत कितना है ?

SSC MTS 6 August 2019 (Afternoon)

(a) 18%
(b) 24%
(c) 16%
(d) 14%

Q42. A man sold a watch at a discount of 60% for Rs1560. What is the marked price of the watch?

एक व्यक्ति ने कोई घड़ी 60% की छूट पर 1560 रुपये में बेच दी | इस घड़ी का अंकित मूल्य ज्ञात करें |

SSC MTS 7 August 2019 (Morning)

(a) Rs3900
(b) Rs3600
(c) Rs3300
(d) Rs3700

Q43. If the discount offered on an article is 40%, then what will be the ratio of selling price and marked price?

यदि किसी वस्तु पर दी गयी छूट 40% है, तो विक्रय मूल्य और अंकित मूल्य का अनुपात क्या होगा ?

SSC MTS 7 August 2019 (Afternoon)

(a) 2 : 5
(b) 4 : 7
(c) 5 : 8

(d) 3 : 5

Q44. After offering a discount of 20% on an article, a trader earned a profit of 20%. If the cost price is Rs300, then what will be the selling price of the article after offering a discount of 25%?
एक वस्तु पर 20% की छूट देने के बाद, एक व्यापारी को 20% का लाभ होता है | यदि क्रय मूल्य 300 रुपये है, तो 25% की छूट देने के बाद इस वस्तु का विक्रय मूल्य क्या होगा ?
SSC MTS 7 August 2019 (Evening)
(a) Rs352.5
(b) Rs375.5
(c) Rs432.5
(d) Rs337.5

Q45. Three successive discounts of 20%, 20% and 30% are offered on an article. If the marked price of the article is Rs750, then what will be selling price?
एक वस्तु पर 20%, 20% और 30% की तीन क्रमिक छूट दी जाती है | यदि वस्तु का अंकित मूल्य 750 रुपये है, तो विक्रय मूल्य क्या होगा ?
SSC MTS 8 August 2019 (Afternoon)
(a) Rs 326
(b) Rs 375
(c) Rs 348
(d) Rs 336

Q46. The marked price of an article is Rs3040. If the discount offered on this article is 20%, then what will be the selling price?
किसी वस्तु का अंकित मूल्य 3040 रुपये है | यदि इस वस्तु पर दी गयी छूट 20% है, तो विक्रय मूल्य क्या होगा ?
SSC MTS 8 August 2019 (Evening)
(a) Rs2412
(b) Rs3262
(c) Rs2432
(d) Rs3132

Q47. A buys an article at Rs1800 and sells it after giving two successive discounts of 10% and 20%. What will be the selling price (in Rs) of the article?
A किसी वस्तु को 1800 रुपये में खरीदता है और 10% तथा 20% की दो क्रमिक छूट देने के बाद इसे बेच देता है | इस वस्तु का विक्रय मूल्य क्या होगा ?
SSC MTS 9 August 2019 (Morning)
(a) 1296
(b) 1668
(c) 1728
(d) 1336

Q48. After allowing a discount of 12.5%, shopkeeper makes a profit of 25% on a bag. At what percent higher than the cost price did he mark the bag? (correct to nearest integer)
12.5% की छूट देने के बाद एक दुकानदार को किसी थैले पर 25% का लाभ होता है | उसने थैले का मूल्य क्रय मूल्य से कितना प्रतिशत अधिक अंकित किया था ? (निकटतम पूर्णांक तक सही)
SSC MTS 13 August 2019 (Afternoon)
(a) 35%
(b) 43%
(c) 41%
(d) 38%

Q49. The price that Kamal should mark on a chair which costs him Rs1500 to gain 15% after allowing a discount of 25% (in Rs) is:
कमल को 1500 रुपये क्रय मूल्य वाली अपनी कुर्सी का मूल्य कितना अंकित करना चाहिए ताकि 25% की छूट देने के बाद भी 15% का लाभ हो ?
SSC MTS 13 August 2019 (Evening)
(a) 2300
(b) 1800
(c) 2233
(d) 2144

Q50. A customer was offered a discount of 40% on a piece of cloth. On insisting further, the shopkeeper agreed to a further discount of 20% on above. What was the effective discount offered to the customer?
एक ग्राहक को किसी कपड़े पर 40% की छूट दी गयी | और अनुरोध करने पर, दुकानदार 20% की अतिरिक्त छूट देने को तैयार हो गया | ग्राहक को मिली प्रभावी छूट ज्ञात करें |
SSC MTS 14 August 2019 (Afternoon)
(a) 60%
(b) 48%
(c) 52%
(d) 54%

Q51. Marked price of a shirt is Rs2000. If shopkeeper declares successive discount on shirt of 10% & 25%, the selling price (in Rs) of shirt is:
एक शर्ट का अंकित मूल्य 2000 रुपये है | यदि दुकानदार 10% और 25% की क्रमिक छूट देता है, तो शर्ट का विक्रय मूल्य (रुपये में) ज्ञात करें |
SSC MTS 14 August 2019 (Evening)
(a) 1350
(b) 1250
(c) 1650
(d) 1300

Q52. A vegetable seller bought 10 dozens of potatoes for Rs120, another 5 dozens for Rs50 and another 5 dozens for Rs30. He sold the potatoes for Rs 9 a dozen. How much discount did he overall offer?

एक सब्जी विक्रेता ने 120 रुपये में 10 दर्ज़न, 50 रुपये में 5 दर्ज़न और 30 रुपये में पुनः 5 दर्ज़न आलू ख़रीदे | उसने इन आलुओं को 9 रुपये में एक दर्ज़न की दर से बेच दिया | उसने कुल कितनी छूट दी ?

SSC MTS 16 August 2019 (Morning)

(a) 11.11%
(b) 5%
(c) 7.5%
(d) 10%

Q53. A person bought a shirt marked Rs. 1000 and a pair of trousers marked Rs. 2000. The discounts offered on the shirt and the pair of trousers were 20% and 50%. Overall, How much discount he was offered ?

एक व्यक्ति ने 1000 रु अंकित मूल्य की एक कमीज और 2000 रु अंकित मूल्य की एक जोड़ी पतलून खरीदी | कमीज और पतलून पर दी गई छूट क्रमश: 20% और 50% थी | कुल मिलाकर, उसे कितनी छूट दी गई ?

SSC MTS 16 August 2019 (Evening)

(a) 25%
(b) 40%
(c) 60%
(d) 45%

Q54. Marked price of an article is Rs1500. If $16\frac{2}{3}$ % discount is given, then what is the selling price?

किसी वस्तु का अंकित मूल्य 1500 रुपये है | यदि $16\frac{2}{3}$ % की छूट दी जाती है, तो विक्रय मूल्य ज्ञात करें |

SSC MTS 19 August 2019 (Morning)

(a) Rs1000
(b) Rs1300
(c) Rs 1250
(d) Rs1150

Q55. A person buys an article for Rs. 16. If he had to buy a dozen of articles, then he would have to pay a total amount of Rs. 160. What would be the discount percentage (correct to the nearest integer) on buying a dozen of articles ?

कोई व्यक्ति रु 16 में एक वस्तु खरीदता है | यदि उसे एक दर्जन वस्तुएँ खरीदनी होतीं तो उसे रु 160 की कुल राशि का भुगतान करना पड़ता | एक दर्जन वस्तुएं खरीदने पर उसे मिलने वाली छूट लगभग कितनी प्रतिशत (निकटतम पूर्णांक में) होती?

SSC MTS 21 August 2019 (Morning)

(a) 10%
(b) 17%
(c) 12%
(d) 22%

Q56. The marked price of an article was 42% above its cost price. If after selling the article, a profit of 20.7% occurs, then find the discount percentage on the marked price of this article.

किसी वस्तु का अंकित मूल्य उसके लागत मूल्य से 42% अधिक था | यदि वस्तु को बेचने पर 20.7% का लाभ होता है, तो वस्तु के अंकित मूल्य पर दी गई छूट का प्रतिशत है:

SSC MTS 21 August 2019 (Evening)

(a)15.6
(b)16
(c)15
(d)14.3

Q57. What is the discount percentage on the gift whose selling price is Rs. 420 after deducting the marked price by Rs. 60 ?

उस उपहार पर छूट की दर प्रतिशत क्या है जिसके अंकित मूल्य पर रु 60 की कमी के बाद उसका बिक्री मूल्य रु420 है ?

SSC MTS 20 August 2019 (Evening)

(a) 10.5
(b) 12.5
(c) 14.5
(d) 13.5

Q58. When an article is sold at a discount of 40% on its marked price, the profit is 25%. What is the ratio of the cost price to the marked price of the article?

जब कोई वस्तु अपने अंकित मूल्य से 40% की छूट पर बेची जाती है, तो लाभ 25% होता है | इस वस्तु के क्रय मूल्य और अंकित मूल्य में अनुपात ज्ञात करें |

SSC MTS 22 August 2019 (Morning)

(a) 12 : 25
(b) 4 : 5
(c) 5 : 8
(d) 8 : 13

Q59. A shopkeeper allows 10% discount on the marked price of an article and still gains 17%. If he gives 15% discount on the marked price, then his profit percent is:

एक दुकानदार किसी वस्तु के अंकित मूल्य पर 10% की छूट देता है और फिर भी 17% का लाभ कमाता है | यदि वह अंकित मूल्य पर 15% की छूट देता है, तो उसके लाभ का प्रतिशत क्या होगा ? **SSC MTS 22 August 2019 (Afternoon)**

(a) 12
(b) 10.5
(c) 12.5
(d) 10

Q60. By paying Rs. 20 less than the marked price, a person gets a discount of 25%. What amount (in Rs) did he pay ?

किसी वस्तु के अंकित मूल्य से 20 रुपए कम भुगतान करने पर कोई व्यक्ति 25% छूट प्राप्त करता है | उसने कुल कितनी राशि (रूपए में) का भुगतान किया :

SSC MTS 21 August 2019 (Afternoon)

(a) 20
(b) 80
(c) 50
(d) 60

Q61. The marked price of an article is x. After allowing a discount of 20% on the marked price, the shopkeeper still gains Rs. 40. If the profit is 11 $\frac{1}{9}$ %, then find the value of x.

किसी वस्तु का अंकित मूल्य x है | अंकित मूल्य पर 20 % की छूट देने के बाद भी दुकानदार को 40 रूपए का लाभ होता है | यदि लाभ 11 $\frac{1}{9}$ % होता है तब x का मान कितना है ?

SSC MTS 20 August 2019 (Afternoon)

(a) 500
(b) 360
(c) 450
(d) 400

Q62. The marked price of an article is 20% above its cost price. After allowing a discount of x% on the marked price, the shopkeeper loses 10%. Find the value of x.

किसी वस्तु का अंकित मूल्य उसके लागत मूल्य से 20% अधिक है | अंकित मूल्य पर x% छूट देने के बाद दुकानदार को 10% की हानि होती है | x का मान कितना है ?

SSC MTS 20 August 2019 (Morning)

(a) 30
(b) 28
(c) 20
(d) 25

Q63. The marked price of an article is $\frac{7}{5}$ of its cost price. If a discount of 20% is given on the marked price, then find the profit percentage.

एक वस्तु का अंकित मूल्य उसके क्रय मूल्य का $\frac{7}{5}$ है | यदि अंकित मूल्य पर 20% की छूट दी जाती है , तो लाभ प्रतिशत कितना है ?

SSC MTS 19 August 2019 (Afternoon)

(a) 22%
(b) 12%
(c) 18%
(d) 15%

Q64. An article is marked 37.5% above the cost price. If a discount of 9.09% is given, then find the profit percentage (to the nearest integer) .

किसी वस्तु पर लागत मूल्य से 37.5% अधिक कीमत अंकित किया जाता है | यदि 9.09% की छूट दी जाती है तो लाभ प्रतिशत (निकटतम पूर्णांक में) है :

SSC MTS 13 August 2019 (Morning)

(a) 25
(b) 15
(c) 10
(d) 20

Q65. A shopkeeper sold an article for Rs. 180 by making a profit of 20%. The shopkeeper offered a discount of Rs. 30 on the marked price. How much percent above the cost price the article is marked ?

एक दुकानदार ने कोई वस्तु 20% के लाभ पर 180 रुपये में बेची | दुकानदार ने अंकित मूल्य पर 30 रुपये की छूट दी | वस्तु का मूल्य क्रय मूल्य से कितना प्रतिशत अधिक अंकित किया गया था ?

SSC MTS 9 August 2019 (Afternoon)

(a) 30%
(b) 35%
(c) 40%
(d) 25%

Q66. A discount of 20% is offered on an item. Rishi gets a cashback of 4% after using a promo code. What is the equivalent single discount ?

किसी मद पर 20% छूट की पेशकश की गयी है | एक प्रोमो कोड का प्रयोग कर ऋषि 4% नकद वापस प्राप्त करता है | समतुल्य एकल छूट कितनी है ?

SSC MTS 9 August 2019 (Evening)

(a) 22.60%
(b) 33%
(c) 24%
(d) 23.20%

Q67. A shopkeeper gains 30% after giving a discount of 20% on an article. The marked price is what percent of the cost price ?

किसी वस्तु पर 20% की छूट देने के पश्चात कोई दुकानदार 30% का लाभ कमाता है | अंकित मूल्य, लागत मूल्य का कितना प्रतिशत है ?

SSC MTS 6 August 2019 (Morning)

(a) 122.5 %
(b) 137.5 %
(c) 150 %
(d) 162.5 %

Q68. The 4 successive discounts of 20% is equivalent to a single discount of:

20% के प्रत्येक 4 क्रमिक छूटों की प्रभावी छूट क्या है ?

SSC MTS 14 August 2019 (Morning)

(a) 64%
(b) 59.04%
(c) 40.96%
(d) 48%

Q69. The marked price of an article is Rs. 2500. It is sold at two successive discounts of 12% and 10% respectively. What is the selling price ?
किसी वस्तु का अंकित मूल्य 2500 रूपए है | उसे क्रमश : 12% तथा 10% की दो क्रमिक छूटो पर बेचा जाता है | विक्रय मूल्य कितना है ?
SSC MTS 2 August 2019 (Afternoon)
(a) Rs. 1870
(b) Rs. 2090
(c) Rs. 1760
(d) Rs. 1980

Q70. The ratio of marked price to the selling price of an article is 12 : 7. What is the discount percentage ? किसी वस्तु के अंकित मूल्य तथा विक्रय मूल्य का अनुपात 12:7 है | छूट प्रतिशत कितना है ?
SSC MTS 5 August 2019 (Afternoon)
(a) 41.67
(b) 37.5
(c) 39.33
(d) 42.33

Q71. The selling price of a product was equal to 50% of its cost price. Two successive discounts were offered on the product. If the first discount was 20%, then What was the second discount ?
उत्पाद का विक्रय मूल्य उसके लागत मूल्य के 50% के बराबर था | उत्पाद पर दो क्रमिक छूट की पेशकश की गयी | यदि पहली छूट 20% थी , तो दूसरी छूट कितनी थी ?
SSC MTS 14 August 2019 (Morning)
(a) 37.5%
(b) 33.33%
(c) 30%
(d) 25%

Q72. A company bought a machine for Rs. 40000 and spent Rs. 10000 on its repairing. Later, the machine was sold for Rs. 45000. The discount offered was :
एक कंपनी ने 40000 रूपए में एक मशीन खरीदी और 10000 रूपए उसकी मरम्मत पर खर्च किए | कुछ समय बाद, मशीन को 45000 रूपए में बेच दिया गया | कितनी छूट की पेशकश की गयी ? **SSC MTS 14 August 2019 (Morning)**
(a) 5%
(b) $\frac{100}{9}$%
(c) 10%
(d) $7\frac{1}{2}$%

SSC CGL 2019 TIER I

Q1. A shopkeeper marks the price of the article in such a way that after allowing a 28% discount, he wants a gain of 12%. If the marked price is 224, then the cost price of the article is:
एक दुकानदार वस्तु की कीमत इस प्रकार निर्धारित करता है कि 28% की छूट देने के बाद भी वह 12% का लाभ कमाना चाहता है | यदि अंकित मूल्य 224 है, तो इस वस्तु का क्रय मूल्य ज्ञात करें |
SSC CGL 3 March 2020 (Morning)
(a) ₹ 168
(b) ₹ 144
(c) ₹ 196
(d) ₹ 120

Q2. A dealer marks an article 40% above the cost price and sells it to a customer, allowing two successive discounts of 20% and 25% on the marked price. If he suffers a loss of ₹140, then the cost price (in ₹) of the article is:
एक विक्रेता किसी वस्तु का मूल्य क्रय मूल्य से 40% अधिक रखता है तथा इसे एक ग्राहक को अंकित मूल्य पर 20% एवं 25% की दो क्रमिक छूट देकर बेच देता है | यदि उसे 140 रुपये की हानि होती है, तो इस वस्तु का क्रय मूल्य (रुपये में) कितना था ?
SSC CGL 3 March 2020 (Afternoon)
(a) 900
(b) 840
(c) 872
(d) 875

Q3. A person marked his goods at a price that would give him 40% profit. But he declared a sale and allowed a 20% discount on the marked price. What is the profit percentage of the person in the whole transaction?
एक व्यक्ति ने अपनी वस्तुओं की कीमत इतनी रखी कि उसे 40% का लाभ होता है | लेकिन उसने सेल की घोषणा की तथा अंकित मूल्य पर 20% की छूट देने लगा | पूरे लेन-देन में उस व्यक्ति के लाभ का प्रतिशत कितना रहा ?
SSC CGL 3 March 2020 (Evening)
(a) 12%
(b) 32%
(c) 20%
(d) 30%

Q4. A trader allows a discount of 18% on the marked price of an article. How much percentage above the cost price must he mark it so as to get a profit of 6.6%? /
एक विक्रेता किसी वस्तु के अंकित मूल्य पर 18% की छूट देता है | 6.6% का लाभ कमाने के लिए उसे इस वस्तु की कीमत क्रय मूल्य से कितनी अधिक (प्रतिशत में) रखनी चाहिए ?
SSC CGL 4 March 2020 (Morning)
(a) 30
(b) 28
(c) 25
(d) 24

Q5. The marked price of an article is ₹740. After two successive discounts of 15% and x%, it is sold for ₹566.10. What is the value of x? /
एक वस्तु का अंकित मूल्य 740 रुपये है | 15% तथा x% की दो क्रमिक छूटों के बाद, इसे 566.10 रुपये में बेचा जाता है | x का मान क्या है ?
SSC CGL 4 March 2020 (Afternoon)
(a) 12
(b) 5
(c) 10
(d) 20

Q6. If the selling price of an article is 8% more than the cost price and the discount offered is 10% on the marked price of the article, then what is the ratio of cost price to the marked price?
यदि एक वस्तु का विक्रय मूल्य क्रय मूल्य से 8% अधिक है तथा वस्तु के अंकित मूल्य पर 10% की छूट दी जाती है, तो क्रय मूल्य तथा अंकित मूल्य के बीच क्या अनुपात है ?
SSC CGL 4 March 2020 (Evening)
(a) 5:6
(b) 8:9
(c) 3:4
(d) 4:5

Q7. A shopkeeper bought 80 kg of rice at a discount of 10%. Besides 1 kg rice was offered free to him on the purchase of every 20 kg rice. If he sells the rice at the marked price, his profit percentage will be:
एक दुकानदार ने 10% छूट पर 80 किलो ग्राम चावल ख़रीदा | इसके अलावा, प्रत्येक 20 किलो चावल की ख़रीद पर उसे 1 किलो चावल मुफ्त दिया गया | यदि वह चावल को बाज़ार मूल्य पर बेच देता है, तो उसके लाभ का प्रतिशत होगा :
SSC CGL 5 March 2020 (Morning)
(a) $15\frac{3}{7}$ %
(b) $16\frac{2}{3}$ %
(c) $15\frac{1}{3}$ %
(d) $14\frac{2}{7}$ %

Q8. The marked price of an item is 25% above its cost price. A shopkeeper sells it, allowing a discount of x% on the marked price. If he incurs a loss of 8%, then the value of x is:
एक वस्तु का अंकित मूल्य इसके क्रय मूल्य से 25% अधिक है | एक दुकानदार इसे अंकित मूल्य पर x% की छूट देकर बेचता है | यदि उसे 8% की हानि होती है, तो x का मान क्या है ?
SSC CGL 5 March 2020 (Afternoon)
(a) 25.6%
(b) 25.2%
(c) 26.8%
(d) 26.4%

Q9. A furniture shopkeeper allows a discount of 16% on the marked price on the goods to his customers and still gains 20%. What is the marked price of a dining table, which costs the shopkeeper ₹11,900?
फर्नीचर बेचने वाला दुकानदार अपने ग्राहकों को वस्तुओं के अंकित मूल्य पर 16% की छूट देता है तथा फिर भी 20% लाभ कमाता है | उस डाइनिंग टेबल का अंकित मूल्य ज्ञात कीजिए, जिसका क्रय मूल्य दुकानदार के लिए 11,900 रुपये है ?
SSC CGL 5 March 2020 (Evening)
(a) ₹15,000
(b) ₹17,000
(c) ₹16,000
(d) ₹12,376

Q10. A shopkeeper marks the price of an article in such a way that after allowing a discount of 22%, he gets a gain of 11%. If the marked price is ₹ 888, then the cost price of the article is:
एक दुकानदार किसी वस्तु का मूल्य इस प्रकार रखता है कि 22% की छूट देने के बाद भी उसे 11% लाभ होता है | यदि अंकित मूल्य 888 रुपये है, तो इस वस्तु का क्रय मूल्य कितना होगा ?
SSC CGL 6 March 2020 (Morning)
(a) ₹ 782
(b) ₹ 550
(c) ₹ 895
(d) ₹ 624

SSC CHSL 2019
Q1. Mohan offers to sell his articles at a discount of 20%, but he marks his articles by increasing the price of each by 35%. What percentage would his gain be?
मोहन अपनी वस्तुओं को 20% की छूट पर बेचने की पेशकश करता है। लेकिन उसने अपनी वस्तुओं का मूल्य 35% अधिक अंकित किया है। उसके लाभ का प्रतिशत क्या होगा?
CHSL 12-10-2020 (Afternoon shift)
(a) 10%
(b) 7%
(c) 8%
(d) 9%

Q2. The marked price of a ceiling fan is Rs3,250 and the shopkeeper allows a discount of 8% on it. What is the selling price of the fan?
एक सीलिंग पंखे का अंकित मूल्य 3250 रुपये है तथा दुकानदार इस पर 8% की छूट देता है। पंखे का विक्रय मूल्य कितना है?
CHSL 12-10-2020 (Evening shift)
(a) Rs3,070
(b) Rs2,590
(c) Rs3,270
(d) Rs2,990

Q3. The marked price and cost price of a book are Rs 850 and Rs 748 respectively. The discount in percentage is:
एक पुस्तक का अंकित मूल्य और क्रय मूल्य क्रमशः 850 रुपये तथा 748 रुपये है। छूट का प्रतिशत कितना है?
CHSL 13-10-2020 (Evening shift)
(a)12%
(b)10%
(c)15%
(d)8%

Q4. If the cost price of a book after 10% discount is Rs.486, then the marked price of the book is:
यदि 10% छूट के बाद किसी पुस्तक की लागत मूल्य 486 रुपये है, तो पुस्तक का अंकित मूल्य है:
CHSL 14-10-2020 (Morning shift)
(a) Rs580
(b) Rs540
(c) Rs560
(d) Rs600

Q5. If the single discount equivalent to successive discounts of 20% and x% is 24%, then the value of x is:
यदि एकल छूट 24%, 20% और x% की क्रमिक छूट के बराबर है, तो x का मान है:
CHSL 14-10-2020 (Afternoon shift)
(a) 5%
(b) 6%
(c) 8%
(d) 4%

Q6. An article was marked at ₹ x and sold at a discount of (x-40)%. If the customer paid ₹(x-32), then find the marked price of the article.
एक वस्तु का मूल्य x रुपये अंकित किया गया था तथा उसे (x-40)% की छूट पर बेचा गया। यदि ग्राहक ने (x-32) रुपये का भुगतान किया, तो उस वस्तु का अंकित मूल्य कितना था ?
CHSL 14-10-2020 (Evening shift)
(a) 75
(b) 60
(c) 80
(d) 50

Q7.If the marked price of a television set is Rs 24,500, then its selling price after a 12% discount on it is:
यदि टेलीविज़न सेट का अंकित मूल्य 24,500 रुपये है, तो उस पर 12% छूट के बाद उसका बिक्री मूल्य है:
CHSL 15-10-2020 (Morning shift)
(a)Rs 21,460
(b)Rs 21,650
(c)Rs 21,640
(d)Rs 21,560

Q8. In a grocery store, an item with an MRP of Rs1,100 is on a discount with a special price of Rs979. What is the percentage of discount given for that item?
किराने की दुकान में, रु 1,100 की एमआरपी के साथ एक वस्तु 979 रुपये के विशेष मूल्य के साथ छूट पर है। उस वस्तु के लिए दी गई छूट का प्रतिशत कितना है?
CHSL 15-10-2020 (Afternoon shift)
(a) 9%
(b) 10%
(c) 12%
(d) 11%

Q9. A blanket is sold for Rs680 at the discounts of 15% and 20%. Find the printed price of the blanket.
15% और 20% की छूट पर एक कंबल 680 रुपये में बेचा जाता है। कंबल के अंकित मूल्य का पता लगाएँ।
CHSL 15-10-2020 (Evening shift)
(a) Rs800
(b) Rs950
(c) Rs900
(d) Rs1000

Q10. A mobile phone was sold for ₹ 31,500 after getting two successive discounts of 30% and 10% respectively. What was the marked price of the mobile?
एक मोबाइल फोन को 30% और 10% की क्रमिक छूट पर ₹ 31,500 में बेचा जाता है। मोबाइल का अंकित मूल्य क्या था?
CHSL 16-10-2020 (Afternoon shift)
(a) ₹ 50,000
(b) ₹ 55,000
(c) ₹ 52,500
(d) ₹ 35,000

Q11. In a 15% discount sale, the cost of a book is Rs 2,150. What was the original price of the book?
(Correct to two decimal places)
15% छूट की सेल में, एक किताब की कीमत 2,150 रुपये है। पुस्तक की आरंभिक कीमत कितनी थी?
(दो दशमलव स्थानों के लिए)
CHSL 16-10-2020 (Evening shift)
(a) Rs2,529.41
(b) Rs2,500.00
(c) Rs1,527.00
(d) Rs2,250.50

Q12. The printed price of a cooker is Rs2,000, and discounts are 30%, 20% and 10%, respectively. Find the selling price of the cooker.

एक कुकर का अंकित मूल्य 2000 रुपये है तथा छूट क्रमशः 30%, 20% और 10% है। कुकर का विक्रय मूल्य ज्ञात कीजिए।

CHSL 19-10-2020 (Afternoon shift)

(a) Rs 1,002
(b) Rs 1,008
(c) Rs 1,004
(d) Rs 1,006

Q13. If a shopkeeper sells an item that is marked as Rs 3,685 for Rs 2,845, then how much discount is he offering?

यदि कोई दुकानदार 3685 रुपये अंकित मूल्य वाली वस्तु को 2845 रुपये में बेचता है, तो वह कितनी छूट दे रहा है?

CHSL 19-10-2020 (Evening shift)

(a) 22.795%
(b) 29.52%
(c) 26.59%
(d) 34.87%

Q.14. A discount of 30% on the marked price of a book enables Arun to get a pen worth Rs.60 free. How much did Arun pay for the book?

एक पुस्तक के अंकित मूल्य पर 30% की छूट से अरुण को 60 रुपये का एक पेन मुफ्त में मिल गया। पुस्तक के लिए अरुण ने कितना भुगतान किया|

CHSL 21-10-2020 (Morning shift)

(a) 140
(b) 160
(c) 150
(d) 130

Q.15. If a dining table with marked price Rs.6,000 was sold to a customer for Rs.5,520, then the rate of discount allowed on the marked price of the table is:

यदि अंकित मूल्य 6,000 रुपये की खाने की मेज़ ग्राहक को 5,520 रुपये में बेची जाती है, तो मेज़ के अंकित मूल्य पर छूट की दर है:

CHSL 21-10-2020 (Evening shift)

(a) 7%
(b) 5%
(c) 8%
(d) 6%

Q.16. An article is listed at Rs.8,500, and the discount offered is 12%. What additional discount (percent) must be given to bring the selling price to 6,358?

एक वस्तु का मूल्य 8,500 रुपये पर अंकित किया गया है और छूट की पेशकश 12% है। बिक्री मूल्य 6,358 रुपये तक लाने के लिए कितनी अतिरिक्त छूट (प्रतिशत) दी जानी चाहिए?

CHSL 26-10-2020 (Morning shift)

(a) 9%
(b) 20%
(c) 15%
(d) 10%

Q.17. The marked price of a book is Rs.540. After 10% discount on the marked price, the selling price of the book is:

एक पुस्तक का अंकित मूल्य 540 रुपये है। अंकित मूल्य पर 10% छूट के बाद, पुस्तक का विक्रय मूल्य है:

CHSL 26-10-2020 (Afternoon shift)

(a) 386
(b) 590
(c) 486
(d) 530

Q.18. The difference between the selling price obtained after a single discount of 45% and two successive discounts of 30% and 15% on the marked price Rs.12000 of an article is:

12000 रुपये अंकित मूल्य वाली एक वस्तु पर 45% की एकल छूट तथा 30% और 15% की दो क्रमिक छूटों के बाद प्राप्त विक्रय मूल्य के बीच का अंतर है:

CHSL 26-10-2020 (Evening shift)

(a) 440
(b) 560
(c) 520
(d) 540

Q.19. A dealer marks his goods at 30% above the cost price. Then he allows a 35% discount on it. What would be his loss percentage?

एक डीलर लागत मूल्य से 30% ऊपर अपने माल का मूल्य अंकित करता है। फिर वह उस पर 35% की छूट देता है। उसका नुकसान प्रतिशत है:

CHSL 17-03-2020 (Morning shift)

(a) 16.5%
(b) 17.5%
(c) 18.5%
(d) 15.5%

Q20. A product whose MRP is ₹ 978, is sold for ₹ 925 by a wholesale shop owner. What is the percentage of discount given by him?

एक उत्पाद जिसका एमआरपी 978 रुपये है, एक थोक दुकान के मालिक द्वारा 925 रुपये में बेचा जाता है। उसके द्वारा दी जाने वाली छूट का प्रतिशत कितना है?

CHSL 17-03-2020 (Evening shift)

(a) 6.5%
(b) 9.2%
(c) 5.4%
(d) 7.8%

Q21. A dozen pairs of gloves worth Rs600 are available at a

discount of 10%. Find out how many pairs of gloves can be bought for Rs270.
600 रुपये के एक दर्जन जोड़े दस्ताने 10% की छूट पर उपलब्ध हैं। ज्ञात कीजिए कि 270 रुपये में कितने जोड़े दस्ताने खरीदे जा सकते हैं?
CHSL 18-03-2020 (Afternoon shift)
(a) Seven/ सात
(b) Five/ पाँच
(c) Six/ छः
(d) Four/ चार

Q22. A single discount equivalent to the discount series of 25%, 15% and 10% is:
25%, 15% और 10% की छूट श्रृंखला के बराबर एक एकल छूट है:
CHSL 18-03-2020 (Evening shift)
(a) 40.2%
(b) 25%
(c) 42.6%
(d) 30%

Q.23. The marked price of a book is Rs.900. What is the selling price of the book after giving two successive discounts each of 10% on it?
एक पुस्तक का अंकित मूल्य 900 रुपये है। उस पर प्रत्येक 10% की दो क्रमिक छूट देने के बाद पुस्तक का विक्रय मूल्य कितना होगा?
CHSL 19-03-2020 (Morning shift)
(a) 800
(b) 749
(c) 729
(d) 820

Q.24. The printed price on a book is Rs.150. If it is sold after two successive discounts of 30% and 40%, then find its selling price.
एक किताब पर मुद्रित मूल्य 150 रुपये है। यदि इसे 30% और 40% की दो क्रमिक छूट के बाद बेचा जाता है, तो इसके बिक्री मूल्य का पता लगाएँ।
CHSL 19-03-2020 (Evening shift)
(a) 65
(b) 63
(c) 66
(d) 64

SSC CGL TIER-II
Q.25. An article marked 35% above its cost. If a profit of 20% is earned by selling the article, then the discount offered on the marked price of the article is :
एक वस्तु को उसकी लागत से 35% ऊपर अंकित किया गया। यदि वस्तु को बेचकर 20% का लाभ अर्जित किया जाता है, तो वस्तु के अंकित मूल्य पर दी जाने वाली छूट है :
CGL 2019 Tier-II (15-11-2020)
(a) 15%
(b) 12%
(c) $11\frac{1}{9}$ %
(d) $10\frac{1}{9}$ %

Q26. Amit sold an article for ₹369.60 after allowing 12% discount on the marked price. Had he not allowed any discount he would have earned a profit of 20%. What is the cost price of the article?
अमित ने अंकित मूल्य पर 12% छूट की देने के बाद ₹369.60 में एक वस्तु को बेच दिया। अगर उसने कोई छूट नहीं दी होती तो उसे 20% का लाभ होता।वस्तु का लागत मूल्य क्या है?
CGL 2019 Tier-II (15-11-2020)
(a) ₹350
(b) ₹320
(c) ₹380
(d) ₹400

Q27. What price should Neeraj mark on a shirt that cost ₹ 840, so as to earn a profit of 18% after allowing a discount of 16% on the mark price?
₹ 840 रुपये की लागत वाली शर्ट पर नीरज को कितना मूल्य अंकित करना चाहिए, ताकि अंकित मूल्य पर 16% की छूट की अनुमति के बाद 18% का लाभ कमाया जा सके ?
CGL 2019 Tier-II (16-11-2020)
(a) ₹ 1,160
(b) ₹ 1,200
(c) ₹ 1,180
(d) ₹ 1,240

Q28. An article is marked 25%, above its cost price. If x% discount is allowed on the marked price and still there is a profit of 5.5%, then what is the value of x%
एक वस्तु का अंकित मूल्य क्रय मूल्य से 25% अधिक है। यदि अंकित मूल्य पर x% छूट की अनुमति है और फिर भी 5.5% का लाभ होता है, तो x% का मान क्या है?
CGL 2019 Tier-II (16-11-2020)
(a) 13.6
(b) 15.4
(c) 15.6
(d) 16.4

Q29. A dealer marks his goods at 40% above the cost price. He sells 60% of the goods at the marked price giving 10% discount and the rest by giving 50% discount on the marked price. What is the overall profit loss percent?
एक डीलर अपनी वस्तुओं पर क्रय मूल्य से 40% अधिक मूल्य अंकित करता है। उसने 60% वस्तुओं को 10% की छूट देने के बाद अंकित मूल्य पर बेच दिया तथा शेष वस्तुओं को अंकित मूल्य पर 50% की छूट देकर बेचा। कुल लाभ-हानि प्रतिशत कितना है?
CGL 2019 Tier-II (16-11-2020)
(a) Profit/ लाभ 36%
(b) Loss/ हानि 2.8%
(c) Loss/ हानि 3.6%
(d) Profit/ लाभ 2.8%

Q30.The selling price of one article after allowing a discount of 15% on its cost price, is the same as the selling price of another article after allowing a discount of 25% on its cost price. If the sum of the cost prices of both the articles in 640, then find the selling price of each article.
एक वस्तु के क्रय मूल्य पर 15% की छूट के बाद उसका विक्रय मूल्य, दूसरी वस्तु के क्रय मूल्य पर 25% की छूट के बाद उसके विक्रय मूल्य के बराबर है। यदि दोनों वस्तुओ के क्रय मूल्यों का योग ₹640 है तो प्रत्येक वस्तु का विक्रय मूल्य ज्ञात कीजिये।
CGL 2019 Tier-II (18-11-2020)
(a) ₹340
(b) ₹255
(c) ₹280
(d) ₹250

Q31. An umbrella is marked for ₹150 and sold for ₹138. The rate of discount is:
एक छतरी का मूल्य ₹150 अंकित किया गया है और इसे ₹138 में बेचा जाता है। छूट की दर है:
CGL 2019 Tier-II (18-11-2020)
(a) 5%
(b) 6%
(c) 8%
(d) 9%

Q.32 An article is listed at ₹ 7,600 and the discount offered unit is 10%. What additional discount must be given to bring the net selling price to ₹ 5,814?
एक वस्तु का अंकित मूल्य ₹ 7,600 है और छूट की पेशकश की इकाई 10% है। शुद्ध बिक्री मूल्य को ₹ 5,814 पर लाने के लिए अतिरिक्त छूट कितनी दी जानी चाहिए?
CGL 2019 Tier-II (18-11-2020)
(a) 12%
(b) 10%
(c) 8%
(d)15%

SSC CPO 2019
Q33. Three successive discounts 22%, 17% and 11% are equivalent to a single discount of:
22%, 17% और 11% की तीन क्रमिक छूट _____ की एकल छूट के बराबर हैं।
CPO 2019 23-11-2020 (Morning shift)
(a) approximately / लगभग 45%
(b) approximately / लगभग 50%
(c) approximately / लगभग 42%
(d) approximately / लगभग 25%

Q34. Two successive discounts, each of x% on the marked price of the article, are equal to a single discount of Rs. 331.20. If the marked price of the article is Rs. 920, then the value of x is:
वस्तु के अंकित मूल्य पर x% प्रत्येक की दो क्रमिक छूटें 331.20 रुपये की एकल छूट के बराबर हैं। यदि वस्तु का अंकित मूल्य 920 रुपये है, तो x का मान कितना होगा?
CPO 2019 23-11-2020 (Morning shift)
(a) 20
(b) 18
(c) 15
(d) 25

Q35. A single discount equivalent to three successive discount of 8%, 15% and 12% is :
8%, 15% और 12% के तीन क्रमागत छूट के बराबर एक एकल छूट ज्ञात करे |
CPO 2019 23-11-2020 (Evening shift)
(a) 35%
(b) 17.5%
(c) 68.816%
(d) 31.184%

Q36. If house tax is paid before the due date, one gets a reduction of 12% on the amount of the bill. By paying the tax before the due date, a person got a reduction of Rs.2100. The amount (in Rs.) of house tax was:
यदि देय तारीख से पहले गृह कर का भुगतान किया जाता है, तो किसी व्यक्ति को बिल की राशि पर 12% की कटौती मिलती है। नियमित तारीख से पहले कर का भुगतान करके, एक व्यक्ति को 2100 रुपये की कटौती प्राप्त हुई। गृह कर की राशि (रुपये में) थी:
CPO 2019 23-11-2020 (Evening shift)
(a) 17,500
(b) 25,000
(c) 21,000
(d) 18,000

Q37. If house tax is paid before the due date, one gets a reduction of 12% on the amount of the bill. By paying the tax before the due date, a person got a reduction of Rs.2100. The amount (in Rs.) of house tax paid was:
यदि देय तारीख से पहले गृह कर का भुगतान किया जाता है, तो किसी व्यक्ति को बिल की राशि पर 12% की कटौती मिलती है। नियमित तारीख से पहले कर का भुगतान करके, एक व्यक्ति को 2100 रुपये की कटौती प्राप्त हुई। गृह कर की राशि (रुपये में) थी:
CPO 2019 24-11-2020 (Morning shift)
(a) 17,500
(b) 15,400
(c) 21,000
(d) 25,000

Q38. A single discount is equivalent to three successive discount of 6%, 15% and 14% is:

कितनी एकल छूट 6%, 15% और 14% की तीन क्रमिक छूटों के बराबर है?

CPO 2019 24-11-2020 (Morning shift)

(a) 31.286%
(b) 34.357%
(c) 68.714%
(d) 17.5%

Q39. On the marked price of an article, the sum of selling price with a discount of 35% and two successive discounts of 20% and 15% is Rs.1,995. The marked price of the article(in Rs.) is:

एक वस्तु के अंकित मूल्य पर, 35% की छूट और 20% और 15% के दो क्रमिक छूट के साथ बिक्री मूल्य का योग 1,995 रुपये है। वस्तु का अंकित मूल्य (रु में) है:

CPO 2019 24-11-2020 (Evening shift)

(a) 1,600
(b) 1,550
(c) 1,800
(d) 1,500

Q40. On the marked price of Rs. 1,250 of an article, three successive discounts of 5%, 15% and 20% are offered. What will be the selling price (in Rs) after all discounts?

एक वस्तु के 1,250 रुपये के अंकित मूल्य पर, 5%, 15% और 20% की तीन क्रमिक छूट की दी जाती है। सभी छूटों के बाद विक्रय मूल्य (रु में) क्या होगा?

CPO 2019 24-11-2020 (Evening shift)

(a) 975.75
(b) 807.50
(c) 1,000
(d) 950.25

Q41. Three successive discount of 12%, 11% and 13% are equivalent to an approximate single discount of:

कितनी एकल छूट, 12%, 11% और 13% की तीन क्रमिक छूट के बराबर है?

CPO 2019 25-11-2020 (Morning shift)

(a) 35%
(b) 32%
(c) 42%
(d) 40%

Q42. If two successive discount, each of 20% on the marked price of an article, are equal to a single discount of Rs. 331.20, then the marked price(in Rs.) of the article is:

यदि एक वस्तु के अंकित मूल्य पर दो क्रमिक छूट, प्रत्येक 20% की, 331.20 रुपये की एकल छूट के बराबर है, तो वस्तु का अंकित मूल्य (रुपये में) क्या है?

CPO 2019 25-11-2020 (Morning shift)

(a) 645
(b) 1,200
(c) 920
(d) 750

Q43. On a marked price, the difference of selling prices with a discount of 35% and two successive discounts of 20% and 15% is Rs.504. The Marked price of the article (in Rs.) is:

अंकित मूल्य पर, 35% की छूट और 20% और 15% के दो क्रमिक छूटों के साथ विक्रय मूल्यों का अंतर 504 रुपये है। वस्तु का अंकित मूल्य (रुपये में) है:

CPO 2019 25-11-2020 (Evening shift)

(a) 18,000
(b) 16,800
(c) 16,000
(d) 15,500

Q44. On the marked price of Rs.1,250 of an article, three successive discount of 5%, 15% and 20% were offered, The amount (in Rs.) of discount received by a customer is:

एक वस्तु के 1,250 रुपये के अंकित मूल्य पर, 5%, 15% और 20% की तीन क्रमिक छूट की पेशकश की गई, ग्राहक द्वारा प्राप्त छूट की राशि (रुपये में) क्या है?

CPO 2019 25-11-2020 (Evening shift)

(a) 950.25
(b) 450
(c) 442.50
(d) 807.50

Pinnacle

Variety Questions

Sol 1. (c)

Effective Discount = $\frac{259.20}{720}$ x 100 = 36%

Effective Discount in terms of x = $(x + x - \frac{x \times x}{100})$

$\Rightarrow (x + x - \frac{x \times x}{100}) = 36$

$\Rightarrow x^2 - 200x + 3600 = 0$

$\Rightarrow x^2 - 180x - 20x + 3600 = 0$

$\Rightarrow x(x - 180) - 20(x - 180) = 0$

$\Rightarrow x = 20$

$\ldots\ldots.(x \neq 180)$

Sol 2. (c)

Effective discount = $20+12-\frac{20 \times 12}{100} = 29.6\ \%$

$\Rightarrow 29.6\ \% = \frac{37}{125}$

Let the MP = 125 and Discount = 37

$\Rightarrow$ SP = 125 - 37 = 88

According to the question

88 unit = 528

1 unit = 6

125 unit = 125 x 6 = 750

Sol 3. (c)

Let the MP of a copy = 1 unit

$\Rightarrow$ MP of 100 copies = 100 x 1 = 100 unit

Discount from publisher = $100 \times \frac{25}{100} = 25$

$\Rightarrow$ MP of 50 copies = 50 x 1 = 50 unit

Discount from Retailer = $50 \times \frac{10}{100} = 5$ unit

Total Discount = 25+5 = 30 unit

Desired Discount % = $\frac{30}{100+50}$ x 100 = 20%

Sol 4. (b)

20% = $\frac{1}{5}$ and 25% = $\frac{1}{4}$

CP : List Price : New List Price : SP

4 : 5

4 : 5

5 : 4

Balancing the ratio for List price and New list price

CP : List Price : New List Price : SP

16 : 20 : 25 : 20

Desired gain % = $\frac{20-16}{16}$ x 100 = 25%

Sol 5. (a)

20% = $\frac{1}{5}$ and 18% = $\frac{9}{50}$

SP : MP : CP

41 : 50

6 : 5

Balancing the ratio for MP

SP : MP : CP

246 : 300 : 250

According to the question

246 unit = 492

1 unit = 2

CP (250) unit = 500

Sol 6. (d)

Effective discount = $20 + 6.25 - \frac{20 \times 6.25}{100} = 25\ \%$

25% = $\frac{1}{4}$ and 20% = $\frac{1}{5}$

MP : SP : CP

4 : 3

6 : 5

Balancing the ratio for SP

MP : SP : CP

8 : 6 : 5

Desired %age = $\frac{8-5}{5}$ x 100 = 60%

Sol 7. (d)

25% = $\frac{1}{4}$

Price of the article after 25% discount = $960 \times \frac{3}{4} = 720$

X = $\frac{720-612}{720}$ x 100 = 15%

Alternate :

Effective discount = $\frac{960-612}{960}$ x 100 = 36.25 %

$\Rightarrow 25 + x - \frac{25 \times x}{100} = 36.25$

$\Rightarrow 100 + 4x - x = 145$

$\Rightarrow x = 15$

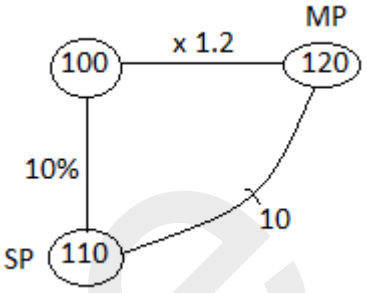
Sol 8. (a)

Effective discount = $25 + 5 - \frac{25 \times 5}{100} = 28.75\%$

Desired difference = 2000 x $\frac{30-28.75}{100} = 25$

Sol 9. (a)

Let the CP = 100 unit



Discount % = $\frac{10}{120}$ x 100 = $8\frac{1}{3}$ %

Sol 10. (a)

Effective Discount = $30+20-\frac{30 \times 20}{100} = 44\%$

Alternate :

30% = $\frac{3}{10}$ and 20% = $\frac{1}{5}$

10 ----- 7

5 ----- 4

50 28

Therefore, Net discount = $\frac{50-28}{50}$ x 100 = 44

Sol 11. (c)

Discount equivalent to (25% and 20%)= $25+20-\frac{25 \times 20}{100} = 40\%$

Net discount = Equivalent discount of (40% and 10%) = $40+10-\frac{40 \times 10}{100} = 46\%$

Let the MP = 100 unit

$\Rightarrow$ SP = 100 x $\frac{100-46}{100}$ = 54 unit

According to the question

54 unit = 324

1 unit = 6

100 unit = 100 x 6 = 600

Alternate :

4 ----- 3

5 ----- 4

10 --- 9

50 : 27

According to the question

27 unit = 324
1 unit = 12
50 unit = 12 x 50 = 600

Sol 12. (c)
Discount equivalent to (20% and 5%)= 20+5 - $\frac{20\times5}{100}$ = 24%
CP of the dealer = 20000 x $\frac{100-24}{100}$ = 15200
Total amount spent on the article = 15200+1000 = 16200
Profit earned = 20000-16200 = 3800
Desired %age of profit = $\frac{3800}{16200}$ x 100 = 23.46 %
Alternate :
5% = $\frac{1}{20}$ and 20% = $\frac{1}{5}$
According to the question
20 ----- 19
5 ----- 4
100 : 76
According to the question
100 unit = 20000
1 unit = 200
76 unit = 15200
Total amount spent on the article = 15200+1000 = 16200
Profit earned = 20000-16200 = 3800
Desired %age of profit = $\frac{3800}{16200}$ x 100 = 23.46 %

Sol 13. (c)
Discount equivalent to (10% and 4%) = 10+4 - $\frac{10\times4}{100}$ = 13.60
Let the third discount = x
According to the question
13.60 + x - $\frac{13.60\times x}{100}$ = 19
13.60 + 0.8640x = 19
$\Rightarrow x = 6.25$

Sol 14. (b)
Original Discount = 10%
1st additional Discount = 50% of 10 = 5%
2nd additional Discount = 40% of 5 = 2 %
Discount equivalent to (10% and 5%) = 10+5 - $\frac{10\times5}{100}$ = 14.50
Discount equivalent to (14.50% and 2%) = 14.50+2 - $\frac{14.50\times2}{100}$ = 16.21

Sol 15. (a)
12% = $\frac{3}{25}$
MP : SP
25 : 22
Let the MP = 25 unit
SP = 22 unit
(25-22) unit = 90
1 unit = 30
SP (22 unit) = 22 x 30 = 660

Sol16. (a)
Discount equivalent to (20% and 25%)= 20+25 - $\frac{20\times25}{100}$ = 40%
Discount equivalent to (40% and 10%)= 40+10 - $\frac{40\times10}{100}$ = 46%

Alternate :
According to the question
4 ----- 3
5 ----- 4
10 --- 9
$\overline{50}$: $\overline{27}$
Therefore, Net discount = $\frac{50-27}{50}$ x 100 = 46

Sol 17. (d) Amount discount = 38500 × $\frac{6}{100}$ = *Rs.* 2310

Sol 18. (d)
Required discount = 22000 × $\frac{115}{100}$ × $\frac{8}{100}$ = 2024
Alternate :
15% = $\frac{3}{20}$ and 8% = $\frac{2}{25}$
CP : MP : SP
20 : 23
25 : 23
Balancing the ratio for MP
CP : MP : SP
500 : 575 : 529
According to the question
500 unit = 22000
1 unit = 44
Discount amount (575-529) unit = 46 x 44 = 2024

SSC CGL TIER II

Sol 1. (c)
Effective discount = $\frac{587.40}{1500}$ x 100 = 39.16 %
$\Rightarrow x \times x - \frac{x\times x}{100} = 39.16$
$\Rightarrow 200x - x^2 = 3916$
$\Rightarrow x^2 - 200x + 3916 = 0$
$\Rightarrow x^2 - 178x - 22x + 3916 = 0$
$\Rightarrow x(x - 178) - 22(x - 178) = 0$
$\Rightarrow x = 22\%$
……..($x \neq 178$)
Desired SP = 1500 × $\frac{100-22}{100}$ = 1170

Practice Questions

Sol 1. (a)
Effective Discount = 15+10-$\frac{15\times10}{100}$ = 23.5%
23.5% = $\frac{47}{200}$
Let the MP = 200 unit, Discount = 47 unit
$\Rightarrow$ SP = 200-47 = 153 unit
According to the question
153 unit = 642.60
1 unit = 4.20
200 unit = 840

Sol 2. (b)
Effective Discount = 15+10-$\frac{15\times10}{100}$ = 23.5%
23.5% = $\frac{47}{200}$
Let the MP = 200 unit, Discount = 47 unit
$\Rightarrow$ SP = 200-47 = 153 unit
According to the question
153 unit = 657.90
1 unit = 4.30
200 unit = 860

Sol 3. (c)
Effective Discount = 20+16-$\frac{20\times16}{100}$ = 32.8%
32.8% = $\frac{41}{125}$

Let the MP = 125 unit, Discount = 41 unit
⇒ SP = 125-41 = 84 unit
According to the question
84 unit = 1680
1 unit = 20
125 unit = 125 x 20 = 2500

Sol 4. (d)
Effective Discount = $25+15-\frac{25\times15}{100}$ = 36.25%
36.25% = $\frac{29}{80}$
Let the MP = 80 unit, Discount = 29 unit
⇒ SP = 80-29 = 51 unit
According to the question
51 unit = 535.50
1 unit = 10.50
80 unit = 10.5 x 80 = 840

Sol 5. (a)
Effective Discount = $30+15-\frac{30\times15}{100}$ = 40.50%
40.50% = $\frac{81}{200}$
Let the MP = 200 unit, Discount = 81 unit
⇒ SP = 200-81 = 119 unit
According to the question
119 unit = 547.40
1 unit = 4.6
200 unit = 200 x 4.6 = 920

Sol 6. (d)
Effective Discount = $25+15-\frac{25\times15}{100}$ = 36.25%
36.25% = $\frac{29}{80}$
Let the MP = 80 unit, Discount = 29 unit
⇒ SP = 80-29 = 51 unit
According to the question
51 unit = 612
1 unit = 12
80 unit = 12 x 80 = 960

Sol 7. (b)
Effective Discount = $25+20-\frac{25\times20}{100}$ = 40%
40% = $\frac{2}{5}$
Let the MP = 5 unit, Discount = 2 unit
⇒ SP = 5-2 = 3 unit
According to the question
3 unit = 288
1 unit = 96
5 unit = 5 x 96 = 480
Alternate :
25% = $\frac{1}{4}$ and 20% = $\frac{1}{5}$

4 ------ 3
5 ------ 4

x _____
20 12

According to the question
12 unit = 288
1 unit = 24
20 unit = 20 x 24 = 480

Sol 8. (a)
25% = $\frac{1}{4}$
Price of the article after 25% discount = 480 × $\frac{3}{4}$ = 360
X = $\frac{360-288}{360}$ x 100 = 20%
Alternate :
Effective discount = $\frac{480-288}{480}$ x 100 = 40 %
⇒ $25 + x - \frac{25\times x}{100} = 40$
⇒ $2500 + 100x - 25x = 4000$
⇒ $75x = 1500$
⇒ $x = 20$

Sol 9. (a)
Effective Discount = $30+20-\frac{30\times20}{100}$ = 44%
44% = $\frac{11}{25}$
Let the MP = 25 unit and Discount = 11 unit
⇒ CP = 25-11 = 14 unit
According to the question
25 unit = 1250
1 unit = 50
14 unit = 14 x 50 =700
Alternate :
30% = $\frac{3}{10}$ and 20% = $\frac{1}{5}$

10 ------ 7
5 ------ 4

x _____
50 28

According to the question
50 unit = 1250
1 unit = 25
28 unit = 700

Sol 10. (d)
Effective Discount = $29+12-\frac{29\times12}{100}$ = 37.52%
Let the MP =100 unit
⇒ Discount = 37.52 unit
and
CP = 100 -37.52 = 62.48 unit
According to the question
62.48 unit = 312.40
1 unit = 5
100 unit = 100 x 5 =500
Alternate :
29% = $\frac{29}{100}$ and 12% = $\frac{3}{25}$

100 ------ 71
25 ------ 22

x _____
2500 1562

According to the question
1562 unit = 312.40
1 unit = 1/5
2500 unit = 500

Sol 11. (b)
Effective discount = $29 + 13 - \frac{29\times13}{100}$ = 38.23%
Let the MP =100 unit
⇒ Discount = 38.23 unit
and
CP = 100 -38.23 = 61.77 unit
According to the question
61.77 unit = 617.70
1 unit = 10
100 unit = 100 x 10 = 1000

Alternate :
29% = $\frac{29}{100}$ and 13% = $\frac{13}{100}$

100 ------ 71
100 ------ 87

x _____
10000 1562

According to the question
6177 unit = 617.70
1 unit = 1/10
10000 unit = 1000

Pinnacle

Sol 12. (c)
Effective Discount = 30+20 - $\frac{30\times20}{100}$ = 44%
44% = $\frac{11}{25}$
Let the MP = 25 unit and Discount = 11 unit
⇒ CP = 25-11 = 14 unit
According to the question
25 unit = 1500
1 unit = 60
11 unit = 11 x 60 =660
Alternate :
30% = $\frac{3}{10}$ and 20% = $\frac{1}{5}$
10 ------ 7
5 ------ 4
x _____
50 28
According to the question
50 unit = 1500
1 unit = 30
Discount = 50-28 unit = 22 x 30 = 660

Sol 13. (a)
Effective Discount = 25+20- $\frac{25\times20}{100}$ = 40%
40% = $\frac{2}{5}$
Let the MP = 5 unit, Discount = 2 unit
⇒ SP = 5-2 = 3 unit
According to the question
3 unit = 480
1 unit = 160
5 unit = 5 x 160 = 800
Alternate :
25% = $\frac{1}{4}$ and 20% = $\frac{1}{5}$
4 ------ 3
5 ------ 4
x _____
20 12
According to the question
12 unit = 480
1 unit = 40
20 unit = 20 x 40 = 800

Sol 14.(c)
Discount equivalent to (20% and 25%)= 20+25 - $\frac{20\times25}{100}$ = 40%
Discount equivalent to (40% and 10%)= 40+10 - $\frac{40\times10}{100}$ = 46%
Let the MP = 100 unit
⇒ Discount = 46 unit and SP = 100-46 = 54
According to the question
54 unit = 405
1 unit = 7.5
100 unit = 750
Alternate :
25% = $\frac{1}{4}$, 20% = $\frac{1}{5}$ and 10% = $\frac{1}{10}$
According to the question
4 ----- 3
5 ----- 4
10 ----- 9
$\overline{50}$: $\overline{27}$
According to the question
27 unit = 405
1 unit = 15
50 unit = 750

Sol 15. (c)
Discount equivalent to (10% and 8%)= 10+8 - $\frac{10\times8}{100}$ = 17.20%
CP of the dealer = 20000 x $\frac{100-17.20}{100}$ = 16560
Total amount spent on the article = 16560+1440= 18000
Profit earned = 20000-18000 = 2000
Desired %age of profit = $\frac{2000}{18000}$ x 100 = 11.1 %

Alternate :
8% = $\frac{2}{25}$ and 10% = $\frac{1}{10}$
According to the question
25 ----- 23
10 ----- 9
$\overline{250}$: $\overline{207}$
According to the question
250 unit = 20000
1 unit = 80
207 unit = 16560
Total investment = 16560+1440 = 18000
Profit earned = 20000-18000 = 2000
Desired %age = $\frac{2000}{18000}$ = 11.1%

Sol 16. (b)
Discount equivalent to (20% and 5%)= 20+5 - $\frac{20\times5}{100}$ = 24 %
CP of the dealer = 20000 x $\frac{100-24}{100}$ = 15200
Total amount spent on the article = 15200+1800= 17000
Profit earned = 20000-17000 = 3000
Desired %age of profit = $\frac{3000}{17000}$ x 100 = 17.65 %
Alternate :
20% = $\frac{1}{5}$ and 5% = $\frac{1}{20}$
According to the question
5 ----- 4
20 ----- 19
_____
100 : 76
According to the question
100 unit = 20000
1 unit = 200
76 unit = 15200
Total investment = 15200+1800 = 17000
Profit earned = 20000-17000 = 3000
Desired %age = $\frac{3000}{17000}$ x 100= 17.65%

Sol 17. (b)
Discount equivalent to (20% and 5%)= 20+5 - $\frac{20\times5}{100}$ = 24 %
CP of the dealer = 30000 x $\frac{100-24}{100}$ = 22800
Total amount spent on the article = 22800+1200= 24000
Profit earned = 30000-24000 = 6000
Desired %age of profit = $\frac{6000}{24000}$ x 100 = 25 %

Alternate :
20% = $\frac{1}{5}$ and 5% = $\frac{1}{20}$
According to the question

Pinnacle

5 ----- 4
20 ----- 19

100 : 76

According to the question
100 unit = 30000
1 unit = 300
76 unit = 22800
Total investment = 22800+1200 = 24000
Profit earned = 30000-24000 = 6000
Desired %age = $\frac{6000}{24000}$ x 100= 25%

Sol 18. (a)
Discount equivalent to (20% and 5%)= 20+5 - $\frac{20\times5}{100}$ = 24 %
CP of the dealer = 5000 x $\frac{100-24}{100}$ = 3800
Total amount spent on the article = 3800+200= 4000
Profit earned = 5000-4000 = 1000
Desired %age of profit = $\frac{1000}{4000}$ x 100 = 25 %
Alternate :
20% = $\frac{1}{5}$ and 5% = $\frac{1}{20}$
According to the question
5 ----- 4
20 ----- 19

100 : 76

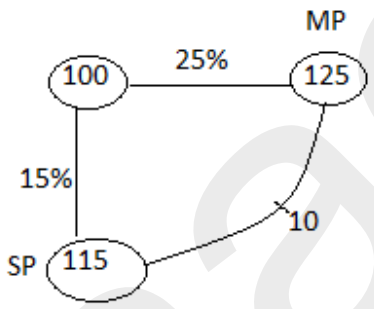
According to the question
100 unit = 5000
1 unit = 50
76 unit = 3800
Total investment = 3800+200 = 4000
Profit earned = 5000-4000 = 1000
Desired %age = $\frac{1000}{4000}$ x 100= 25%

Sol 19. (a)
Discount equivalent to (12% and 8%)= 12+8 - $\frac{12\times8}{100}$ = 19.04 %
Let the MP = 100 unit
⇒ Discount = 19.04 and SP = 100-19.04 = 80.96 unit
According to the question
80.96 unit = 688.16
1 unit = 8.5
100 unit = 8.5 x 100 = 850

Alternate :
12% = $\frac{3}{25}$ and 8% = $\frac{2}{25}$
According to the question
25 ----- 22
25 ----- 23

625 : 506
According to the question
506 unit = 688.16
1 unit = 1.36
625 unit = 850

Sol 20. (c)



Desired %age = $\frac{10}{125}$ x 100 = 8%

Sol 21. (b)
Discount equivalent to (10% and 5%)= 10 + 5 - $\frac{10\times5}{100}$ = 14.50 %
Let the MP = 100 unit
⇒ Discount = 14.50 and SP = 100-14.5 = 85.5 unit
According to the question
100 unit = 800
1 unit = 8
85.5 unit = 85.5 x 8 = 684

Alternate :
10% = $\frac{1}{10}$ and 5% = $\frac{1}{20}$
According to the question
10 ----- 9
20 ----- 19

200 : 171
According to the question
200 unit = 800
1 unit = 4
171 unit = 684

Sol 22. (c)
Let the second discount = x %
20% = $\frac{1}{5}$
Price of the article after 20% discount = 900 × $\frac{4}{5}$ = 720
x = $\frac{720-648}{720}$ x 100 = 10%
Alternate :
Effective discount = $\frac{900-648}{900}$ x 100 = 28 %
$\Rightarrow 20 + x - \frac{20\times x}{100} = 28$
$\Rightarrow 2000 + 100x - 20x = 2800$
$\Rightarrow 80x = 800$
$\Rightarrow x = 10$

Sol 23. (a)
10% = $\frac{1}{10}$
Let the original marked price = 10 unit
⇒ New price = 10+1 = 11 unit
Desired %age of discount = $\frac{11-1}{11}$ x 100 = 9 $\frac{1}{11}$ %

Sol 24 (c)
Discount equivalent to (30% and 25%)= 30+25 - $\frac{30\times25}{100}$ = 47.5%
Discount equivalent to (47.5% and 15%)= 47.5+15 - $\frac{47.5\times15}{100}$ = 55.375%
Alternate :
30% = $\frac{3}{10}$, 15% = $\frac{3}{20}$ and 25% = $\frac{1}{4}$
According to question:

10	:	7
20	:	17
4	:	3
800	:	357

Equivalent Discount = $\frac{800-357}{800}$ × 100 = $\frac{443}{800}$ × 100 = 55.375%

Sol 25. (c)
Discount equivalent to (20% and 10%)= 20+10 - $\frac{20\times10}{100}$ = 28%
Discount equivalent to (28% and 15%)= 28+15 - $\frac{28\times15}{100}$ = 38.8%

Pinnacle

Alternate :

20% = $\frac{1}{5}$, 15% = $\frac{3}{20}$ and 10% = $\frac{1}{10}$

According to question:

5 ------ 4
10 ---- 9
20 ---- 17
1000 ---- 612

Equivalent discount = $\frac{1000-612}{1000} \times 100 = \frac{194}{5} = 38.8\%$

Sol 26. (d)

Discount equivalent to (20% and 10%)= 20+10 - $\frac{20\times10}{100}$ = 28%

Discount equivalent to (28% and 8%)= 28+8 - $\frac{28\times8}{100}$ = 33.76%

Alternate :

20% = $\frac{1}{5}$, 8% = $\frac{2}{25}$ and 10% = $\frac{1}{10}$

According to question:

5 ------ 4
10 ---- 9
25 ---- 23
1250 ---- 828

Equivalent discount = $\frac{1250-828}{1250} \times 100 = 33.76\%$

Sol 27. (a)

25% = $\frac{1}{4}$ and 15% = $\frac{3}{20}$

SP : MP : CP
17 : 20
5 : 4

Balancing the ratio for MP
SP : MP : CP
17 : 20 : 16

According to the question
16 unit = 2080
1 unit = 130
17 unit = 2210

Alternate :

SP = $2080 \times \frac{5}{4} \times \frac{17}{20} = 2210$

Sol 28. (c)

Equivalent discount = 12 + 8 - $\frac{12\times8}{100}$ = 20 - 0.96 = 19 (round-off)

Alternate :

12% = $\frac{3}{25}$, 8% = $\frac{2}{25}$

According to question:

25 ------ 22
25 ---- 23
625 ---- 506

Desired Discount %age = $\frac{625-506}{625} \times 100 \approx 19\%$

Sol 29. (c)Let the cp of mobile = x

According to question
(25-20)% MP= 1000
MP = 20000
Initial paid = $20000 \times \frac{80}{100}$ = 16000

Sol 30. (d)

Two successive discounts are equivalent to 25+5- $\frac{25\times5}{100}$ = 28.75 %

Desired difference = $2000 \times$ (30-28.75)% = 25

Sol 31. (b)

15% = $\frac{3}{20}$

Let the CP = 20 unit
⇒ MP = 20+3 = 23 unit
According to the question
20 unit = 2500
1 unit = 125
23 unit = 2875
Desired %age = $\frac{345}{2875}$ x 100 = 12

Sol 32. (c)

Let marked price = 100 unit
Discounted price = 100-8 = 92 unit
92 unit = 667
1 unit = 7.25
8 unit = 58

Alternate :

8% = $\frac{2}{25}$

Let the MP = 25 unit and Discount = 2 unit
⇒ SP = 25-2 = 23 unit
According to the question
23 unit = 667
1 unit = 29
Discount (2 unit) = 2 x 29 = 58

Sol 33. (a)

Let marked price = 100 unit
Discounted price = 100-12 = 88 unit
100 unit = 264
1 unit = 2.64
88 unit = 232.32
SP of such 4 covers = 4 x 232.32 = 929.28

Alternate :

12% = $\frac{3}{25}$

Let the MP = 25 unit and Discount = 3 unit
⇒ SP = 25-3 = 22 unit
According to the question
25 unit = 264
1 unit = 10.56
SP (22 unit) = 22 x 10.56 = 232.32
SP of such 4 covers = 4 x 232.32 = 929.28

Sol 34. (d)

24% = $\frac{6}{25}$ and 15% = $\frac{3}{20}$

SP : MP : CP
17 : 20
31 : 25

Balancing the rato for MP
SP : MP : CP
527 : 620 : 500

According to the question
(620-527) unit = 223200
1 unit = 2400
CP (500 unit) = 2400 x 500 = 1200000

Sol 35. (a) MP = $924 \times \frac{100}{88}$ = 1050

Therefore, Discount = $1050 \times \frac{12}{100}$ = 126

Alternate :

12% = $\frac{3}{25}$

Let the MP = 25 unit and Discount = 3 unit
⇒ SP = 25-3 = 22 unit
According to the question

Pinnacle

22 unit = 924
1 unit = 42
Discount (3 unit) = 3 x 42 = 126

Sol 36. (d)
Effective discount = 12+10 - $\frac{12\times10}{100}$ = 20.80
20.80 % = $\frac{26}{125}$
Let the MP = 125 unit and Discount =26 unit
⇒ SP = 125-26 = 99 unit
According to the question
125 unit = 2500
1 unit = 20
99 unit = 99 x 20 = 1980
Alternate :
12 % = $\frac{3}{25}$ and 10% = $\frac{1}{10}$
25 ----- 22
10 ---- 9

_____
250 198
According to the question
250 unit = 2500
1 unit = 10
198 unit = 1980

Sol 37. (b)
Effective discount = 15+10 - $\frac{15\times10}{100}$ = 23.50
Alternate :
15 % = $\frac{3}{20}$ and 10% = $\frac{1}{10}$
20 ----- 17
10 ---- 9

_____
200 153
Effective discount = $\frac{200-153}{200}$ x 100 = 23.50

Sol 38. (d)
Effective discount = 25+15 - $\frac{15\times25}{100}$ = 36.25
36.25 % = $\frac{29}{80}$
Let the MP = 80 unit and Discount =29 unit
⇒ SP = 80-29 = 51 unit
According to the question
51 unit = 7650
1 unit = 150
80 unit = 80 x 250 = 12000

Alternate :
15 % = $\frac{3}{20}$ and 25% = $\frac{1}{4}$
20 ----- 17
4 ---- 3

_____
80 51

According to the question
51 unit = 7650
1 unit = 150
80 unit = 80 x 250 = 12000

Sol 39. (d)
12.5% = $\frac{1}{8}$
Now,
MP : CP : SP
5 : 4
8 : 9
Balancing the ratio for CP
MP : CP : SP
10 : 8 : 9
Discount % = $\frac{10-9}{10}$ x 100 = 10%
Alternate :
Let the MP = 500 unit and CP = 400 unit
⇒ SP = 400 x $\frac{112.5}{100}$ = 450 unit
Discount % = $\frac{500-450}{500}$ x 100 = 10%

Sol 40. (a)
Discount equivalent to (10% and 8%) = 10+8- $\frac{10\times8}{100}$ = 17.20
⇒ *SP* after this discount = 1000 × $\frac{100-17.20}{100}$ = 8280
Further discount amount = 8280-7866 = 414
Desired Discount %age = $\frac{414}{8280}$ x 100 = 5%

Sol41. (d)
Discount offered = 2800-2408 = 392
Desired Discount % = $\frac{392}{2800}$ x 100 = 14 %

Sol 42. (a)
60% = $\frac{3}{5}$
Let the MP = 5 unit and Discount = 3 unit
⇒ SP = 5-3 = 2 unit
According to the question
2 unit = 1560
1 unit = 780
5 unit = 3900
Alternate:
According to the question
(100-60)% of MP = 1560
⇒ MP = $\frac{1560}{40}$ x 100 = 3900

Sol 43. (d)
40% = $\frac{2}{5}$
Let the MP = 5 unit and Discount = 2 unit
⇒ SP =5-2 = 3 unit
Desired ratio = 3:5
Alternate :

According to the question
(100-40)% of MP = SP
⇒ $\frac{MP}{SP}$ = $\frac{100}{60}$
⇒ SP : MP = 3 : 5

Sol 44. (d)
20% = $\frac{1}{5}$ and 20% = $\frac{1}{5}$
MP : SP : CP
5 : 4
6 : 5
Balancing the ratio for SP
MP : SP : CP
15 : 12 : 10
According to the question
10 unit = 300
1 unit = 30
15 unit = 30 x 15 = 450
Desired SP = 450 x $\frac{100-25}{100}$ = 337.50

Sol 45. (d)
Discount equivalent to (20% and 20%)= 20+20 - $\frac{20\times20}{100}$ = 36%
Discount equivalent to (36% and 30%)= 36+30 - $\frac{36\times30}{100}$ = 55.20%
55.20 = $\frac{138}{250}$

Pinnacle

Let MP = 250 unit and Discount = 138
⇒ SP = 250-138 = 112
According to the question
250 unit = 750
1 unit = 3
112 unit = 336

Alternate :
20% = $\frac{1}{5}$, 20% = $\frac{1}{5}$ and 30% = $\frac{3}{10}$
According to question:

5 ------ 4
5 ------ 4
10 ---- 7
250 ---- 112
According to the question
250 unit = 750
1 unit = 3
112 unit = 336

Sol 46. (c)
20% = $\frac{1}{5}$
Let the MP = 5 unit and Discount = 1 unit
⇒ SP = 5-1 = 4 unit
According to the question
5 unit = 3040
1 unit = 608
4 unit = 2432

Sol 47. (a)
Discount equivalent to (20% and 10%)= 20+10 - $\frac{20\times10}{100}$ = 28%
28% = $\frac{7}{25}$
Let MP = 25 unit and Discount = 7
⇒ SP = 25-7 = 18
According to the question
25 unit = 1800
1 unit = 72
18 unit = 1296

Alternate :
20% = $\frac{1}{5}$ and 10% = $\frac{1}{10}$
According to question:

5 ------ 4
10 ------ 9
50 ----- 36
Now,
50 unit = 1800
1 unit = 36
36 unit = 1296

Sol 48. (b)
12.5 % = $\frac{1}{8}$ and 25% = $\frac{1}{4}$
MP : SP : CP
8 : 7
5 : 4
Balancing the ratio for SP
MP : SP : CP
40 : 35 : 28
Desired percentage = $\frac{40-28}{28}$ x 100
≈ 43%

Sol 49. (a)
15 % = $\frac{3}{20}$ and 25% = $\frac{1}{4}$
MP : SP : CP
4 : 3
23 : 20
Balancing the ratio for SP
MP : SP : CP
92 : 69 : 60
According to the question
60 unit = 1500
1 unit = 25
90 unit = 25 x 92 = 2300

Sol 50. (c)
Effective discount = 40+20 - $\frac{40\times20}{100}$ = 52%
Alternate :
40 % = $\frac{2}{5}$ and 20% = $\frac{1}{5}$
5 ----- 3
5 ----- 4
_____
25 12

Effective discount = $\frac{25-12}{25}$ x 100
= 52

Sol 51. (a)
Discount equivalent to (25% and 10%)= 25+10 - $\frac{25\times10}{100}$ = 32.5%
32.5% = $\frac{13}{40}$
Let MP = 40 unit and Discount = 13
⇒ SP = 40-13 = 27
According to the question
40 unit = 2000
1 unit = 50
27 unit = 1350

Alternate :
25% = $\frac{1}{4}$ and 10% = $\frac{1}{10}$
According to question:

4 ------ 3
10 ------ 9
40 ----- 27
Now,
40 unit = 2000
1 unit = 50
27 unit = 1350

Sol 52.(d)
Total amount spent = 120+50+30 = 200
Total SP = (10+5+5) × 9 = 180
Discount offered = 200-180 = 20
Desired Discount % = $\frac{20}{200}$ x 100 = 10%

Sol 53. (b)
Total Discount offered = 1000 × $\frac{100-20}{100}$ + 2000 × $\frac{100-50}{100}$ = 1800
Desired Discount %age = $\frac{3000-1800}{3000}$ x 100 = 40%

Sol 54. (c)
16 $\frac{2}{3}$ % = $\frac{1}{6}$
Let the MP = 6 unit and Discount = 1 unit
⇒ SP = 6-1 = 5 unit
According to the question
6 unit = 1500
1 unit = 250
5 unit = 1250

Sol 55. (b)
Total amount spent on one dozen articles = 16 x 12 = 192

Pinnacle

Total Sale Price = 160
Desired Discount % = $\frac{192-160}{192}$ x 100 ≈17%

Sol 56. (c)
42% = $\frac{21}{50}$ and 20.7% = $\frac{207}{1000}$
MP : CP : SP
71 : 50
1000 : 1207
Balancing the ratio for CP
MP : CP : SP
1420 : 1000 : 1207
Desired Discount %age = $\frac{1420-1207}{1420}$ x 100 = 15%

Sol 57. (b)
Discount = 60
SP = 420
⇒ MP = 420+60 = 480
Desired Discount % = $\frac{60}{480}$ x 100 = 12.5%

Sol 58. (a)
40% = $\frac{2}{5}$ and 25% = $\frac{1}{4}$
MP : SP : CP
5 : 3
5 : 4
Balancing the ratio for SP
MP : CP : SP
25 : 12 : 15

Desired ratio = 12 : 25

Sol 59. (b)
10% = $\frac{1}{10}$, 17% = $\frac{17}{100}$ and 15% = $\frac{3}{20}$
MP : SP : CP
10 : 9
117 : 100
Balancing the ratio for SP
MP : CP : SP
130 : 100 : 117
SP after 15% discount = 130 × $\frac{17}{20}$ = 110.5
Desired profit %age = $\frac{110.5-100}{100}$ x 100 = 10.5%

Sol 60. (d)
25% = $\frac{1}{4}$
Let the MP = 4 unit and Discount = 1 unit
⇒ SP = 4-1 = 3 unit
1 unit = 20
⇒ 3 unit = 60
Alternate :
According to the question
25% of MP = 20
⇒ MP = $\frac{20}{25}$ x 100 = 80
Desired SP = 80-20 = 60

Sol 61. (a)
20% = $\frac{1}{5}$ and 11 $\frac{1}{9}$ % = $\frac{1}{9}$
Now,
MP : SP : CP
5 : 4
10 : 9
Balancing the ratio for SP
MP : SP : CP
25 : 20 : 18
According to the question
(20-18) unit = 40
1 unit = 20
25 unit = 25 x 20 = 500

Sol 62. (d)
20% = $\frac{1}{5}$ and 10% = $\frac{1}{10}$
Now,
MP : CP : SP
6 : 5
10 : 9
Balancing the ratio for CP
MP : SP : CP
12 : 9 : 10
Desired Discount %age (x) = $\frac{12-9}{12}$ x 100 = 25%

Sol 63. (b)
20% = $\frac{1}{5}$
SP : MP : CP
4 : 5
7 : 5
Balancing the ratio for MP
SP : MP : CP
28 : 35 : 25
Desired Profit %age = $\frac{28-25}{25}$ x 100 = 12%

Alternate :
Let the MP = 700 unit and CP = 500 unit
According to the question
SP = 700 × $\frac{100-20}{100}$ = 560 unit
Profit earned = 560-500 = 60 unit
Desired Profit %age = $\frac{60}{500}$ x 100 = 12%

Sol 64. (a)
37.5% = $\frac{3}{8}$ and 9.09% = $\frac{1}{11}$
SP : MP : CP
10 : 11
11 : 8
so,
SP : MP : CP
10 : 11 : 8
Desired Profit %age = $\frac{10-8}{8}$ x 100 = 25%

Sol 65. (c)
20% = $\frac{1}{5}$
Let the CP = 5 unit and Profit = 1 unit
⇒ SP = 5+1 = 6 unit
According to the question
6 unit = 180
1 unit = 30
CP of article (5 unit) = 150
MP of the article = 180+30 = 210
Desired %age = $\frac{210-150}{150}$ x 100 = 40%

Sol 66. (d)
Effective Discount = 20+4 - $\frac{20\times4}{100}$
= 23.20 %
Alternate :
20% = $\frac{1}{5}$ and 4% = $\frac{1}{25}$
5 ------- 4
25 ------ 24
_____
125 96
Desired Discount %age = $\frac{125-96}{125}$ x 100 = 23.20

Sol 67. (d)
20% = $\frac{1}{5}$ and 30% = $\frac{3}{10}$
MP : SP : CP

Pinnacle

5 : 4
13 : 10
Balancing the ratio for SP
MP : SP : CP
65 : 52 : 40
Desired %age = $\frac{65}{40}$ x 100 = 162.5 %

Sol 68. (b)
Discount equivalent to (20% and 20%)= 20+20 - $\frac{20\times20}{100}$ = 36%
Discount equivalent to (36% and 20%)= 36+20 - $\frac{36\times20}{100}$ = 48.8%
Discount equivalent to (48.8% and 20%)= 48.8+20 - $\frac{48.80\times20}{100}$ = 59.04%
Alternate :
According to the question
5 ----- 4
5 ----- 4
5 ----- 4
5 ----- 4

625 256
Therefore, Net discount = $\frac{625-256}{625}$ x 100 = 59.04

Sol 69. (d)
Effective Discount = 12+10-$\frac{12\times10}{100}$ = 20.80
Required Sale Price = 2500 x $\frac{100-20.80}{100}$ = 1980
Alternate :
Required Sale Price of the article = 2500 x $\frac{88}{100}$ x $\frac{90}{100}$ = 1980

Sol 70. (a)
Let the Marked price of the article = 12 unit
⇒ Sale price of the article = 7 unit
Discount offered = 12-7 = 5 unit
Required %age = $\frac{5}{12}\times100 =$ 41.67

Sol 71. (a)
Let the second discount = x %
Sale price is 50% of cost price.
So, the effective discount = 50%
According to the question
50 = 20 + x - $\frac{20\times x}{100}$
30 = $\frac{4x}{5}$
⇒ x = 37.5%
Alternate :
Let the Cost Price = 2 unit
⇒ the sale price = 1 unit
According to the question
1 = 2 × $\frac{80}{100}$ x $\frac{100-x}{100}$
125 = 200 - 2x
⇒ x = 37.5%

Sol 72. (c)
Total amount spent on machine = 40000 + 10000 = 50000
Sale Price of machine = 45000
Required discount % = $\frac{50000-45000}{50000}$ x 100 = 10%

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Sol 1. (b) Marked price = ₹ 224
Discount% = 28%
Gain% = 12%
Selling price = $\frac{112}{100}$ CP = $\frac{72}{100}$ MP
Cost Price = ($\frac{72}{112}$) × 224 = ₹144

Sol 2. (d) Let the cost price of article be 100 units
Marked price becomes 140 units
Selling price after discount of 20% and 25% becomes 84units
Loss = (100-84) = 16 units
But according to question loss = ₹140
1 unit =₹ (140/16)
100 units = $\frac{140}{16}\times100 =$ ₹ 875

Sol 3. (a) Let the CP of article be 'x'
Marked Price = $\frac{140}{100}$ of x
After 20% discount on MP, SP = $\frac{80}{100}\times\frac{7}{5}$ of x = $\frac{112}{100}$ of x% profit in whole transaction=
12%

Sol 4. (a) Let Marked price of article = ₹ M
Cost price = ₹ C
Selling price = ₹ S
82% of Marked price = 106.6% of cost price
$\frac{M}{C} = \frac{106.6}{82} = \frac{13}{10}$
Thus, Marked price should be 30% above Cost price.

Sol 5. (c) Marked price of article = ₹740
Selling price of article = ₹566.10
740 × $\frac{85}{100}$ × $\frac{100-x}{100}$ = 566.10
x= 10%

Sol 6. (a) According to question:
SP = 108% of CP = 90% of MP
Thus, $\frac{CP}{MP} = \frac{90}{108} = \frac{5}{6}$

Sol 7. (b) Let M.P of 1kg rice = ₹1
Then, M.P of 80 kg rice = ₹ 80
But after 10% discount, C.P for customer = ₹ 72
Also 1 kg rice was given free for every 20 kg. Therefore, customer got 84 kg rice at ₹ 72
Selling price for 84 kg rice = ₹ 84
Profit % = $\frac{84-72}{72}\times100 = 16\frac{2}{3}$ %

Sol 8. (d) Let the cost price of an article = 100 units.
Marked price at 25% increase = 125 units
Selling price at 8% loss = 92 units.
Discount % = $\frac{125-92}{125}\times100 =$ 26.4%

Sol 9. (b) According to question:
$\frac{84}{100}MP = \frac{120}{100}CP$
$\frac{MP}{CP} = \frac{120}{84} = \frac{10}{7}$
CP = 7x = ₹ 11,900
Then, MP = ₹ $\frac{11900}{7}\times10 =$ ₹ 17,000

Sol 10. (d) According to question:

78% of MP = 111% of CP

$\frac{MP}{CP} = \frac{111}{78} \Rightarrow \frac{MP}{CP} = \frac{37}{26}$

MP = 37 units = ₹ 888

Then, CP = 26 units = ₹ 624

SSC CHSL 2019

Sol:1. (c)

$x + y + xy/100$ %

35 + (-20) + $\frac{35\times(-20)}{100}$ = 8%

Sol:2.(d) discount = 8% = $\frac{2}{25}$

Here, MP = 25 Units → Rs3250

SP = 23 units → Rs2990

Sol:3.(a)

% Discount = $\frac{850-748}{850} \times 100 =$ 12%

Sol:4. (b)

Marked price = 486 × $\frac{100}{90}$ = 540

Sol.5 (a)

Equivalent percentage = $\left(x + y - \frac{xy}{100}\right)\%$

24 = $\left(x + 20 - \frac{20x}{100}\right)\%$

x = 5%

Sol:6.(c)

(x-40)% of x = 32

$\frac{x-40}{100} \times x = 32$

x^2 - 40x = 3200

x^2 - 40x - 3200 = 0

(x - 80) (x + 40)=0

x = 80 or - 40

x = 80 (As x cannot be negative)

ALTERNATE SOLUTION

To save time, it is better to go through option:

Go with option (c)

Let x = 80

Price after discount = 80- $\frac{(80-40)}{100} \times 80 = 48$ (it will be paid by customer)

Money paid by customer = (80-32) = 48 (which satisfy)

Sol:7. (d)

Selling price after 12% discount = $\frac{88}{100} \times 24500 = 21{,}560$

Sol:8. (d)

Discount = 1100-979 = 121

Discount percent = $\frac{121}{1100} \times 100 =$ 11%

Sol:9. (d)

Let the printed price = x

$x \times \frac{85}{100} \times \frac{80}{100} = 680$

$x = 1000$

Sol:10. (a)

MP × $\frac{70}{100} \times \frac{90}{100} = 31{,}500$

MP = 50,000

Sol:11.(a)

Let the original price = x

$x \times \frac{85}{100} = 2{,}150$

$x = 2529.41$

Sol:12. (b)

required selling price = 2000 × $\frac{70}{100} \times \frac{80}{100} \times \frac{90}{100} = 1{,}008$

Sol:13.(a)

Discount = 3685-2845 = 840

Required percentage = $\frac{840}{3685} \times 100 = 22.795\%$

Sol:14. (a)

Let MP of the book = 100

Discount = 30% = Rs. 60

MP(100%) = Rs. 200

So, Arun pay for the book = 200-60 = Rs.140

Sol:15. (c)

Marked Price of dining table = Rs.6000

Selling price of dining table = Rs. 5520

Discount = 6000-5520 = Rs.480

Discount % = $\frac{480}{6000} \times 100 = 8\%$

Sol:16. (c)

MP of article = Rs.8500

Discount = 12%

Then, SP of the article = Rs.7480

After another discount article is sold at Rs.6358

So, discount = 7480-6358 = Rs.1122

Discount % = $\frac{1122}{7480} \times 100 = 15\%$

Sol :17. (c)

Marked price = Rs. 540

Discount = 10%

Selling price = $\frac{9}{10} \times 540 = 486$

Sol:18. (d)

Two successive discount of 30% and 15%, gives single discount = -30-15+ $\frac{30\times15}{100}$ = -45 + $\frac{450}{100}$ = - 45 + 4.5 = - 40.5%

Difference between single discount of 45% and two successive discount of 30% and 15% = 45% - 40.5% = 4.5%

Required difference = $\frac{4.5}{100} \times$ 12000 = Rs. 540

Sol:19. (d)

Let the cost price = Rs. C

Marked price = $\frac{130}{100} \times C$

After 35% discount on marked price, Selling price = $\frac{65}{100} \times \frac{130}{100} \times C = \frac{84.5}{100} \times C$

Loss % = 100 - 84.5 = 15.5%

Or, Net profit/loss = +30 - 35 - $\frac{30\times35}{100}$ = -5 - $\frac{1050}{100}$ = -5-10.5 = -15.5%

Sol:20. (c)

Discount = 978-925 = 53

Required percentage = $\frac{53}{978} \times 100$ = 5.4%

Sol 21. (c)

Selling price of dozen pair of gloves = 600 × $\frac{9}{10}$ = 540

In Rs. 540, 12 pairs of gloves can be bought.

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Thus, in Rs. 270, 6 pairs of gloves will be bought.

Sol 22. (c)
Discount provided = 25% , 15% and 10%
Let us initially have 100 units
After 25% discount, it becomes = 75 units
Next after 15% disount, it becomes = $75 \times \frac{85}{100} = 63.75$ units
Next a discount of 10% makes it = $63.75 \times \frac{9}{10} = 57.375$ units
Therefore, actual discount received = 100 - 57.375 = 42.625 units (approx)
Required discount % = $\frac{100 - 57.375}{100} \times 100 = 42.6\ \%$

Sol:23. (c)
Marked price of book = Rs. 900
After two successive discount of 10% each, Selling price = $900 \times \frac{90}{100} \times \frac{90}{100}$ = Rs. 729

Sol 24. (b)
Printed price of Book = Rs. 150
Selling price = $150 \times \frac{100 - 30}{100} \times \frac{100 - 40}{100} = 150 \times \frac{70}{100} \times \frac{60}{100}$ = Rs. 63

SSC CGL TIER-II

Sol:25.(c)
Let CP= x
MP = 1.35x
Profit = 20%
SP = 1.2x
Discount = $\frac{1.35x - 1.2x}{1.35x} \times 100$
$= \frac{0.15x}{1.35x} \times 100 = \frac{100}{9} = 11\frac{1}{9}\%$

Sol:26.(a)
MP = $369.60 \times \frac{100}{88} = 420$
CP = $420 \times \frac{100}{120} = 350$

Sol:27.(c)
SP = $840 \times \frac{118}{100}$
Marked price = $840 \times \frac{118}{100} \times \frac{100}{84}$
MP = 1,180

sol:28.(c)
Let CP = x
MP = 1.25x
After x% discount = $\frac{100-x}{100} \times 1.25$
= 1.055
x = 15.6%

Sol:29.(a)
Let CP = x
Let number of goods = y
Total cost price= xy
MP = 1.4x
After discount of 10% MP= 1.26x
60% of the goods SP = 0.6y × 1.26x = 0.756xy
40% of the goods SP = 0.4y × 0.7x = 0.28xy
Total selling price = 1.036xy
Profit = $\frac{0.036}{1} \times 100 = 3.6\%$

Sol:30.(b)
Let the cost price of first article = 100x
Cost price of another article = 100y
After discount of 15% on first SP = 85x
After discount of 25% on second SP = 75y
According to the question
85x = 75y
x = $\frac{15}{17}$ y
100x + 100y = 640
$\frac{15}{17}$ y + y = 6.4
y = 3.4
100y = 340
75y = 255

Sol:31.(c)
Discount = 150-138=12
rate of discount=(12/150) × 100=8%

Sol:32.(d)
Discount offered = 10% of 7600=760
Price after discount = 7600-760=6840
Additional discount = 6840-5814=1026
Additional discount %=(1026/6840) × 100=15%

SSC CPO 2019

Sol:33.(c)
Let MP be 100
After allowing a discount of 22% SP would be 78%
100:78
100:83
100:89
After multiplying
1000000:576186
100:57.61 (MP:SP)
discount= 100-57.61=42.39
Approximately equal to 42%

Sol:34.(a)
MP of the article = 920
discount= 331.20
SP of article=588.80
As there is successive discount so we will take under root to get the required discount
$\sqrt{920} : \sqrt{588.80}$
Taking square root and after simplifying we get
10:0.8
So required discount %= $\frac{0.2}{10} \times 100 = 20\%$

Sol:35.(d)
Let MP be 100
After allowing a discount of 8% SP would be 92
similarly
100:92
100:85
100:88
After multiplying
1000000:688160
100:68.8160 (MP:SP)
discount= 100-68.8160 = 31.184%

Sol:36.(a)
According to the question

12% of bill= 2100
Bill = $\frac{2100}{12} \times 100 = 17,500$

Sol:37.(b)
According to the question
12% of bill = 2100
Bill = $\frac{2100}{12} \times 88 = 15,400$
Sol:38.(a)
Let MP be 100
After allowing a discount of 6%
SP would be 94
similarly
100:94
100:85
100:86
After multiplying
1000000:687,140
100:68.7140 (MP:SP)
discount= 100-68.7140 =
31.286%

Sol:39.(d)
Let the marked price= 100MP
After 35% discount SP= 65MP
After two successive discount of
20% and 15% net discount=
$20+15-\frac{20\times15}{100}$ =32%
So SP will be 68 MP
Now sum of both the selling
prices=(65+68)MP=133 MP
As given 133 MP=1995
100 MP=1500

Sol:40.(b)
Marked price=1250 (given)
Successive discount is offered so
we will use ratio method to solve
the problem
20 : 19
20 :17
5 : 4

2000:1292
100 : 64.6

If MP =1250 then SP= 64.6 ×
12.5=807.5

Sol:41.(b)
Let MP be 100
After allowing a discount of 12%
SP would be 8%
100:78
100:83
100:89
After multiplying
1000000:576186
100:57.61 (MP:SP)
discount= 100-57.61=42.39
Approximately equal to 42%

Sol:42.(c)
Discount given=20%
MP:SP= 10:8
And here two successive
discounts are given so
Ratio will be 100:64
Discount offered on a MP of 100
= 100-64=36
According to the question the
discount is 331.20
So comparing $\frac{36}{331.20} = \frac{100}{X}$
So x = 920 which is our required
marked price

Sol:43.(b)
Let the marked price= 100MP
After 35% discount SP= 65MP
After two successive discount of
20% and 15% net discount=
$20+15-\frac{20\times15}{100}$ =32%
So SP will be 68 MP
Now difference of both the
selling prices=(68-65)MP=3 MP
As given 3 MP=504
100 MP=16800

Sol:44.(c)
MP = 1250
SP after Discount = 1250 ×
$\frac{95}{100} \times \frac{85}{100} \times \frac{80}{100}$ = 807.5
Discount = 1250 - 807.5 = 442.50

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SIMPLE INTEREST / साधारण ब्याज

Key Points:/ प्रमुख बिंदु:

1. Simple Interest on a sum (principal) of money at R% per annum for T years is given by:
T साल के लिए प्रतिवर्ष R% पर किसी राशि (मूलधन) पर साधारण ब्याज निम्नानुसार दिया जाता है:

$$SI = \frac{Principal \times Rate \times Time}{100} = \frac{PRT}{100}$$

2. Amount, A = Principal + Simple Interest

3. Also, $P = \frac{SI \times 100}{R \times T}$, $T = \frac{SI \times 100}{R \times P}$, $R = \frac{SI \times 100}{P \times T}$

Example: A man lends Rs. 500 at 10% per annum for 2 years. His interest will be:
एक आदमी 10% प्रति वर्ष 5000 रुपये 2 साल के लिए उधार देता है| उसका ब्याज क्या होगा:

Solution: Here, P = Rs. 500, R = 10% and T = 2 years.

$$SI = \frac{PRT}{100} = \frac{500 \times 10 \times 2}{100} = Rs.\ 100$$

Important Note:/ महत्वपूर्ण लेख:

i) Notice that in the formula, $SI = \frac{PRT}{100}$, we are just calculating $(T \times R)\%$ of P.
ध्यान दें कि, $SI = \frac{PRT}{100}$, सूत्र में हम सिर्फ P के $(T \times R)\%$ गणना कर रहे हैं|

ii) Simple Interest increases linearly with number of years i.e. you can directly divide by the number of years to get SI for 1 year.
साधारण ब्याज साल की संख्या के साथ रैखिक रूप से बढ़ता है अर्थात आप 1 वर्ष के लिए एसआई प्राप्त करने के लिए साल की संख्या से सीधे विभाजित कर सकते हैं।

Example: If SI is Rs. 400 for 4 years, then it will be Rs. 200 for 2 years. उदाहरण: यदि एसआई रुपये है 4 साल के लिए 400, तो यह रुपये हो जाएगा। 2 साल के लिए 200

Variety Questions

Q1. A borrows a sum of Rs 1000 from his friend B on 31 December 2015 on the condition that he will return the same after one year with simple interest at 12%. However, A gets into a position of returning the money on 1 May 2016. How much amount he has to return to B?
A ने अपने मित्र B से 1000 रुपये की राशि 31 दिसंबर 2015 को इस शर्त पर उधार ली कि वह इसे एक वर्ष के बाद 12% साधारण ब्याज के साथ लौटा देगा | हालाँकि, A 1 मई 2016 को ही यह राशि लौटाने की स्थिति में आ गया | वह B को कितनी राशि वापस करेगा ?
SSC CHSL 10 July 2019 (Morning)
(a)Rs 1,331.5
(b)Rs 1,045
(c)Rs 1,120
(d)Rs 1,040

Q2.A certain sum was invested on simple interest. The amount to which it had grown in five years was $1\frac{1}{4}$ times the amount to which it had grown in three years. The percentage rate of interest was:
एक निश्चित राशि साधारण ब्याज पर निवेश की गयी | पांच वर्षों में यह बढ़कर जो राशि बनी वह तीन वर्षों में इसमें हुई वृद्धि का $1\frac{1}{4}$ गुना है | ब्याज की दर है :
SSC CHSL 11 July 2019 (Morning)
(a)10%
(b)20%
(c)25%
(d)15%

Q3. A sum of Rs. 12,800 is invested partly at 15% per annum and the remaining at 12% per annum simple interest. If the total interest at the end of 3 years is Rs. 5085. Then how much money was invested at 15% per annum.
12,800 रुपये की एक राशि अंशतः 15% प्रति वर्ष तथा अंशतः 12% प्रति वर्ष साधारण ब्याज पर निवेश की जाती है | यदि 3 वर्ष के अंत में कुल ब्याज 5085 रुपये है, तो 15% प्रति वर्ष पर कितनी राशि निवेश की गयी थी ?
SSC CPO 12 March 2019 (Evening)
(a) Rs.5200
(b) Rs.7500
(c) Rs.5800
(d) Rs.5300

Q4. At what rate percent per annum with simple interest will a sum of money double in 12.5 years?
प्रति वर्ष कितने प्रतिशत साधारण ब्याज की दर से एक राशि 12.5 वर्षों में दोगुनी हो जायेगी ?
SSC CPO 16 March 2019 (Evening)
(a)8
(b)12.5
(c)10
(d)6

Q5.The simple interest on a certain sum at 15% p.a. For three years is Rs. 7200. The sum is
किसी निश्चित राशि पर 15% प्रति वर्ष की दर से तीन वर्ष का साधारण ब्याज 7200 रुपये है | यह राशि है -
SSC CPO 15 March 2019 (Morning)
(a)Rs.16000
(b)Rs.24000
(c)Rs.32000
(d)Rs.48000

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Q6. The simple interest on a sum for a certain number of years, the same as the rate percentage of the interest, is equal to the sum itself. The number of years is equal to:
किसी राशि पर कुछ निश्चित वर्ष, जिनकी संख्या ब्याज के दर प्रतिशत के बराबर है, का साधारण ब्याज स्वयं राशि के बराबर है | वर्षों की संख्या ज्ञात करें |
SSC MTS 2 August 2019 (Morning)
(a) 5
(b) 10
(c) 8
(d) 1

Q7. The simple interest on a principal for 6 months at an interest rate of 10% per annum is Rs100. What is the principal?
किसी मूल धन पर 10% की दर से 6 माह का साधारण ब्याज 100 रुपये है | यह मूलधन ज्ञात करें |
SSC MTS 5 August 2019 (Morning)
(a) Rs1000
(b) Rs2000
(c) Rs1500
(d) Rs2500

Q8. If Rs. 1000 has been invested @ 12.5% simple interest per annum for two years, then what is the amount ?
यदि रु1000 को 12.5% प्रति वर्ष की दर से साधारण ब्याज पर 2 वर्ष के लिए निवेश किया गया है, तो मिश्रधन कितना है ?
SSC MTS 6 August 2019 (Afternoon)
(a) रु1125
(b) रु 1250
(c) रु 1325
(d) रु 1275

Q9. Rs 480 is invested at simple interest. It becomes Rs 520 after 20 months. What is the interest rate per annum?
480 रुपये साधारण ब्याज पर निवेश किये गए | यह राशि 20 महीने बाद 520 रुपये हो गयी | प्रति वर्ष ब्याज की दर ज्ञात करें |
SSC MTS 6 August 2019 (Evening)
(a) 6%
(b) 5%
(c) 8%
(d) 4%

Q10. A sum of Rs1500 is invested at simple interest for x months. If the rate of interest is $\frac{x}{8}$% per annum, then the sum grows to Rs1590. What is the value of x?
1500 रुपये की एक राशि x महीनों के लिए साधारण ब्याज पर निवेश की गयी | यदि ब्याज की दर $\frac{x}{8}$% है, तो यह राशि बढ़ कर 1590 रुपये हो जाती है | x का मान ज्ञात करें |
SSC MTS 7 August 2019 (Morning)
(a) 3.2
(b) 2.4
(c) 32
(d) 24

Q11. A sum of Rs 800 invested on simple interest becomes Rs 1200 in 8 years. What will be simple interest for 6 years on the sum at the same rate of interest?
साधारण ब्याज पर निवेश की गयी 800 रुपये की एक राशि 8 वर्षों में 1200 रुपये बन जाती है | इसी ब्याज दर से इस राशि पर 6 वर्षों का साधारण ब्याज कितना होगा ?
SSC MTS 8 August 2019 (Afternoon)
(a) Rs240
(b) Rs210
(c) Rs250
(d) Rs300

Q12. A sum of Rs10000 is invested in three schemes of simple interest. The annual interest rates are respectively, 4%, 6% and 10%. Rs4000 were invested in the first scheme. If the total interest earned after five years is Rs2800, then how much money was invested in the third scheme?
10000 रुपये की एक राशि साधारण ब्याज की तीन योजनाओं में निवेश की जाती है | वार्षिक ब्याज दरें क्रमशः 4%, 6% और 10% हैं | पहली योजना में 4000 रुपये निवेश किये गए | यदि पांच वर्षों के बाद प्राप्त कुल ब्याज 2800 रुपये है, तो तीसरी योजना में कितनी राशि निवेश की गयी थी ?
SSC MTS 8 August 2019 (Evening)
(a) Rs1500
(b) Rs5000
(c) Rs1000
(d) Rs3000

Q13. If the ratio of principal and the simple interest for 5 years is 10 : 7, then the rate of interest (per annum) is:
यदि मूल धन और 5 वर्षों के साधारण ब्याज में 10 : 7 का अनुपात है, तो ब्याज की दर (प्रति वर्ष) ज्ञात करें |
SSC MTS 9 August 2019 (Morning)
(a) 15%
(b) 20%
(c) 10%
(d) 14%

Q14. The Simple interest at the end of 3 years on a sum of Rs. 2800 is Rs. 420. What will be the simple interest on Rs. 3200 for the same period at the same rate ?
3 वर्षों के अंत में रु 2,800 की किसी राशि पर साधारण ब्याज रु 420 है | इसी दर और इतनी ही अवधि के लिए रु3200 पर साधारण ब्याज कितना होगा ?
SSC MTS 9 August 2019 (Evening)
(a) Rs480
(b) Rs560
(c) Rs440
(d) Rs640

Q15. A certain sum amounts to Rs20720 in four years and Rs24080 in six years at a certain rate of simple interest. The sum (in Rs) is:
कोई निश्चित राशि साधारण ब्याज की निश्चित दर से चार वर्षों में 20720 रुपये तथा छः वर्षों में 24080 रुपये हो जाती है | यह राशि है :
SSC MTS 13 August 2019 (Afternoon)
(a) 11000
(b) 12000
(c) 14000
(d) 15000

Q16. A sum doubles in seven years at simple interest. In how many years will the sum become five times the original sum?
एक राशि साधारण ब्याज पर सात वर्षों में दोगुनी हो जाती है | कितने वर्षों में यह राशि मूल राशि से पांच गुना हो जाएगी ?
SSC MTS 9 August 2019 (Afternoon)
(a) 35
(b) 21
(c) 28
(d) 30

Q17. The simple interest on Rs x for m years at a rate of r% is equal to the same on Rs y for n years at the rate of s%, then $\frac{x}{y}$ is equal to:
x रुपये पर r% की दर से m वर्षों का साधारण ब्याज y रुपये पर s% की दर से n वर्षों के साधारण ब्याज के बराबर है, तो $\frac{x}{y}$ किसके बराबर होगा ?
SSC MTS 16 August 2019 (Morning)
(a) $\frac{nr}{ms}$
(b) $\frac{ns}{mr}$
(c) $\frac{ms}{nr}$
(d) $\frac{mr}{ns}$

Q18. If the simple interest on Rs. 28000 at some rate for three years is Rs. 225 more than the simple interest on Rs. 27000 at the same rate for 3 years, then what will be the simple interest on Rs. 35500 for $2\frac{3}{5}$ years at the same rate ?
यदि 28000 की राशि पर 3 वर्षों में किसी दर पर साधारण ब्याज, 27000 की राशि पर 3 वर्षों में उसी दर की साधारण ब्याज से 225 अधिक है, तो उसी दर पर 35500 पर $2\frac{3}{5}$ वर्षों की साधारण ब्याज कितनी होगी ?
SSC MTS 21 August 2019 (Evening)
(a) Rs 6966.50 / रु 6966.50
(b) Rs 6922.50 / रु 6922.50
(c) Rs 6953.00 / रु 6953.00
(d) Rs 6723.50 / रु 6723.50

SSC CGL Tier 2

Q1. A sum of Rs 8400 amounts to Rs 11,046 at 8.75% p.a. simple interest in certain time. What is the simple interest on the sum of 9600 at the same rate for the same time?
8400 रुपये की एक राशि किसी निश्चित समय में 8.75% प्रति वर्ष साधारण ब्याज की दर से 11,046 रुपये हो जाती है | 9600 रुपये की राशि पर इसी दर से इसी समय के लिए साधारण ब्याज ज्ञात करें |
SSC CGL Tier 2 11 September 2019
(a)Rs 2990
(b)Rs 3012
(c)Rs 2686
(d)Rs 3024

Q2. A sum of Rs. 5,000 is divided into two parts such that the simple interest on the first part for $4\frac{1}{5}$ years at $6\frac{2}{3}$% p.a. Is double the simple interest on the second part for $2\frac{3}{4}$ years at 4% p.a. What is the difference between the two parts ? 5000 रुपये की एक राशि दो हिस्सों में इस प्रकार विभाजित की जाती है कि पहले हिस्से पर $6\frac{2}{3}$% प्रति वर्ष की दर से $4\frac{1}{5}$ वर्षों का साधारण ब्याज दूसरे हिस्से पर 4% प्रति वर्ष की दर से $2\frac{3}{4}$ वर्षों के साधारण ब्याज से दोगुना है | इन दोनों हिस्सों के बीच अंतर ज्ञात करें| **SSC CGL Tier 2 11 September 2019**
(a) 680
(b) 600
(c) 560
(d) 620

Q3. A sum amounts to Rs 14,395.20 at 9.25% p.a. simple interest in 5.4 years. What will be the simple interest on the same sum at 8.6% p.a. in 4.5 years?
कोई राशि 5.4 वर्षों में 9.25% प्रति वर्ष साधारण ब्याज की दर से 14,395 रुपये हो जाती है | इसी राशि पर 4.5 वर्षों में 8.6% प्रति वर्ष की दर से साधारण ब्याज ज्ञात करें |
SSC CGL Tier 2 12 September 2019
(a)Rs 3715.20
(b)Rs 3627
(c)Rs 3797.76
(d)Rs 3672

Q4. A sum lent out at simple interest amounts to Rs. 6076 in 1 year and Rs. 7504 in 4 years. The sum and the rate of interest p.a are respectively
साधारण ब्याज पर उधार दी गयी एक राशि 1 वर्ष में 6076 रुपये तथा 4 वर्ष में 7504 रुपये हो जाती है | यह राशि तथा ब्याज की दर (प्रति वर्ष) क्रमशः है -
SSC CGL Tier 2 12 September 2019
(a) Rs. 5600 and 9%
(b) Rs. 5600 and 8.5%
(c) Rs. 5400 and 9%
(d) Rs. 5400 and 10%

Q5.A person invested one-fourth of the sum of Rs 25000 at a certain rate of simple interest and the rest at 4% p.a. higher rate. If

the total interest received for 2 years is Rs 4,125. What is the rate at which the second sum was invested?
एक व्यक्ति ने 25000 रुपये की एक-चौथाई राशि साधारण ब्याज की किसी निश्चित दर पर तथा शेष राशि 4% प्रति वर्ष उच्च दर से निवेश की | यदि 2 वर्षों के लिए प्राप्त कुल ब्याज 4,125 रुपये है, तो दूसरी राशि को किस दर पर निवेश किया गया था ?
SSC CGL Tier 2 13 September 2019 (Morning)
(a)9.5%
(b)9.25%
(c)5.255
(d)7.5%

Q6. A sum of Rs10,500 amounts to Rs13,825 in $3\frac{4}{5}$ years at a certain rate per cent per annum simple interest. What will be the simple interest on the same sum for 5 years at double the earlier rate? 10,500 रुपये की एक राशि प्रति वर्ष साधारण ब्याज के एक निश्चित दर प्रतिशत पर $3\frac{4}{5}$ वर्षों में 13,825 रुपये हो जाती है | इसी राशि पर पहली दर से दोगुनी दर पर 5 वर्षों का साधारण ब्याज कितना होगा ?
SSC CGL Tier 2 13 September 2019 (Morning)
(a) Rs8,470
(b) Rs8,750
(c) Rs8,670
(d) Rs8,560

Practice Questions

Q1.A borrows a sum of Rs 2000 from his friend B on 31 December 2007 on the condition that he will return the same after one year with simple interest at 8%. However, A gets into a position of returning the money on 1 July 2008. How much amount he has to return to B?
A ने अपने मित्र B से 31 दिसंबर 2007 को 2000 रुपये की राशि इस शर्त पर उधार ली कि वह इस राशि को एक वर्ष के बाद 8% के साधारण ब्याज के साथ वापस कर देगा | हालाँकि, A इस राशि को 1 जुलाई 2008 को ही वापस करने की स्थिति में आ गया | उसे B को कितनी राशि वापस करनी होगी ?
SSC CHSL 2018 10 July 2019 (Afternoon)
(a)Rs 2200
(b)Rs 2080
(c)Rs 2088
(d)Rs 2,070

Q2. A borrows a sum of Rs 3000 from his friend B on 31 December 2011 on the condition that he will return the same after one year with simple interest at 15%. However, A gets into a position of returning the money on 31 August 2012. How much amount he has to return to B?
A ने अपने मित्र B से 31 दिसंबर 2011 को 3000 रुपये की राशि इस शर्त पर उधार ली कि वह इस राशि को एक वर्ष के बाद 15% साधारण ब्याज के साथ लौटा देगा | हालाँकि, A 31 अगस्त 2012 को ही यह राशि लौटाने की स्थिति में आ गया | उसे B को कितनी राशि लौटानी होगी ?
SSC CHSL 2018 10 July 2019 (Evening)
(a)Rs 3300
(b)Rs 3200
(c)Rs 3310
(d)Rs 3305

Q3. A sum of Rs. 15,000 is invested partly at 12% per annum and the remaining at 10% per annum simple interest. If the total interest at the end of 2 years is Rs. 3,344 how much money was invested at 10% per annum?
15000 रुपये की एक राशि का कुछ भाग 12% प्रति वर्ष तथा शेष भाग 10% प्रति वर्ष साधारण ब्याज पर निवेश किया जाता है | यदि 2 वर्षों के अंत में कुल ब्याज 3344 रुपये है, तो 10% प्रति वर्ष की दर से कितनी राशि निवेश की गयी थी ?
SSC CPO 12 March 2019 (Morning)
(a) 6,200
(b) 6,600
(c) 6,400
(d) 6,500

Q4. A sum of Rs 15,600 is invested partly at 7% per annum and the remaining at 9% per annum simple interest. If the total interest at the end of 3 years is Rs 3,738. How much money was invested at 7% per annum?
15600 रुपये की एक राशि का कुछ भाग 7% प्रति वर्ष तथा शेष भाग 9% प्रति वर्ष साधारण ब्याज पर निवेश किया जाता है | यदि 3 वर्षों के अंत में कुल ब्याज 3738 रुपये है, तो 7% प्रति वर्ष की दर से कितनी राशि निवेश की गयी थी ?
SSC CPO 13 March 2019 (Morning)
(a) Rs 7,800
(b) Rs 7,900
(c) Rs 7.600
(d) Rs 7,700

Q5. A borrowed a loan from B at 8% simple interest for 2 years and repaid the loan with interest totaling Rs 1,91,864. The amount of loan taken by A is:
A ने B से 2 वर्षों के लिए 8% साधारण ब्याज पर ऋण लिया तथा ब्याज सहित इस ऋण का भुगतान 1,91,864 रुपये किया | A द्वारा लिए गए ऋण की राशि थी -
SSC CPO 14 March 2019 (Morning)
(a) Rs 1,68,920
(b) Rs 1,66,540
(c) Rs 1,64,492
(d) Rs 1,65,400

Q6. A sum at a simple interest of 8% p.a. Becomes $\frac{7}{5}$ of itself in how many years?

8% प्रति वर्ष साधारण ब्याज पर एक राशि कितने वर्षों में $\frac{7}{5}$ गुना हो जायेगी ?

SSC CPO 16 March 2019 (Afternoon)

(a) 5
(b) $2\frac{1}{2}$
(c) $3\frac{1}{2}$
(d) 2

Q7. A sum of rs 10,200 is invested partly at 8% per annum and remaining at 6% per annum for 3 years at simple interest. If the total interest is rs 2,124, how much money was invested at 6% per annum?

10200 रुपये की एक राशि 3 वर्षों के लिए अंशतः 8% प्रति वर्ष और शेष 6% प्रति वर्ष साधारण ब्याज की दर से निवेश की जाती है | यदि कुल ब्याज 2124 रुपया है, तो 6% प्रति वर्ष पर कितनी राशि निवेश की गयी थी ?

SSC CPO 13 March 2019 (Evening)

(a)4900
(b)5200
(c)4800
(d)5400

Q8. 2,64,000 is invested for 3 years on an annual rate of interest 8.25%. What will be the amount of interest?

दर 8.25 % वार्षिक साधारण ब्याज पर 3 वर्ष के लिए 2,64,000 का निवेश किया जाता है | ब्याज की राशि क्या होगी ?

SSC CPO 14 March 2019 (Evening)

(a) Rs 65,340
(b) Rs 21,780
(c) Rs 87,120
(d) Rs 43,560

Q 9. In what time will a sum double itself at 8% p.a. Simple interest.

किस समय में एक राशि 8% प्रति वर्ष साधारण ब्याज पर दोगुनी हो जाएगी ?

SSC CPO 16 March 2019 (Morning)

(a) 8 years
(b) 12.5 years
(c) 6 years
(d) 5 years

Q10. The simple interest for 9 years on a principal is $\frac{3}{5}$ of the principal. What is the rate of interest per annum?

किसी मूल धन पर 9 वर्षों का साधारण ब्याज मूल धन का $\frac{3}{5}$ है | प्रति वर्ष ब्याज की दर ज्ञात करें |

SSC MTS 2 August 2019 (Evening)

(a) 6%
(b) 4%
(c) $6\frac{2}{3}$ %
(d) $5\frac{2}{3}$ %

Q11. The simple interest on a certain sum for two years is Rs1000 at the rate of 10% per annum. What is the amount after these two years?

10% प्रति वर्ष की दर से किसी निश्चित राशि पर दो वर्षों का साधारण ब्याज 1000 रुपये है| इन दो वर्षों के बाद मिश्रधन ज्ञात करें |

SSC MTS 7 August 2019 (Afternoon)

(a) Rs6500
(b) Rs6000
(c) Rs7000
(d) Rs5500

Q12. A sum of money becomes double of itself in 50 months when invested on simple interest. What is the rate of interest per annum?

साधारण ब्याज पर निवेश की गयी कोई राशि 50 महीनों में खुद से दोगुनी हो जाती है | प्रति वर्ष ब्याज की दर ज्ञात करें |

SSC MTS 7 August 2019 (Evening)

(a) 26%
(b) 25%
(c) 20%
(d) 24%

Q13. A sum of Rs 2000 is invested on simple interest for three years at the rate of 10% per annum, then the amount will be:

2000 रुपये की एक राशि 10% साधारण ब्याज प्रति वर्ष की दर से तीन वर्षों के लिए निवेश की जाती है | मिश्र धन होगा :

SSC MTS 8 August 2019 (Morning)

(a) Rs2900
(b) Rs2600
(c) Rs2300
(d) Rs2500

Q14. Ramesh borrowed Rs. 12000 at 13% p.a simple interest. What amount will he pay in 5 years to clear this loan ?

रमेश ने 13% प्रतिवर्ष साधारण ब्याज की दर से रु 12000 उधार लिए | रमेश उधार चुकता करने के लिए 5 वर्षों में कितनी राशि का भुगतान करेगा ?

SSC MTS 9 August 2019 (Evening)

(a) Rs18800
(b) Rs20000
(c) Rs19800
(d) Rs18600

Q15. A sum of Rs50,000 is lent partly at 4% and remaining at 5% per annum. If the yearly simple interest on the average is 4.6%, the two parts are:

50000 रुपये की एक राशि अंशतः 4% तथा शेष 5% प्रति वर्ष की दर से उधार दी जाती है | यदि औसत पर वार्षिक साधारण ब्याज 4.6% है, तो ये दोनों हिस्से हैं :

SSC MTS 13 August 2019 (Evening)

(a) Rs22500, Rs27500
(b) Rs15000, Rs35000
(c) Rs20000, Rs30000
(d) Rs25000, Rs25000

Q16. X took a loan of Rs5000 on simple interest, the rate of interest being the same as the number of years for which the loan was taken. If the interest paid was Rs1800, then what was the rate of interest?
X ने साधारण ब्याज पर 5000 रुपये का ऋण लिया, जिसमें ब्याज की दर लिए गए ऋण के वर्षों की संख्या के समान थी | यदि 1800 रुपये के ब्याज का भुगतान किया गया, तो ब्याज की दर ज्ञात करें |
SSC MTS 14 August 2019 (Afternoon)
(a) 6.5%
(b) 6%
(c) 5%
(d) 5.5%

Q17. At the rate of 8% the amount invested earns a simple interest of Rs240 after 3 years. If the rate of interest been 5% more, then how much more interest would it have earned?
8% की दर से निवेश की गयी राशि पर 3 वर्षों के बाद 240 रुपये का साधारण ब्याज प्राप्त होता है | यदि ब्याज की दर 5% अधिक होती, तो इस पर कितना अधिक ब्याज प्राप्त होता ?
SSC MTS 14 August 2019 (Evening)
(a) Rs105
(b) Rs180
(c) Rs150
(d) Rs135

Q18. What time will it take for a principal of Rs. 640 to become an amount of Rs. 768 at 2.5% p.a simple interest ?
रु640 के मूलधन को 2.5% वार्षिक साधारण ब्याज दर से रु 768 का मिश्रधन बनने में कितना समय लगेगा ?
SSC MTS 16 August 2019 (Afternoon)
(a) 10 years / 10 साल
(b) 8 years / 8 साल
(c) 9 years / 9 साल
(d) 11 years / 11 साल

Q19. The simple interest on a sum for the five years at 7% p.a is Rs. 700. What is the principal ?
किसी राशि पर 7% प्रतिवर्ष की दर से पांच वर्षों के लिए साधारण ब्याज रु700 है | तो मूलधन कितना है ?
SSC MTS 16 August 2019 (Evening)
(a) Rs 1800 / रु 1800
(b) Rs 1600 / रु 1600
(c) Rs 2000 / रु 2000
(d) Rs 2100 / रु 2100

Q20. A sum becomes Rs 500 in 5 years and Rs600 in 7 years at a certain rate percent p.a. at of simple interest. What is the sum?
कोई राशि प्रति वर्ष साधारण ब्याज की किसी निश्चित दर से 5 वर्षों में 500 रुपये तथा 7 वर्षों में 600 रुपये हो जाती है | यह राशि ज्ञात करें |
SSC MTS 19 August 2019 (Morning)
(a) Rs300
(b) Rs400
(c) Rs200
(d) Rs250

Q21. A sum is invested on simple interest. If the rate of interest is 20% p.a, then in what time the sum will be doubled ?
किसी राशि को साधारण ब्याज पर निवेशित किया जाता है | यदि ब्याज दर 20% प्रतिवर्ष है, तो कितने समय में राशि दोगुनी हो जाएगी ?
SSC MTS 19 August 2019 (Afternoon)
(a) 10 years /10 वर्ष
(b) 8 years / 8 वर्ष
(c) 4 years / 4 वर्ष
(d) 5 years /5 वर्ष

Q22. A certain sum amounts to Rs 12096 at 8% p.a. in $5\frac{1}{2}$ years at simple interest. What will be the simple interest on the same sum at 10% p.a. in 8 years?
एक निश्चित राशि 8% प्रति वर्ष साधारण ब्याज की दर से $5\frac{1}{2}$ वर्षों में 12096 रुपये हो जाती है | इसी राशि पर 10% प्रति वर्ष की दर से 8 वर्षों का साधारण ब्याज ज्ञात करें|
SSC MTS 19 August 2019 (Evening)
(a) Rs6760
(b) Rs6810
(c) Rs6680
(d) Rs6720

Q23. A person borrowed a sum at 8% p.a simple interest and in 8 years, the interest earned was Rs. 5,490 less than the amount of loan. This amount was :
किसी व्यक्ति ने 8% वार्षिक साधारण ब्याज पर एक राशि उधार ली और 8 वर्षों में प्राप्त ब्याज, उधार की राशि से 5,490 रु कम था | यह राशि थी :
SSC MTS 20 August 2019 (Morning)
(a) Rs 15,500 / रु 15,500
(b) Rs 15,250 / रु 15,250
(c) Rs 14280 / रु 14,280
(d) Rs 15600 / रु 15,600

Q24. A certain sum is lent at x% p.a simple interest for $\frac{x}{3}$ years. The simple interest of this sum is equal to one-third of this sum. What is the value of x ?
एक निश्चित राशि को $\frac{x}{3}$ वर्षों के लिए प्रति वर्ष x% साधारण ब्याज की दर से उधार दिया जाता है | राशि का साधारण ब्याज, राशि के एक तिहाई के बराबर है | x का मान कितना है ?
SSC MTS 20 August 2019 (Afternoon)
(a) 12
(b) 10
(c) 9

(d) 6

Q25. What is the amount that will become Rs. 1440 at 5% simple interest in 4 years?
वह राशि कितनी है जो 5% साधारण ब्याज की दर से 4 वर्षों में रु 1440 हो जाएगी ?
SSC MTS 21 August 2019 (Afternoon)
(a) Rs 1180 / रु 1180
(b) Rs 1080 / रु 1080
(c) Rs 1200 / रु 1200
(d) Rs 1240 / रु 1240

Q26. What is the simple interest on Rs35000 at $\frac{18}{7}$ % per annum for a period of 9 months?
35000 रुपये की राशि पर $\frac{18}{7}$ % की दर से 9 माह का साधारण ब्याज ज्ञात करें |
SSC MTS 22 August 2019 (Morning)
(a) Rs675
(b) Rs600
(c) Rs875
(d) Rs700

Q27. A sum of Rs9000 amounts to Rs13356 at a certain rate percent per annum in $4\frac{2}{5}$ years at simple interest. What will be the simple interest on the same sum at double the rate for $2\frac{1}{3}$ years?
9000 रुपये की राशि साधारण ब्याज की एक निश्चित दर से $4\frac{2}{5}$ वर्षों में 13356 रुपये हो जाती है | इसी राशि पर दोगुनी दर से $2\frac{1}{3}$ वर्षों का साधारण ब्याज कितना होगा ?
SSC MTS 22 August 2019 (Afternoon)
(a) Rs4640
(b) Rs4760
(c) Rs4260
(d) Rs4620

Q28. If the simple interest on a sum of Rs x at 6% p.a. for two years is double the simple interest on another sum of Rs y at 9% per annum for three years, then which of the following is true?
यदि x रुपये की राशि पर 6% प्रति वर्ष की दर से दो वर्षों का साधारण ब्याज y रुपये की राशि पर 9% प्रति वर्ष की दर से तीन वर्षों के साधारण ब्याज से दोगुना है, तो निम्न में से कौन सा सही है ?
SSC MTS 22 August 2019 (Evening)
(a) x = 2y
(b) x = 4.5y
(c) 3x = 7y
(d) 2x = 5y

Q29. At a fixed simple interest rate, the amount of Rs 500 becomes Rs 600 in 2 years. If the rate of interest is halved, then what will be the amount of Rs 500 in 2 years.
निश्चित साधारण ब्याज दर पर 500 रूपए की राशि 2 वर्ष में 600 रूपए हो जाती है यदि ब्याज दर को आधा कर दिया जाता है तो 500 रूपए की राशि 2 वर्ष में कितनी होगी ?
SSC MTS 5 August 2019 (Afternoon)
(a) Rs 500
(b) Rs 520
(c) Rs 560
(d) Rs 550

Q30. A person deposits Rs. 500 for 2 years, Rs. 600 for 5 years and Rs. 1000 for 6 years at the same rate of simple interest if he receives a simple interest of Rs. 1000, then the rate of interest per year is ?
कोई व्यक्ति 2 वर्षो के लिए 500 रूपए 5 वर्षो के लिए 600 रूपए तथा 6 वर्षो के लिए 1000 रूपए सभी को साधारण ब्याज की समान दर पर जमा करता है यदि वह कुल 1000 रूपए का साधारण ब्याज प्राप्त करता है , तो प्रति वर्ष ब्याज की दर कितनी है ?
SSC MTS 5 August 2019 (Afternoon)
(a) 15%
(b) 5%
(c) 10%
(d) 20%

Q31. At the end of 3 years, the simple interest on any amount of 2800 is 420. What will be the simple interest on 3200 for the same rate and same period?
3 वर्षो के अंत में 2800 की किसी राशि पर साधारण ब्याज 420 है| इसी दर और इतनी ही अवधि के लिए 3200 पर साधारण ब्याज कितना होगा ?
SSC MTS 13 August 2019 (Morning)
(a) 480
(b) 560
(c) 440
(d) 640

Q32. Pankaj invests an amount after dividing in three different schemes A, B and C giving the interest at the rate of 10%, 12% and 15% respectively and the accumulated interest for one year is Rs. 3200. The amounts invested in A, B and C are in the ratio of 8 : 5 : 12. What amount did he invest in the scheme B ?
पंकज किसी राशि को विभाजित कर तीन अलग-अलग योजनाओ A, B और C में क्रमशः 10%, 12% और 15% प्रति वर्ष ब्याज दर पर निवेश करता है, और एक वर्ष में संचित कुल ब्याज 3200 रूपए है | योजना A, B और C में निवेश की गयी राशि 8 : 5 : 12 के अनुपात में है | योजना B में वह कितनी राशि का निवेश करता है ?
SSC MTS 20 August 2019 (Evening)
(a) Rs 5500
(b) Rs 4500
(c) Rs 5000
(d) Rs 4000

Q33. In how many years will a money become triple of itself at the rate of 10% per annum simple interest?
10% प्रति वर्ष साधारण ब्याज की दर से कोई धन कितने वर्षो में स्वयं का तीन गुना हो जायेगा ?
SSC MTS 21 August 2019 (Morning)
(a) 25
(b) 20
(c) 15
(d) 8

Q34. A person deposits Rs 500 for 2 years, Rs 600 for 5 years and Rs 1000 for 6 years at the same rate of simple interest. If he earns a simple interest of Rs. 1000, then what is the rate of interest per year?
कोई व्यक्ति 2 वर्षो के लिए 500 रूपए, 5 वर्षो के लिए 600 रूपए तथा 6 वर्षो के लिए 1000 रूपए सभी को साधारण ब्याज की समान दर पर जमा करती है | यदि वह कुल 1000 रूपए का साधारण ब्याज प्राप्त करता है, तो प्रति वर्ष ब्याज की दर कितनी है ?
SSC MTS 2 August 2019 (Afternoon)
(a) 15%
(b) 5%
(c) 10%
(d) 20%

SSC CGL TIER I

Q1. ₹4,300 becomes ₹4,644 in 2 years at simple interest. Find the principle amount that will become ₹10,104 in 5 years at the same rate of interest.
4300 रुपये साधारण ब्याज पर 2 वर्षों में 4644 रुपये बन जाते हैं | वह मूल धन ज्ञात करें जो ब्याज की इसी दर से 5 वर्षों में 10,104 रुपये बन जाएगा ?
SSC CGL 3 March 2020 (Morning)
(a) ₹ 5,710
(b) ₹ 7,200
(c) ₹ 8,420
(d) ₹ 9,260

Q2. The difference in the compound interest on a certain sum at 10% p.a. for one year, when the interest is compounded half yearly and yearly, is ₹88.80. What is the simple interest on the same sum for $1\frac{2}{3}$ years at the same rate? /
किसी निश्चित राशि पर 10% प्रति वर्ष की दर से एक वर्ष के चक्रवृद्धि ब्याज में 88.80 रुपये का अंतर आता है, जब ब्याज का संयोजन अर्धवार्षिक और वार्षिक किया जाता है| इसी राशि पर इसी दर से $1\frac{2}{3}$ वर्षों का साधारण ब्याज कितना होगा ?
SSC CGL 4 March 2020 (Afternoon)
(a) ₹5,916
(b) ₹5,986
(c) ₹5,980
(d) ₹5,920

Q3. The compound interest on a certain sum at $16\frac{2}{3}$% p.a. for 3 years is ₹6,350. What will be the simple interest on the same sum at the same rate for $5\frac{2}{3}$ years? / एक निश्चित राशि पर $16\frac{2}{3}$% प्रति वर्ष की दर से 3 वर्षों का चक्रवृद्धि ब्याज 6,350 रुपये है | इसी राशि पर इसी दर से $5\frac{2}{3}$ वर्षों का साधारण ब्याज कितना होगा ? **SSC CGL 5 March 2020 (Morning)**
(a) ₹7,620
(b) ₹9,600
(c) ₹11,400
(d) ₹10,200

Q4. The rate of simple interest on a sum of money is 5% p.a. for the first 4 years, 8% p.a. for the next 3 years and 10% p.a. for the period beyond 7 years. If the simple interest accrued by the sum over a period of 10 years is ₹1,850, then the sum is:
एक धन राशि पर साधारण ब्याज की दर पहले 4 वर्षों के लिए 5% प्रति वर्ष तथा अगले 3 वर्षों के लिए 8% प्रति वर्ष एवं 7 वर्षों के बाद की अवधि के लिए 10% प्रति वर्ष है | यदि इस राशि पर 10 वर्षों में उपार्जित साधारण ब्याज 1850 रुपये है, तो यह राशि कितनी है ?
SSC CGL 6 March 2020 (Evening)
(a) ₹1,650
(b) ₹1,500
(c) ₹2,750
(d) ₹2,500

Q5. If in 13 years a fixed sum doubles at simple interest, what will be the interest rate per year? (correct to one decimal places)
यदि 13 वर्षों में साधारण ब्याज पर एक निश्चित राशि दोगुनी हो जाती है, तो प्रति वर्ष ब्याज की दर कितनी होगी ? (दशमलव के एक स्थान तक) **SSC CGL 7 March 2020 (Afternoon)**
(a) 8.69%
(b) 7.69%
(c) 7.29%
(d) 7.92%

Q6. When two equal amounts are deposited for 5 years and 3 years at the rate of 7% and 9% per annum, respectively, the difference of their simple interest is ₹475. Then find the deposited amount. / जब दो समान राशि क्रमशः 5 और 3 साल के लिए 7% और 9% प्रति वर्ष की दर से जमा की जाती है, तो उनके साधारण ब्याज का अंतर 475 है। तो जमा करी गयी राशि का पता लगाएं। **SSC CGL 7 March 2020 (Evening)**
(a) ₹5,837.5
(b) ₹5,937.5
(c) ₹5,992.5
(d) ₹6,037.5

SSC CHSL 2019

Q1. In how many years shall Rs 3,500 invested at the rate of 10% simple interest per annum, amount to Rs 4,500?
10% प्रति वर्ष साधारण ब्याज की दर से निवेश किये गए 3,500 रुपये कितने वर्षों में 4,500 रुपये हो जाएंगे ?

CHSL 12-10-2020 (Morning shift)

(a) $2\frac{5}{7}$ years
(b) $2\frac{6}{7}$ years
(c) $2\frac{4}{7}$ years
(d) $2\frac{3}{7}$ years

Q2. In how many years will the simple interest on a sum of money be equal to the principle at rate of $12\frac{2}{4}$% p.a.?
एक धनराशि पर $12\frac{2}{4}$% प्रतिवर्ष की दर से साधारण ब्याज कितने वर्षों में मूल धन के बराबर हो जाएगा ?

CHSL 12-10-2020 (Afternoon shift)

(a) 7 years/ वर्ष
(b) 5 years/ वर्ष
(c) 8 years/ वर्ष
(d) 6 years/ वर्ष

Q3. A person deposits Rs8,000 in a bank which pays 8% p.a. simple interest. The amount after 8 years will be:
एक व्यक्ति एक बैंक में 8000 रुपये जमा करता है, जो 8% प्रति वर्ष साधारण ब्याज देता है। 8 वर्ष के बाद मिश्रधन कितना होगा?

CHSL 12-10-2020 (Evening shift)

(a) Rs 12,600
(b) Rs 10,784
(c) Rs 13,120
(d) Rs 12,545

Q4. A sum of Rs. 10,000 was borrowed at a rate of simple interest. After four months, Rs.6000 more was borrowed and rate of interest on the total principal was doubled than that of the previous rate. At the end of the year, 2800 was paid as the interest. Find the rate that was applicable in the initial.
10000 रुपये की राशि साधारण ब्याज के किसी दर पर उधार ली गई। चार महीनों बाद, 6000 रुपय्ये और उधार लिए गए और कुल मूल धन पर ब्याज की दर को पिछली दर के मुकाबले दोगुना कर दिया गया। साल के अंत में, ब्याज के रूप में 2800 का भुगतान किया गया, प्रारंभ में लागू की गयी ब्याज दर की गणना करें।

CHSL 12-10-2020 (Morning shift)

(a)14%
(b)16%
(c)12%
(d)10%

Q5. A man takes a loan of some amount at some rate of simple interest. After three years, the loan amount is doubled and the rate of interest is decreased by 2%. After 5 years, if the total interest paid on the whole is Rs13,600, which is equal to the same when the first amount was taken for $11\frac{1}{3}$ years, then the loan taken initially is:
एक आदमी साधारण ब्याज की कुछ दर पर कुछ राशि का ऋण लेता है। तीन साल के बाद, ऋण की राशि दोगुनी हो जाती है और ब्याज की दर 2% कम हो जाती है। 5 साल के बाद, यदि पूरे पर दिया गया कुल ब्याज 13,600 रुपये है, जो उसी के बराबर है जब पहली राशि $11\frac{1}{3}$ वर्षों के लिए उधार ली गई थी, तो शुरू में लिया गया ऋण है:

CHSL 14-10-2020 (Afternoon shift)

(a) Rs 13,600
(b) Rs 12,500
(c) Rs 10,000
(d) Rs 12,000

Q6. Find a simple interest of ₹74,000 at 18 ⅔ % per annum for a period of 8 months?
74,000 रुपये पर 18 ⅔ % प्रति वर्ष की दर से 8 माह का साधारण ब्याज ज्ञात कीजिए।

CHSL 14-10-2020 (Evening shift)

(a) ₹ 9,486.32
(b) ₹ 8,956.74
(c) ₹ 8,458.96
(d) ₹ 9,208.88

Q7. In how many years and months will a sum of Rs24 become Rs56 at 16% simple interest per annum?
कितने वर्षों और महीनों में, प्रति वर्ष 16% साधारण ब्याज पर 24 रुपये की राशि 56 रुपये हो जाएगी?

CHSL 15-10-2020 (Afternoon shift)

(a) 7 years 8 months/ 7 वर्ष 8 महीने
(b) 8 years 4 months/ 8 वर्ष 4 महीने
(c) 6 years 11 months/ 6 वर्ष 11 महीने
(d) 6 years 5 months/ 6 वर्ष 5 महीने

Q8. In how many years will a sum of Rs5,000 yield a simple interest of Rs2,000 at an interest rate of 10% p.a.?
5,000 रुपये पर 10% की ब्याज दर पर कितने वर्षों में साधारण ब्याज 2000 रुपये मिलेगा?

CHSL 15-10-2020 (Evening shift)

(a) 5 years/ वर्ष
(b) 3 years/ वर्ष
(c) 4 years/ वर्ष
(d) 6 years/ वर्ष

Q9. A person invested a total of ₹9,000 in three parts at 3%, 4% and 6% per annum on simple interest. At the end of a year, he

received equal interest in all three cases. The amount invested at 6% is:
एक व्यक्ति साधारण ब्याज पर ₹9,000 को तीन भाग में 3%, 4% और 6% की दर से निवेश करता है। एक वर्ष के अंत में, उसे तीनों मामलों में समान ब्याज प्राप्त हुआ। 6% पर निवेशित राशि कितनी है?
CHSL 16-10-2020 (Morning shift)
(a) ₹2,000
(b) ₹3,000
(c) ₹4,000
(d) ₹5,000

Q10. At which rate of simple interest does an amount become double in 12 years?
साधारण ब्याज की किस दर से राशि 12 वर्ष में दोगुनी हो जाती है?
CHSL 16-10-2020 (Evening shift)
(a) $7\frac{4}{5}$ %
(b) 8%
(c) $8\frac{1}{3}$ %
(d) $7\frac{1}{2}$ %

Q11. A person borrowed Rs.1,200 at 8% p.a. andRs1,800 at 10% p.a. as simple interest for the same period. He had to pay Rs1,380 in all as interest. Find the time period.
एक व्यक्ति ने साधारण ब्याज की दर 8% प्रति वर्ष पर ₹ 1,200 उधार लिया और उसी अवधि के लिए 10% प्रति वर्ष पर ₹ 1,800 उधार लिया। उसे ब्याज के रूप में कुल ₹1,380 का भुगतान करना था। समय अवधि ज्ञात कीजिए।
CHSL 19-10-2020 (Morning shift)
(a) 4 years/ वर्ष
(b) 10 years/ वर्ष
(c) 6 years/ वर्ष
(d) 5 years/ वर्ष

Q12. The sum of simple interest on a principal at 8% p.a. for 4 years and 8 years is Rs960. The principal is:
एक मूल धन पर 8% प्रति वर्ष की दर से 4 वर्षों तथा 8 वर्षों के साधारण ब्याज का जोड़ 960 रुपये है। मूलधन कितना है?
CHSL 19-10-2020 (Afternoon shift)
(a) Rs 1000
(b) Rs 900
(c) Rs 1100
(d) Rs 800

Q13. A man took a loan from a bank at the rate of 11% p.a. simple interest. After three years, he had to pay Rs 9,570 interest only for the period. The principle amount borrowed by him was:
एक व्यक्ति ने 11% प्रति वर्ष साधारण ब्याज की दर से एक बैंक से ऋण लिया। तीन वर्ष बाद, उन्हें केवल अवधि के लिए 9,570 रुपये का ब्याज देना पड़ा। उसके द्वारा उधार ली गई राशि थी:
CHSL 19-10-2020 (Evening shift)
(a) Rs 27,685
(b) Rs 26,545
(c) Rs 25,000
(d) Rs 29,000

Q.14. A sum of money amounts to Rs.7500 in 5 years, and to 8,500 in 7 years at simple interest at the same rate of interest. The rate of interest per annum is:
एक राशि साधारण ब्याज की दर से 5 वर्षों में 7500 रुपये और उसी दर से 7 वर्षों में 8,500 रुपये हो जाती है। प्रति वर्ष ब्याज की दर क्या है?
CHSL 21-10-2020 (Morning shift)
(a) 12%
(b) 9%
(c) 8%
(d) 10%

Q.15. A sum at simple interest becomes two times in 8 years at a certain rate of interest p.a. The time in which the same sum will be 4 times at the same rate of interest at simple interest is:
प्रति वर्ष साधारण ब्याज की एक निश्चित दर से एक राशि 8 वर्षों में दोगुनी हो जाती है। वह अवधि ज्ञात कीजिए जब यही राशि साधारण ब्याज की समान दर से 4 गुना हो जाएगी?
CHSL 21-10-2020 (Afternoon shift)
(a) 30 years
(b) 25 years
(c) 24 years
(d) 20 years

Q.16. If the total simple interest on a sum of Rs.1400 for 4 years at rate of interest x% p.a. and on the same sum for two years at the same rate, is Rs.672, then the value of x is:
यदि 1400 रुपये की राशि पर x% प्रति वर्ष साधारण ब्याज की दर से 4 वर्षों तथा उसी राशि पर उसी दर से 2 वर्षों का कुल साधारण ब्याज 672 रुपये है, तो x का मान क्या है?
CHSL 21-10-2020 (Evening shift)
(a) 9%
(b) 8%
(c) 6%
(d) 10%

Q.17. The difference of simple interest on a sum of money for 8 years and 10 years is Rs.200. If the rate of interest is 10% per annum then what is the sum of money?
8 साल और 10 साल के लिए राशि पर साधारण ब्याज का अंतर 200 रुपये है। यदि ब्याज की दर 10% प्रति वर्ष है तो राशि कितनी है?
CHSL 17-03-2020 (Morning shift)
(a) 1000
(b) 1400
(c) 1600

(d) 1200

Q18. Latha deposited an amount of Rs35,000 in a bank with simple interest 11% per annum. How much interest will she earn after one year?
लाठा ने साधारण ब्याज 11% प्रति वर्ष के साथ बैंक में 35,000 रुपये की राशि जमा की। एक वर्ष के बाद वह कितना ब्याज कमाएगा?
CHSL 17-03-2020 (Afternoon shift)
(a) Rs 3,370
(b) Rs 3,500
(c) Rs 3,850
(d) Rs 3,220

Q19. A man has Rs 10,000. He lent a part of it at 15% simple interest and the remaining at 10% simple interest. The total interest he received after 5 years amounted to Rs 6,500. The difference between the parts of the amounts he lent is:
एक व्यक्ति के पास 10,000 रुपये हैं। उसने इसके एक हिस्से को 15% साधारण ब्याज तथा शेष हिस्से को 10% साधारण ब्याज पर उधार दे दिया। 5 वर्षों बाद उसे कुल 6500 रुपये साधारण ब्याज प्राप्त हुआ। उसके द्वारा उधार दी गयी राशियों का अंतर है:
CHSL 18-03-2020 (Morning shift)
(a) Rs 2,000
(b) Rs 2,500
(c) Rs 1,500
(d) Rs 1,750

Q20. If the present amount is Rs 87,750 with 8% rate of interest in four years, then what was the principal amount?
यदि चार वर्षों में 8% ब्याज दर से वर्तमान मिश्रधन 87,750 रुपये है, तो मूलधन कितना था?
CHSL 18-03-2020 (Afternoon shift)
(a) Rs78,456.34
(b) Rs66,477.2
(c) Rs56,896.98
(d) Rs69,345.6

Q21. A person borrows Rs7,000 for 3 years at 5% p.a. simple interest. He immediately lends it to another person at $6\frac{1}{3}$ % p.a for 3 years. Find his gain in the transaction per year.
एक व्यक्ति ने 5% प्रति वर्ष साधारण ब्याज की दर से 3 वर्षों के लिए 7,000 रुपये उधार लिए। उसने तुरंत इन रुपयों को एक अन्य व्यक्ति को 3 वर्षों के लिए $6\frac{1}{3}$ % प्रति वर्ष की दर से उधार दे दिया। प्रति वर्ष लेनदेन में उसका लाभ ज्ञात कीजिए।
CHSL 17-03-2020 (Evening shift)
(a) Rs90
(b) Rs93.33
(c) Rs92
(d) Rs95.33

Q.22. In a certain time, a sum of money becomes five times itself if the rate of the interest is 16% p.a. Then the certain time (in years) is:
एक निश्चित समय में, एक धनराशि स्वयं से पांच गुना हो जाती है, यदि ब्याज की दर 16% प्रति वर्ष है। वह निश्चित समय (वर्षों में) कौन सा है?
CHSL 19-03-2020 (Morning shift)
(a) 32
(b) 38
(c) 25
(d) 30

Q.23. Suresh lent out a sum of money to Rakesh for 5 years at simple interest. At the end of 5 years, Rakesh paid 9/8 of the sum to Suresh to clear out the amount. Find the rate of simple interest per annum.
सुरेश ने राकेश को साधारण ब्याज पर 5 वर्षों के लिए कुछ राशि उधार दी। 5 वर्षों के अंत में, राकेश ने राशि को चुकता करने के लिए सुरेश को राशि का 9/8 भाग लौटा दिया। प्रति वर्ष साधारण ब्याज की दर ज्ञात कीजिए।
CHSL 19-03-2020 (Evening shift)
(a) 3% p.a.
(b) 2% p.a.
(c) 3.5% p.a.
(d) 2.5% p.a.

SSC CGL2019 TIER-II
Q24. A certain sum is lent at 4% p.a for 3 years 8% p.a for next 4 years and 12 % p.a beyond 7 years. If for a period of 11 years the simple interest obtained is ₹27,600, then the sum is (in ₹):
एक निश्चित राशि 3 वर्षों के लिए 4% प्रति वर्ष, अगले 4 वर्षों के लिए 8% प्रति वर्ष तथा 7 वर्षों के बाद 12% प्रति वर्ष की दर से उधार दी जाती है। यदि 11 वर्षों की अवधि के लिए साधारण ब्याज 27,600 रुपये प्राप्त होता है, तो यह राशि (रुपये में) कितनी है?
CGL 2019 Tier-II (15-11-2020)
(a) 27,000
(b) 25,000
(c) 30,000
(d) 32,000

Q25. The rate of interest for the first 2 years is 6% p.a, for next 3 years is 10% p.a, and for the period beyond 5 years is 12% p.a, If a person gets ₹12,771 as simple interest after 7 years, then how money did he invest ?
ब्याज की दर पहले 2 वर्षों के लिए 6% प्रति वर्ष, अगले तीन वर्षों के लिए 10% प्रति वर्ष तथा 5 वर्षों से बाद की अवधि के लिए 12% है। यदि एक व्यक्ति को 7 वर्षों के बाद साधारण ब्याज के रूप में 12,771 रुपये प्राप्त होते हैं, तो उसने कितनी राशि निवेश की थी?
CGL 2019 Tier-II (16-11-2020)
(a) ₹ 19,450

(b) ₹ 19,350
(c) ₹ 19,300
(d) ₹ 20,000

Q26. At what rate of interest will a sum of ₹4,500 amount to ₹6,525 at simple interest for 5 years?/ साधारण ब्याज की किस दर से 5 वर्षों में ₹4,500 की राशि ₹6,525 का मिश्रधन देगी?
CGL 2019 Tier-II (18-11-2020)
(a) 8%
(b) 12%
(c) 10%
(d) 9%

Q27. In how much time will the simple interest on a certain sum of money be $\frac{6}{5}$ Times of the sum at 20% per annum? /
एक निश्चित धनराशि पर 20% प्रति वर्ष की दर से कितने समय में साधारण ब्याज धनराशि का $\frac{6}{5}$ गुना हो जाएगा?
CGL 2019 Tier-II (18-11-2020)
(a) 5 Years
(b) 8 Years
(c) 6 Years
(d) 7 Years

SSC CPO 2019
Q28. Sunita invested Rs. 12,000 on simple interest at the rate of 10% per annum to obtain a total amount of Rs.20,400 after a certain period. For how many years did she invest to obtain the above amount
सुनीता ने 10% प्रति वर्ष साधारण ब्याज की दर से एक निश्चित अवधि के बाद कुल 20,400 रुपये का मिश्रधन प्राप्त करने के लिए 12,000 रुपये निवेश किये। उपरोक्त मिश्रधन प्राप्त करने के लिए उसने कितने वर्षों तक निवेश किया था?
CPO 2019 23-11-2020 (Morning shift)
(a) 6
(b) 7
(c) 9
(d) 8

Q29. If the annual rate of simple interest increases from 11% to 17 $\frac{1}{2}$ % , a person's yearly income increases by 1,071.20. The principal amount invested (in Rs) is :
यदि साधारण ब्याज की वार्षिक दर 11% से बढ़कर 17 $\frac{1}{2}$ % हो जाती है, तो एक व्यक्ति की वार्षिक आय 1,071.20 तक बढ़ जाती है। निवेश की गई मूल राशि (रु में) है ?
CPO 2019 23-11-2020 (Evening shift)
(a) 17,250
(b) 19,120
(c) 10,710
(d) 16,480

Q30. If the annual rate of simple interest increases from 11% to 17 $\frac{1}{2}$%, then a person's yearly income increases by 1071.20. The simple interest (in Rs.) on the sum at 10 % for 5 years is;
यदि साधारण ब्याज की वार्षिक दर 11% से बढ़कर 17 $\frac{1}{2}$% हो जाती है, तो एक व्यक्ति की वार्षिक आय 1071.20 बढ़ जाती है। 5 वर्षों के लिए 10% की दर से उस राशि पर साधारण ब्याज (रु में) ज्ञात करे।
CPO 2019 24-11-2020 (Morning shift)
(a) 16,480
(b) 9,120
(c) 8,240
(d) 7,250

Q31. A sum of Rs.27,000 is divided into two parts A and B such that the simple interest at the rate of 15% per annum on A and B after two years and four years respectively, is equal. The total interest (in Rs.) received together from A and B is:
27,000 रुपये की राशि को दो भागों A और B में इस तरह विभाजित किया गया है कि दो साल और चार साल बाद A और B पर प्रतिवर्ष 15% की दर से साधारण ब्याज बराबर है। A और B पर एक साथ कुल कितना ब्याज (रुपये में) प्राप्त होगा:
CPO 2019 24-11-2020 (Evening shift)
(a) 5,400
(b) 9,600
(c) 18,000
(d) 10,800

Q32. A person invested Rs. 12,000 on simple interest for 7 years to obtain a total amount of Rs. 20,400 on a certain annual rate of interest. What was the rate of interest to obtain the above amount?
एक व्यक्ति ने 7 वर्षों के लिए साधारण ब्याज की एक निश्चित दर पर 12,000 रुपये निवेश किये तथा उसे 20,400 रुपये का मिश्रधन प्राप्त हुआ। उपरोक्त मिश्रधन प्राप्त करने के लिए ब्याज की दर कितनी थी?
CPO 2019 25-11-2020 (Morning shift)
(a) 8%
(b) 7%
(c) 9%
(d) 10%

SOLUTION

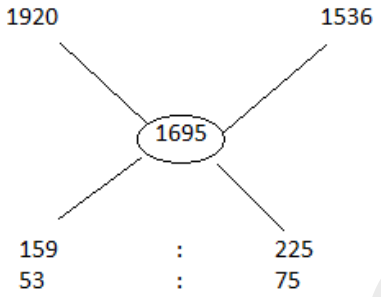
Variety Questions

Sol 1. (d) Principle = 1000
Rate of interest = 12%
Time Period = 4 months or $\frac{1}{3}$ years
Interest earned = $\frac{Principle \times Rate \times Time\ Period}{100}$ = $\frac{1000\times12\times\frac{1}{3}}{100}$ = 40
Amount returned to B = 1000+40 = 1040
Alternate :
12% = $\frac{3}{25}$
Let the principle = 25 unit and interest earned in one year = 3 unit
⇒ Interest earned in ⅓ years = 3 × $\frac{1}{3}$ = 1 unit
According to the question
25 unit = 1000
1 unit = 40
Desired Amount (26 unit) = 26 x 40 = 1040

Sol 2. (b)
5th year : 3rd year
Amount 5 : 4
Let the amount after 5th year = 5 unit and 3rd year = 4 unit
Interest earned in 2 yars = 5-4 = 1 unit
Interest earned in 1 year = $\frac{1}{2}$ unit
⇒ Interest earned in 3 year = 1 $\frac{1}{2}$ unit
Principle = 4-1 $\frac{1}{2}$ = 2 $\frac{1}{2}$
Desired rate of interest = $\frac{\frac{1}{2}\times100}{\frac{5}{2}\times1}$ = 20%

Sol 3. (d)
Let the amount invested at the rate of 15% = x
According to the question
$\frac{x\times15\times3}{100} + \frac{(12800-x)\times12\times3}{100}$ = 5085
$15x + 153600 - 12x = 169500$
$\Rightarrow x = 5300$
Alternate :
Interest earned in one year = $\frac{5085}{3}$ = 1695
Had complete sum been invested at the rate of 15% interest earned in one year = $\frac{12800\times15\times1}{100}$ =1920
Had complete sum been invested at the rate of 12% interest earned in one year = $\frac{12800\times12\times1}{100}$ =1536

15% 12%



Money invested at 15% = $\frac{53}{53+75}$ x 12800 = 5300

Sol 4. (a) Let the principal = 1 unit, so si earned = 1 unit.
Let the rate of interest = r
According to question
1 = $\frac{1\times r\times12.5}{100}$
r = 8 %

Sol 5. (a)
Let the principal = P
According to the question
7200 = $\frac{P\times15\times3}{100}$
⇒ P = 16000
Alternate :
15% = $\frac{3}{20}$
Let the Principle = 20 unit and interest earned for 1 year = 3 unit
⇒ Interest earned in 3 years = 3 x 3 = 9 unit
According to the question
9 unit = 7200
1 unit = 800
20 unit = 20 x 800 = 16000

Sol 6. (b)
Let the principle = p and time = rate = k
⇒ simple interest earned = p
According to the question
p = $\frac{p\times k\times k}{100}$
⇒ k = 10

Sol 7. (b)
Let the principal = P
According to the question
100 = $\frac{P\times10\times\frac{1}{2}}{100}$
⇒ P = 2000
Alternate :
10% = $\frac{1}{10}$
Let the Principle = 10 unit and interest earned for 1 year = 1 unit
⇒ Interest earned in 6 months or $\frac{1}{2}$ years = 1 x $\frac{1}{2}$ = $\frac{1}{2}$ unit
According to the question
$\frac{1}{2}$ unit = 100
1 unit = 200
10 unit = 200 x 10 = 2000

Sol 8. (b)
Let the simple interest = I
According to the question
I = $\frac{1000\times12.5\times2}{100}$ = 250
⇒ Amount = 1000 + 250 = 1250
Alternate :

12.5% = $\frac{1}{8}$
Let the Principle = 8 unit and interest earned for 1 year = 1 unit
⇒ Interest earned in 2 years = 1 x 2= 2 unit
⇒ Amount after 2 years = 8+2 = 10 unit
According to the question
8 unit = 1000
1 unit = 125
10 unit = 1250

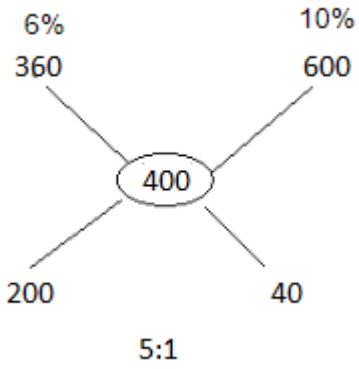
Sol 9. (b)
Simple Interest earned in 20 months = 520-480 = 40
Simple interest earned in 1 month = 2
Simple interest earned in 12 months (1 year) = 24
Desired rate of interest = $\frac{24}{480}$ x 100 = 5%

Pinnacle

Sol 10. (d) Interest earned = 1590-1500 = 90
According to the question
$90 = \frac{1500 \times \frac{x}{12} \times \frac{x}{8}}{100}$
$\Rightarrow x^2 = 576$
$\Rightarrow x = 24$

Sol 11. (d)
Interest earned = 1200-800 = 400
Let the rate of interest = r
According to the question
$400 = \frac{800 \times r \times 8}{100}$
$\Rightarrow r = \frac{25}{4}\ \%$
Desired simple interest = $\frac{800 \times \frac{25}{4} \times 6}{100}$ = 300
Alternate :
Interest earned in 8 years = 400
Interest earned in 1 year = $\frac{400}{8}$ = 50
Interest earned in 6 years = 50 x 6 = 300

Sol 12. (c)
Interest earned in 5 years = 2800
$\Rightarrow$ Interest earned in one year = 560
Interest earned from first scheme in one year = $\frac{4000 \times 1 \times 4}{100}$ = 160
Interest earned from other two schemes in one year = 560-160 = 400
Let the amount invested in second scheme = k
According to the question
$\frac{k \times 6 \times 1}{100} + \frac{(6000-k) \times 10 \times 1}{100} = 400$
$\Rightarrow k = 5000$
Money invested in third scheme = 6000-5000 = 1000
Alternate :
Interest earned in 5 years = 2800
$\Rightarrow$ Interest earned in one year = 560
Interest earned from first scheme in one year = $\frac{4000 \times 1 \times 4}{100}$ = 160
Interest earned from other two schemes in one year = 560-160 = 400
Had the remaining sum been invested at the rate of 6% interest earned in one year = $\frac{6000 \times 6 \times 1}{100}$ =360
Had the remaining sum sum been invested at the rate of 10% interest earned in one year = $\frac{6000 \times 10 \times 1}{100}$ =600



Money invested in third scheme = $\frac{1}{5+1}$ x 6000 = 1000

Sol 13. (d)
Let the rate of interest = r
According to the question
$7 = \frac{10 \times r \times 5}{100}$
$\Rightarrow r = 14\%$
Alternate :
Principal : Simple Interest
10 : 7
Let the principle = 10 unit
Simple interest earned in 5 years = 7 unit
Simple interest earned in 1 year = 1.4 unit
Desired rate = $\frac{1.4}{10}$ x 100 = 14 %

Sol 14. (a)
Interest earned in 3 years = 420
Interest earned in 1 year = 140
Rate of interest = $\frac{140}{2800}$ x 100 = 5%
Now,
5% = $\frac{1}{20}$
Let the Principle = 20 unit and the interest earned in 1 year = 1 unit
$\Rightarrow$ interest earned in 3 years = 3 unit
According to the question
20 unit = 3200
1 unit = 160
3 unit = 160 x 3 = 480

Sol 15. (c)
Interest earned in (6-4) years or 2 years = 24080-20720 = 3360
$\Rightarrow$ Interest earned in 4 years = 3360 x 2 = 6720
Desired Sum = 20720-6720 = 14000

Sol 16.(c)
Let the principal = 1 unit and rate of interest = r
According to the question
$1 = \frac{1 \times 7 \times r}{100}$
$r = 14\frac{2}{7}\ \%$
Now,
Let the desired time = t
In this period the sum amounts to = 5 unit
Interest earned in this period = 5-1 = 4 unit
$\Rightarrow 4 = \frac{1 \times \frac{100}{7} \times t}{100}$
$\Rightarrow$ t = 28 years
Alternate :
When money becomes 5 times of the principal interest earned = 4 time of the principle
Money become double in 7 years.
$\Rightarrow$ Time taken to earn the Interest equal to principal = 7 years
So, time taken to earn the interest equal to 4 times of the principal = 7x4 = 28 years

Sol 17. (b)
According to the question
$\frac{x \times m \times r}{100} = \frac{y \times n \times s}{100}$
$\Rightarrow \frac{x}{y} = \frac{ns}{mr}$

Sol 18. (b)
Let r be the rate of interest
According to the question
$(28000-27000) \times \frac{r}{100} \times 3 = 225$
$\Rightarrow r = \frac{15}{2}\ \%$

Pinnacle

Desired simple interest = $\frac{35500\times\frac{15}{2}\times\frac{13}{5}}{100}$ = 6922.50

SSC CGL Tier 2

Sol 1. (d)
Interest earned on the principle of 8400 = 11046-8400 = 2646
Let the time = t
⇒ 2646 = $\frac{8400\times8.75\times t}{100}$
⇒ t = 3.6
Desired simple interest = $\frac{9600\times8.75\times3.6}{100}$ = 3024
Alternate :
Rs 8400 amounts to = 11046
Rs 1 amounts to = $\frac{11046}{8400}$
Rs 9600 amounts to = $\frac{11046}{8400}$ x 9600= 12624
Desired simple interest = 12624-9600 = 3024

Sol 2. (b)
Let the amount invested at one part = x
According to the question
$\frac{x\times\frac{20}{3}\times\frac{21}{5}}{100} = 2\times\frac{(5000-x)\times4\times\frac{11}{4}}{100}$
420x = 1650000-330x
750x = 1650000
⇒ x = 2200
Amount invested in the second part = 5000-2200 = 2800
Desired difference = 2800-2200 = 600

Sol 3. (a)
Let P be the principle
According to the question
(14395.20 - P) = $\frac{P\times9.25\times5.4}{100}$
⇒ P = (14395.20 - P) × $\frac{100}{9.25\times5.4}$
⇒ 49950P = 1439520000-100000P
⇒ 149950P =1439520000
⇒ P = 9600
Desired SI = $\frac{9600\times8.6\times4.5}{100}$ = 3715.20
Alternate :
9.25% = $\frac{37}{400}$
Let the CP =400 unit and interest earned in one year = 37 unit
⇒ Interest earned in 5.4 years = 199.8
⇒ Amount after 5.4 years = 400+199.8 = 599.8
According to the question
599.8 unit = 14395.20
400 unit = 9600
Now,
8.6% = $\frac{43}{500}$
Let the CP =500 unit and interest earned in one year = 43 unit
⇒ Interest earned in 4.5 years = 43 x 4.5 = 193.5
⇒ 500 unit = 9600
Desired SI = 193.50 unit = 19.2 x 193.50 = 3715.20

Sol 4. (b)
Interest earned in (4-1) years or 3 years = 7504-6076 = 1428
⇒ Interest earned in 1 year = $\frac{1428}{3}$ = 476
⇒ Desired Sum = 6076-476 = 5600
Desired rate of interest = $\frac{476}{5600}$ x 100 = 8.5%

Sol 5. (b)
Let r be the rate of interest.
According to the question
$\frac{6250\times r\times2}{100} + \frac{18750\times(r+4)\times2}{100}$ = 4125
12500r + 37500r + 150000 = 412500
⇒ r = 5.25
Desired rate of interest = 5.25+4 = 9.25 %

Sol 6. (b)
Let r be the rate of interest
According to the question
3325 = $\frac{10500\times r\times\frac{19}{5}}{100}$
⇒ r = $8\frac{1}{3}$ %
⇒ New rate of interest = $16\frac{2}{3}$
Now,
$16\frac{2}{3}$ % = $\frac{1}{6}$
Let CP = 6 unit and interest earned in one year = 1 unit
Interest earned in 5 years = 5 unit
According to the question
6 unit = 10500
1 unit = 1750
5 unit = 8750
Alternate :
Interest earned in $3\frac{4}{5}$ years = 13825-10500 = 3325
Interest earned in 1 year = 875
⇒ Interest earned in 5 year at double the rate of interest = 875 x 5 x 2 = 8750

Practice Questions

Sol 1. (b) Principle = 2000
Time period = 6 months or $\frac{1}{2}$ year
Rate = 8%
Simple interest = $\frac{2000\times8\times\frac{1}{2}}{100}$ = 80
Desired amount = 2000+80 = 2080
Alternate :
8% = $\frac{2}{25}$
Let the principle = 25 unit and interest earned in one year = 2 unit
⇒ Interest earned in ½ years = 2 × $\frac{1}{2}$ = 1 unit
According to the question
25 unit = 2000
1 unit = 80
Desired Amount (26 unit) = 26 x 80 = 2080

Sol 2. (a)
Principle = 3000
Time period = 8 months or $\frac{2}{3}$ year
Rate = 15%
Simple interest = $\frac{3000\times15\times\frac{2}{3}}{100}$ = 300
Desired amount = 3000+300 = 3300
Alternate :
15% = $\frac{3}{20}$
Let the principle = 20 unit and interest earned in one year = 3 unit

⇒ Interest earned in ⅔ years = 3 × $\frac{2}{3}$ = 2 unit

According to the question

20 unit = 3000

1 unit = 150

Desired Amount (22 unit) = 22 x 150 = 3300

Sol 3. (c)

Let the amount invested at the rate of 12% = x

According to the question

$\frac{x\times12\times2}{100} + \frac{(15000-x)\times10\times2}{100} = 3344$

$24x + 300000 - 20x = 334400$

$\Rightarrow x = 8600$

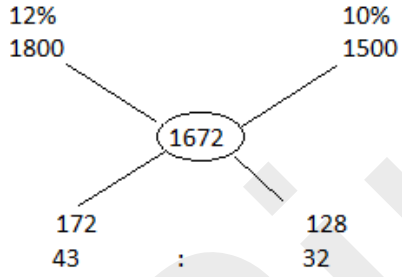
Amount invested at 10% = 15000-8600 = 6400

Alternate :

Interest earned in one year = $\frac{3344}{2}$ = 1672

Had complete sum been invested at the rate of 12% interest earned in one year = $\frac{15000\times12\times1}{100}$ =1800

Had complete sum been invested at the rate of 10% interest earned in one year = $\frac{15000\times10\times1}{100}$ =1500



Therefore, Amount invested at 10% = 15000 × $\frac{32}{75}$ = Rs. 6400

Sol 4. (b)

Let the amount invested at the rate of 7% = x

According to the question

$\frac{x\times7\times3}{100} + \frac{(15600-x)\times9\times3}{100} = 3738$

$7x + 140400 - 9x = 124600$

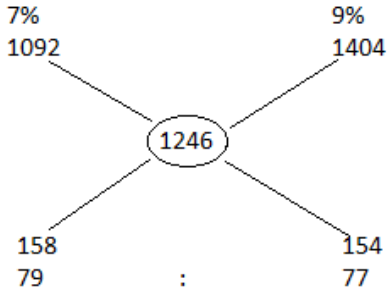
$\Rightarrow x = 7900$

Alternate :

Interest earned in one year = $\frac{3738}{3}$ = 1246

Had complete sum been invested at the rate of 12% interest earned in one year = $\frac{15600\times7\times1}{100}$ =1092

Had complete sum been invested at the rate of 10% interest earned in one year = $\frac{15600\times9\times1}{100}$ =1404



Money invested at 7 % = $\frac{79}{156}$ × 15600 = *Rs*. 7900

Sol 5. (d)

Let the Principle = 100

Time period = 2 year

Rate = 8%

Simple interest = $\frac{100\times8\times2}{100}$ = 16

Desired amount = 100+16 = 116

According to the question

116 unit = 1,91,864

1 unit = 1654

100 unit = 165400

Alternate :

8% = $\frac{2}{25}$

Let the principle = 25 unit and interest earned in one year = 2 unit

⇒ Interest earned in 2 years = 2 × 2 = 4 unit

According to the question

29 unit = 1,91,864

1 unit = 6616

Desired Amount (25 unit) = 25 x 6616 = 165400

Sol 6. (a)

Let CP = 5 unit

Amount = 7 unit

Interest = 7-5 = 2 unit

Required time = $\frac{2\times100}{8\times5}$ = 5 years

Sol 7 (d) Let the amount invested at the rate of 8 % = x

According to the question

$\frac{x\times8\times3}{100} + \frac{(10200-x)\times6\times3}{100} = 2124$

$8x + 61200 - 6x = 70800$

$\Rightarrow x = 4800$

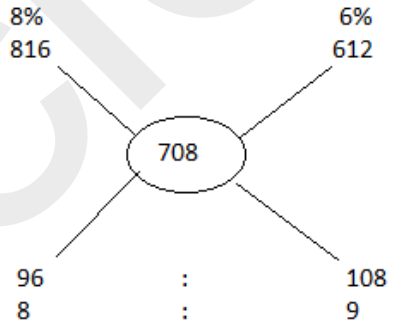
⇒ the amount invested at the rate of 6% = 10200-4800 = 5400

Alternate :

Interest earned in one year = $\frac{2124}{3}$ = 708

Had complete sum been invested at the rate of 12% interest earned in one year = $\frac{10200\times8\times1}{100}$ =816

Had complete sum been invested at the rate of 10% interest earned in one year = $\frac{10200\times6\times1}{100}$ =612



Money invested at 6% = 10200 × $\frac{9}{17}$ = 5400

Sol 8. (a)

8.25 % = $\frac{33}{400}$

Let the CP = 400 unit and interest earned in 1 year = 33 unit

⇒ Interest earned in 3 years = 33 x 3 = 99

According to the question

400 unit = 26400

1 unit = 660

99 unit = 660 x 99 = 65340

Sol 9. (b)

Let the principal = 1 unit, so si earned = 1 unit.

Let the time period = t

According to question

1 = $\frac{1\times8\times t}{100}$

t = 12.5 years

Alternate :

8 % = $\frac{2}{25}$

Let the principal = 25 unit

⇒ the interest earned in one year = 2 unit
For the sum to be double the interest earned will be equal to the principal.
⇒ 25 unit interest will be earned in = $\frac{25}{2}$ = 12.5 years

Sol 10. (c)
Let the principal = 5 unit and interest = 3 unit
Let r be the rate of interest
According to the question
$3 = \frac{5 \times r \times 9}{100}$
⇒ $r = 6\frac{2}{3}$ %

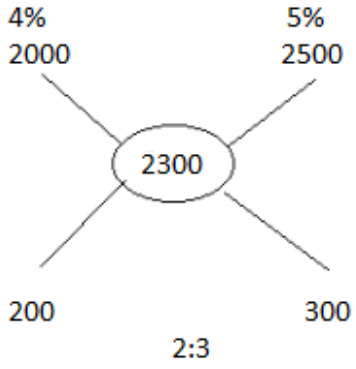
Sol 11. (b)
10% = $\frac{1}{10}$
Let the CP = 10 unit and interest earned in one year = 1 unit
⇒ Interest earned in 2 years = 2 unit
Amount after 2 years = 10+2 = 12 unit
According to the question
2 unit = 1000
1 unit = 500
12 unit= 6000

Sol 12. (d)
Let the principal = 1 unit, so si earned = 1 unit.
Let the rate = r
Time period = 50 months or $4\frac{1}{6}$ years
According to question
$1 = \frac{1 \times \frac{25}{6} \times r}{100}$
r = 24%

Sol 13. (b)
10% = $\frac{1}{10}$
Let the CP = 10 unit and interest earned in one year = 1 unit
⇒ Interest earned in 3 years = 3 unit
Amount after 3 years = 10+3 = 13 unit
According to the question
10 unit = 2000
1 unit = 200
13 unit= 2600

Sol 14. (c)
13% = $\frac{13}{100}$
Let the CP = 100 unit and interest earned in one year = 13 unit
⇒ Interest earned in 5 years = 65 unit
Amount after 5 years = 100+65 = 165 unit
According to the question
100 unit = 12000
1 unit = 120
165 unit= 19800

Sol 15. (c)
Let the amount invested at the rate of 4 % = x
According to the question
$\frac{x \times 4 \times 1}{100} + \frac{(50000-x) \times 5 \times 1}{100} = \frac{50000 \times 4.6 \times 1}{100}$
$4x + 250000 - 5x = 230000$
⇒ $x = 20000$
⇒ remaining part = 50000-20000 = 30000
Alternate :
Interest earned in one year = $\frac{50000 \times 4.6 \times 1}{100} = 2300$
Had complete sum been invested at the rate of 4% interest earned in one year = $\frac{50000 \times 4 \times 1}{100}$ =2000
Had complete sum been invested at the rate of 5% interest earned in one year = $\frac{50000 \times 5 \times 1}{100}$ =2500



Money invested at 4% = $50000 \times \frac{2}{2+3} = 20000$
Money invested at 5% = $50000 \times \frac{3}{2+3} = 30000$

Sol 16. (b)
Let the rate of interest = time period = k
According to the question
$1800 = \frac{5000 \times k \times k}{100}$
⇒ k = 6

Sol 17. (c)
8% = $\frac{2}{25}$
Let the CP = 25 unit and interest earned in one year = 2 unit
⇒ Interest earned in 3 years = 6 unit
According to the question
6 unit = 240
1 unit = 40
25 unit = 25 x 40 = 1000
Now, New rate of interest = 8+5 = 13%
13% = $\frac{13}{100}$
Let the CP = 100 unit and interest earned in one year = 13 unit
⇒ Interest earned in 3 years = 39 unit
100 unit = 1000
1 unit = 10
39 unit = 390
Extra interest earned = 390 - 240 = 150
Alternate :
Extra interest earned at 5% in 3 years = 5 x 3 = 15 unit
Now, (8% x 3) of Principal = 240
(1% x 3) of Principal= 30
⇒ (5% x 3) of Principal= 150

Sol 18. (b)
Total Interest earned = 768-640 = 128
Let the time period = t
$128 = \frac{640 \times 2.5 \times t}{100}$
⇒ t = 8 years
Alternate :
2.5% = $\frac{1}{40}$
Let the principal = 40 unit and interest earned per year = 1 unit
According to the question
40 unit = 640

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1 unit = 16
⇒ 128 = 8 unit
So time taken for the interest to become 8 unit = 1 x 8 = 8 years

Sol 19. (c)
Let Principle = p
According to the question
$700 = \frac{p \times 7 \times 5}{100}$
⇒ p = 2000
Alternate :
(7% x 5) of Principal = 700
Principal= $\frac{700}{35}$ x 100 = 2000

Sol 20. (d)
Interest earned in (7-5) years or 2 years = 600-500 = 100
⇒ Interest earned in 1 year = $\frac{100}{2}$ = 50
⇒ Interest earned in 5 year = 50 x 5 = 250
⇒ Desired Sum = 500-250 = 250

Sol 21. (d)
Let the principal = 1 unit, so si earned = 1 unit.
Let Time period = t
According to question
$1 = \frac{1 \times 20 \times t}{100}$
t = 5 years
Alternate :
20% = $\frac{1}{5}$
Let the principal = 5 unit and interest earned per year = 1 unit
For the amount being double the principal simple interest earned = principal = 5 unit
So time taken for the sum to become double = 1 x 5 = 5 years

Sol 22. (d)
8% = $\frac{2}{25}$
Let the principal = 25 unit and interest earned per year = 2 unit
⇒ interest earned in 11/2 years = 2 x $\frac{11}{2}$ = 11 unit
Amount after 11/2 years = 25+11 = 36 unit
According to the question
36 unit = 12096
1 unit = 336
25 unit = 336 x 25 = 8400
Now,
10% = $\frac{1}{10}$
Let the principal = 10 unit and interest earned per year = 1 unit
⇒ interest earned in 8 years = 1 x 8= 8 unit
10 unit = 8400
1 unit = 840
8 unit = 6720

Sol 23. (b)
8% = $\frac{2}{25}$
Let the principal = 25 unit and interest earned per year = 2 unit
⇒ interest earned in 8 years = 2 x 8= 16 unit
According to the question
(25-16) unit = 5490
1 unit = 610
25 unit = 25 x 610 = 15250

Sol 24. (b)
Let the principal = 3 unit and simple interest = 1 unit
According to the question
$1 = \frac{3 \times x \times \frac{x}{3}}{100}$
⇒ x = 10

Sol 25. (c)
5% = $\frac{1}{20}$
Let the principal = 20 unit and interest earned per year = 1 unit
⇒ interest earned in 4 years = 1 x 4= 4 unit
According to the question
(20+4) unit = 1440
1 unit = 60
20 unit = 20 x 60 = 1200

Sol 26. (a)
$\frac{18}{7}$ % = $\frac{9}{350}$
Let the principal = 350 unit and interest earned per year = 9 unit
⇒ interest earned in 9/12 years = 9 x $\frac{9}{12}$ = $\frac{27}{4}$ unit
According to the question
350 unit = 35000
1 unit = 100
$\frac{27}{4}$ unit = $\frac{27}{4}$ x 100 = 675

Sol 27. (d)
Interest earned on the principle of 9000 = 13356-9000 = 4356
Let the rate of interest = r
⇒ $4356 = \frac{9000 \times \frac{22}{5} \times r}{100}$
⇒ r = 11
New rate of interest = 11 x 2 = 22 %
Desired simple interest = $\frac{9000 \times 22 \times \frac{7}{3}}{100}$ = 4620
Alternate :
Interest earned In $\frac{22}{5}$ years = 4356
In 1 years =4356x $\frac{5}{22}$
In $\frac{7}{3}$ years at double the rate percent = 4356 x $\frac{5}{22}$ × $\frac{7}{3}$ x 2= 4620

Sol 28. (b)
According to the question
$\frac{x \times 6 \times 2}{100} = 2 \times \frac{y \times 9 \times 3}{100}$
⇒ x = 4.5y

Sol 29. (d)
Interest earned in two years = 600-500 = Rs 100
⇒ Interest earned in two years with half the rate of interest = $\frac{100}{2}$ = Rs 50
Desired amount after 2 years = 500+50 = 550

Sol 30. (c)
Let the rate of interest = r%
According to the question
$\frac{500 \times 2 \times r}{100} + \frac{600 \times 5 \times r}{100} + \frac{1000 \times 6 \times r}{100} = 1000$
100r = 1000
⇒ r = 10%

Sol 31. (a)
Let the rate of interest = r%
According to the question
$\frac{2800 \times 3 \times r}{100} = 420$

$\Rightarrow r = 5\%$

Desired SI = $\frac{3200\times3\times5}{100} = 480$

Sol 32. (c)

Let the amount invested in A,B and C are 8k, 5k and 12k.

According to the question

$\frac{8k\times1\times10}{100} + \frac{5k\times1\times12}{100} + \frac{12k\times1\times15}{100} = 3200$

$32k = 32000$

$\Rightarrow k = 1000$

Amount invested in scheme B = 5 x 1000 = 5000

Sol 33. (b)

$10\% = \frac{1}{10}$

Let the CP = 10 unit and interest earned in one year = 1 unit

For a sum to become three times the simple interest earned is equal to the twice of the principal.

$\Rightarrow$ Simple interest earned = 20 unit

Time taken for SI to become 20 unit = 1 x 20 = 20 years

Sol 34. (c)

The rate of interest = r %

According to the question

$1000 = \frac{500\times2\times r}{100} + \frac{600\times5\times r}{100} + \frac{1000\times6\times r}{100}$

$1000 = 10r + 30r + 60r$

$\Rightarrow r = 10\%$

SSC CGL TIER I

Sol 1. (c) Simple Interest= $\frac{P\times R\times T}{100}$

For ₹4300 to become ₹4644 in 2 years, interest gained is ₹344 and rate of interest will be

$344 = \frac{4300\times R\times2}{100}$

R = 4% per annum

Now, the sum that will become ₹10,104 in 5 years at the same rate can be calculated using the SI formula.

$P(1+ \frac{4\times5}{100}) = 10,104$

$P(\frac{6}{5}) = 10,104$

P = ₹ 8,420

Sol 2. (d) Rate of interest is 10%p.a.

For half yearly, Rate= $5+5+\frac{5\times5}{100}$ =10.25%

Difference in interest due to .25% = ₹88.80

Then 1% = ₹355.20

So, principal = ₹35520

SI = $\frac{35520\times10\times\frac{5}{2}}{100}$ = ₹5,920

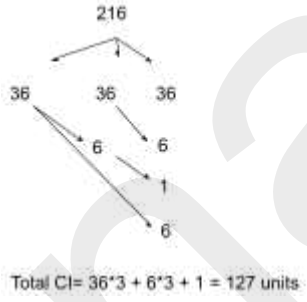
Sol 3. (d) Rate of interest = $16\frac{2}{3}\%$ p.a. = $\frac{1}{6}$

This question can be solved by either of two methods:

Method 1:

Rate = $\frac{1}{6} = \frac{1}{a}$ and time = 3 years.

Let Principal = $(a)^3 = (6)^3$ = 216 units



127 units = ₹ 6350

1 unit = ₹ 50

Principal = ₹ 216 × 50

Simple Interest = $\frac{216\times50\times17\times1}{3\times6}$ = ₹ 10200

Method 2:

For simple interest, time given = $\frac{17}{3}$

Check the option which is multiple of 17 and mark the answer.

Sol 4. (d) We know that simple interest remains the same if the rate does not change for each year.

According to question:

Here interest rate = rate × *time* = 5% × 4+ 8% × 3+10% × 3 = 74%

Therefore, 74% of P = 1,850

P = ₹ 2500

Sol 5. (b) SI = $\frac{P\times r\times t}{100}$

In 13 years, sum doubles. Therefore, SI in 13 years is equal to P.

P = $\frac{P\times r\times13}{100}$

r = $\frac{100}{13} = 7\frac{9}{13}\% = 7.69\%$

Sol 6. (b) SI = $\frac{P\times r\times t}{100}$

Let P amount by deposited at 7% and 9% 5 years and 3 years respectively.

$475 = \frac{P\times7\times5}{100} - \frac{P\times9\times3}{100}$

$475 = \frac{P\times8}{100}$

P = ₹ 5937.50

SSC CHSL 2019

Sol:1.(b)

Interest = 4500-3500 = 1000

$1000 = \frac{3500\times10\times T}{100}$

T = $\frac{20}{7}\% = 2\frac{6}{7}$ years

Sol:2.(c)

$12\frac{2}{4}\% = \frac{1}{8}$

Interest = 1 unit

Principle = 8 unit

To obtain 1 unit interest, it takes 1 year ,

Therefore, To obtain 8 unit interest (equal to principle), it will take,

$8 \times 1 = 8$ *years*

Sol:3.(c)

Simple interest = $\frac{P\times R\times T}{100}$

= $\frac{8000\times8\times8}{100} = 5120$

Amount = P + SI = 8000+5120 = Rs 13120

Sol:4.(d)

Let rate = r%

$\frac{12000\times r\times4}{100\times12} + \frac{18000\times2r\times8}{100\times12} = 2800$

r = 10%

Sol:5. (c)

Let Principle = P and rate = R,

$P \times R \times \frac{34}{3\times100} = 13600$

$PR = 120000$

$P \times R\% \times 3 + 2P \times (R-2)\% \times 5 = 13600 \times 100$

$3600+12000-20P = 13600 \times 100$

$15600-20P = 13600 \times 100$

$20P = 2000 \times 100$

$P = 10000$

Sol:6. (d)

Simple interest = $\frac{74000\times56\times8}{100\times3\times12} = 9208.88$

Sol:7. (b)

interest = 56-24 = 32

$32 = \frac{24\times16\times T}{100}$

T = 8 years 4 months

Sol:8.(c)

$2000 = \frac{5000\times10\times T}{100}$

T = 4 years

Sol:9. (a)

Rate ratio = 3 : 4 : 6

Interest ratio = $\frac{1}{3} : \frac{1}{4} : \frac{1}{6} = 4 : 3 : 2$

4x+3x+2x = 9000

x = 1000

Amount at 6% = 2x = 2 × 1000 = 2000

Sol:10. (c)

Let, P = 1 unit, Interest = 1 unit

$1 = \frac{1\times12\times R}{100}$

$R = 8\frac{1}{3}\%$

Sol:11. (d)

Let the time = T years

$12 \times 8 \times T + 18 \times 10 \times T = 1380$

96T+180T = 1380

276T = 1380

T = 5 years

Sol:12. (a)

Let the sum = P

$P \times 8 \times 4+P \times 8 \times 8 = 960 \times 100$

$32P+64P = 960 \times 100$

P = 1000

Sol:13. (d)

Let principle = P

$9570 = \frac{P\times11\times3}{100}$

P = 29,000

Sol:14. (d)

Interest in 2 years = 8500 - 7500 = Rs.1000

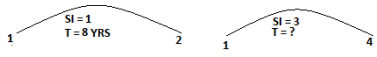
Interest in 1 year = Rs.500

Interest in 5 years = Rs.2500

So, sum of money = 7500 - 2500 = Rs.5000

Now, the rate of interest = 500/5000 × 100 = 10%

Sol:15.(c)



If SI of 1 unit takes 8 years,

Then SI of 3 units will take = 3 × 8 = 24 years

Sol:16. (b)

Total simple interest for 6 years at x% = Rs.672

Interest for 1 year = 672/6 = Rs.112

Rate, $x = \frac{112}{1400} \times 100 = 8\%$

Sol:17. (a)

Let the principal = Rs. P

Rate = 10%

According to question:-

$\Rightarrow \frac{P\times10\times10}{100} - \frac{P\times10\times8}{100} = 200$

$\Rightarrow \frac{P\times10\times2}{100} = 200$

$\Rightarrow P = 1000$

Sol 18. (c)

Interest earned = $\frac{35000\times11\times1}{100} =$ Rs. 3850

Sol 19. (a)

Man has Rs. 10,000.

Let the man lent Rs. X at 15% interest and (10000-X) at 10% interest rate.

Total interest received after 5 years = Rs. 6500

$\frac{X\times15\times5}{100} + \frac{(10000-X)\times10\times5}{100} = 6500$

$\Rightarrow \frac{X\times15\times5}{100} + \frac{10000\times10\times5}{100} - \frac{X\times10\times5}{100} = 6500$

$\Rightarrow \frac{X\times25}{100} + \frac{10000\times10\times5}{100} = 6500$

$\Rightarrow \frac{X}{4} + 5000 = 6500$

$\Rightarrow \frac{X}{4} = 6500 - 5000 = 1500$

$\Rightarrow X = 6000$

10000 - X = 4000

Required difference = 6000 - 4000 = Rs. 2000

Sol:20. (c)

Selling price of dozen pair of gloves = $600 \times \frac{9}{10} = 540$

In Rs. 540, 12 pairs of gloves can be bought.

Thus, in Rs. 270, 6 pairs of gloves will be bought.

Sol 21. (b)

Total gain in 3 years = Interest earned - Interest paid =

$\frac{7000\times19\times3}{100\times3} - \frac{7000\times5\times3}{100} = \frac{7000}{100} \times (\frac{19\times3}{3} - 5 \times 3) = \frac{7000}{100} \times (19 - 5 \times 3) = 70 \times (19 - 15) = 70 \times 4 = 280$

Interest per year = $\frac{280}{3}$ = Rs. 93.33

Sol 22. (c)

Let sum = Rs. S

If in certain time, the amount becomes five times of itself; it means interest earned is four times the sum.

Interest = 4S

$4S = \frac{S\times16\times t}{100}$

$\Rightarrow$ t = 25 years

Sol: 23. (d)

Let sum lent by Suresh = Rs. S

Time, t = 5 years

Amount paid by Rakesh = $\frac{9S}{8}$

Amount = Sum + Interest

$\frac{9S}{8} = S + \frac{S\times r\times t}{100}$

$\frac{S}{8} = \frac{S\times r\times5}{100}$

$\frac{r\times5}{100} = \frac{1}{8}$

$r = \frac{20}{8} = 2.5\%$ p.a.

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SSC CGL2019 TIER-II

Sol:24.(c)
Interest for 3 years = 12%
Interest for next 4 years = 32%
Interest for next 4 years = 48%
Total interest = 92%
92% of principle= 27600
P = 30000

Sol:25.(b)
Interest for first 2 years = 12%
Interest for next 3 years = 30%
Interest for next 2 years = 24%
Total interest = 66%
$P = 12771 \times \frac{100}{66} = 19350$

Sol:26.(d)
Interest = 6525 - 4500 = 2025
$\text{Rate} = \frac{interest \times 100}{principal \times time} = \frac{2025 \times 100}{4500 \times 5} = 9\%$

Sol:27.(c)
Interest = 1.2x
Rate = 20%
$\text{Time} = \frac{1.2x \times 100}{20 \times x} = 6$ years

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Sol:28.(b)
Principal amount= 12000
Total amount received after a certain period=20400
Net interest received = 8400
Now applying formula of S.I= $\frac{P \times R \times T}{100}$
$8400 = \frac{12400 \times 10 \times T}{100}$
Solving it we get T=7 years

Sol:29.(d)
Rate increased by = 17.5% - 11% = 6.5%
Amount increased = 1071.20
$\text{Principle} = \frac{100 \times 1071.2}{6.5 \times 1} = 16,480$

Sol:30.(c)
Rate increased by = 17.5% - 11% = 6.5%
Amount increased = 1071.20
$\text{Principle} = \frac{100 \times 1071.2}{6.5 \times 1} = 16,480$
At 10% for 5 year = 50%
50% of 16,480 is 8,240

Sol:31.(d)
sum=27000(given)
Let A amount is invested for 2 years and B is invested for 4 year
Rate of interest=15%
Simple interest received is same
As we know SI= $\frac{P \times R \times T}{100}$
$\frac{A \times 2 \times 15}{100} = \frac{B \times 4 \times 15}{100}$
From the above equation we get
A:B=2:1
A+B=27000
So A=18000, B=9000
Interest received on A = $\frac{18000 \times 15 \times 2}{100} = 5400$
And interest on A= interest received on B(given)
So total interest received= 5400 × 2 =10800

Sol:32.(d)
Total amount invested=12000
Time period=7years
Amount received=20400
Interest = 8400
Let rate of interest = R%
Now applying formula of S.I= $\frac{P \times R \times T}{100}$
$8400 = \frac{12400 \times R \times 7}{100}$
R=10%

Pinnacle

COMPOUND INTEREST / चक्रवृद्धि ब्याज

Key-Points:/ प्रमुख बिंदु:

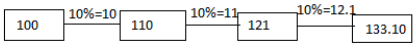
1. For one year or one term simple interest and compound interest are same.
एक वर्ष या एक अवधि के लिए साधारण ब्याज और चक्रवृद्धि ब्याज समान होता हैं।

2. In simple interest you divide the simple interest by number of years to calculate one year interest but in compound interest this is not applicable.
साधारण ब्याज में आप एक वर्ष की ब्याज की गणना के लिए सालों की संख्या से साधारण ब्याज को विभाजित करते हैं, लेकिन चक्रवृद्धि ब्याज में यह लागू नहीं होता है।

3. Compound Interest is the interest on amount (principal + Interest); Symbol we will use 'CI'.
चक्रवृद्धि ब्याज राशि (मूलधन + ब्याज) पर ब्याज होता है|

Let us say one person borrows Rs.100 for 3 years at the rate of 10% annually. What amount should he have to return after 3 years?
मान लेते है कि एक व्यक्ति ने सालाना 10% की दर से 3 साल के लिए 100 रुपये का उधार लेता है| 3 सालों के बाद उसे कितनी राशि लौटानी होगी?

Here is the approximation technique (सन्निकटन तकनीक) to solve this problem:



Compound interest will be = 133.10 – 100 = 33.1 Rs.
The above concept can also be written as:

Amount = $\frac{100\times110\times110\times110}{100\times100\times100}$ = 133.10; CI = Amount – Principal = 133.10 – 100 = 33.10

Or, Amount = Principal $(1+\frac{r}{100})^t = 100\,(1+\frac{10}{100})^3$

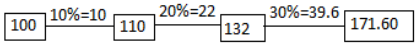
$= 100\times\frac{11}{10}\times\frac{11}{10}\times\frac{11}{10} = 133.10$;

CI = 33.10

So all the above concepts have the same result, but if you want to solve questions quickly and without using formulas then it is advised to develop mastery on approximation technique.
इसलिए सभी उपरोक्त अवधारणाओं का एक ही परिणाम है लेकिन अगर आप सूत्रों का इस्तेमाल न करते हुए शीघ्रता से प्रश्न हल करना चाहते हैं तो उसे सन्निकटन तकनीक पर दक्षता विकसित करने की सलाह दी जाती है।

Note: Notice that in CI, interest is calculated on the amount at the end of every year while in SI interest for each year is calculated on the Principal amount.

4. If rate of interest is different for different year, let us say 10% for 1st year, 20% for 2nd year, and 30% for 3rd year then amount will be calculated as follows:
अगर ब्याज की दर अलग वर्ष के लिए अलग है, जैसे,1 साल के लिए 10%, दूसरे वर्ष के लिए 20%, और तीसरे वर्ष के लिए 30%, तो राशि की गणना निम्नानुसार की जाएगी:



We can also do it as: Amount = $\frac{100\times110\times120\times130}{100\times100\times100}$ = 171.60 *Rs.*

Variety Questions

Q1. A sum amounts to Rs 8,028 in 3 years and to Rs 12,042 in 6 years at a certain rate percent per annum, when the interest is compounded yearly. The sum is:
कोई राशि ब्याज की वार्षिक चक्रवृद्धि पर प्रति वर्ष एक निश्चित दर से 3 वर्षों में 8028 रुपये तथा 6 वर्षों में 12042 रुपये हो जाती है | यह राशि है :

SSC CGL 4 June 2019 (Morning)
(a) Rs 5,352
(b) Rs 5,235
(c) Rs 5,325
(d) Rs 5,253

Q2. The compound interest on a certain sum in $2\frac{1}{2}$ years at 10% p.a., interest compounded yearly, is Rs1,623. The sum is :
किसी निश्चित राशि पर 10% प्रति वर्ष वार्षिक चक्रवृद्धि की दर से $2\frac{1}{2}$ वर्षों का चक्रवृद्धि ब्याज 1623 रुपये है | यह राशि है :

SSC CGL 4 June 2019 (Afternoon)
(a) Rs 5,000
(b) Rs 6,000
(c) Rs 6,500
(d) Rs 7,200

Q3. What will be the compound interest (nearest to Rs 1) on a sum of Rs25,000 for 2 years at 12% p.a., if the interest is compounded 8-monthly?
25000 रुपये पर 12% प्रति वर्ष की दर से 2 वर्ष का चक्रवृद्धि ब्याज क्या होगा यदि ब्याज की चक्रवृद्धि 8 माह की है ?

SSC CGL 4 June 2019 (Evening)
(a) Rs 6,394
(b) Rs 6.439
(c) Rs 6,493
(d) Rs 6.349

Q4. A sum of Rs15,000 is lent at 16% p.a. compound interest. What is the difference between the compound interest for the second year and the third year?
15000 रुपये की राशि को 16% प्रति वर्ष चक्रवृद्धि ब्याज पर उधार दिया

जाता है | दूसरे वर्ष और तीसरे वर्ष के चक्रवृद्धि ब्याज में अंतर ज्ञात करें |

SSC CGL 6 June 2019 (Morning)

(a) Rs 544
(b) Rs 445.44
(c) Rs 454.88
(d) Rs 548

Q5. A person borrowed a certain sum at 10% p.a. for three years, interest being compounded annually. At the end of two years, he repaid a sum of Rs. 6634 and at the end of the third year, he cleared off the debt by paying Rs. 13,200. What was the sum borrowed by him ?

एक व्यक्ति ने कोई निश्चित राशि तीन वर्षों के लिए 10% प्रति वर्ष की दर से उधार ली जिसमें ब्याज की चक्रवृद्धि वार्षिक है | दो वर्ष के अंत में, उसने 6634 रुपये की राशि का भुगतान कर दिया और तीसरे वर्ष के अंत में उसने 13,200 रुपये का भुगतान करके ऋण चुकता कर दिया | उसके द्वारा उधार ली गयी राशि कितनी थी ?

SSC CGL 6 June 2019 (Evening)

(a) Rs. 16,400
(b) Rs. 15,400
(c) Rs. 15,600
(d) Rs. 16,500

Q6. A sum of Rs x was borrowed and paid back in two equal yearly instalments, each of Rs35,280. If the rate of interest was 5%, compounded annually, then the value of x is:

x रुपये की एक राशि उधार ली गयी और इसका भुगतान दो बराबर वार्षिक किस्तों में किया गया जिसमें प्रत्येक क़िस्त 35,280 रुपये की थी | यदि वार्षिक चक्रवृद्धि ब्याज की दर 5% है, तो x का मान ज्ञात करें |

SSC CGL 7 June 2019 (Afternoon)

(a) 64,400
(b) 65,600
(c) 64,800
(d) 65,400

Q7. A sum of Rs 12,000 amounts to Rs 20,736 in 3 years at a certain rate percent per annum, interest compounded annually. What will the amount of the same sum be in 2 years at the same rate on compound interest?

12000 रुपये की राशि प्रति वर्ष एक निश्चित दर से 3 वर्षों में 20,736 रुपये हो जाती है जिसमें ब्याज की चक्रवृद्धि वार्षिक है | यह राशि चक्रवृद्धि ब्याज की इसी दर से दो वर्षों में कितनी हो जाएगी ?

SSC CGL 10 June 2019 (Morning)

(a) Rs15,640
(b) Rs17,820
(c) Rs17,280
(d) Rs14,520

Q8. The difference between the compound interest and simple interest on Rs x at 8% per annum for 2 years is Rs19.20. What is the value of x?

8% प्रति वर्ष की दर से x रुपये पर 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 19.20 रुपये का अंतर है | x का मान क्या है ?

SSC CGL 10 June 2019 (Afternoon)

(a) 2,500
(b) 3,200
(c) 2,800
(d) 3,000

Q9.The simple interest on a certain sum for $3\frac{1}{2}$ years at 10% per annum is Rs 2,940. What will be the compound interest on the same sum for $2\frac{1}{2}$ years at the same rate when interest is compounded yearly (nearest to a rupee)?

किसी निश्चित राशि पर 10% प्रति वर्ष की दर से $3\frac{1}{2}$ वर्ष का साधारण ब्याज 2940 रुपये है | इसी राशि पर इसी दर से $2\frac{1}{2}$ वर्षों का चक्रवृद्धि ब्याज ज्ञात करें जब ब्याज की चक्रवृद्धि वार्षिक है | (एक रुपये के निकटतम)

SSC CHSL 1 July 2019 (Evening)

(a)Rs 2,272
(b)Rs 2,227
(c)Rs 2,327
(d)Rs 2,372

Q10.What is the difference between the compound interest, when interest is compounded 5-monthly, and the simple interest on a sum of Rs 12,000 for $1\frac{1}{4}$ years at 12% per annum?

12000 रुपये की राशि पर 12% की दर से $1\frac{1}{4}$ वर्ष के चक्रवृद्धि ब्याज (5 माह की चक्रवृद्धि) तथा साधारण ब्याज में अंतर ज्ञात करें |

SSC CHSL 2 July 2019 (Morning)

(a)Rs 90
(b)Rs 91.50
(c)Rs 93
(d)Rs 92.50

Q11. Rs 60000 invested at a certain rate for a certain even number of years, compounded annually, grows to Rs 63,654. To how much amount would it grow if it is invested at the same rate for half period?

एक निश्चित दर पर सम संख्या के वर्षों के लिए निवेश किये गए 60000 रुपये वार्षिक चक्रवृद्धि पर बढ़ कर 63,654 रुपये हो जाते हैं | यदि यह राशि आधी अवधि के लिए निवेश की जाए, तो यह बढ़ कर कितनी हो जाएगी ?

SSC CHSL 4 July 2019 (Afternoon)

(a)Rs 61800
(b)Rs 61809
(c)Rs 61675
(d)Rs 61827

Q12. The interest on Rs 24,000 in years compounded annually when the rates are 8% p.a and 10% p.a for two successive years is:
24000 रुपये पर 8% प्रति वर्ष तथा 10% प्रति वर्ष की दर से वार्षिक चक्रवृद्धि पर दो लगातार वर्षों का ब्याज ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a) Rs 3994
(b) Rs 4512
(c) Rs 5040
(d) Rs 5866

Q13. A sum of money becomes 3 times in 10 years at the rate of compound interest (compounded annually), In how many years will it become243 times?
कोई राशि चक्रवृद्धि ब्याज (वार्षिक चक्रवृद्धि) की दर से 10 वर्षों में तिगुनी हो जाती है | यह कितने वर्षों में 243 गुना हो जाएगी ?
SSC MTS 2 August 2019 (Evening)
(a) 40 years
(b) 50 years
(c) 35 years
(d) 30 years

Q14. The simple interest on a certain sum at 20% p.a for two years is Rs. 250. What is the compound interest (compounded annually) on the same sum at the same rate for the same period ?
किसी निश्चित राशि पर 20% प्रतिवर्ष की ब्याज दर से दो वर्षों का साधारण ब्याज रु250 है | समान ब्याज दर पर समान अवधि के लिए समान राशि पर चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) कितनी है ?
SSC MTS 5 August 2019 (Evening)
(a) Rs275
(b) Rs900
(c) Rs550
(d) Rs750

Q15. A sum invested at 8% p.a. amounts to Rs 20280 at the end of one year, when the interest is compounded half yearly. What will be the simple interest on the same sum for $4\frac{3}{5}$ years at double the earlier rate of interest?
8% प्रति वर्ष की दर से निवेश की गयी कोई राशि पहले वर्ष के अंत में 20280 रुपये हो जाती है, जब ब्याज की चक्रवृद्धि अर्धवार्षिक है | इस राशि पर पहले की तुलना में ब्याज की दोगुनी दर से $4\frac{3}{5}$ वर्षों का साधारण ब्याज क्या होगा ?
SSC CHSL 4 July 2019 (Morning)
(a)Rs 13500
(b)Rs 13800
(c)Rs 14200
(d)Rs 14500

Q16.The difference between the compound interest and the simple interest on a sum at 10% p.a. for three years is Rs 155. the sum (in Rs) is:
किसी राशि पर 10% प्रति वर्ष की दर से तीन वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 155 रुपये का अंतर है| यह राशि (रुपये में) है :
SSC CHSL 11 July 2019 (Afternoon)
(a)5500
(b)6000
(c)6600
(d)5000

Q17.The difference between compound interest and simple interest on Rs x at 6.5% per annum for 2 years is Rs 33.80. What is the value of x?
x रुपये पर 6.5% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 33.80 रुपये का अंतर है | x का मान ज्ञात करें |
SSC CHSL 11 July 2019 (Evening)
(a)Rs 7800
(b)Rs 7500
(c)Rs 8000
(d)Rs 8500

Q18. The annual interest compounded on any amount is Rs 1,320 for the second year and Rs 1,452 for the third year. What will be the original amount at the beginning of the first year?
किसी राशि पर वार्षिक संयोजित चक्रवृद्धि ब्याज दूसरे वर्ष के लिए Rs 1,320 है और तीसरे वर्ष के लिए Rs 1,452 है | पहले वर्ष की शुरुआत में मूल राशि कितनी होगी ?
SSC CPO 15 March 2019 (Evening)
(a)12,650
(b)13,200
(c)12,970
(d)12,000

Q19. If the rate of interest is 20% per annum, compounded yearly and the interest on a certain sum in the second year is Rs250, then what will be the interest on the same sum in the fifth year ?
यदि ब्याज की दर प्रति वर्ष 20% है तथा चक्रवृद्धि वार्षिक है और किसी निश्चित राशि पर दूसरे वर्ष का ब्याज 250 रुपये है, तो पांचवें वर्ष में इस राशि पर ब्याज कितना होगा ?
SSC MTS 20 August 2019 (Morning)
(a) Rs518
(b) Rs400
(c) Rs360
(d) Rs432

Q20. If the compound interest in the third year at 8% p.a. on a certain sum is Rs3600, then what is the difference between the compound interest in the 4th and 5th year? (nearest to an integer in Rs)
यदि किसी राशि पर 8% प्रति वर्ष की दर से तीसरे वर्ष का चक्रवृद्धि ब्याज

3600 रुपये है, तो चौथे और पांचवें वर्ष में चक्रवृद्धि ब्याज के बीच अंतर ज्ञात करें | (किसी पूर्णांक के निकटतम रुपये में) **SSC MTS 22 August 2019 (Evening)**

(a) Rs304
(b) Rs335
(c) Rs288
(d) Rs311

SSC CGL TIER II

Q1. A sum of Rs 18000 is lent at 10% p.a. compound interest, compounded annually. What is the difference between the compound interest for 3rd year and 4th year?

18000 रुपये की राशि 10% प्रति वर्ष वार्षिक चक्रवृद्धि ब्याज पर उधार दी जाती है | तीसरे और चौथे वर्ष के चक्रवृद्धि ब्याज में अंतर ज्ञात करें |

SSC CGL Tier 2 11 September 2019

(a)Rs 220.60
(b)Rs 217.80
(c)Rs 221.80
(d)Rs 215.40

Q2.What will be the compound interest on a sum of Rs 31,250 for 2 years at 12% p.a., if the interest is compounded 8-monthly?

31,250 रुपये की एक राशि पर 12% प्रति वर्ष की दर से 2 वर्षों का चक्रवृद्धि ब्याज ज्ञात करें, यदि ब्याज की चक्रवृद्धि 8 माह की है |

SSC CGL Tier 2 11 September 2019

(a)Rs 8106
(b)Rs 8116
(c)Rs 8016
(d)Rs 8156

Q3. What is the compound interest on a sum of Rs7200 for $2\frac{2}{5}$ years at 20%p.a., interest compounded yearly (nearest to an integer)?

7200 रुपये की राशि पर 20% प्रति वर्ष की दर से $2\frac{2}{5}$ वर्षों का चक्रवृद्धि ब्याज ज्ञात करें, जिसकी चक्रवृद्धि वार्षिक है | (एक पूर्णांक के निकटतम)

SSC CGL Tier 2 12 September 2019

(a) Rs4,290
(b) Rs3,960
(c) Rs4,205
(d) Rs3,997

Q4. A loan has to be returned in two equal yearly instalments each of Rs44,100. If the rate of interest is 5% p.a., compounded annually, then the total interest paid is:

किसी ऋण को 44,100 रुपये की दो बराबर वार्षिक किस्तों में चुकता करना है | यदि वार्षिक चक्रवृद्धि में ब्याज की दर 5% प्रति वर्ष है, तो कुल कितने ब्याज का भुगतान किया गया ?

SSC CGL Tier 2 12 September 2019

(a) Rs5,840
(b) Rs6,000
(c) Rs6,200
(d) Rs6,280

Q5. A certain loan was returned in two equal half yearly instalments each of Rs6,760. If the rate of interest was 8% p.a., compounded yearly, how much was the interest paid on the loan?

एक निश्चित ऋण को 6,760 रुपये की दो बराबर अर्धवार्षिक किस्तों में वापस किया गया | यदि वार्षिक चक्रवृद्धि ब्याज की दर 8% प्रति वर्ष है, तो ऋण पर कितने ब्याज का भुगतान किया गया ?

SSC CGL Tier 2 13 September 2019

(a) Rs750
(b) Rs810
(c) Rs790
(d) Rs770

Q6. A certain sum amounts to Rs4,205.55 at 15% p.a. In $2\frac{2}{5}$ years, interest compounded yearly. The sum is:

एक निश्चित राशि 15% प्रति वर्ष की दर से $2\frac{2}{5}$ वर्षों में 4205.55 रुपये हो जाती है, जब ब्याज की चक्रवृद्धि वार्षिक है | यह राशि है :

SSC CGL Tier 2 13 September 2019

(a) Rs3,200
(b) Rs3,500
(c) Rs2,700
(d) Rs3,000

Practice Questions

Q1. What is the compound interest on a sum of Rs10,000 at 14% p.a. for $2\frac{5}{7}$ years where the interest is compounded yearly? (nearest to Rs1)

10000 रुपये की राशि पर 14% प्रति वर्ष की दर से $2\frac{5}{7}$ वर्षों का चक्रवृद्धि ब्याज ज्ञात करें, जब ब्याज की चक्रवृद्धि वार्षिक है |

SSC CGL 6 June 2019 (Afternoon)

(a) Rs 4,259
(b) Rs 4,296
(c) Rs 4,439
(d) Rs 4,394

Q2. A sum amounts to Rs 18,600 after 3 years and to Rs 27,900 after 6 years, at a certain rate percent p.a., when the interest is compounded annually. The sum is:

एक राशि प्रति वर्ष किसी निश्चित दर से 3 वर्ष में 18,600 रुपये तथा 6 वर्षों में 27,900 रुपये हो जाती है, जब ब्याज की चक्रवृद्धि वार्षिक है | यह राशि ज्ञात करें |

SSC CGL 7 June 2019 (Morning)

(a) Rs11,800
(b) Rs12,400
(c) Rs14,400
(d) Rs14,600

Pinnacle

Q3. What is the compound interest on a sum of Rs 8,100 for $1\frac{1}{4}$ years at 8% per annum, if the interest is compounded 5-monthly? (Nearest to Rs1)
8100 रुपये की राशि पर 8% प्रति वर्ष की दर से $1\frac{1}{4}$ वर्षों का चक्रवृद्धि ब्याज ज्ञात करें, यदि ब्याज की चक्रवृद्धि 5 माह की है | (1 रुपये के निकटतम)
SSC CGL 7 June 2019 (Evening)
(a) Rs837
(b) Rs873
(c) Rs842
(d) Rs824

Q4. The difference between the compound interest and simple interest on Rsx at 9% per annum for 2 years is Rs20.25. What is the value of x?
x रुपये पर 9% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 20.25 रुपये का अंतर है | x का मान क्या है ?
SSC CGL 10 June 2019 (Evening)
(a) 2,800
(b) 2,400
(c) 2,200
(d) 2,500

Q5. The difference between the compound interest and simple interest on Rs x at 8.5% per annum for 2 years is Rs28.90. The value of x is:
x रुपये पर 8.5% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 28.90 रुपये का अंतर है | x का मान है :
SSC CGL 11 June 2019 (Morning)
(a) 3500
(b) 3800
(c) 4000
(d) 4500

Q6. The difference between the compound interest and simple interest on Rs x at 7.5% per annum for 2 years is Rs 45. What is the value of x?
x रुपये पर 7.5% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 45 रुपये का अंतर है | x का मान ज्ञात करें |
SSC CGL 11 June 2019 (Afternoon)
(a) 7,000
(b) 8,000
(c) 9,000
(d) 10,000

Q7. The difference between the compound interest and simple interest on Rs x at 12% per annum for 2 years is Rs 18. What is the value of x?
x रुपये पर 12% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 18 रुपये का अंतर है | x का मान ज्ञात करें |
SSC CGL 11 June 2019 (Evening)
(a) 1,250
(b) 1,280
(c) 1,340
(d) 1,300

Q8. The difference between the compound interest and simple interest on Rsx at 12% per annum for 2 years is Rs43.20. What is the value of x?
x रुपये पर 12% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 43.20 रुपये का अंतर है | x का मान ज्ञात करें |
SSC CGL 12 June 2019 (Morning)
(a) 2,400
(b) 2,800
(c) 3,000
(d) 2,500

Q9. The difference between compound interest and simple interest on Rs x at 8% per annum for 2 years is Rs 48. What is the value of x?
x रुपये पर 8% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 48 रुपये का अंतर है | x का मान ज्ञात करें |
SSC CGL 12 June 2019 (Afternoon)
(a) 8000
(b) 7500
(c) 7400
(d) 7800

Q10. The difference between the compound interest and simple interest on Rs x at 7% per annum for 2 years is Rs24.50. What is the value of x?
x रुपये पर 7% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 24.50 रुपये का अंतर है | x का मान क्या है ?
SSC CGL 12 June 2019 (Evening)
(a) 5,400
(b) 4,800
(c) 5,000
(d) 6,000

Q11. The difference between the compound interest and simple interest on Rs x at 11% per annum for 2 years is Rs 60.50. What is the value of x?
x रुपये पर 11% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 60.50 रुपये का अंतर है | x का मान क्या है ?
SSC CGL 13 June 2019 (Morning)
(a) 4800
(b) 4000
(c) 5000
(d) 4500

Q12. The difference between compound interest and simple interest on Rs x at 15% per

annum for 2 years is Rs9. What is the value of x?
x रुपये पर 15% प्रति वर्ष की दर से 2 वर्षों के चक्रवृद्धि ब्याज और साधारण ब्याज में 9 रुपये का अंतर है | x का मान ज्ञात करें |
SSC CGL 13 June 2019 (Afternoon)
(a) 600
(b) 400
(c) 450
(d) 500

Q13. If a sum amounts to Rs2,190 in four years and Rs 2,409 in five years at compound interest, when the interest is compounded yearly, then the annual rate of interest is:
यदि कोई राशि चक्रवृद्धि ब्याज पर चार वर्षों में 2190 रुपये तथा पांच वर्षों में 2409 रुपये हो जाती है, जब ब्याज की चक्रवृद्धि वार्षिक है, तो ब्याज की वार्षिक दर ज्ञात करें |
SSC CGL 13 June 2019 (Evening)
(a) 8%
(b) 10%
(c) 9%
(d) 11%

Q14. A sum of Rs 7,500 amounts to Rs 8,748 after 2 years at a certain compound interest rate per annum. What will be the simple interest on the same sum for $4\frac{3}{5}$ years at double the earlier interest rate?
7500 रुपये की राशि प्रति वर्ष चक्रवृद्धि ब्याज की एक निश्चित दर से 2 वर्ष में 8,748 रुपये हो जाती है | इसी राशि पर पहले की तुलना में दोगुनी दर से $4\frac{3}{5}$ वर्षों का साधारण ब्याज कितना होगा ?
SSC CHSL 2 July 2019 (Afternoon)
(a) Rs4,140
(b) Rs5,520
(c) Rs8,180
(d) Rs2,760

Q15. What is the compound interest on a sum of Rs4,096 at 15% p.a. for $2\frac{1}{2}$ years. If the interest is compounded 10-monthly?
4,096 रुपये पर 15% प्रति वर्ष की दर से $2\frac{1}{2}$ वर्ष का चक्रवृद्धि ब्याज ज्ञात करें, यदि ब्याज की चक्रवृद्धि 10 माह की है | **SSC CHSL 2 July 2019 (Evening)**
(a) Rs1,726
(b) Rs1,736
(c) Rs1,636
(d) Rs1,763

Q16. A sum of Rs 10000 amounts to Rs 11664 in 2 years, at a certain rate percent per annum, when the interest is compounded yearly. What will be the simple interest on the same sum for $5\frac{2}{5}$ years at the same rate?
10000 रुपये की एक राशि प्रति वर्ष वार्षिक चक्रवृद्धि ब्याज की एक निश्चित दर से 2 वर्ष में 11664 रुपये हो जाती है | इसी राशि पर इसी दर से $5\frac{2}{5}$ वर्षों का साधारण ब्याज ज्ञात करें |
SSC CHSL 3 July 2019 (Morning)
(a)Rs 4320
(b)Rs 4160
(c)Rs 3840
(d)Rs 4040

Q17. A certain sum amounts to Rs 29282 in 4 years at 10% per annum, when the interest is compounded annually. What is the simple interest on the same sum for same time at the same rate?
निश्चित राशि 10% प्रति वर्ष की दर से 4 वर्षों में 29282 रुपये हो जाती है, जब ब्याज की चक्रवृद्धि वार्षिक है | इसी राशि पर इसी दर से इतने ही समय का साधारण ब्याज ज्ञात करें |
SSC CHSL 3 July 2019 (Afternoon)
(a)Rs. 8500
(b)Rs 8000
(c)Rs 7600
(d)Rs 8400

Q18. The compound interest on a certain sum for 3 years at 15% p.a.,interest compounded yearly, is Rs 4167. What is the simple interest on the same sum in $4\frac{4}{5}$ years at the same rate?
किसी निश्चित राशि पर 15% प्रति वर्ष की दर से 3 वर्ष का चक्रवृद्धि ब्याज (वार्षिक चक्रवृद्धि) 4167 रुपये है | इस राशि पर इसी दर से $4\frac{4}{5}$ वर्षों का साधारण ब्याज ज्ञात करें |
SSC CHSL 3 July 2019 (Evening)
(a)Rs 6144
(b)Rs 6000
(c)Rs 4800
(d)Rs 5760

Q19. A certain amount invested at a certain rate, compounded annually, grows to an amount in five years, which is a factor of 1.1881 more than to what it would have grown in three years. What is the rate percentage?
एक निश्चित राशि वार्षिक चक्रवृद्धि की किसी निश्चित दर पर निवेश की जाती है जो पांच वर्षों में बढ़ कर उतनी हो जाती है जो तीन वर्षों में इसमें हुई वृद्धि से 1.1881 अधिक का एक गुणक है | दर प्रतिशत ज्ञात करें |
SSC CHSL 4 July 2019 (Evening)
(a)9
(b)8.1
(c)8
(d)9.2

Q20. A certain amount invested at a certain rate, compounded annually, grows to an amount in five years, which is a factor of 1.191016 more than to what it would have grown in two years. What is the rate percentage?

एक निश्चित राशि वार्षिक चक्रवृद्धि की किसी निश्चित दर पर निवेश की जाती है जो पांच वर्षों में बढ़ कर उतनी हो जाती है जो दो वर्षों में इसमें हुई वृद्धि से 1.191016 अधिक का एक गुणक है | दर प्रतिशत ज्ञात करें |

SSC CHSL 5 July 2019 (Morning)

(a)5
(b)4
(c)6
(d)8

Q21.The compound interest on a certain sum of money at 21% for 2 years is Rs 11,602.5 . Its simple interest (in Rs) at the same rate and for the same period is:

किसी निश्चित राशि पर 21% की दर से 2 वर्षों का चक्रवृद्धि ब्याज 11,602.5 रुपये है | इस दर से इसी अवधि के लिए इसका साधारण ब्याज (रुपये में) ज्ञात करें | **SSC CHSL 9 July 2019 (Afternoon)**

(a)10,750
(b)16,000
(c)12,500
(d)10,500

Q22.A certain sum invested on compound interest grows Rs 8000 and Rs 27,000 in three and six years, respectively when the interest is compounded annually. What is the percentage rate of interest?

चक्रवृद्धि ब्याज पर निवेश की गयी एक निश्चित राशि तीन और छः वर्षों में क्रमशः 8000 रुपये और 27,000 रुपये बढ़ जाती है जब ब्याज की चक्रवृद्धि वार्षिक है | ब्याज का दर प्रतिशत क्या है ?

SSC CHSL 9 July 2019 (Evening)

(a)25
(b)0.5
(c)50
(d)10

Q23. A sum of Rs 18,000 is invested for 16 months at 8% per annum compounded half-yearly. What is the percentage gain at

18000 रुपये की राशि 8% प्रति वर्ष अर्धवार्षिक चक्रवृद्धि पर 16 महीनों के लिए निवेश की जाती है | प्रतिशत लाभ ज्ञात करें |

SSC CPO 12 March 2019 (Evening)

(a) 9%
(b) 11%
(c) 10%
(d) 12%

Q24. A sum of Rs. 20,000 is invested for 15 months at the interest of 10% per annum compounded half yearly. What is the percentage gain, correct to one decimal place, at the end of 15 months?

20,000 रुपये की एक राशि 15 माह के लिए 10% प्रति वर्ष अर्धवार्षिक चक्रवृद्धि पर निवेश की जाती है | 15 माह के अंत में एक दशमलव स्थान तक लाभ प्रतिशत ज्ञात करें |

SSC CPO 12 March 2019 (Morning)

(a) 12.5%
(b) 13.6%
(c) 13.0%
(d) 13.4%

Q25. A sum of Rs 12,000 is invested for 15 months at 10% per annum compounded half yearly. What is the percentage gain, at

12000 रुपये की एक राशि 15 माह के लिए 10% प्रति वर्ष अर्धवार्षिक चक्रवृद्धि पर निवेश की जाती है| प्रतिशत लाभ ज्ञात करें |

SSC CPO 13 March 2019 (Morning)

(a) 13.0%
(b) 13.1%
(c) 12.8%
(d) 12.9%

Q26. A borrowed rs 28,500 at 8% pa interest compounded annually. If rs 5,780 was paid at the end of first year, then the outstanding amount at the end of second year is:

A ने 8% प्रति वर्ष वार्षिक चक्रवृद्धि पर 28,500 रुपये उधार लिए | यदि पहले वर्ष के अंत में 5,780 रुपये का भुगतान किया गया, तो दूसरे वर्ष के अंत में बकाया राशि क्या थी ?

SSC CPO 14 March 2019 (Morning)

(a)27,000.00
(b)27,462.40
(c)30,780.00
(d)33,242.40

Q27. If a sum becomes Rs. 1,460 in two years and Rs. 1606 in three years due to the compound interest, then annual rate of interest is:

यदि कोई राशि चक्रवृद्धि ब्याज की वजह से दो वर्षों में 1460 रुपये तथा तीन वर्षों में 1606 रुपये बन जाती है, तो ब्याज की वार्षिक दर क्या है ?

SSC CPO 16 March 2019 (Evening)

(a)10%
(b)9%
(c)8%
(d)11%

Q28. Rs 2,40,000 is taken as loan for three years compounded annually at 12.5%p.a. At the end of first year, the interest is revised to 12% p.a. The total amount to be repaid at the end of third year is: 2,40,000 रुपये की राशि तीन वर्षों के लिए 12.5% प्रति वर्ष वार्षिक चक्रवृद्धि पर उधार ली जाती है | पहले वर्ष के अंत में ब्याज में संशोधन करके 12% कर दिया जाता है | तीन वर्षों के अंत में कुल कितनी राशि का भुगतान करना होगा ? **SSC CPO 15 March 2019 (Morning)**

(a) Rs 3,26,400

(b) Rs 3,34,800
(c) Rs 3,38,688
(d) Rs 3,42,648

Q29. On what amount, the interest compounded semi-annually at 12% per annum for one year is 1545? किस राशि पर, एक वर्ष के लिए 12 % प्रति वर्ष की दर से अर्धवार्षिक संयोजित चक्रवर्द्धि ब्याज 1545 है ?
SSC CPO 14 March 2019 (Evening)
(a) Rs 12,500
(b) Rs 25,750
(c) Rs 24,300
(d) Rs 12,875

Q30. Find the compound interest at the rate of 7% p.a. compounded annually for two years on the principal that yields a simple interest of Rs 9450 for 3 years at 7% p.a. यदि किसी राशि पर 7% वार्षिक दर से 3 वर्ष के लिए साधारण ब्याज Rs 9450 है तो 7% वार्षिक दर से दो वर्ष के लिए उस राशि का वार्षिक संयोजित चक्रवृद्धि ब्याज कितना होगा ?
SSC CPO 15 March 2019 (Evening)
(a)12,345.20
(b)6,520.50
(c)10,127
(d)12,678.40

Q31. If the compound interest at 10% p.a. Compounded half-yearly for $1\frac{1}{2}$ years is Rs. 2,522. The principal amount is
यदि 10% प्रति वर्ष चक्रवृद्धि ब्याज अर्धवार्षिक रूप से $1\frac{1}{2}$ वर्षों के लिए 2,522 रूपये है तो मूलधन क्या होगा ? **SSC CPO 16 March 2019 (Morning)**
(a) Rs.18500
(b) Rs. 20000
(c) Rs.15400
(d) Rs. 16000

Q32. What will be the compound interest on a sum of Rs 1200 for 2 years at the rate of 20% per annum when the interest is compounded yearly?
1200 रुपये पर 20% प्रति वर्ष की दर से 2 वर्ष का चक्रवृद्धि ब्याज ज्ञात करें जब ब्याज की चक्रवृद्धि वार्षिक है |
SSC MTS 2 August 2019 (Morning)
(a) Rs624
(b) Rs504
(c) Rs576
(d) Rs528

Q33. A sum invested at compound interest (compounded annual) amounts to Rs750 at the end of first year and Rs900 at the end of second year. What is the sum ?
चक्रवृद्धि ब्याज (वार्षिक चक्रवृद्धि) पर निवेश की गयी कोई राशि पहले वर्ष के अंत में 750 रुपये और दूसरे वर्ष के अंत में 900 रुपये हो जाती है | यह राशि कितनी है ?
SSC MTS 5 August 2019 (Morning)
(a) Rs700
(b) Rs625
(c) Rs600
(d) Rs650

Q34. A sum of Rs. 2000 is invested at compound interest (compounded annually). Find the amount after 30 months, if the rate of interest is 10% p.a.
Rs 2000 की राशि को चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) पर निवेश किया जाता है | यदि ब्याज की दर 10% प्रतिवर्ष है, तो 30 माह के बाद मिश्रधन कितना होगा ?
SSC MTS 5 August 2019 (Evening)
(a) Rs 2538
(b) Rs 2524
(c) Rs 2541
(d) Rs 2532

Q35. The compound interest on a certain sum of money at 11% for 2 years is Rs. 6963. Its simple interest (in Rs) at the same rate and for the same period is :
किसी निश्चित राशि पर 11% की दर से 2 वर्ष का चक्रवृद्धि ब्याज 6963 रुपये है | समान दर से समान अवधि के लिए इसका साधारण ब्याज कितना होगा ?
SSC CHSL 8 July 2019 (Afternoon)
(a) 6500
(b) 6600
(c) 6750
(d) 6000

Q36 The compound interest on a certain sum of money at 21% for 2 years is Rs. 9,282. Its simple interest (in Rs) at the same rate and for the same period is :
किसी निश्चित राशि पर 21% की दर से 2 वर्ष का चक्रवृद्धि ब्याज 9282 रुपये है | समान दर से समान अवधि के लिए इसका साधारण ब्याज ज्ञात करें |
SSC CHSL 8 July 2019 (Evening)
(a) 8750
(b) 8400
(c) 8000
(d) 8500

Q37 The compound interest on a certain sum of money at 21% for 2 years is Rs. 6,961.5. Its simple interest (in Rs) at the same rate and for the same period is :
किसी निश्चित राशि पर 21% की दर से 2 वर्ष का चक्रवृद्धि ब्याज 6961.5 रुपये है | समान दर से तथा समान अवधि के लिए इसका साधारण ब्याज ज्ञात करें |
SSC CHSL 9 July 2019 (Morning)
(a) 6300
(b) 6500
(c) 6000
(d) 6750

Pinnacle

Q38. The difference between simple interest and compound interest for 2 years on a principal at the rate of 5% per annum is Rs. 25. Find the principal.
किसी मूलधन पर 5% वार्षिक ब्याज की दर से 2 वर्षों के साधारण ब्याज तथा चक्रवृद्धि ब्याज का अंतर 25 रुपये है | मूलधन कितना है ?
SSC MTS 6 August 2019 (Morning)
(a) Rs10000
(b) Rs15000
(c) Rs12000
(d) Rs5000

Q39. A sum of Rs 10,000 is invested for 17 months at 8% per annum compounded half yearly. What is the percentage gain at the end of 17 month, nearest to one decimal place? 10,000 रुपये की एक राशि को 17 माह के लिए 8% प्रति वर्ष अर्धवार्षिक चक्रवृद्धि पर निवेश किया जाता है | 17 माह के अंत में लाभ प्रतिशत ज्ञात करें |
SSC CPO 13 March 2019 (Evening)
(a) 12.0%
(b) 12.2%
(c) 12.4%
(d) 11.8%

Q40. A sum of Rs. 3000 is invested at 20% p.a compound interest (compounded annually). What is the compound interest for two years ?
रु 3000 की राशि को 20% प्रतिवर्ष के चक्रवृद्धि ब्याज दर (वार्षिक रूप से संयोजित) पर निवेश किया गया है | 2 वर्षों का चक्रवृद्धि ब्याज कितना है ?
SSC MTS 6 August 2019 (Morning)
(a) Rs 1360 /रु 1360
(b) Rs 1200 / रु 1200
(c) Rs 1320 / रु 1320
(d) Rs 1440 / रु 1440

Q41. If Rs. 12000 is invested at 20% p.a compound interest (compounded annually) for 2 years, then calculate the interest.
यदि रु12000 को 20% प्रति वर्ष की दर से चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) पर 2 वर्ष के लिए निवेश किया गया है, तो ब्याज कितनी है ?
SSC MTS 6 August 2019 (Afternoon)
(a) Rs5280
(b) Rs4280
(c) Rs4800
(d) Rs5640

Q42. A sum of Rs2400 becomes Rs3600 in 6 years at a certain rate of compound interest (compounded annually), What will be the amount after 12 years at the same rate of interest?
2400 रुपये की राशि चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) की किसी निश्चित दर से 6 वर्षों में 3600 रुपये हो जाती है | इसी ब्याज दर से 12 वर्ष बाद मिश्रधन कितना होगा ?
SSC MTS 6 August 2019 (Evening)
(a) Rs 6000
(b) Rs 4800
(c) Rs 5400
(d) Rs 4500

Q43. A certain sum invested on compound interest (compounded annually) grows to Rs5040 in three years. If the rate of interest is 20% for the first year, 40% for the second and 50% for the third year, then what is the sum?
चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) पर निवेश की गयी एक निश्चित राशि तीन वर्षों में 5040 रुपये बढ़ जाती है | यदि ब्याज की दर पहले वर्ष के लिए 20%, दूसरे वर्ष के लिए 40% और तीसरे वर्ष के लिए 50% है, तो यह राशि ज्ञात करें |
SSC MTS 7 August 2019 (Morning)
(a) Rs1210
(b) Rs2566
(c) Rs1800
(d) Rs2000

Q44. A sum of Rs 900 is invested at compound interest (compounded annually) for 2 years. If the rate of interest is 10% per annum, then what will be the amount?
900 रुपये की राशि 2 वर्षों के लिए चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) पर निवेश की जाती है | यदि ब्याज की दर 10% प्रति वर्ष है, तो मिश्र धन कितना होगा ?
SSC MTS 7 August 2019 (Afternoon)
(a) Rs1071
(b) Rs1089
(c) Rs1289
(d) Rs1121

Q45. The compound interest (compounded annually) on a sum of money invested for two years is Rs10125. If the rate of interest is 25% per annum, then what is the amount after these two years?
दो वर्षों के लिए निवेश की गयी किसी राशि पर चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) 10125 रुपये है | यदि ब्याज की दर 25% प्रति वर्ष है, तो इन दो वर्षों के बाद मिश्रधन ज्ञात करें |
SSC MTS 7 August 2019 (Evening)
(a) Rs28125
(b) Rs32275
(c) Rs30625
(d) Rs26275

Q46. A sum of Rs1000 is invested on compound interest (compounded annually) for three years. If the rate of interest is 10% per annum for the first two years and 50% per annum for the third year, then what will be the interest ?

1000 रुपये की राशि तीन वर्षों के लिए चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) पर निवेश की गयी है | यदि ब्याज की दर पहले दो वर्षों के लिए 10% प्रति वर्ष और तीसरे वर्ष के लिए 50% प्रति वर्ष है,तो ब्याज कितना होगा ?

SSC MTS 8 August 2019 (Morning)

(a) Rs612
(b) Rs655
(c) Rs815
(d) Rs756

Q47. Rs20000 is invested on compound interest (compounded half yearly) at the rate of 20% per annum, then what will be the interest after two years?

20000 रुपये की राशि 20% प्रति वर्ष की दर से चक्रवृद्धि ब्याज (अर्धवार्षिक रूप से संयोजित) पर निवेश की गयी है | दो वर्षों के बाद ब्याज कितना होगा ?

SSC MTS 8 August 2019 (Afternoon)

(a) Rs8800
(b) Rs8824
(c) Rs9282
(d) Rs9428

Q48. A sum of Rs1200 is invested at compound interest (compounded half yearly). If the rate of interest is 10% per annum, then what will be the amount after 18 months?

1200 रुपये की राशि चक्रवृद्धि ब्याज (अर्धवार्षिक रूप से संयोजित) पर निवेश की गयी है | यदि ब्याज की दर 10% प्रति वर्ष है, तो 18 माह के बाद मिश्र धन कितना होगा ?

SSC MTS 8 August 2019 (Evening)

(a) Rs1389.15
(b) Rs1185.45
(c) Rs1563.25
(d) Rs1295.35

Q49. The compound interest for two years at 12% per annum is Rs477. What is the Principal amount (in Rs) invested?

12% प्रति वर्ष की दर से दो वर्षों का चक्रवृद्धि ब्याज 477 रुपये है | निवेश किया गया मूल धन (रुपये में) ज्ञात करें |

SSC MTS 9 August 2019 (Morning)

(a) 1875
(b) 1500
(c) 2000
(d) 1650

Q50. The simple interest on a sum of money for 2 years at certain rate of interest is Rs320. The compound interest, compounded annually on the same sum for the same duration and at the same rate of interest is Rs384. The sum (in Rs) is:

किसी राशि पर किसी निश्चित दर से दो वर्षों का साधारण ब्याज 320 रुपये है | इसी राशि पर इसी दर से इस अवधि का चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) 384 रुपये है | यह राशि (रुपये में) है :

SSC MTS 9 August 2019 (Afternoon)

(a) 400
(b) 250
(c) 200
(d) 309

Q51. At what rate percent per annum, a sum of Rs. 6000 will become Rs. 7986 in 3 years, if the interest is compounded annually ?

रु6000 की राशि 3 वर्ष में कितने प्रतिशत प्रतिवर्ष पर रु7986 हो जाएगी, यदि ब्याज वार्षिक रूप से संयोजित की जाती है ?

SSC MTS 9 August 2019 (Evening)

(a) 10%
(b) 8%
(c) 12.5%
(d) 11%

Q52. What will be the compound interest for 3 years on Rs. 5120 at the rate of 12.5% (compounded annually) ?

रु 5120 की राशि पर 12.5% की दर से 3 वर्षों का चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) कितना होगा ?

SSC MTS 13 August 2019 (Morning)

(a) Rs2280
(b) Rs1960
(c) Rs2120
(d) Rs2170

Q53. A sum doubles in 4 years at a certain rate of compound interest. In how many years does it amount to 8 times itself at the same rate?

कोई राशि चक्रवृद्धि ब्याज की एक निश्चित दर से 4 वर्षों में दोगुनी हो जाती है | इसी दर से यह कितने वर्षों में खुद से 8 गुना हो जाएगी ?

SSC MTS 13 August 2019 (Afternoon)

(a) 9
(b) 12
(c) 15
(d) 6

Q54. A man invested a sum of money at compound interest. It amounted to Rs12100 in two years and to Rs13310 in three years. The rate of interest per annum is:

एक व्यक्ति ने कोई राशि चक्रवृद्धि ब्याज पर निवेश की | यह दो वर्षों में 12100 रुपये हो गयी और तीन वर्षों में 13310 रुपये हो गयी | प्रति वर्ष ब्याज की दर है :

SSC MTS 13 August 2019 (Evening)

(a) 11%
(b) 9.5%
(c) 12.5%
(d) 10%

Q55. If the rate of compound interest, compounded half yearly, is 20% per annum, then calculate the interest to be paid on Rs. 100000 for 2 years.
यदि चक्रवृद्धि ब्याज दर 20% प्रतिवर्ष है, अर्ध वार्षिक रूप से संयोजित, तो रु100000 के मूलधन पर दो वर्षों का ब्याज कितना होगा ?
SSC MTS 14 August 2019 (Morning)
(a) Rs46,410
(b) Rs44,000
(c) Rs21,000
(d) Rs33,100

Q56. A principal increases 21% with compound interest in two years. Calculate the simple interest for 4 years on Rs. 1000 at the same rate of interest.
कोई मूलधन चक्रवृद्धि ब्याज के साथ 2 वर्षों में 21% बढ़ जाता है | रु1000 पर समान ब्याज दर से 4 वर्षों में साधारण ब्याज कितना होगा ?
SSC MTS 14 August 2019 (Morning)
(a) Rs320
(b) Rs400
(c) Rs360
(d) Rs420

Q57. What is the effective annual rate of interest corresponding to a rate of 10% per annum compounded half-yearly?
10% प्रति वर्ष (अर्ध वार्षिक रूप से संयोजित) की दर के संगत प्रभावी वार्षिक ब्याज दर कितनी होगी ?
SSC MTS 14 August 2019 (Afternoon)
(a) 10.75%
(b) 10.5%
(c) 10%
(d) 10.25%

Q58. If the difference between simple and compound interest on a sum of money for 2 years at 5% p.a. is Rs125, the sum (in Rs) is:
यदि किसी राशि पर 5% प्रति वर्ष की दर से दो वर्षों के साधारण और चक्रवृद्धि ब्याज में 125 रुपये का अंतर है, तो यह राशि (रुपये में) है :
SSC MTS 14 August 2019 (Evening)
(a) 50000
(b) 5000
(c) 10000
(d) 1000

Q59. How much will a principal of Rs5000 invested on compound interest (compounded annually) amount to, in three years at a rate of 50% per annum?
चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) पर निवेश किया गया 5000 रुपये का मूल धन 50% प्रति वर्ष की दर से तीन वर्षों में कितना हो जाएगा ?
SSC MTS 16 August 2019 (Morning)
(a) Rs16,375
(b) Rs11,250
(c) Rs16,875
(d) Rs17,275

Q60. What is the difference between the compound interests on Rs. 10000 for 2 years at 20% per annum when the interests are compounded half yearly and yearly ?
रु10000 की राशि पर 2 वर्ष के लिए 20% वार्षिक दर पर चक्रवृद्धि ब्याजों में क्या अंतर् है, जब ब्याजों को क्रमश; अर्ध-वार्षिक और वार्षिक रूप से संयोजित किया जाता है ?
SSC MTS 16 August 2019 (Afternoon)
(a) Rs 440 / रु440
(b) Rs 241 / रु241
(c) Rs 441 / रु441
(d) Rs 240 / रु240

Q61. A principal increases 50% at simple interest in 5 years. What will be the compound interest on Rs. 20000 for 3 years at the same rate ?
कोई मूलधन साधारण ब्याज दर पर पांच वर्षों में 50% बढ़ जाता है | समान ब्याज दर के साथ रु 20000 पर 3 वर्षों के लिए चक्रवृद्धि ब्याज कितना होगा ?
SSC MTS 16 August 2019 (Evening)
(a) Rs 6620 / रु 6620
(b) Rs 3310 / रु 3310
(c) Rs 5760 / रु 5760
(d) Rs 2800 / रु 2880

Q62. What is the compound interest on Rs 5000 in 2 years at the rate of 20% per annum? (interest compounded half yearly)
5000 रुपये पर 20% प्रति वर्ष की दर से 2 वर्षों का चक्रवृद्धि ब्याज ज्ञात करें | (ब्याज की दर चक्रवृद्धि अर्धवार्षिक है) **SSC MTS 19 August 2019 (Morning)**
(a) Rs2340.50
(b) Rs2275.50
(c) Rs2290.50
(d) Rs2320.50

Q63. A sum of Rs. 3600 invested on Compound interest becomes Rs. 4900 in 2 years . (Interest is compounded annually) What is the rate of interest per annum ?
चक्रवर्द्धि ब्याज पर निवेशित 3600 रूपए , 2वर्षों में 4900रूपए हो जाते है (ब्याज वार्षिक रूप से संयोजित)| प्रतिवर्ष ब्याज दर कितनी है ?
SSC MTS 19 August 2019 (Afternoon)
(a) $18\frac{1}{3}$
(b) $17\frac{1}{3}$
(c) $15\frac{2}{3}$
(d) $16\frac{2}{3}$

Q64. What will be the compound interest on a sum of Rs31250, at 12% compound interest (interest compounded yearly) in $2\frac{2}{3}$ years? 31250 रुपये की एक राशि

पर 12% की दर से $2\frac{2}{3}$ वर्ष का चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) कितना होगा ?

SSC MTS 19 August 2019 (Evening)

(a) Rs 11048
(b) Rs 11096
(c) Rs 11068
(d) Rs 11086

Q65. Calculate the compound interest on Rs. 15625 for 2 years at the rate of 12% p.a , if the interest is compounded 8-monthly.

12% वार्षिक दर से 2 वर्षों के लिए रु 15625 की राशि पर चक्रवृद्धि ब्याज कितना है, यदि ब्याज को 8-माह पर संयोजित किया जाता है ?

SSC MTS 22 August 2019 (Afternoon)

(a) Rs 3075 / रु 3075
(b) Rs 4058 / रु 4058
(c) Rs 3675 / रु 3675
(d) Rs 4088 / रु 4088

Q66. A sum invested at 10% compound interest per annum becomes Rs. 19965 in 3 years. The same sum will become Rs. x in $2\frac{2}{5}$ years. If the interest is compounded annually in both the cases, then find the value of x .

10% प्रति वर्ष चक्रवर्द्धि ब्याज दर पर निवेशित कोई राशि 3 वर्ष में 19965 रूपए हो जाती है | यही राशि समान ब्याज दर पर $2\frac{2}{5}$ वर्षो में x रूपए हो जाएगी | यदि दोनों ही मामलो में ब्याज को वार्षिक रूप से संयोजित किया जाता है , तो x का मान कितना है ?

SSC MTS 20 August 2019 (Afternoon)

(a) Rs 18855
(b) Rs 18768
(c) Rs 18867
(d) Rs 18876

Q67. If the compound interest is compounded annually, then what sum will become Rs. 24494.40 in 2 years at the rate of 8% compound interest ?

यदि चक्रवृद्धि ब्याज वार्षिक रूप से संयोजित किया जाता है, तो 8% वार्षिक चक्रवृद्धि ब्याज की दर से कितनी राशि 2 वर्ष में रु 24494.40 हो जाएगी ?

SSC MTS 21 August 2019 (Morning)

(a) Rs 21200 / रु 21200
(b) Rs 22400 / रु 22400
(c) Rs 21000 / रु 21000
(d) Rs 22000 / रु 22000

Q68. The difference between compound interest and simple interest on a sum for 2 years at 20% p.a is Rs. 200. The sum is :

किसी राशि पर 20% वार्षिक दर से 2 वर्ष के चक्रवृद्धि ब्याज तथा साधारण ब्याज दर का अंतर रु 200 है | राशि है :

SSC MTS 21 August 2019 (Afternoon)

(a) Rs 3000 / रु 3000
(b) Rs 4500 / रु 4500
(c) Rs 4000 / रु 4000
(d) Rs 5000 / रु 5000

Q69. What is the present value of Rs. 14739 payable in 3 years at the rate of 6.25% yearly compound interest ?

6.25% वार्षिक चक्रवृद्धि ब्याज की दर से 3 वर्ष में देय रु 14739 की राशि का आज का मान कितना है ?

SSC MTS 21 August 2019 (Evening)

(a) Rs 12184 / रु 12184
(b) Rs 12288 / रु 12288
(c) Rs 12473 / रु 12473
(d) Rs 12148 / रु 12148

Q70. The compound interest on a certain sum at 15% p.a. Compounded yearly for $2\frac{1}{3}$ years is Rs9327. The sum is:

किसी निश्चित राशि पर 15% प्रति वर्ष की दर से $2\frac{1}{3}$ वर्षों का चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) 9327 रुपये है | यह राशि है :

SSC MTS 22 August 2019 (Morning)

(a) Rs24000
(b) Rs25000
(c) Rs20000
(d) Rs27000

Q71. If an amount becomes 4000 rupees after two years and 6000 rupees after four years at the same rate of compound interest (compounded annually), what is the amount?

यदि कोई राशि चक्रवर्ती ब्याज (वार्षिक संयोजित) की समान दर से दो वर्ष पश्चात् 4000 रूपए तथा चार वर्ष पश्चात 6000 रूपए हो जाती है, तो राशि कितनी है ?

SSC MTS 2 August 2019 (Afternoon)

(a) Rs. 2888.88
(b) Rs. 2666.66
(c) Rs. 2777.77
(d) Rs. 2866.66

SSC CGL TIER I

Q1. The compound interest on a certain sum at 10% p.a. for $2\frac{1}{3}$ years is ₹1,201.60, interest compounded yearly. The sum is:

किसी निश्चित राशि पर 10% प्रति वर्ष की दर से $2\frac{1}{3}$ वर्षों का चक्रवृद्धि ब्याज ₹1,201.60 रुपये है तथा ब्याज का संयोजन वार्षिक है | यह राशि कितनी है ?

SSC CGL 3 March 2020 (Afternoon)

(a) ₹4,200
(b) ₹4,800
(c) ₹5,400
(d) ₹4,500

Q2. The simple interest on a certain sum at the end of three years at 5% p.a. is ₹1,200. The compound interest on the same sum for the same period at the

same rate is (interest compounded yearly):
किसी निश्चित राशि पर 5% प्रति वर्ष की दर से तीन वर्षों के अंत में साधारण ब्याज 1200 रुपये है | इसी राशि पर इसी अवधि के लिए इतने ही ब्याज दर से कितने चक्रवृद्धि ब्याज की प्राप्ति होगी ? (ब्याज का संयोजन वार्षिक है)
SSC CGL 3 March 2020 (Evening)
(a) ₹1,800
(b) ₹1,260
(c) ₹820
(d) ₹1,261

Q3. What is the compound interest on a sum of ₹12,000 for $2\frac{5}{8}$ years at 8% p.a., when the interest is compounded annually? /
12,000 रुपये की राशि पर 8% प्रति वर्ष की दर से $2\frac{5}{8}$ वर्षों का चक्रवृद्धि ब्याज कितना होगा, जब ब्याज का संयोजन वार्षिक किया जाता है ?
SSC CGL 4 March 2020 (Morning)
(a) ₹2,697
(b) ₹2,654
(c) ₹2,712
(d) ₹2,642

Q4. The difference in the compound interest on a certain sum at 10% p.a. for one year, when the interest is compounded half yearly and yearly, is ₹88.80. What is the simple interest on the same sum for $1\frac{2}{3}$ years at the same rate? /
किसी निश्चित राशि पर 10% प्रति वर्ष की दर से एक वर्ष के चक्रवृद्धि ब्याज में 88.80 रुपये का अंतर आता है, जब ब्याज का संयोजन अर्धवार्षिक और वार्षिक किया जाता है| इसी राशि पर इसी दर से $1\frac{2}{3}$ वर्षों का साधारण ब्याज कितना होगा ?
SSC CGL 4 March 2020 (Afternoon)
(a) ₹5,916
(b) ₹5,986
(c) ₹5,980
(d) ₹5,920

Q5. A sum of ₹8,000 invested at 10% pa amounts to ₹9,261 in a certain time, interest compounded half-yearly. What will be the compound interest (in₹) on the same sum for the same time at double the earlier rate of interest, when interest is compounded annually? / 10% प्रति वर्ष की दर से निवेश की गयी 8,000 रुपये की एक राशि अर्धवार्षिक चक्रवृद्धि ब्याज की दर से किसी निश्चित समय में 9,261 रुपये हो जाती है | इसी राशि पर इतने ही समय के लिए पूर्व की तुलना में दोगुने दर से चक्रवृद्धि ब्याज ज्ञात कीजिए, यदि ब्याज का संयोजन वार्षिक है |
SSC CGL 4 March 2020 (Evening)
(a) ₹2,520
(b) ₹2,480
(c) ₹2,560
(d) ₹2,500

Q6. A and B together borrowed a sum of ₹51,750 at an interest rate of 7% p.a. compound interest in such a way that to settle the loan, A paid as much amount after three years as paid by B after 4 years from the day of borrowing. The sum (in ₹) borrowed by A was: / A तथा B ने एक साथ 7% प्रति वर्ष की दर से ₹51,750 रुपये की राशि इस प्रकार उधार ली कि ऋण चुकता करने के लिए A ने उधार लेने वाले दिन से तीन वर्षों के बाद उतनी ही राशि का भुगतान किया जितनी राशि का भुगतान B ने 4 वर्षों के बाद किया | A के द्वारा उधार ली गयी राशि (रुपये में) है :
SSC CGL 5 March 2020 (Afternoon)
(a) 25,000
(b) 25,650
(c) 24,860
(d) 26,750

Q7. A certain amount of money at compound interest grows to ₹66,550 in 3 years and ₹73,205 in 4 years. The rate per cent per annum is:
एक निश्चित धन राशि चक्रवृद्धि ब्याज पर 3 वर्षों में 66,550 रुपये तथा 4 वर्षों में 73,205 रुपये हो जाती है | प्रति वर्ष दर प्रतिशत ज्ञात कीजिए |
SSC CGL 5 March 2020 (Evening)
(a) 10%
(b) 5%
(c) 9%
(d) 11%

Q8. What will be the difference in compound interest on a sum of ₹ 7,800 at 8% for 1 year, when the interest is paid yearly and half yearly?
7,800 रुपये की राशि पर 8% की दर से 1 वर्ष के चक्रवृद्धि ब्याज में कितना अंतर होगा, यदि ब्याज का भुगतान वार्षिक तथा अर्धवार्षिक रूप से किया जाता है ?
SSC CGL 6 March 2020 (Morning)
(a) ₹ 24.72
(b) ₹ 12.48
(c) ₹ 29.18
(d) ₹ 19.46

Q9. Amit borrowed a sum of ₹ 25,000 on simple interest. Bhola borrowed the same amount on compound interest (interest compounded yearly). At the end of 2 years, Bhola had to pay ₹ 160 more interest than Amit. The rate of interest charged per annum is:
अमित ने साधारण ब्याज पर 25,000 रुपये की राशि उधार ली | भोला ने इतनी ही राशि चक्रवृद्धि ब्याज (ब्याज का संयोजन वार्षिक) पर उधार ली | 2 वर्षों के अंत में, भोला को अमित से 160 रुपये अधिक ब्याज का भुगतान करना पड़ा | प्रति वर्ष लगाए गए ब्याज की दर है :

SSC CGL 6 March 2020 (Afternoon)

(a) $3\frac{1}{8}$ %
(b) $\frac{16}{25}$ %
(c) 8 %
(d) $\frac{8}{25}$ %

Q10. The simple interest on a sum of ₹50,000 at the end of two years is ₹4,000. What would be the compound interest on the same sum at the same rate for the same period?
50,000 रुपये की राशि पर दो वर्षों के अंत में 4000 रुपये का साधारण ब्याज मिलता है | इसी राशि पर इसी दर से इसी अवधि का चक्रवृद्धि ब्याज ज्ञात करें |
SSC CGL 7 March 2020 (Morning)
(a) ₹8,000
(b) ₹4,040
(c) ₹4,008
(d) ₹4,080

Q11. A sum lent out at compound interest amounts to ₹1,250 in one year and to ₹1,458 in 3 years at a certain rate percentage p.a. What is the simple interest on the same sum for $5\frac{2}{3}$ years at the same rate of interest?
चक्रवृद्धि ब्याज पर उधार दी गयी एक राशि प्रति वर्ष एक निश्चित दर प्रतिशत से एक वर्ष में 1,250 रुपये तथा 3 वर्ष में 1,458 रुपये हो जाती है | इसी राशि पर इसी ब्याज दर से $5\frac{2}{3}$ वर्षों का साधारण ब्याज कितना होगा ?
SSC CGL 7 March 2020 (Afternoon)
(a) ₹600
(b) ₹520
(c) ₹500
(d) ₹480

Q12. The simple interest on a sum of money for 3 years at an interest rate of 6% p.a. is ₹6,750. What will be the compound interest rounded off on the same sum at the same rate for the same period, compounded annually is closest to:
6% प्रति वर्ष साधारण ब्याज की दर से किसी राशि पर तीन वर्षों का साधारण ब्याज 6750 रुपये है | इसी राशि पर इसी दर से वार्षिक संयोजन पर इतनी ही अवधि का चक्रवृद्धि ब्याज (लगभग) कितना होगा ?
SSC CGL 9 March 2020 (Morning)
(a) ₹7,103
(b) ₹7,133
(c) ₹7,163
(d) ₹7,663

Q13. A certain sum amounts to ₹280900 in 2 years at 6% per annum, interest compounded annually. The sum is:
एक निश्चित राशि 6 प्रतिशत प्रति वर्ष वार्षिक संयोजन की दर से 2 वर्षों में 280900 रुपये हो जाती है | यह राशि कितनी है ?
SSC CGL 9 March 2020 (Afternoon)
(a) ₹350000
(b) ₹200000
(c) ₹250000
(d) ₹550000

Q14. The compound interest on a certain sum at the end of two years is ₹408. The simple interest on the same sum for the same time is ₹400. The rate of interest per annum is:
एक निश्चित राशि पर दो वर्षों के अंत में 408 रुपये का चक्रवृद्धि ब्याज मिलता है | इसी राशि पर इसी अवधि का साधारण ब्याज 400 रुपये है | प्रति वर्ष ब्याज की दर कितनी है ?
SSC CGL 9 March 2020 (Evening)
(a) 4%
(b) 80%
(c) 40%
(d) 8%
SSC CHSL 2019
Q1. ₹4,000 is given at 5% per annum for one year and interest is compounded half yearly. ₹2000 is given at 40% per annum compounded quarterly for 1 year. The total interest received is nearest to:
4000 रुपये 5% प्रतिवर्ष की दर से एक वर्ष के लिए दिए जाते हैं तथा ब्याज की चक्रवृद्धि अर्धवार्षिक है। 2000 रुपये 1 वर्ष के लिए 40% प्रतिवर्ष की दर से दिए जाते हैं तथा ब्याज की चक्रवृद्धि त्रैमासिक है। प्राप्त होने वाला कुल ब्याज लगभग कितना है?
CHSL 13-10-2020 (Afternoon shift)
(a) ₹ 1,444.40
(b) ₹ 1888.80
(c) ₹ 1,130.70
(d) ₹ 1,333.30

Q2. The compound interest and the amount obtained, on a certain sum of money are Rs 820 and 8,820 respectively after 2 years. If the rate of interest compounded yearly, then the rate of interest is:/
एक निश्चित राशि पर 2 साल बाद चक्रवृद्धि ब्याज और प्राप्त राशि क्रमशः 820 और 8,820 रुपये है। यदि ब्याज की दर वार्षिक रूप से संयोजित है, तो ब्याज की दर है:
CHSL 13-10-2020 (Evening shift)
(a) 8%
(b) 6%
(c) 5%
(d) 7%

Q3. The compound interest on Rs4,000 at the rate of 5% p.a. is Rs630.50, then the time period is:
यदि 4000 रुपये पर 5% प्रति वर्ष की दर से चक्रवृद्धि ब्याज 630.50 रुपये है, तो समय अवधि कितनी है?
CHSL 14-10-2020 (morning shift)
(a) 2 years/ वर्ष
(b) $3\frac{1}{2}$ years/ वर्ष
(c) 3 years/ वर्ष
(d) $1\frac{1}{2}$ years/ वर्ष

Q4.The compound interest on Rs 4000 after 3 year is 630.50. Then the rate of interest compounded yearly is:
3 साल बाद 4000 रुपये पर चक्रवृद्धि ब्याज 630.50 है। फिर वार्षिक ब्याज की दर है:
CHSL 15-10-2020 (morning shift)
(a)7%
(b)5%
(c)8%
(d)6%

Q5. In how many years will a sum of ₹320 amount to ₹405 if interest is compounded at 12.5% per annum?
कितने वर्षो में ₹320 राशि बढ़कर ₹405 हो जाएगी अगर ब्याज प्रति वर्ष 12.5% पर चक्रवृद्धि है?
CHSL 16-10-2020 (Afternoon shift)
(a) 2 years
(b) 1 years
(c) 2 ½ years
(d) 1 ½ years

Q.6. If the compound interest on a certain sum of money for 2 years at 5% p.a. is Rs.328, then the sum is equal to:
यदि 2 वर्ष के लिए 5% प्रतिवर्ष की दर से एक राशि पर चक्रवृद्धि ब्याज 328 रुपये है, तो राशि ज्ञात करे |
CHSL 26-10-2020 (morning shift)
(a) 3600
(b) 3500
(c) 3000
(d) 3200

Q.7. The difference between the compound interest and the simple interest on a sum of Rs.8,000 for 2 years at the rate of 5% per annum is:
5% प्रति वर्ष की दर से 2 वर्ष के लिए 8,000 रुपये की राशि पर चक्रवृद्धि ब्याज और साधारण ब्याज के बीच का अंतर ज्ञात करे।
CHSL 26-10-2020 (Afternoon shift)
(a) 10
(b) 30
(c) 40
(d) 20

Q.8. What sum of money at compound interest will amount to Rs.4630.08 in three years if the rate of interest is 4% for the first year, 5% for the second year and 6% for the third year?
चक्रवृद्धि ब्याज पर किस राशि का ब्याज तीन वर्ष में 43030.08 रुपये का मिश्रधन देगा, यदि ब्याज की दर पहले वर्ष के लिए 4%, दूसरे वर्ष के लिए 5% और तीसरे वर्ष के लिए 6% है?
CHSL 26-10-2020 (Evening shift)
(a) 4500
(b) 4800
(c) 4000
(d) 3500

Q9. Ram deposited an amount of ₹ 8,000 in a bank's savings account with interest 6.5% compounded monthly. What amount will he get at the end of 18 months?
राम ने बैंक के बचत खाते में 8000 रुपये की राशि जमा की जिस पर मासिक संयोजन के अनुसार 6.5% ब्याज मिलता है। 18 माह के अंत में उसे कितना मिश्रधन प्राप्त होगा?
CHSL 17-03-2020 (Evening shift)
(a) ₹ 8816.97
(b) ₹ 8788.98
(c) ₹ 8790.54
(d) ₹ 8907.56

SSC CGL 2019 TIER-II
Q10. A certain sum amounts to ₹15,500 in 2 years at 12% p.a. simple interest. The same sum will amount to what in $1\frac{1}{2}$ years at 10% p.a, if the interest is compounded half yearly (nearest to ₹1) ?
कोई निश्चित राशि 12% वार्षिक साधारण ब्याज की दर पर 2 वर्ष में ₹15,500 हो जाती है। यदि ब्याज की गणना अर्धवार्षिक चक्रवृद्धि आधार पर की जाती है, तो सामान राशि 10% वार्षिक दर पर $1\frac{1}{2}$ वर्ष में कितनी हो जाएगी (₹1 के निकटतम मान में)
CGL 2019 Tier-II (15-11-2020)
(a) ₹14,470
(b) ₹13,460
(c) ₹14,360
(d) ₹15,125

Q11. Surekha borrowed a sum of money and returned it in two equal annual installments of ₹5547 each. If the rate of interest was $7\frac{1}{2}$ %p.a compounded yearly, then the total interest paid by her was:
सुरेखा ने कुछ राशि उधार ली और इसे प्रत्येक वर्ष ₹5547 की दो बराबर वार्षिक किस्तों में लौटा दिया। यदि ब्याज की दर वार्षिक रूप से संयोजन पर $7\frac{1}{2}$ प्रति वर्ष थी, तो उसके द्वारा दिया गया कुल ब्याज था:
CGL 2019 Tier-II (15-11-2020)
(a) ₹1,144
(b) ₹1,134
(c) ₹1,096
(d) ₹1,126

Q12. The compound interest on a sum of ₹5,500 at 15% p.a for 2 years, when the interest compounded 8 monthly is:
₹5,500 की राशि पर वार्षिक 15% की दर से 2 वर्ष में प्राप्त चक्रवृद्धि ब्याज ज्ञात कीजिए, जब ब्याज की गणना हर 8 महीने पर चक्रवृद्धि आधार पर की जाती है।
CGL 2019 Tier-II (15-11-2020)
(a) ₹1,880
(b) ₹1,820.50
(c) ₹1,773.75
(d) ₹1,850

Q13. The compound interest on a sum of ₹20,000 at 15% p.a for $2\frac{2}{3}$ years, interest compounded yearly is :
$2\frac{2}{3}$ वर्षों के लिए ₹20,000 पर 15% की दर से चक्रवृद्धि ब्याज ज्ञात कीजिए, यदि ब्याज का संयोजन वार्षिक है।
CGL 2019 Tier-II (16-11-2020)
(a) ₹9,098
(b) ₹9,095
(c) ₹8,896
(d) ₹9,000

Q14. A loan is to be returned in two equal instalments, If the rate of interest is 10% p.a. Compounded annually, and each instalment is ₹5,808, the the total interest charged in this scheme is:
एक ऋण दो समान किस्तों में वापस किया जाना है, यदि ब्याज की दर 10% प्रति वर्ष वार्षिक संयोजन है और प्रत्येक किस्त ₹5,808 की है, तो इस योजना में लिया जाने वाला कुल ब्याज है:
CGL 2019 Tier-II (16-11-2020)
(a) ₹1,536
(b) ₹1,632
(c) ₹1,602
(d) ₹1,563

Q15. A sum of ₹10,500 amounts to ₹13,650 in 2 years at a certain rate per cent per annum simple interest. The same sum will amount to what in 1 year at the same rate, if the interest is compounded half yearly(nearest to ₹1)?
10,500 रुपये की एक राशि प्रति वर्ष एक निश्चित दर प्रतिशत से 2 वर्षों में 13,650 रुपये हो जाती है। यही राशि इसी दर से 1 वर्ष में कितनी होगी, यदि ब्याज का संयोजन अर्धवार्षिक है? (1 रुपये के निकटतम)
CGL 2019 Tier-II (16-11-2020)
(a) ₹12,134
(b) ₹12,314
(c) ₹12,124
(d) ₹12,143

Q.16 At what rate per cent per annum will a sum of ₹15,625 amount to ₹ 21,952 in three years. If the interest is compounded annually?
प्रति वर्ष किस ब्याज दर से, 15,625 रुपये की एक राशि तीन वर्षों में 21,952 रुपये हो जाएगी, यदि ब्याज का संयोजन वार्षिक है?
CGL 2019 Tier-II (18-11-2020)
(a) 12%
(b) 8%
(c) 9%
(d) 10%

Q.17. Rahul invested equal sums of money at compound interest under two schemes A and B. Under scheme A, the interest rate was 10% per annum and under scheme B, the interest rate was 12%p.a. The compound interest after two years on the sum invested in scheme A was ₹1,050. How much is the interest earned under scheme B after two years, if the interest is compounded annually in both schemes?
राहुल ने दो योजनाओं A और B में चक्रवृद्धि ब्याज पर बराबर राशियाँ निवेश की। योजना A में, ब्याज की दर 10% प्रति वर्ष थी तथा योजना B में, ब्याज की दर 12% थी। योजना A में निवेशित राशि पर दो वर्षों के बाद चक्रवृद्धि ब्याज 1050 रुपये था। दो वर्षों के बाद योजना B में कितना ब्याज प्राप्त होगा, यदि दोनों ही योजनाओं में ब्याज का संयोजन वार्षिक है।
CGL 2019 Tier-II (18-11-2020)
(a) ₹1,270
(b) ₹1,372
(c) ₹ 1,722
(d) ₹1,272

SSC CPO 2019
Q18. A Sum amounts to Rs.7,562 in 4 years and to Rs.8,469.44 in 5 years at a certain rate percent per annum. When the interest is compounded annually, The rate of interest is:
एक राशि प्रति वर्ष एक निश्चित दर प्रतिशत से 4 वर्षों में 7,562 रुपये तथा 5 वर्षों में 8,469 रुपये हो जाती है। ब्याज का संयोजन वार्षिक है। ब्याज की दर कितनी है?
CPO 2019 23-11-2020 (Morning shift)
(a) 8%
(b) 12%
(c) 20%
(d) 15%

Q19. If the difference between the compound interest and simple interest at 17% on a sum of money for 2 years (compounded annually) is Rs. 433.50 then the sum (in Rs.) is:
यदि एक धनराशि पर 17% की दर से 2 वर्ष में प्राप्त चक्रवृद्धि ब्याज और साधारण ब्याज का अंतर (वार्षिक संयोजन) 433.50 रुपये है, तो यह राशि (रुपये में) कितनी है?
CPO 2019 23-11-2020 (Evening shift)
(a) 15,000
(b) 12,000
(c) 20,000
(d) 25,000

Q20. If the difference between the compound interest and simple interest at 17% on a sum for 2 years (compounded annually) is Rs.433.50. Then the compound interest (in Rs.) is:
यदि एक धनराशि पर 17% की दर से 2 वर्ष में प्राप्त चक्रवृद्धि ब्याज और साधारण ब्याज का अंतर (वार्षिक संयोजन) 433.50 रुपये है तो चक्रवृद्धि ब्याज ज्ञात करे।
CPO 2019 24-11-2020 (Morning shift)
(a) 5,533.50
(b) 2,735.50
(c) 5,100

(d) 2,500

Q21. The simple interest on a sum of money at 10% per annum for 2 years is Rs. 8,100, Compounded annually. What would be the compound interest (in Rs.) on the same sum for the given period at the rate of interest ?
एक धनराशि पर 10% प्रति वर्ष की दर से 2 वर्षों का साधारण ब्याज 8100 रुपये है। दी गयी अवधि के लिए ब्याज दर पर इसी राशि का चक्रवृद्धि ब्याज (रुपये में) कितना होगा?
CPO 2019 24-11-2020 (Evening shift)
(a) 9,000
(b) 8,715
(c) 8,505
(d) 8,100

Q22. A sum amounts to ₹7,562 in 4 years and to ₹8,469.44 in 5 years, at a certain rate percent per annum when the interest is compounded yearly. If ₹10,000 at the same rate of interest is borrowed for two years , then what will be the compound interest (in ₹)?
जब ब्याज का संयोजन वार्षिक है, तब एक राशि प्रति वर्ष एक निश्चित दर प्रतिशत से 4 वर्षों में 7,562 रुपये तथा 5 वर्षों में 8,469 रुपये हो जाती है। यदि इसी दर से 10000 रुपये दो वर्षों के लिए उधार लिए जाते हैं, तो चक्रवृद्धि ब्याज कितना होगा?
CPO 2019 25-11-2020 (Morning shift)
(a) 1,736
(b) 1,965
(c) 2,544
(d) 2,764

Q23. The simple interest on a sum of money at 10% per annum for 2 years is Rs. 8,100. What would be the compound interest (in Rs.) on the same sum for the period at 15% p.a. When the interest is compounded yearly?
2 साल के लिए प्रति वर्ष 10% की दर से एक धन पर साधारण ब्याज 8,100 रुपये है। 15% प्रति वर्ष की दर से इसी अवधि के लिए इसी राशि पर चक्रवृद्धि ब्याज (रुपये में) कितना होगा, यदि ब्याज वार्षिक रूप से संयोजित होता है?
CPO 2019 25-11-2020 (Evening shift)
(a) 13,061
(b) 8,100
(c) 14,671
(d) 12,751

Pinnacle

Sol 1. (a)

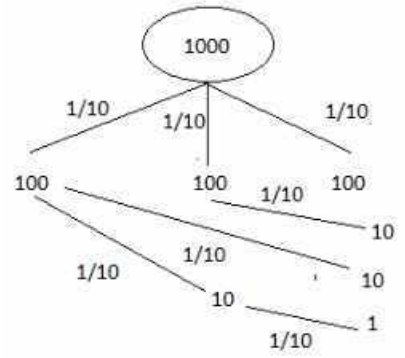
Principle = $\frac{A_1 \times A_1}{A_2}$

Here, A_1 = first amount and A_2 = Second amount

⇒ Desired sum = $\frac{8028 \times 8028}{12042}$ = 5352

Sol 2. (b) 10% = $\frac{1}{10}$

Let the principle = 10^3 = 1000 *unit*



Interest earned in 2 $\frac{1}{2}$ years = 100 +(100+10)+ $\frac{1}{2}$ (100+10+10+1) = 270.50

270.5 unit = 1623

1 unit = 6

1000 unit = 6000

Sol 3. (c)

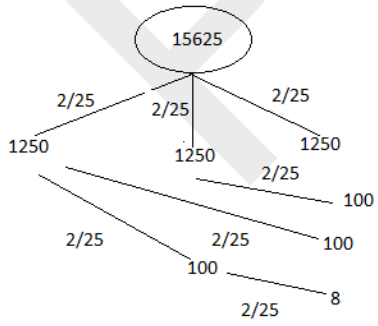
Interest is compounded 8 monthly

So, effective rate of interest = 12 × $\frac{8}{12}$ = 8%

Effective period of time = 2 × $\frac{12}{8}$ = 3

8% = $\frac{2}{25}$

Let the principle = 25^3 = 15625 *unit*



Interest earned = 1250+1250+1250+100+100+100+8

= 4058 unit

15625 unit = 25000

1 unit = 1.6

4058 unit = 4058 x 1.6 ≈6493

Alternate :

8% = $\frac{2}{25}$

Principal Amount

25 ------- 27

25 ------- 27

25 ------- 27

15625 19683

15625 unit = 25000

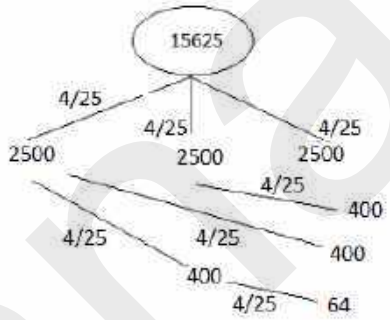
1 unit = 1.6

(19683-15625) 4058 unit = 4058 x 1.6 ≈6493

Sol 4. (b)

16% = $\frac{4}{25}$

Let the principle = 25^3 = 15625 *unit*



Desired difference = (2500+400+400+64) - (2500+400) = 464

15625 unit = 15000

1 unit = 0.96

464 unit = 464 × 0.96 = 445.44

Sol 5. (b)

10% = $\frac{1}{10}$

10 ---------- 11

10 ---------- 11

100 121

Let the principal = 100 unit

⇒ amount after 2 years = 121 unit

According to the question

(121 unit - 6634) × $\frac{11}{10}$ = 13200

121 unit = 12000+6634

1 unit = 154

100 unit = 15400

Sol 6. (b)

5% = $\frac{1}{20}$

20 ---------- 21

20^2 ---------- 21^2

Installment for 2 years must be same so balancing the ratio for installment

420 ------- 441

400 ------- 441

820 882

According to the question

441 unit = 35280

1 unit = 80

820 unit = 65600

Sol 7. (c)

Rate of interest = [$(\frac{Amount}{Principle})^{\frac{1}{t}}$ − 1] x 100

Where t = time interval

= $(\frac{20736}{12000})^{\frac{1}{3}}$ − 1] x 100= 20%

Now,

20% = $\frac{1}{5}$

5 ---------- 6

5 ---------- 6

25 36

25 unit = 12000

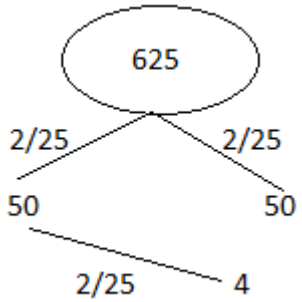
1 unit = 480

36 unit = 17280

Sol 8. (d)

8% = $\frac{2}{25}$

Let X = 25^2 = 625 *unit*



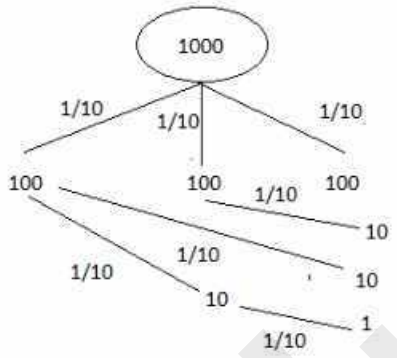
According to the question

4 unit = 19.20

Pinnacle

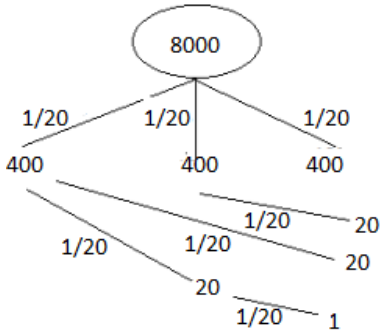
1 unit = 4.8
625 unit = 3000
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 19.20 = \frac{8^2}{100}$ % of X
$\Rightarrow$ X = 3000

Sol 9. (a)
10% = $\frac{1}{10}$
Let the Principle = 10 unit so, interest earned in one year = 1 unit
$\Rightarrow$ Interest earned in $\frac{7}{2}$ years = 1 $\times \frac{7}{2}$ = 3.5 unit
3.5 unit = 2940
1 unit = 840
10 unit = 840 x 10 = 8400
Now,
Let the principle = 10^3 = 1000 unit



Interest earned in 2 $\frac{1}{2}$ years = 100 +(100+10)+ $\frac{1}{2}$ (100+10+10+1) = 270.50
1000 unit = 8400
1 unit = 8.4
270.5 unit $\approx$ 2272

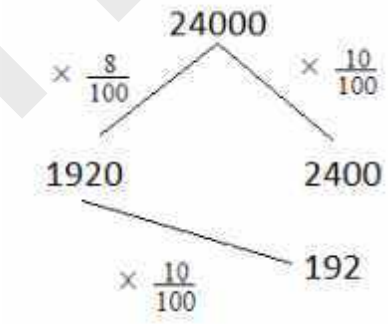
Sol 10. (b)
Since interest is compounded 5 monthly, effective rate of interest = $12 \times \frac{5}{12}$ = 5 % and effective time period = $\frac{5}{4} \times \frac{12}{5}$ = 3 years
Now, 5% = $\frac{1}{20}$
Let the principal = 20^3 = 8000



CI-SI = 20+20+20+1 = 61 unit
According to the question
8000 unit = 12000
1 unit = $\frac{3}{2}$
61 unit = 91.50

Sol 11. (a) Let the rate of interest = r and time period = 2t
According to the question
$63654 = 60000\left(1 + \frac{r}{100}\right)^{2t}$
$\Rightarrow \left(1 + \frac{r}{100}\right)^{t} = \sqrt{\frac{63654}{60000}}$
……..(1)
Amount earned in t years = $60000\left(1 + \frac{r}{100}\right)^{t}$
Put the value from equation (1)
$60000\left(1 + \frac{r}{100}\right)^{t} \Rightarrow 60000 \times \sqrt{\frac{63654}{60000}}$
= 61800

Sol 12. (b)



Compound Interest = 1920+2400+192 = 4512
Alternate :
8% = $\frac{2}{25}$ and 10% = $\frac{1}{10}$

Principal	Amount
25	27
10	11
250	297

250 unit = 24000
1 unit = 96
(297-250) unit = 47 x 96 = 4512

Sol 13. (a)
The amount becomes 3 times in 10 years.
Time take for the amount to become (3^4 times = 81 times) = 10 x 4 = 40 years

Sol 14. (a)
Simple interest earned in 2 years = 250
$\Rightarrow$ simple interest earned in one year = $\frac{250}{2}$ = 125
We know that
Compound interest earned in two years = simple interest of two years + interest earned on the simple interest of first year
Desired Compound interest = 250 + $\frac{125 \times 20}{100}$ = 275

Sol 15. (b)
Since interest is compounded half yearly, effective rate of interest = $8 \times \frac{1}{2}$ = 4 % and effective time period = 1x2= 2 years
Now, 4% = $\frac{1}{25}$
Let the principal = 25^2 = 625



According to the question
(625+51) unit = 20280
1 unit = 30
625 unit = 625 x 30 = 18750
New rate of interest = 2 x 8 = 16%
Desired SI = $\frac{18750 \times 16 \times 23}{5 \times 100}$ = 13800
Alternate :
4% = $\frac{1}{25}$

Principal	Amount
25	------- 26

25 ------- 26

625 676

676 unit = 20280

1 unit = 30

625 unit = 625 x 30 = 18750

New rate of interest = 2 x 8 = 16%

16% = $\frac{4}{25}$

Let CP = 25 unit and interest earned in one year = 4 unit

⇒ Interest earned in $\frac{23}{5}$ years = 18.4 unit

According to the question

25 unit = 18750

1 unit = 750

18.4 unit = 750 x 18.4 = 13800

Sol 16. (d)

Difference between 3rd year CI and SI = P $(\frac{R}{100})^2(\frac{R}{100}+3)$

Here P = principal and R is the rate of interest

⇒ 155 = P $(\frac{10}{100})^2[\frac{10}{100}+3]$

⇒ P = 5000

Sol 17. (c)

Difference between 2 year's CI and SI = P $(\frac{R}{100})^2$

Here P = principal and R is the rate of interest

⇒ 33.80 = P $(\frac{6.5}{100})^2$

⇒ P = 8000

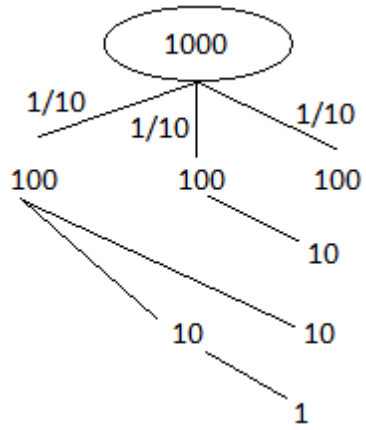
Sol 18. (d) Difference of SI = 1452 - 1320 = 132

So, 1320 × $\frac{r}{100}$ = 132

⇒ r = 10%

10% = $\frac{1}{10}$

Let the principal = 10^3 = 1000



110 unit = 1320 or 121 unit = 1452

1 unit = 12

1000 unit = 12000

Sol 19. (d)

20% = $\frac{1}{5}$

CI after 5th year = 250 × $\frac{6}{5}$ x $\frac{6}{5}$ x $\frac{6}{5}$ = 432

Sol 20. (d)

8% = $\frac{2}{25}$

4th year's CI = 3600 x $\frac{27}{25}$ = 3888

5th years's CI = 3888 x $\frac{27}{25}$ = 4199.04

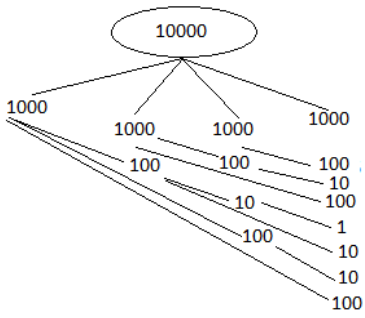
Desired difference = 4199.04-3888 ≈ 311

SSC CGL TIER II

Sol 1. (b)

10% = $\frac{1}{10}$

Let the principal = 10^4 = 10000



Difference between 4th year and 3rd year CI = 100+10+10+1 = 121 unit

According to the question

10000 = 18000

1 unit = 1.8

121 unit = 217.8

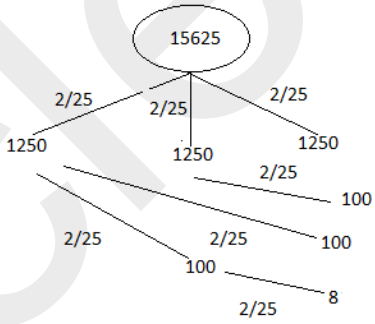
Note : Whenever rate % = 10 and time period = 4 years. CI = 46.41% of Principle. To save your precious time just crame it.

Sol 2. (b)

Since interest is compounded 8 monthly, effective rate of interest = 12 × $\frac{8}{12}$ = 8 % and effective time period =2 × $\frac{12}{8}$ = 3 years

Now, 8% = $\frac{2}{25}$

Let the principal = 25^3 = 15625



Interest earned = 1250+1250+1250+100+100+100+8

= 4058 unit

15625 unit = 31250

1 unit = 2

4058 unit = 4058 x 2 =8116

Alternate :

8% = $\frac{2}{25}$

Principal Amount

25 ------- 27

25 ------- 27

25 ------- 27

15625 19683

15625 unit = 31250

1 unit = 2

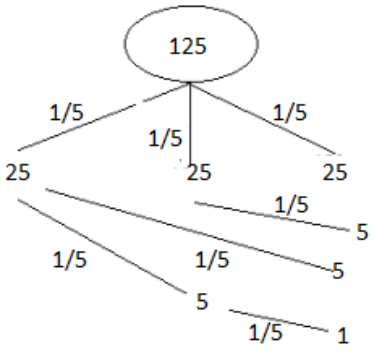
(19683-15625) 4058 unit = 4058 x 2 = 8116

Sol 3. (d)

20% = $\frac{1}{5}$

Let the principle = 5^3 = 125 *unit*

Pinnacle



Total interest earned = 25+25+5+ $\frac{2}{5}$ x (25+5+5+1) = 69.4
125 unit = 7200
1 unit = 57.6
69.4 unit = 69.4 x 57.6 = 3997

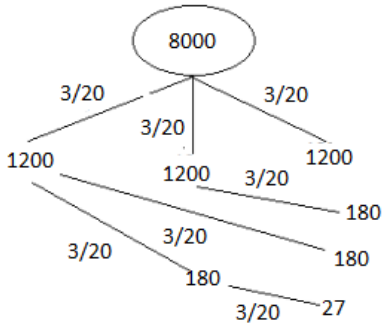
Sol 4. (c)
5% = $\frac{1}{20}$
20 -------- 21
20^2 ------- 21^2
Installment must be same so balancing the equation for Installment
420 -------- 441
400 -------- 441

820 882
According to the question
441 unit = 44100
1 unit = 100
(882-820) unit = 62 x 100 = 6200

Sol 5. (d)
Effective rate of interest = $\frac{8}{2}$ = 4%
4% = $\frac{1}{25}$
25 --------- 26
25^2 ------- 26^2
Installment must be same so balancing the equation for Installment
650 -------- 676
625 -------- 676

1275 1352
According to the question
676 unit = 6760
1 unit = 10
(1352-1275) unit = 77 x 10 = 770

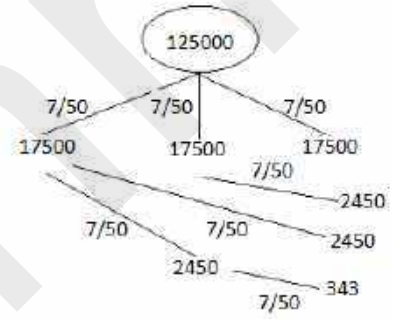
Sol 6. (d)
15% = $\frac{3}{20}$
Let the principal = 20^3 = 8000 unit



Total interest earned = 1200+1200+180+ $\frac{2}{5}$ (1200+180+180+27) = 3214.8 unit
According to the question
(8000+3214.8) unit = 4205.55
1 unit = 0.375
8000 unit = 8000 x 0.375 = 3000

Practice Questions

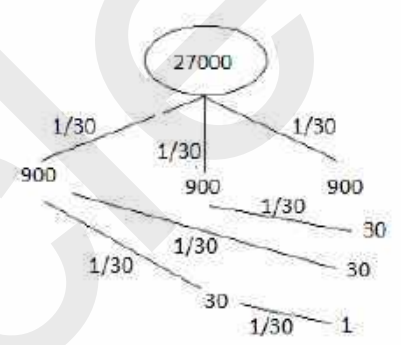
Sol 1. (b)
14% = $\frac{7}{50}$
Let the principle = 50^3 = 125000 *unit*



Desired difference = (17500+17500+2450)+ $\frac{5}{7}$ (17500+2450+2450+343) = 53695
125000 unit = 10000
1 unit = $\frac{2}{25}$
53695 unit = 53695 × $\frac{2}{25}$ ≈4296

Sol 2. (b)
Principle = $\frac{A_1 \times A_1}{A_2}$
Here, A_1 = first amount and A_2 = Second amount
⇒ Desired sum = $\frac{18600 \times 18600}{27900}$ = 12400

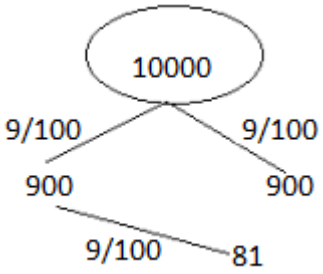
Sol 3. (a)
Since interest is compounded 5 monthly, effective rate of interest = 8 × $\frac{5}{12}$ = $\frac{10}{3}$ % and effective time period = $\frac{5}{4}$ × $\frac{12}{5}$ = 3 years
Now, $\frac{10}{3}$ % = $\frac{1}{30}$
Let the principal = 30^3 = 27000



Total interest earned = 900+900+30+900+30+30+1 = 2791 unit
According to the question
27000 unit = 8100
1 unit = 0.3
2791 unit = 2791 x 0.3 ≈837
Alternate :
$\frac{10}{3}$ % = $\frac{1}{30}$
Principal Amount
30 ------- 31
30 ------- 31
30 ------- 31

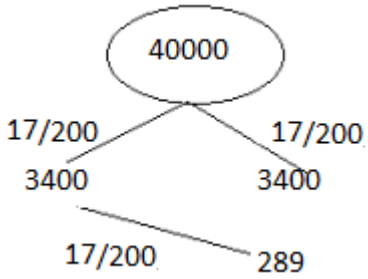
27000 29791
According to the question
27000 unit = 8100
1 unit = 0.3
(29791-27000) unit = 2791 x 0.3 ≈837

Sol 4. (d)
9% = $\frac{9}{100}$
Let X = 100^2 = 10000 *unit*



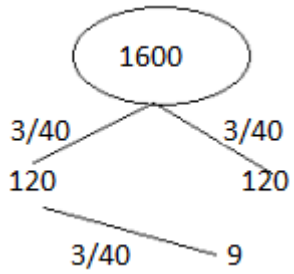
According to the question
81 unit = 20.25
1 unit = 0.25
10000 unit = 10000 x 0.25 = 2500
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 20.25 = \frac{9^2}{100}$ % of X
$\Rightarrow X = 2500$

Sol 5. (c)
$8.5\% = \frac{17}{200}$
Let X = $200^2 = 40000$ *unit*



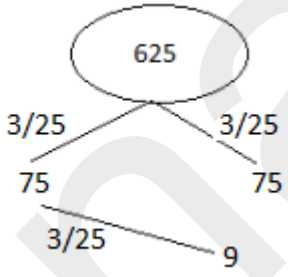
According to the question
289 unit = 28.90
1 unit = 0.1
40000 unit = 40000 x 0.1 = 4000
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 28.90 = \frac{8.5^2}{100}$ % of X
$\Rightarrow X = 4000$

Sol 6. (b)
$7.5\% = \frac{3}{40}$
Let X = $40^2 = 1600$ *unit*



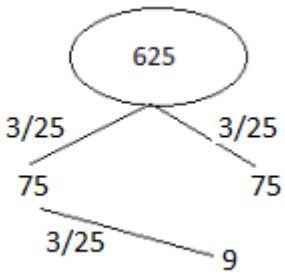
According to the question
9 unit = 45
1 unit = 5
1600 unit = 1600 x 5 = 8000
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 45 = \frac{7.5^2}{100}$ % of X
$\Rightarrow X = 8000$

Sol 7. (a)
$12\% = \frac{3}{25}$
Let X = $25^2 = 625$ *unit*



According to the question
9 unit = 18
1 unit = 2
625 unit = 625 x 2 = 1250
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 18 = \frac{12^2}{100}$ % of X
$\Rightarrow X = 1250$

Sol 8. (c)
$12\% = \frac{3}{25}$
Let X = $25^2 = 625$ *unit*



According to the question
9 unit = 43.20
1 unit = 4.8
625 unit = 625 x 4.8 = 3000
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 43.20 = \frac{12^2}{100}$ % of X
$\Rightarrow X = 3000$

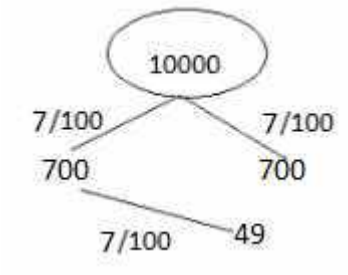
Sol 9. (b)
$8\% = \frac{2}{25}$
Let X = $25^2 = 625$ *unit*



According to the question
4 unit = 48
1 unit = 12
625 unit = 7500
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 48 = \frac{8^2}{100}$ % of X
$\Rightarrow X = 7500$

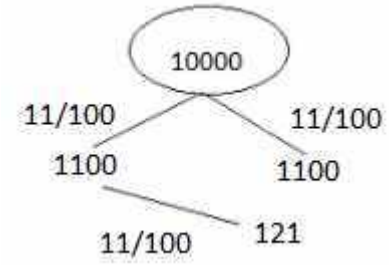
Sol 10. (c)
$7\% = \frac{7}{100}$
Let X = $100^2 = 10000$ *unit*

Pinnacle



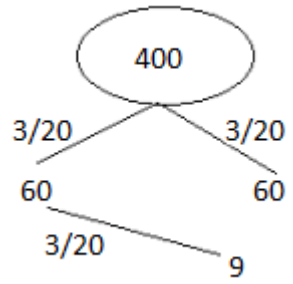
According to the question
49 unit = 24.50
1 unit = 0.5
10000 unit = 10000 x 0.5 = 5000
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 24.5 = \frac{7^2}{100}$ % of X
$\Rightarrow$ X = 5000

Sol 11. (c)
11% = $\frac{11}{100}$
Let X = $100^2 = 10000$ *unit*



According to the question
121 unit = 60.50
1 unit = 0.5
10000 unit = 10000 x 0.5 = 5000
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 60.5 = \frac{11^2}{100}$ % of X
$\Rightarrow$ X = 5000

Sol 12. (b)
15% = $\frac{3}{20}$
Let X = $20^2 = 400$ *unit*

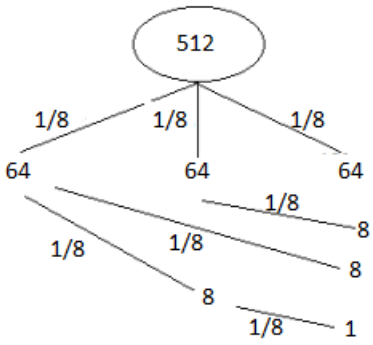


According to the question
9 unit = 9
1 unit = 1
400 unit = 400 x 1 = 400
Alternate :
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal
$\Rightarrow 9 = \frac{15^2}{100}$ % of X
$\Rightarrow$ X = 400

Sol 13. (b)
Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1]$ x 100
Where t = time interval
$= (\frac{2409}{2190})^{\frac{1}{3}} - 1]$ x 100= 10%

Sol 14. (b)
Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1]$ x 100
Where t = time interval
$= (\frac{8748}{7500})^{\frac{1}{2}} - 1]$ x 100= 8%
New rate of interest = 8 x 2 = 16%
Desired Simple Interest = $\frac{7500\times16\times23}{5\times100}$ = 5520

Sol 15.(b)
Since interest is compounded 10 monthly, effective rate of interest = $15 \times \frac{10}{12} = \frac{50}{4}$ % and effective time period = $\frac{5}{2} \times \frac{12}{10}$ = 3 years
Now, $\frac{50}{4}$ % = $\frac{1}{8}$
Let the principal = $8^3 = 512$



Interest earned =
64+64+64+8+8+8+1 = 217
Now,
512 unit = 4096
1 unit = 8
217 unit = 1736

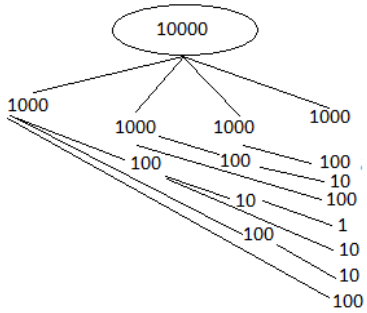
Alternate :
$\frac{50}{4}$ % = $\frac{1}{8}$

Principal	Amount
8	9
8	9
8	9
512	729

According to the question
512 unit = 4096
1 unit = 8
(729-512) unit = 217 x 8 = 1736

Sol 16. (a)
Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1]$ x 100
Where t = time interval
$= [(\frac{11664}{10000})^{\frac{1}{2}} - 1]$ x 100= 8%
Desired Simple Interest = $\frac{10000\times8\times27}{5\times100}$ = 4320

Sol 17. (b)
10% = $\frac{1}{10}$
Let the principal = $10^4 = 10000$



Total interest earned
=1000+1000+100+1000+100+100+10+1000+100+10+100+1+10+10+100 = 4641 unit
According to the question
(10000+4641) unit = 29282
1 unit = 2
10000 unit = 20000
Desired Simple Interest = $\frac{20000\times10\times4}{100}$ = 8000

Alternate :

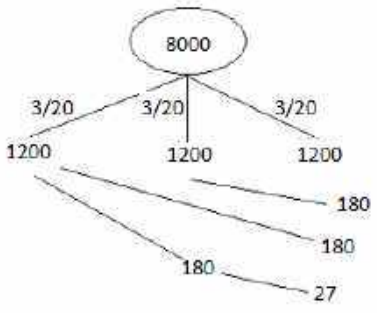
10% = $\frac{1}{10}$

10 -------- 11
10 -------- 11
10 -------- 11
10 -------- 11

10000 --- 14641

According to the question
14641 = 29282
1 unit = 2
10000 unit = 20000
Let the principal = 10 unit and interest earned in one year = 1 unit
⇒ Interest earned in 4 years = 4 unit
Now,
10 unit = 20000
1 unit = 2000
4 unit = 8000

Sol 18. (d)
15% = $\frac{3}{20}$
Let the principal = 20^3 = 8000



Interest earned = 1200+1200+180+1200+180+180+27 = 4167 unit
According to the question
4167 unit = 4167
1 unit = 1
8000 unit = 8000
Desired Simple Interest = $\frac{8000\times15\times24}{5\times100}$ = 5760

Alternate :

15% = $\frac{3}{20}$

20 -------- 23
20 -------- 23
20 -------- 23

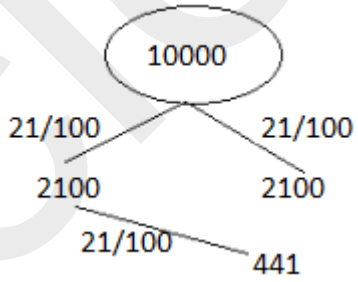
8000 ----- 12167

According to the question
(12167-8000) unit = 4167
1 unit = 1
8000 unit = 8000
Let the principal = 20 unit and interest earned in one year = 3 unit
⇒ Interest earned in $\frac{24}{5}$ years = 14.4 unit
Now,
20 unit = 8000
1 unit = 400
14.4 unit = 5760

Sol 19. (a)
Let the amount after 3 years = 10000
⇒ the amount after 5 years = 11881
Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1] \times 100$
Where t = time interval
$= (\frac{11881}{10000})^{\frac{1}{2}} - 1] \times 100 =$ 9%

Sol 20. (c)
Let the amount after 2 years = 1000000
⇒ the amount after 5 years = 1191016
Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1] \times 100$
Where t = time interval
$= (\frac{1191016}{1000000})^{\frac{1}{3}} - 1] \times 100 =$ 6%

Sol 21. (d)
21% = $\frac{21}{100}$
Let the CP = 100^2 = 10000 unit



Compound Interest earned = 2100+2100+441= 4641
Simple interest earned = 2100+2100 = 4200
According to the question
4641 unit = 11602.5
1 unit = 2.5
4200 unit = 4200 x 2.5 = 10500

Alternate :

21% = $\frac{21}{100}$

100 -------- 121
100 -------- 121

10000 ----- 14641

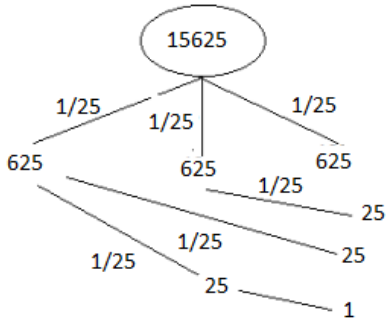
According to the question
(14641-10000) unit = 11602.5
1 unit = 2.5
10000 unit = 25000
Let the principal = 100 unit and interest earned in one year = 21 unit
⇒ Interest earned in 2 years = 42 unit
Now,
100 unit = 25000

Pinnacle

1 unit = 250
42 unit = 10500

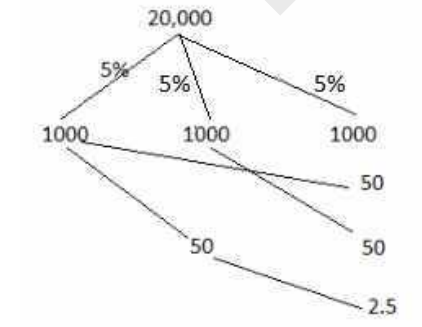
Sol 22. (c)
the amount after 3 years = 8000
the amount after 6 years = 27000
Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1]$ x 100
Where t = time interval
$= (\frac{27000}{8000})^{\frac{1}{3}} - 1]$ x 100= 50%

Sol 23. (b)
Since interest is compounded half yearly, effective rate of interest = $\frac{8}{2}$ = 4% and effective time period = $\frac{16}{12}$ x 2= 2 $\frac{2}{3}$ years
Now, 4% = $\frac{1}{25}$
Let the principal = 25^3 = 15625



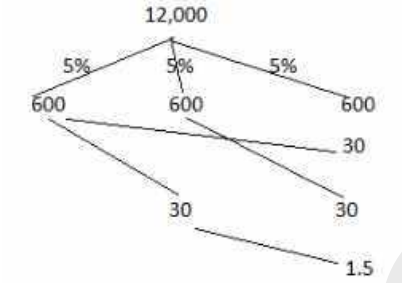
Interest earned = 625+625+25+ $\frac{2}{3}$ (625+25+25+1) = 1725.67 unit
Desired %age = $\frac{1725.67}{15625}$ x 100 = 11.04 % ≈ 11%

Sol 24. (c)
Since interest is compounded half yearly, effective rate of interest = $\frac{10}{2}$ = 5% and effective time period = $\frac{15}{12}$ x 2= 2 $\frac{1}{2}$ years



Total interest gained = 1000+1000+50+ $\frac{1}{2}$ (1000+50+50+2.5)= 2601.25
Gain % = $\frac{2601.25}{20000}$ × 100 = 13.00

Sol 25. (a)
Since interest is compounded half yearly, effective rate of interest = $\frac{10}{2}$ = 5% and effective time period = $\frac{15}{12}$ x 2= 2 $\frac{1}{2}$ years

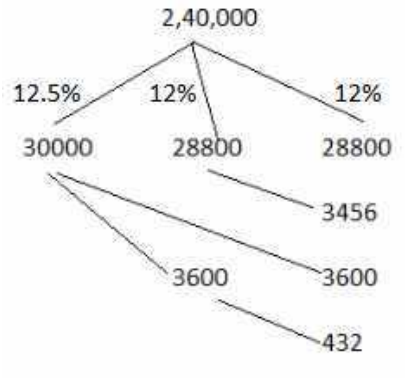


Total interest gained = 600+600+30+ $\frac{1}{2}$ (600+30+30+1.5)= 1560.75
Therefore, % Gain = $\frac{1560.75}{12000}$ × 100 = 13.0%

Sol 26. (a) Amount to be paid after 1st year = 28500 × $\frac{27}{25}$ = 30780
Amount remaining after payment of Rs. 5780 = 25000
Amount to be paid at the end of 2nd year = 25000 × $\frac{27}{25}$ = Rs. 27000

Sol 27. (a)
Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1]$ x 100
Where t = time interval
$= (\frac{1606}{1460})^{\frac{1}{1}} - 1]$ x 100= 10%

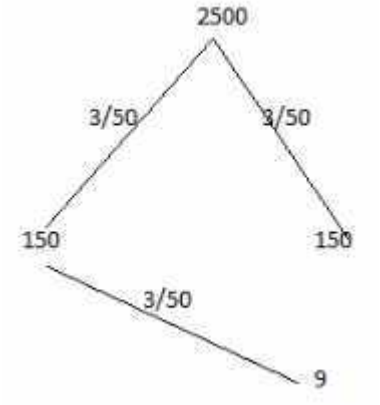
Sol 28. (c)



Interest earned = 30000+28800+28800+3456+3600+3600+432 = 98688
Amount earned = 2,40,000+98688 = 3,38,688

Alternate :
12.5% = $\frac{1}{8}$ and 12% = $\frac{3}{25}$
8 -------- 9
25 -------28
25 ------ 28
5000 ----- 7056
According to the question
5000 unit = 240000
1 unit = 48
7056 unit = 338688

Sol 29. (a)
Since interest is compounded half yearly, effective rate of interest = $\frac{12}{2}$ = 6% and effective time period =1x 2= 2 years
6%= $\frac{3}{50}$
Let the principal = 50^2 = 2500 unit



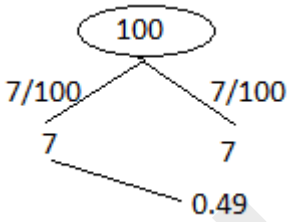
Total interest earned = 150+150+9 = 309 unit
According to the question

309 unit = 1545
1 unit = 5
2500 unit = 2500 x 5 = 12500

Alternate :
6% = $\frac{3}{50}$
50 -------- 53
50 -------- 53

2500 ----- 2809
According to the question
(2809-2500) unit = 1545
1 unit = 5
(2500) unit = 2500 x 5= 12500

Sol 30. (b)
7% = $\frac{7}{100}$
Let the CP = 100 unit and the interest earned in one year = 7 unit
⇒ the interest earned in three years = 3x7 = 21 unit
According to the question
21 unit = 9450
1 unit = 450
100 unit = 45000

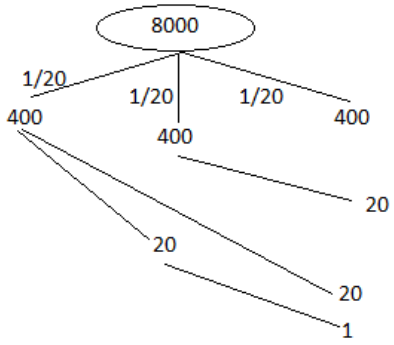


Now,
100 unit = 45000
1 unit = 450
14.49 unit = 6520.50

Alternate :
7% = $\frac{7}{100}$
100 -------- 107
100 -------- 107

10000 ----- 11449
According to the question
10000 unit = 45000
1 unit = 4.5
(11449-10000) unit = 1449 x 4.5= 6520.50

Sol 31. (d)
Since interest is compounded half yearly, effective rate of interest = $\frac{10}{2}$ = 5% and effective time period =1 $\frac{1}{2}$ x 2= 3 years
5%= $\frac{1}{20}$
Let the principal = 20^3 = 8000 unit

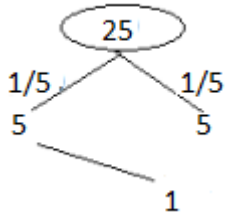


Total interest earned = 400+400+400+20+20+20+1 = 1261 unit
According to the question
1261 unit = 2522
1 unit = 2
8000 unit = 16000

Alternate :
5% = $\frac{1}{20}$
20 -------- 21
20 -------- 21
20 -------- 21

8000 ----- 9261
According to the question
(9261-8000) unit = 2522
1 unit = 2
8000 unit = 16000

Sol 32. (d)
20%= $\frac{1}{5}$
Let the principal = 5^2 = 25 unit



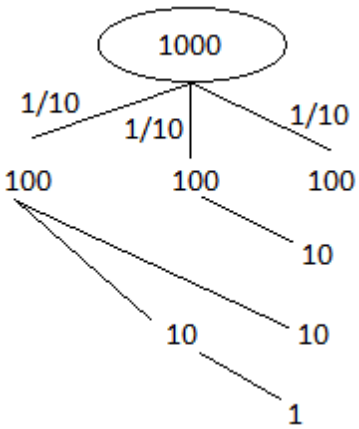
Total interest earned = 5+5+1 = 11 unit
According to the question
25 unit = 1200
1 unit = 48
11 unit = 11 x 48 = 528

Alternate :
6% = $\frac{3}{50}$
50 -------- 53
50 -------- 53

2500 ----- 2809
According to the question
(2809-2500) unit = 1545
1 unit = 5
(2500) unit = 2500 x 5= 12500

Sol 33. (b)
Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1]$ x 100
Where t = time interval
= $(\frac{900}{750})^{\frac{1}{1}} - 1]$ x 100= 20%
Now,
20% = $\frac{1}{5}$
Let the CP = 5 unit and interest earned = 1 unit
⇒ Amount after one year = 5+1 = 6 unit
According to the question
6 unit = 750
1 unit = 125
5 unit = 625

Sol 34. (c)
10% = $\frac{1}{10}$
Let the CP = 10^3 = 1000 unit



Total interest earned = $100+100+10+\frac{1}{2}(100+10+10+1) = 270.5$ unit

Amount after $\frac{5}{2}$ years = $1000+270.5 = 1270.5$ unit

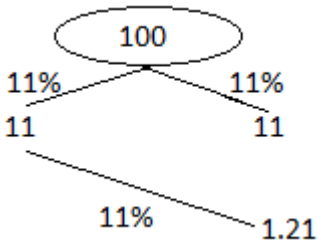
According to the question

1000 unit = 2000

$\Rightarrow$ 1270.5 unit = 2541

Sol 35. (b)

Let the Principal = 100 unit



Compound Interest earned = 11+11+1.21 = 23.21 unit

Simple interest earned = 11+11 = 22 unit

According to the question

23.21 unit = 6963

1 unit = 300

22 unit = 6600

Alternate :

11% = $\frac{11}{100}$

100 -------- 111

100 -------- 111

10000 ----- 12321

According to the question

(12321-10000) unit = 6963

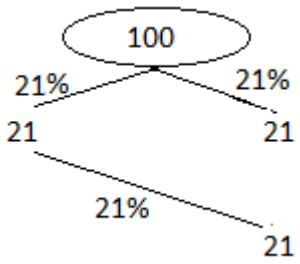
1 unit = 3

(10000) unit = 10000 x 3= 30000

Desired SI = $\frac{30000\times11\times2}{100}$ = 6600

Sol 36.(b)

Let the Principal = 100 unit



Compound Interest earned = 21+21+4.41 = 46.41 unit

Simple interest earned = 21+21 = 42 unit

According to the question

46.41 unit = 9282

1 unit = 200

42 unit = 8400

Alternate :

21% = $\frac{21}{100}$

100 -------- 121

100 -------- 121

10000 ----- 14641

According to the question

(14641-10000) unit = 9282

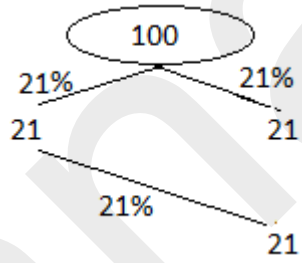
1 unit = 2

(10000) unit = 10000 x 2= 20000

Desired SI = $\frac{20000\times21\times2}{100}$ = 8400

Sol 37. (a)

Let the Principal = 100 unit



Compound Interest earned = 21+21+4.41 = 46.41 unit

Simple interest earned = 21+21 = 42 unit

According to the question

46.41 unit = 6961.5

1 unit = 150

42 unit = 6300

Alternate :

21% = $\frac{21}{100}$

100 -------- 121

100 -------- 121

10000 ----- 14641

According to the question

(14641-10000) unit = 6961.5

1 unit = 1.5

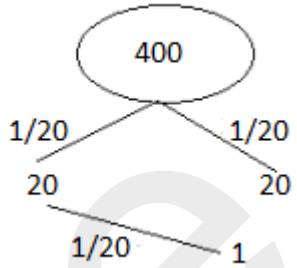
(10000) unit = 10000 x 1.5= 15000

Desired SI = $\frac{15000\times21\times2}{100}$ = 6300

Sol 38. (a)

5% = $\frac{1}{20}$

Let X = 20^2 = 400 *unit*



According to the question

1 unit = 25

400 unit = 10000

Alternate :

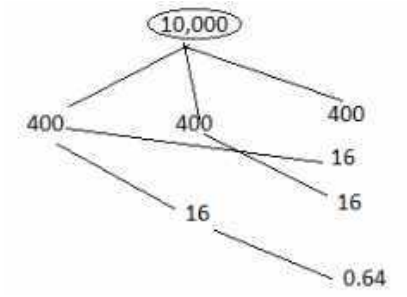
Difference between CI and SI = $\frac{R^2}{100}$ % of Principal

$\Rightarrow$ 25 = $\frac{5^2}{100}$ % of Principal

$\Rightarrow$ Principal = 10000

Sol 39. (d)

Since interest is compounded half yearly, effective rate of interest = $\frac{8}{2}$ = 4% and effective time period = $\frac{17}{12}$ x 2= 2 $\frac{5}{6}$ years



Total interest earned = $400+400+16+\frac{5}{6}$ (400+16+16+0.64) = 1176.54

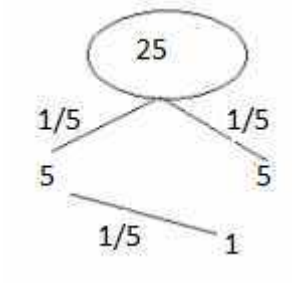
Therefore, Gain % = $\frac{1176.54}{10000}\times100$ = 11.76

Sol 40. (c)

20% = $\frac{1}{5}$

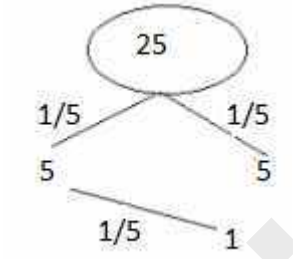
Let the principal = 5^2 = 25 *unit*

Pinnacle



According to the question
25 unit = 3000
1 unit = 120
11 unit = 1320
Alternate :
20% = $\frac{1}{5}$
5 -------- 6
5 -------- 6
_____
25 ----- 36
According to the question
25 unit = 3000
1 unit = 120
(36-25) unit = 120 x 11= 1320

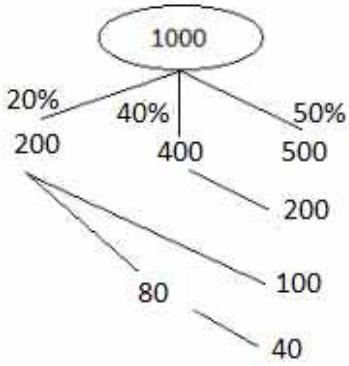
Sol 41. (a)
20% = $\frac{1}{5}$
Let the principal = 5^2 = 25 *unit*



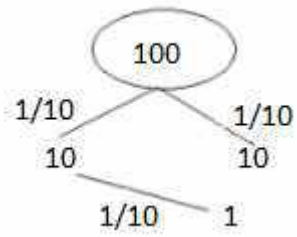
According to the question
25 unit = 12000
1 unit = 480
11 unit = 5280
Alternate :
20% = $\frac{1}{5}$
5 -------- 6
5 -------- 6
_____
25 ----- 36
According to the question
25 unit = 12000
1 unit = 480
(36-25) unit = 480 x 11= 5280

Sol 42. (c)
The amount becomes $\frac{3600}{2400}$ = 1.5 times in 6 years.
⇒ In 12 years or (6 x 2) years the amount will become $(1.5)^2$ of the initial amount.
⇒ Desired amount = 2400 x 2.25 = 5400

Sol 43. (d)
Let the principal = 1000 unit



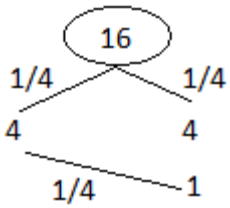
Total interest earned = 200+400+80+500+200+100+40 = 1520
Amount earned in 3 years = 1000+1520 = 2520
According to the question
2520 unit = 5040
1 unit = 2
1000 unit = 2000
Alternate :
20% = $\frac{1}{5}$, 40% = $\frac{2}{5}$ and 50% = $\frac{1}{2}$
5 -------- 6
5 -------- 7
2 -------- 3
_____
50 ----- 126
According to the question
126 unit = 5040
1 unit = 40
50 unit = 50 x 40= 2000
Sol 44. (b)
10% = $\frac{1}{10}$
Let the CP = 10^2 = 100 unit



Total interest earned = 10+10+1 = 21 unit
Amount after 2 years = 100+21 = 121 unit
According to the question
100 unit = 900
1 unit = 9
121 unit = 1089

Alternate :
10% = $\frac{1}{10}$,
10 -------- 11
10 -------- 11
_____
100 ----- 121
According to the question
100 unit = 900
1 unit = 9
121 unit = 121 x 9= 1089

Sol 45. (a)
25% = $\frac{1}{4}$
Let the CP = 4^2 = 16 unit



Total interest earned = 4+4+1 = 9 unit
Amount after 2 years = 16+9 = 25 unit
According to the question
9 unit = 10125
1 unit = 1125
25 unit = 28125

Alternate :
25% = $\frac{1}{4}$,
4 -------- 5
4 -------- 5

Pinnacle

16 ----- 25

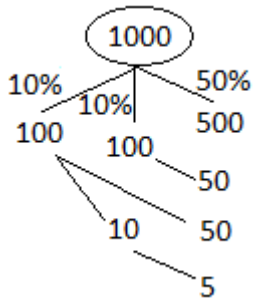
According to the question

(25-16) unit = 10125

1 unit = 1125

25 unit = 25 x 1125 = 28125

Sol 46. (c)



Total interest earned = 100+100+10+500+50+50+5 = 815 unit

Alternate :

10% = $\frac{1}{10}$ and 50% = $\frac{1}{2}$

10 -------- 11

10 -------- 11

2 --------- 3

200 ----- 363

According to the question

200 unit = 1000

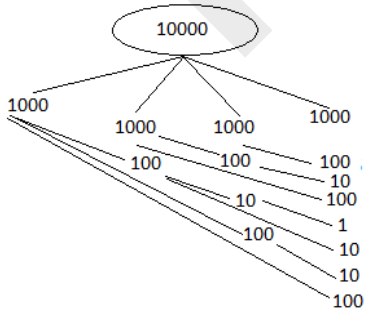
1 unit = 5

(363-200) unit = 163 x 5= 815

Sol 47.(c)

Since interest is compounded half yearly, effective rate of interest = $\frac{20}{2}$ = 10% and effective time period =2 x 2= 4 years

Let the principle = 10^4 = 10000 unit



Total interest earned = (4 x 1000) + (6 x 100) + (4 x 10) + 1 = 4641 unit

According to the question

10000 unit = 20000

1 unit = 2

4641 unit = 9282

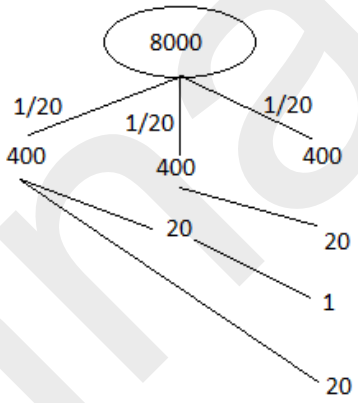
Note : Whenever rate % = 10 and time period = 4 years. CI = 46.41% of Principle. To save your precious time just crame it.

Sol 48. (a)

Since interest is compounded half yearly, effective rate of interest = $\frac{10}{2}$ = 5% and effective time period =1 $\frac{1}{2}$ x 2= 3 years

5%= $\frac{1}{20}$

Let the principle = 20^3 = 8000 unit



Total interest earned = 400+400+20+400+20+20+1 = 1261

According to the question

8000 unit = 1200

1 unit = $\frac{3}{20}$

(8000+1261) unit = 9261 × $\frac{3}{20}$ = 1389.15

Alternate :

5% = $\frac{1}{20}$

20 -------- 21

20 -------- 21

20 --------- 21

8000 ----- 9261

According to the question

8000 unit = 1200

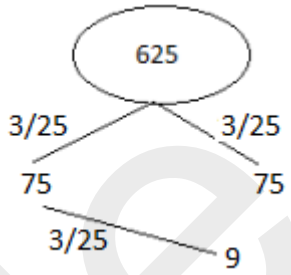
1 unit = $\frac{3}{20}$

(9261) unit = 9261 × $\frac{3}{20}$ = 1389.15

Sol 49. (a)

12% = $\frac{3}{25}$

Let X = 25^2 = 625 *unit*



Total interest earned = 75+75+9 = 159 unit

According to the question

159 unit = 577

1 unit = 3

625 unit = 625 x 3 = 1875

Alternate :

12% = $\frac{3}{25}$

25 -------- 28

25 -------- 28

625 ----- 784

According to the question

784-625 unit = 577

1 unit = 3

(625) unit = 625 × 3= 1875

Sol 50. (a)

2 year compound interest = 2 year simple interest + interest on 1st year's simple interest

⇒ interest on 1st year's simple interest = 384-320 = 64

Rate of interest = $\frac{64}{160}$ x 100 = 40%

Now,

Difference between 2 year's CI and SI = P $(\frac{R}{100})^2$

Here P = principal and R is the rate of interest

⇒ 64 = P $(\frac{40}{100})^2$

⇒ P = 400

Sol 51. (a)

Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1]$ x 100

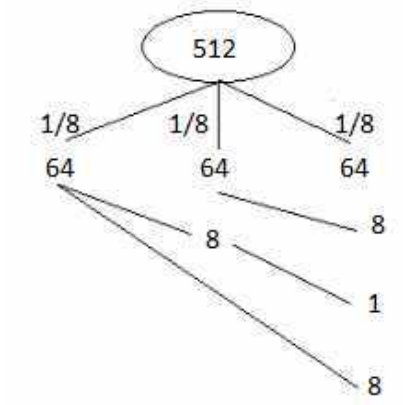
Where t = time interval

$= (\frac{7986}{6000})^{\frac{1}{3}} - 1]$ x 100= 10%

Sol 52. (d)

12.5% = $\frac{1}{8}$

Let the principle = 8^3 = 512 unit



Total interest earned = 64+64+8+64+8+8+1 = 217 unit

According to the question

512 unit = 5120

1 unit = 10

217 unit = 2170

Alternate :

12.5% = $\frac{1}{8}$

8 -------- 9

8 -------- 9

8 -------- 9

512 ----- 729

According to the question

512 unit = 5120

1 unit = 10

(729-512) unit = 217 × 10 = 2170

Sol 53. (b)

The amount becomes double in 4 years.

Time take for the amount to become (2^3 times = 8 times) = 4 x 3 = 12 years

Sol 54. (d)

Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1$] x 100

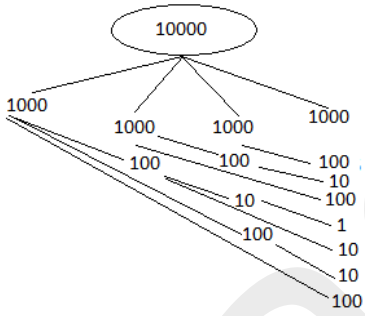
Where t = time interval

$= (\frac{13310}{12100})^{\frac{1}{3}} - 1]$ x 100= 10%

Sol 55. (a)

Since interest is compounded half yearly, effective rate of interest = $\frac{20}{2}$ = 10% and effective time period =2 x 2= 4 years

Let the principle = 10^4 = 10000 unit



Total interest earned = (4 x 1000) + (6 x 100) + (4 x 10) + 1 = 4641 unit

According to the question

10000 unit = 100000

1 unit = 10

4641 unit = 46410

Note : Whenever rate % = 10 and time period = 4 years. CI = 46.41% of Principle. To save your precious time just crame it.

Sol 56.(b)

Let the principle = 100 unit

⇒ Amount after 2 years = 121 unit

Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1$] x 100

Where t = time interval

$= (\frac{121}{100})^{\frac{1}{2}} - 1]$ x 100= 10%

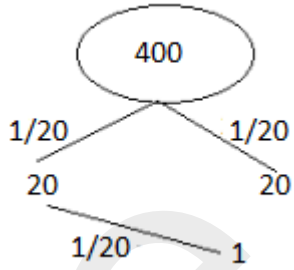
Desired Simple Interest = $\frac{1000\times10\times4}{100}$ = 400

Sol 57. (d)

Since interest is compounded half yearly, the rate of interest = $\frac{10}{2}$ = 5% and time period =1 x 2= 2 years

5%= $\frac{1}{20}$

Let the principle = 20^2 = 400 unit



Interest earned = 20+20+1 = 41 unit

the effective annual rate of interest = $\frac{41}{400}$ x 100 =10.25

Alternate :

5% = $\frac{1}{20}$

20 -------- 21

20 -------- 21

400 ----- 441

the effective annual rate of interest = $\frac{441-400}{400}$ x 100 =10.25

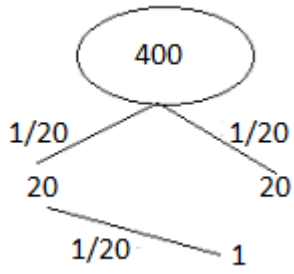
Also,

the effective annual rate of interest = 5+5+ $\frac{5\times5}{100}$ = 10.25

Sol 58. (a)

5% = $\frac{1}{20}$

Let X = 20^2 = 400 *unit*



According to the question

1 unit = 125

400 unit = 50000

Alternate :

Difference between CI and SI = $\frac{R^2}{100}$ % of Principal

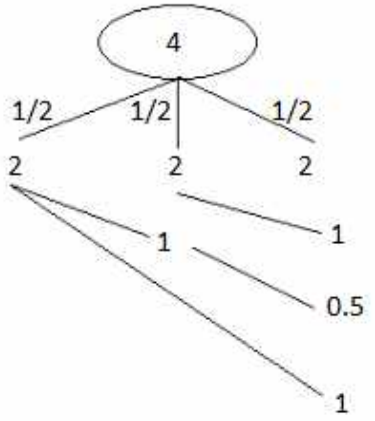
$\Rightarrow 125 = \frac{5^2}{100}$ % of Principal

$\Rightarrow$ Principal = 50000

Sol 59. (c)

50% = $\frac{1}{2}$

Let the principal = $2^2 = 4$ *unit*



Total interest earned = 2+2+1+2+1+1+0.5 = 9.5

According to the question

4 unit = 5000

1 unit = 1250

(4+9.5) unit = 13.5 x 1250 = 16875

Alternate :

50% = $\frac{1}{2}$

2 -------- 3

2 -------- 3

2 -------- 3

8 ------- 27

According to the question

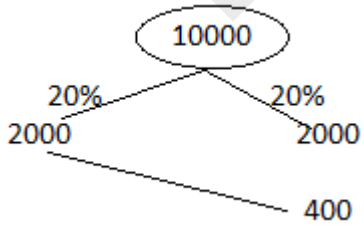
8 unit = 5000

1 unit = 625

27 unit = 27 × 625 = 16875

Sol 60. (b)

Case 1 : When interest is compounded annually.

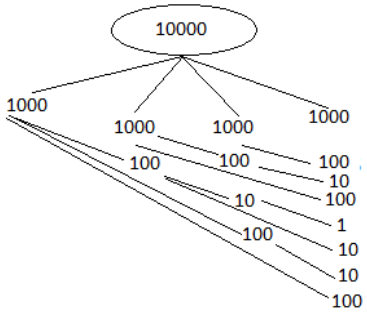


Total interest earned = 2000+2000+400 = 4400

Case 2 : When interest is compounded semi-annually.

Since interest is compounded half yearly, effective rate of interest = $\frac{20}{2}$ = 10% and effective time period =2 x 2= 4 years

Let the principle = 10^4 = 10000 unit



Total interest earned = (4 x 1000) + (6 x 100) + (4 x 10) + 1 = 4641 unit

According to the question

10000 unit = 10000

1 unit = 1

4641 unit = 4641

Note : Whenever rate % = 10 and time period = 4 years. CI = 46.41% of Principle. To save your precious time just crame it.

Desired difference = 4641-4400 = 241

Sol 61.(a)

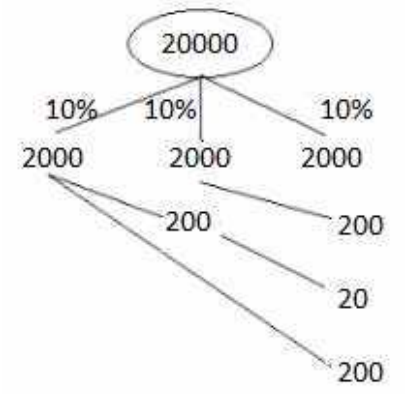
Let the principal = 100 unit and rate of interest = r

$\Rightarrow$ Interest earned in 5 years = 50 unit

According to the question

50 = $\frac{100 \times r \times 5}{100}$

r = 10%



Total interest earned = 2000+2000++200+2000+200+200 +20 = 6620

Alternate :

10% = $\frac{1}{10}$

10 --------11

10 -------- 11

10 -------- 11

1000 ------- 1331

According to the question

1000 unit = 20000

1 unit = 20

(1331-1000) unit = 331 × 20 = 6620

Sol 62. (d)

Note : Whenever rate % = 10 and time period = 4 years.

CI = 46.41% of Principle.

Desired CI = 46.41% of 5000

$\Rightarrow$ CI =5000 x $\frac{4641}{100 \times 100}$ = 2320.50

Sol 63. (d)

Rate of interest = $[(\frac{Amount}{Principle})^{\frac{1}{t}} - 1]$ x 100

Where t = time interval

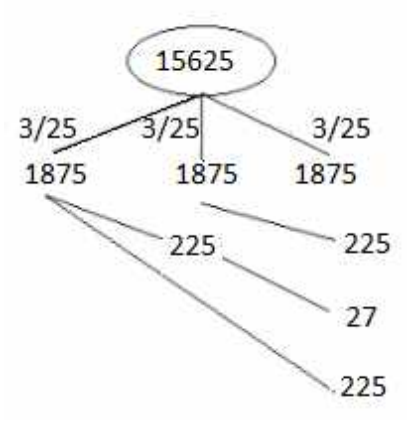
$= (\frac{4900}{3600})^{\frac{1}{2}} - 1]$ x 100= 16 $\frac{2}{3}$ %

Sol 64. (d)

12% = $\frac{3}{25}$

Let X = 25^3 = 15625 *unit*

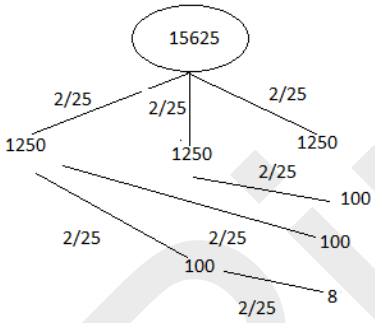
Pinnacle



Total interest earned = 1875+1875+225+ $\frac{2}{3}$ (1875+225+225+27) = 5543
According to the question
15625 unit = 31250
1 unit = 2
5543 unit = 5543 x 2 = 11086

Sol 65. (b)
Since interest is compounded 8 monthly, effective rate of interest = $12 \times \frac{8}{12}$ = 8 % and effective time period = $2 \times \frac{12}{8}$ = 3 years

Let the principle = 25^3 = 15625 *unit*

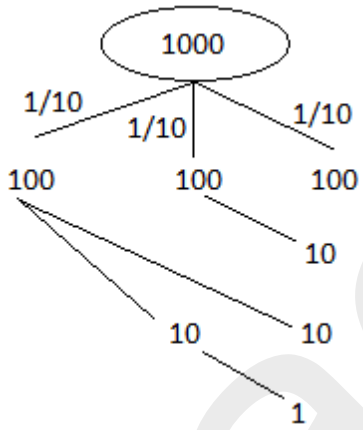


Interest earned = 1250+1250+100+1250+100+100+8
= 4058 unit
According to the question
15625 unit = 15625
1 unit = 1
4058 unit = 4058

Alternate :
8% = $\frac{2}{25}$
Principal Amount
25 ------- 27
25 ------- 27

15625 19683
15625 unit = 15625
1 unit = 1
(19683-15625) 4058 unit = 4058 x 1 = 4058

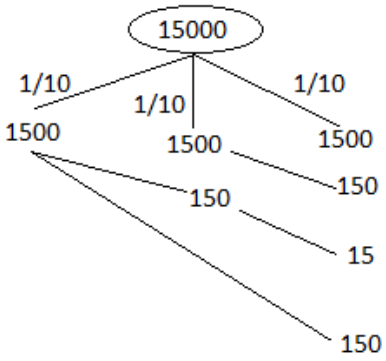
Sol 66. (d)
10% = $\frac{1}{10}$
Let the CP = 10^3 = 1000 unit



Total interest earned = 100+100+10+100+10+10+1 = 331 unit
Amount after 3 years = 1000+331 = 1331 unit
According to the question
1331 unit = 19965
1 unit = 15
1000 unit = 1000 x 15 = 15000

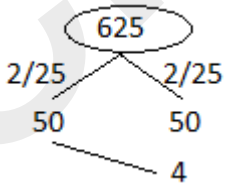
Alternate :
10% = $\frac{1}{10}$
10 --------11
10 -------- 11
10 -------- 11

1000 ------- 1331
According to the question
1331 unit = 19965
1 unit = 15
1000 unit = 1000 × 15 = 15000
Now,



Total interest earned = 1500+1500+150+ $\frac{2}{5}$ (1500+150+150+15)=3876
Total Amount = 15000+3876 = 18876

Sol 67. (c)
8% = $\frac{2}{25}$
Let the principal = 25^2 = 625 unit



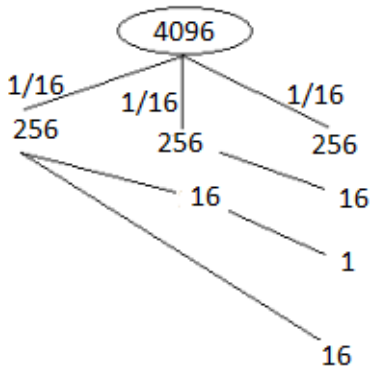
Interest earned = 50+50+4 = 104 unit
According to the question
(625+104) unit = 24494.40
1 unit = 33.6
625 unit = 625 x 33.6 = 21000

Alternate :
8% = $\frac{2}{25}$
25 -------- 27
25 -------- 27

625 ----- 729
According to the question
729 unit = 24494.40
1 unit = 33.6
625 unit = 625 x 33.6 = 21000

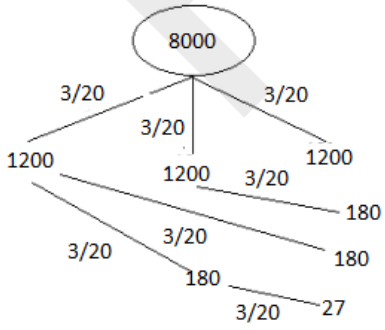
Sol 68. (d)
Difference between 2 year's CI and SI = $P\left(\frac{R}{100}\right)^2$
Here P = principal and R is the rate of interest
$\Rightarrow 200 = P\ \left(\frac{20}{100}\right)^2$
$\Rightarrow P = 5000$

Sol 69. (b)
6.25% = $\frac{1}{16}$
Let the CP = $16^3 = 4096$



Total interest earned = 256+256+16+256+16+16+1 = 817 unit
According to the question
(4096+817) unit = 14739
1 unit = 3
4096 unit = 4096 x 3 = 12288
Alternate :
6.25% = $\frac{1}{16}$
16 --------17
16 -------- 17
16 -------- 17
_____
4096 ------- 4913
According to the question
4913 unit = 14739
1 unit = 3
4096 unit = 4096 × 3 = 12288

Sol 70. (a)
15% = $\frac{3}{20}$
Let the principal = $20^3 = 8000$ unit

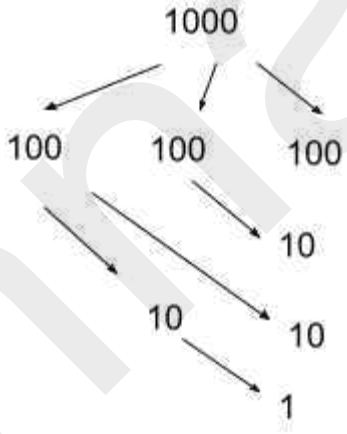


Total interest earned = 1200+1200+180+ $\frac{1}{3}$ (1200+180+180+27) = 3109 unit
According to the question
3109 unit = 9327
1 unit = 3
8000 unit = 8000 x 3 = 24000

Sol 71. (b)
Amount after two years (A_1) = 4000
Amount after four years (A_2) = 6000
Required amount or Principle = $\frac{A_1 \times A_1}{A_2} = \frac{4000 \times 4000}{6000}$ = Rs. 2666.67

SSC CGL TIER I

Sol 1. (b) Rate per cent = 10%= $\frac{1}{10}$
Let principal be ₹ 1000



For 2 years, compound interest = ₹210
For 1/3year, CI= $\frac{121}{3}$ = ₹40.33
Total CI for 2 $\frac{1}{3}$ years at ₹1000 is ₹250.33

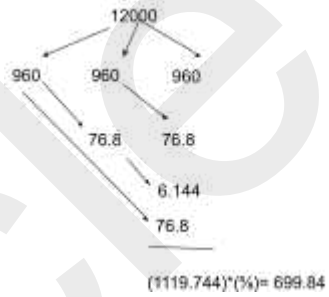
But it is given that CI = ₹1201.60
Hence Principal = $\frac{1201.6}{250.3} \times 1000$

= ₹ 4800

Sol 2. (d) Simple interest = $\frac{P \times R \times T}{100}$

As per given data, SI = $\frac{P \times 5 \times 3}{100}$ = ₹1200
P = $\frac{1200 \times 100}{15}$ = ₹ 8,000
Amount = P(1+ $\frac{5}{100}$)^3
=8000($\frac{21}{20}$)^3
= ₹ 9261
Compound interest = ₹ (9261-8000) = ₹ 1,261

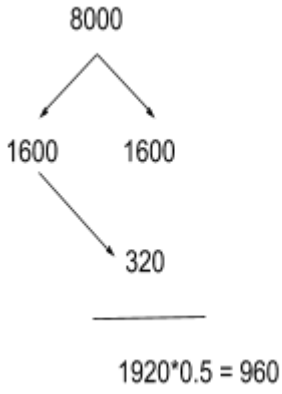
Sol 3. (a) Sum = ₹ 12,000
Rate = 8%
Time = 2 $\frac{5}{8}$ years



Thus compound interest for 2 $\frac{5}{8}$ years = 960+960+76.8+699.84 = ₹2696.64 ~ ₹ 2697

Sol 4. (d) Rate of interest is 10%p.a.
For half yearly,
Rate= 5+5+ $\frac{5\times5}{100}$ =10.25%
Difference in interest due to .25% = ₹88.80
Then 1% = ₹355.20
So, principal = ₹35520
SI = $\frac{35520 \times 10 \times \frac{5}{3}}{100}$ = ₹5,920

Sol 5. (c) 9261 = 8000(1+ $\frac{10}{2\times100}$)^{2t}
⇒ t= 1.5 years
Now at 20% rate, CI for 1.5 years :



Total compound interest = 1600+960 = 2560

Sol 6. (d) $A(\frac{107}{100})^3 = B(\frac{107}{100})^4$
A:B = 107:100
A+B = 207 units = ₹ 51750
1 unit = ₹ 250
A borrowed = 107 units = ₹ 26750

Sol 7. (a) $73205 = 66550(1+\frac{r}{100})$
$\Rightarrow \frac{11}{10} = 1+\frac{r}{100}$
$\Rightarrow$ r = 10%

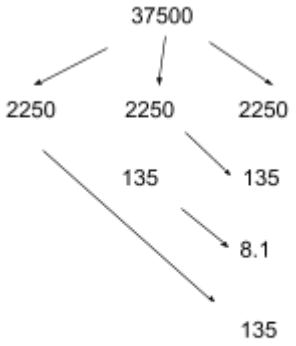
Sol 8. (b) Rate of interest is 8% per annum.
For half yearly, interest rate = 4%
Compound interest rate for half year = $4+4+\frac{4\times4}{100} = 8\frac{16}{100}$ %
Difference between rate = $\frac{16}{100}$ %
Interest difference = $\frac{16}{100} \times 7800 =$ ₹ 12.48

Sol 9. (c) For 2 years, SI rate = 2r% and CI rate = $r+r+\frac{r\times r}{100} = (2r+\frac{r^2}{100})$ %
Difference between interest rate = $\frac{r^2}{100}$ %
$25000 \times \frac{r^2}{100} = 160$
r = 8%

Sol 10. (d) rate = $\frac{4000\times100}{50000\times2} = 4\%$
Compound interest = SI for 2 years+ 4% of SI for 1 year
SI remains equal for each year.
Thus SI for 1 year = ₹ 2000
CI = $4000+\frac{4}{100} \times 2000 =$ ₹4080

Sol 11. (c) $A_1 = P(1+\frac{r}{100}) = 1250$
$A_3 = P(1+\frac{r}{100})^3 = 1458$
$\Rightarrow (1+\frac{r}{100})^2 = \frac{1458}{1250}$
$\Rightarrow 1+\frac{r}{100} = \frac{27}{25}$
$\Rightarrow$ r = 8%
$\Rightarrow A_1 = P(1+\frac{8}{100}) = 1250$
$\Rightarrow P = ₹\frac{1250\times100}{108}$
$SI = \frac{P\times r\times t}{100} = \frac{\frac{1250\times100}{108}\times8\times\frac{27}{5}}{100} =$ ₹ 500

Sol 12. (c) $SI = \frac{P\times r\times t}{100}$
$\Rightarrow 6750 = \frac{P\times6\times3}{100}$
$\Rightarrow$ P = ₹37500



Total ci = 2250*3+135*3+8.1 = 7163.1

Total CI = ₹ 7163 (approx)

Sol 13. (c) $280900 = P(1+\frac{6}{100})^2$
$\Rightarrow P(\frac{106}{100})^2 = 280900$
$\Rightarrow$ P = ₹250000

Sol 14. (a) SI for 2 years = ₹400
Then, SI for 1 year = ₹ 200

CI for 2 years = ₹ 408
This implies that ₹8 extra interest as CI is r% of ₹200.
$\frac{r}{100} \times 200 = 8$
r = 4%

SSC CHSL 2019
Sol:1.(c)
Effective rate when interest is compounded half yearly = $2.5+2.5+\frac{2.5\times2.5}{100}$

=5+0.0625=5.0625%
Interest=4000 × 5.06%=202.5
When interest is compounded quarterly then effective rate for 4 years=46.41%
Interest=2000 × $\frac{46.41}{100}$ =928.2
Total interest
=928.2+202.5=1130.70

Sol:2.(c)
P=8820-820 = 8000
Ratio of P:A = 8000:8820
= 4000:4410
For 2 years
$\sqrt{4000} : \sqrt{4410}$
20:21
R= $\frac{1}{20} \times 100 =5\%$

Sol:3. (c)
Amount = 4000+630.5 = 4630.5
$\frac{4630.5}{4000} = (1+\frac{5}{100})^n$
$\frac{9261}{8000} = (\frac{21}{20})^n$
$(\frac{21}{20})^3 = (\frac{21}{20})^n$
n = 3 years

Sol:4. (b)
Amount = 4000+630.5 = 4630.5
$\frac{4630.5}{4000} = (1+\frac{r}{100})^3$
$\frac{9261}{8000} = (1+\frac{r}{100})^3$
r = 5%

Sol:5.(a)
Amount = 405
$\frac{405}{320} = (1+\frac{12.5}{100})^n$
$\frac{81}{64} = (\frac{9}{8})^n$
$(\frac{9}{8})^2 = (\frac{9}{8})^2$
n = 2 years

Sol:6. (d)
5% = 1/20

SUM	AMOUNT
20	21
20	21
400	441

41 units = Rs.328

CI = 41 units = Rs.328
1 units = Rs.8
Sum = 400 units = 400 × 8 = *Rs.*3200

Sol 7. (d)
Principle = Rs. 8000, Time = 2 years and Rate = 5% per annum
At 5% per annum, Simple interest rate = 5% + 5% = 10%
At 5% per annum, Compound interest rate = $5\% + 5\% + \frac{5\times5}{100} = 10.25\%$
Interest rate difference = 10.25 - 10 = 0.25%
Required interest difference = $\frac{25}{100\times100} \times 8000 =$ Rs. 20

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Sol: 8. (c)

$A = P(1 + \frac{r}{100})^t$

$\Rightarrow 4630.08 = P(1 + \frac{4}{100})(1 + \frac{5}{100})(1 + \frac{6}{100})$

$\Rightarrow 4630.08 = P(\frac{104}{100})(\frac{105}{100})(\frac{106}{100})$

$\Rightarrow P = 4630.08 \times (\frac{100}{104})(\frac{100}{105})(\frac{100}{106}) = 4000$

Sol:9 . (a)

Monthly compounding factor for Rs.1

((1+ (0.065÷12)) = 1.0054166667

Maturity factor for 18 months.

1.0054166667 × 18= 1.1021214212

This is value for ₹1.

Maturity value for ₹8,000,.

1.1021214212 x 8000 = 8,816.97

SSC CGL 2019 TIER-II

Sol:10.(a)

$P = \frac{15500 \times 100}{100 + (2 \times 12)}$

$P = \frac{1550000}{124} = 12500$

Time for CI = 3

Rate for CI = 5%

$A = P(1 + \frac{r}{100})^n$

$= 12500(\frac{105}{100})^3$

$= 12500 \times \frac{21}{20} \times \frac{21}{20} \times \frac{21}{20}$

$= 12500 \times \frac{9261}{8000}$

$= 14470.31 \approx ₹14470$

Sol:11.(b)

$107\frac{1}{2}\%$ in ratio = 43 : 40

For first year = 40 : 43

For second year = $40^2 : 43^2$

=1600 : 1849

To make the installment equal multiply first year by 43 = 1720 : 1849

According to question

1849x = 5547

x=3

Interest of first year = 129x

Interest of second year = 249x

Total interest = 378x

Interest = 378 × 3 = 1134

Sol:12.(b)

P = 5500

$T = 2 \times \frac{3}{2} = 3$

$Rate = 15 \times \frac{2}{3} = 10$

$amount = 5500 \times (1 + \frac{10}{100})^3 = 7320.5$

CI = 7320.5 - 5500 = 1820.50

Sol:13.(b)

Compound interest for first 2 year $= 20000(1 + \frac{r}{100})^2 = 26450$

For next 8 month

r=10%

t=1

$Interest = 26450 \times \frac{10}{100} = 2645$

Total interest = 2645+ 6450 = 9095

Sol:14.(a)

10% in ratio = 10: 11

P : I for first year after making installment equal = 110 :121

P : I for second year = 100 : 121

Interest in second year = 21

Interest for first year = 11

Total interest = 32

$Interest = \frac{32}{121} \times 5808 = 1536$

Sol:15(a)

Interest = 13650-10500 = 3150

$Rate = \frac{si \times 100}{p \times t} = \frac{3150 \times 100}{10500 \times 2} = 15\%$

For CI

R =7.5%

t=2

$Amount = 10500 \times \frac{107.5}{100} \times \frac{107.5}{100} = 12134.06$

Option A is correct

Sol:16.(a)

$Amount = p \times (1 + \frac{r}{100})^n$

$21952 = 15625(\frac{100+r}{100})^3$

$\frac{21952}{15625} = (\frac{100+r}{100})^3$

$(\frac{112}{100})^3 = (\frac{100+r}{100})^3$

r = 12%

Sol:17.(d)

Formulae =>Interest for 2 year = $a+b+\frac{ab}{100}$

At 10% amount = 121%

Interest = 21% = 1050

Amount = 5000

At 12%

$Interest = 12 + 12 \frac{12 \times 12}{100} = 25.44$

Interest = 25.44% of 5000 = 1272

SSC CPO 2019

Sol:18.(b)

Amount at the end of 4 years=7,562

Amount at the end of 5 years=8,469.44

Net interest= 907.44

$Rate\ of\ interest = \frac{907.44}{7562} \times 100 = 12\%$

Sol:19..(a)

SI for 2 years = 34

CI for 2 years = $17 + 17 + \frac{289}{100} = 36.89\%$

Total difference = 2.89%

According to the question

2.89% = 433.5

100% = 15,000

Sol:20.(a)

SI for 2 years = 34

CI for 2 years = $17 + 17 + \frac{289}{100} = 36.89\%$

Total difference = 2.89%

According to the question

2.89% = 433.5

100% = 15,000

36.89% = 5,533.50

Sol:21.(c)

Simple interest of 2 years=8100

Simple interest of 1 years=4050

Compound interest for 2nd year=4050+(10% of 4050)

=4050+405=4455

Total compound interest for 2 years =4050+4455=8505

Sol:22.(c)

Amount received at the end of 4 years=7562

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Amount received at the end of 5 years=8469.44
Total interest earned in 1 year= 907.44
Rate of interest= $\frac{907.44}{7562} \times 100$
=12%
Compound interest received in 2 years at the rate of 12% = 12+12+ $\frac{12\times12}{100}$
=25.44%
Compound interest on 10000 rs will be 25.44% × 10000
=2540

Sol:23.(a)
Simple interest of 2 years=8100
Simple interest of 1 years=4050
Rate of interest=10%
Now rate of interest =15%
So Simple interest = $\frac{4050}{10} \times$ 15=6075
Compound interest for 2nd year=6075+(15% of 6075)
=6075+911.25=6986.25
Total compound interest for 2 years =6075+6986.25=13061.25

Pinnacle

WORK AND TIME / कार्य और समय

Variety Questions

Q1. The efficiencies of A , B and C are in the ratio of 2 : 3 : 5. Working together, they can complete a task in 6 days. In how many days will A alone complete 20% of the task?
A, B और C की कार्य क्षमता का अनुपात 2 : 3 : 5 है | एक साथ कार्य करते हुए, वे किसी कार्य को 6 दिनों में पूरा कर सकते हैं | A 20% कार्य कितने दिनों में पूरा करेगा ?
SSC CGL 12 June 2019 (Afternoon)
(a) 8
(b) 5
(c) 6
(d) 4

Q2. The ratio of the efficiencies of A, B and C is 2 : 5 : 3. Working together, they can complete a work in 27 days. B and C together can complete 4/9th part of that work in:
A, B और C की कार्य क्षमता का अनुपात 2 : 5 : 3 है | एक साथ कार्य करते हुए, वे किसी कार्य को 27 दिन में पूरा कर सकते हैं | B और C एक साथ उस कार्य के 4/9 भाग को कितने दिनों में पूरा करेंगे ?
SSC CGL 4 June 2019 (Morning)
(a) 27 days
(b) 15 days
(c) $17\frac{1}{7}$ days
(d) 24 days

Q3. To do a certain work , A and B work on alternate days, with B beginning the work on the first day. A can finish the work alone in 48 days. If the work gets completed in $11\frac{1}{3}$ days, then B alone can finish 4 times the same work in : / किसी निश्चित कार्य को करने के दौरान A और B एक के बाद एक दिन कार्य करते हैं तथा पहले दिन कार्य की शुरुआत B करता है | A इस कार्य को अकेले 48 दिनों में कर सकता है | यदि कार्य $11\frac{1}{3}$ दिनों में समाप्त होता है, तो B अकेले 4 गुना कार्य कितने दिनों में करेगा ?
SSC CGL 7 June 2019 (Afternoon)
(a) 24 days
(b) 32 days
(c) 27 days
(d) 30 days

Q4. A is 40% more efficient than B and C is 20% less efficient than B. Working together, they can finish a work in 5 days. In how many days, will A alone complete 70% of the work?
A, B से 40% अधिक कार्य कुशल है तथा C, B से 20% कम कार्य कुशल है | एक साथ कार्य करते हुए, वे किसी कार्य को 5 दिनों में पूरा कर सकते हैं | A इस कार्य का 70% भाग अकेले कितने दिनों में पूरा करेगा ?
SSC CGL 10 June 2019 (Afternoon)
(a) 9
(b) 7
(c) 10
(d) 8

Q5. 3 men, 4 women and 6 boys together can complete a work in 6 days. A woman does triple the work a man does and a boy does half the work a man does. How many women alone will be able to complete this work in 4 days?
3 पुरुष 4 महिलाएं तथा 6 लड़के एक साथ किसी कार्य को 6 दिन में कर सकते हैं| एक महिला एक पुरुष की तुलना में तिगुना कार्य करती है तथा एक लड़का एक पुरुष की तुलना में आधा कार्य करता है | इस कार्य को 4 दिनों में करने के लिए कितनी महिलाओं की आवश्यकता होगी ?
SSC CGL 13 June 2019 (Evening)
(a)9
(b)6
(c)8
(d)7

Q6. A earns Rs 180 per hour and works for 7 hours per day. B earns Rs. 160 per hour and works for 5 hours per day. what is the ratio of per day wages of A and B? / A 180 रुपये प्रति घंटे कमाता है तथा एक दिन में 7 घंटे कार्य करता है | B 160 रुपये प्रति घंटे कमाता है और प्रतिदिन 5 घंटे कार्य करता है | A और B के दैनिक वेतन का अनुपात क्या है ?
SSC CGL 13 June 2019 (Evening)
(a)40:61
(b)33:20
(c)20:30
(d)63:40

Q7. A and B can complete a task in 25 days. B alone can complete $33\frac{1}{3}\%$ of the same task in 15 days. In how many days can A alone complete $\frac{4}{15}$ th of the same task? / A और B किसी कार्य को 25 दिनों में पूरा कर सकते हैं | B इसी कार्य का $33\frac{1}{3}\%$ भाग अकेले 15 दिनों में पूरा कर सकता है | A इस कार्य का $\frac{4}{15}$ th भाग कितने दिनों में पूरा करेगा ?
SSC CHSL 1 July 2019 (Evening)
(a) 15
(b) 10
(c) 18
(d) 12

Q8. A , B and C can finish a task in 42 days, 84 days and 28 days, respectively. A started the work. B joined him after 3 days. If C joined them after 5 days from the beginning, then for how many days did A work till the completion of the task?
A, B और C किसी कार्य को क्रमशः 42 दिन, 84 दिन और 28 दिन में कर सकते हैं | A ने कार्य शुरू किया तथा B 3 दिन बाद उसमें शामिल हुआ | यदि C ने आरम्भ से 5 दिनों के बाद कार्य करना शुरू किया, तो A कार्य पूरा होने तक कितने दिनों तक कार्य करता रहा ?
SSC CHSL 2 July 2019 (Afternoon)
(a) 20

(b) 15
(c) 17
(d) 18

Q9. A and B , working together, can complete a work in 16 days, C and A together can complete it in 32 days and C and B together can complete it in 24 days. They worked together for 12 days. In how many days will C can complete the remaining work ? / A और B एक साथ कार्य करते हुए किसी कार्य को 16 दिनों में कर सकते हैं , C और A इस कार्य को 32 दिनों में कर सकते हैं और C और A इस कार्य को 32 दिनों में कर सकते हैं | उन्होंने 12 दिनों तक साथ कार्य किया | शेष कार्य समाप्त करने में C को कितने दिन लगेंगे ? **SSC CHSL 2 July 2019 (Evening)**
(a) 40
(b) 36
(c) 45
(d) 32

Q10. 18 men can complete a work in 9 days. After they have worked for 5 days, 6 more men join them. How many days will they take to complete the remaining work ?
18 पुरुष किसी कार्य को 9 दिनों में पूरा कर सकते हैं | उनके 5 दिनों तक कार्य कर लेने के बाद, 6 अतिरिक्त पुरुष उनके साथ हो गए | शेष कार्य करने में उन्हें कितना समय लगेगा ?
SSC CHSL 3 July 2019 (Evening)
(a) 3
(b) $2\frac{1}{2}$
(c) 2
(d) $3\frac{1}{2}$

Q11. It is given that men are twice as efficient than women in respect to doing work. If three men and two women can complete the work in 2 days, then in how many days can a woman working alone complete the work?
यह दिया गया है कि किसी कार्य को करने में पुरुष महिलाओं से दोगुने कार्य कुशल हैं | यदि तीन पुरुष और दो महिलाओं को किसी कार्य को समाप्त करने में 2 दिन लगते हैं, तो एक महिला अकेले कार्य करते हुए इस कार्य को कितने दिनों में समाप्त कर सकती है?
SSC CHSL 10 July 2019 (Evening)
(a) $12\frac{1}{2}$
(b) 16
(c) $10\frac{1}{3}$
(d) 8

Q12. A and B can complete a piece of work in 15 days and 10 days respectively. They got a contract to complete the work for Rs. 35,000. The share of A in the contracted money will be :
A और B किसी कार्य को क्रमशः 15 दिन और 10 दिन में कर सकते हैं | उन्हें 35000 रुपये में यह कार्य पूरा करने का अनुबंध मिला | इस राशि में A का हिस्सा होगा :
SSC CHSL 8 July 2019 (Morning)
(a) 7000
(b) 15000
(c) 14000
(d) 21000

Q13. Rs. 10,000 has to be distributed among 3 craftsmen, 5 helpers and 6 labourers such that each helper receives the amount twice as much as a labourer receives and each craftsman receives the amount thrice as much as a labourer receives. What is the amount received by the three craftsmen ?
10000 रुपये का वितरण 3 शिल्पकारों, 5 सहायकों तथा 6 श्रमिकों के बीच इस प्रकार करना है कि प्रत्येक सहायक को मिलने वाली राशि एक श्रमिक को मिलने वाली राशि से दोगुनी हो तथा प्रत्येक शिल्पकार को मिलने वाली राशि एक श्रमिक को मिलने वाली राशि से तिगुनी हो | तीनों शिल्पकारों द्वारा प्राप्त की गयी राशि ज्ञात करें |
SSC CHSL 10 July 2019 (Afternoon)
(a) Rs. 2400
(b) Rs. 4000
(c) Rs. 3600
(d) Rs. 2700

Q14. A can complete a piece of work in 20 days and B can complete 20% of the work in 6 days. If they work together in how many days can they finish 50% of the work, if they work together ?
A किसी कार्य को 20 दिनों में तथा B इस कार्य के 20% भाग को 6 दिनों में पूरा कर सकता है | यदि वे साथ कार्य करें, तो वे इस कार्य का 50% भाग कितने दिनों में पूरा करेंगे ? **SSC CHSL 11 July 2019 (Morning)**
(a) 12
(b) 6
(c) 8
(d) 9

Q15. A, B and C, alone can do a piece of work in 9, 12 and 18 days respectively. They all started the work together, but A left after 3 days. In how many days, was the remaining work completed ?
A, B और C अकेले किसी कार्य को क्रमशः 9, 12 और 18 दिनों में कर सकते हैं | उन सभी ने साथ कार्य शुरू किया, लेकिन 3 दिन के बाद A ने कार्य छोड़ दिया | शेष कार्य कितने दिनों में समाप्त हुआ ?
SSC CHSL 11 July 2019 (Evening)
(a) 2
(b) $\frac{5}{2}$
(c) $\frac{11}{4}$
(d) $\frac{9}{5}$

Q16. A and B can finish a work together in 30 days, B and C can finish the same work together in 24 days and A and C can finish the same work together in 40 days. If all three work together, how long will it take them to complete the work?
A और B किसी कार्य को 30 दिनों में समाप्त कर सकते हैं | B और C इसी कार्य को 24 दिनों में तथा A और C इसी कार्य को एक साथ 40 दिनों में समाप्त कर सकते हैं | यदि ये तीनों साथ कार्य

करें, तो उन्हें कार्य समाप्त करने में कितना समय लगेगा ?

SSC CPO 16 March 2019 (Morning)

(a) 20 days
(b) 5 days
(c) 10 days
(d) 15 days

Q17. A can do work in 12 days. B can do work in 18 days. After 5 days of working together, how much work will be left?

A किसी कार्य को 12 दिनों में कर सकता है | B किसी कार्य को 18 दिनों में कर सकता है | 5 दिन तक एक साथ कार्य करने के बाद कितना कार्य शेष रह जाएगा ?

SSC CPO 16 March 2019 (Morning)

(a) $\frac{5}{12}$
(b) $\frac{5}{13}$
(c) $\frac{7}{25}$
(d) $\frac{11}{36}$

Q18. 6 men or 5 women earn Rs 14,820 in two days. How much will 4 women and 6 men earn in one day?

6 पुरुष अथवा 5 महिलाएं दो दिनों में 14,820 रुपये कमाते हैं | एक दिन में 4 महिलाएं तथा 6 पुरुष कितना कमाएंगे ?

SSC CPO 14 March 2019 (Morning)

(a)13,338
(b)13,832
(c)26,676
(d)27,664

Q19. A can do a work in 20 days, while B can do the same work in 25 days. They started the work jointly. Few days later C also joined them and thus all of them completed the whole work in 10 days. All of them were paid total of rs 700. What is the share of C?

A किसी कार्य को 20 दिनों में कर सकता है जबकि B इसी कार्य को 25 दिनों में कर सकता है | उन्होंने एक साथ इस कार्य को शुरू किया | कुछ दिनों बाद C उनके साथ शामिल हो गया और इस प्रकार उन सभी ने इस पूरे कार्य को 10 दिनों में पूरा किया | उन सभी को कुल 700 रुपये का भुगतान किया गया | C का हिस्सा क्या है ?

SSC CPO 16 March 2019 (Evening)

(a) 55
(b) 65
(c) 75
(d) 70

Q20. The ratio of efficiencies of A , B and C is 7 : 5 : 8. Working together, they can complete a piece of work in 42 days. B and C worked together for 21 days and the remaining was completed by A alone. The whole work was completed in :

A, B और C की कार्य क्षमता का अनुपात 7 : 5 : 8 है | एक साथ कार्य करते हुए, वे किसी कार्य को 42 दिनों में कर सकते हैं | B और C ने एक साथ 21 दिनों तक कार्य किया और शेष कार्य A ने पूरा किया | पूरा कार्य कितने दिनों में समाप्त हुआ ?

SSC CGL 7 June 2019 (Morning)

(a) 96
(b) 99
(c) 102
(d) 93

Q21. A can do 40% of a work in 6 days and B can do 30% of the same work in 3 days. They started the work together but B left after 2 days and A continued to work. In how many days was the entire work completed ?

A किसी कार्य का 40% भाग 6 दिनों में तथा B इसी कार्य का 30% भाग 3 दिनों में पूरा कर सकता है | उन्होंने एक साथ कार्य शुरू किया लेकिन 2 दिनों के बाद B हट गया और A ने कार्य जारी रखा | पूरा कार्य कितने दिनों में समाप्त हुआ ?

SSC CHSL 4 July 2019 (Morning)

(a) 10
(b) 12
(c) 9
(d) 15

SSC CGL TIER II

Q1. To do a certain work, the ratio of efficiency of A to that of B is 3:7. Working together, they can complete the work in $10\frac{1}{2}$ days. They work together for 8 days. 60% of the remaining work will be completed by A alone in : किसी कार्य को करने में, A की कार्य क्षमता तथा B की कार्य क्षमता का अनुपात 3: 7 है | एक साथ कार्य करते हुए, वे इस कार्य को $10\frac{1}{2}$ दिनों में कर सकते हैं | वे 8 दिनों तक साथ कार्य करते हैं | शेष कार्य का 60% हिस्सा A अकेले कितने दिनों में पूरा करेगा ? **SSC CGL TIER II (11 September 2019)**

(a) $5\frac{1}{2}$ days
(b) 5 days
(c) $6\frac{1}{2}$ days
(d) 4 days

Q2. A and B can do a piece of work in 6 days and 8 days, respectively. With help of C, they completed the work in 3 days and earned Rs. 1848. What was the share of C ?

A और B किसी कार्य को क्रमशः 6 और 8 दिन में कर सकते हैं | C की सहायता से, उन्होंने इस कार्य को 3 दिनों में पूरा किया और 1848 रुपये कमाए | C का हिस्सा ज्ञात करें | **SSC CGL TIER II (11 September 2019)**

(a) Rs. 231
(b) Rs. 924
(c) Rs. 462
(d) Rs. 693

Q3. A certain number of persons can complete a work in 34 days working 9 hours a day. If the number of persons is decreased by 40%, then how many hours a day should the remaining persons work to complete the work in 51 days ?

कुछ व्यक्ति किसी कार्य को एक दिन में 9 घंटे कार्य करते हुए 34 दिनों में पूरा कर सकते हैं | यदि व्यक्तियों की संख्या 40% से कम कर दी जाए, तो शेष व्यक्तियों को इस कार्य को 51 दिनों में

पूरा करने के लिए दिन में कितने घंटे कार्य करना पड़ेगा ?

SSC CGL TIER II (11 September 2019)

(a) 9
(b) 8
(c) 12
(d) 10

Q4. 4 men and 5 women can complete a work in 15 days, whereas 9 men and 6 women can do it in 10 days. To complete the same work in 7 days, how many women should assist 4 men?

4 पुरुष और 5 महिलाएं किसी कार्य को 15 दिनों में समाप्त कर सकती हैं जबकि 9 पुरुष और 6 महिलाएं इसी कार्य को 10 दिनों में कर सकती हैं | इसी कार्य को 7 दिनों में पूरा करने के लिए, कितनी महिलाओं को 4 पुरुषों की सहायता करनी चाहिए ?

SSC CGL TIER II (12 September 2019)

(a) 11
(b) 14
(c) 12
(d) 13

Q5. To do a certain work, the ratio of the efficiencies of X and Y is 5:4. Working together, they can complete the same work in 10 days. Y alone starts the work and leaves after 5 days. The remaining work will be completed by X alone in :

किसी निश्चित कार्य को करने के लिए, X और Y की कार्य क्षमताओं का अनुपात 5 : 4 है | एक साथ कार्य करते हुए वे इस कार्य को 10 दिनों में समाप्त कर सकते हैं | Y अकेले कार्य शुरू करता है और 5 दिनों के बाद छोड़ देता है | X अकेले शेष कार्य कितने दिनों में पूरा करेगा ?

SSC CGL TIER II (12 September 2019)

(a) 14 days
(b) 12 days
(c) 15 days
(d) 10 days

Q6. A can do 40% of a work in 12 days, whereas B can do 60% of the same work in 15 days. Both work together for 10 days. C completes the remaining work alone in 4 days. A, B and C together will complete 28% of the same work in :

A किसी कार्य का 40% भाग 12 दिनों में कर सकता है जबकि B इसी कार्य का 60% भाग 15 दिनों में कर सकता है | दोनों 10 दिनों तक एक साथ कार्य करते हैं | C शेष कार्य 4 दिनों में पूरा करता है | A, B और C एक साथ इसी कार्य का 28% भाग कितने दिनों में पूरा करेंगे ?

SSC CGL TIER II (12 September 2019)

(a) $2\frac{1}{2}$ days
(b) 3 days
(c) $1\frac{1}{2}$ days
(d) 2 days

Q7. A is as efficient as B and C together. Working together A and B can complete a work in 36 days and C alone can complete it in 60 days. A and C work together for 10 days. B alone will complete the remaining work in :

A की कार्य क्षमता B और C की कुल कार्य क्षमता के बराबर है | एक साथ कार्य करते हुए, A और B किसी कार्य को 36 दिनों में कर सकते हैं तथा C अकेले इस कार्य को 60 दिनों में कर सकता है | A और C 10 दिनों तक एक साथ कार्य करते हैं | B अकेले शेष कार्य कितने दिनों में समाप्त करेगा ?

SSC CGL TIER II (13 September 2019)

(a) 110 days
(b) 88 days
(c) 84 days
(d) 90 days

Q8. A can do one-third of a work in 15 days, B can do 75% of the same work in 18 days and C can do the same work in 36 days. B and C work together for 8 days. In how many days will A alone complete the remaining work ?

A किसी कार्य का एक-तिहाई भाग 15 दिनों में पूरा कर सकता है | B इसी कार्य का 75% भाग 18 दिनों में तथा C यही कार्य 36 दिनों में कर सकता है | B और C 8 दिनों तक साथ कार्य करते हैं | A अकेला शेष कार्य कितने दिनों में पूरा करेगा ?

SSC CGL TIER II (13 September 2019)

(a) 24 days
(b) 18 days
(c) 20 days
(d) 16 days

Q9. 25 persons can complete a work in 60 days. They started the work. 10 people left the work after x days. If the whole work was completed in 80 days, then what is the value of x ?

25 व्यक्ति किसी कार्य को 60 दिनों में पूरा कर सकते हैं | उन्होंने कार्य शुरू किया | x दिनों के बाद 10 लोगों ने कार्य छोड़ दिया | यदि पूरा कार्य 80 दिनों में पूरा हुआ, तो x का मान ज्ञात करें |

SSC CGL TIER II (13 September 2019)

(a) 9
(b) 8
(c) 12
(d) 15

Practice Questions

Q1. The ratio of the efficiencies of A, B and C is 4 : 5 : 3. Working together, they can complete that work in 25 days. A and C together will complete 35% of that work in:

A, B तथा C की कार्य क्षमता का अनुपात 4 : 5 : 3 है | एक साथ कार्य करते हुए वे 25 दिनों में कार्य पूरा कर लेते हैं | इस कार्य का 35% भाग A और C कितने दिनों में पूरा करेंगे ?

SSC CGL 4 June 2019 (Afternoon)

(a) 12 days
(b) 10 days
(c) 18 days
(d) 15 days

Q2. The ratio of the efficiencies of A, B and C is 7:5:4. Working together, they can finish work in 35 days. A and B work together for 28 days. The remaining work will be completed (in days) by C alone:
A, B और C की कार्य क्षमता का अनुपात 7 : 5 : 4 है | एक साथ कार्य करते हुए, वे किसी कार्य को 35 दिनों में समाप्त कर सकते हैं | A और B एक साथ 28 दिनों तक कार्य करते हैं | C शेष कार्य कितने दिनों में पूरा करेगा ?
SSC CGL 4 June 2019 (Evening)
(a) 56
(b) 63
(c) 49
(d) 60

Q3. The efficiences of A , B and C are in ratio 5 : 3 : 8. Working together they can complete a work in 30 days. A and B worked together for 20 days. The remaining work will be completed by C alone in :
A, B और C की कार्य क्षमता 5 : 3 : 8 है | एक साथ कार्य करते हुए, वे किसी कार्य को 30 दिनों में कर सकते हैं | A और B ने 20 दिनों तक कार्य किया | शेष कार्य पूरा करने में C को अकेले कितने दिन लगेंगे ?
SSC CGL 6 June 2019 (Afternoon)
(a) 40 days
(b) 36 days
(c) 30 days
(d) 32 days

Q4. To do a certain work, the ratio of the efficiencies of A , B and C is 7 : 5 : 6. Working together, they can complete the same work in 35 days. B and C worked together for 21 days. The remaining work will be completed by A alone in :
एक निश्चित कार्य करने के लिए, A, B और C की कार्य क्षमता का अनुपात 7 : 5 : 6 है| एक साथ कार्य करते हुए, वे इसी कार्य को 35 दिनों में पूरा कर सकते हैं | B और C ने 21 दिनों तक कार्य किया | शेष कार्य पूरा करने में A को अकेले कितने दिन लगेंगे ?
SSC CGL 6 June 2019 (Evening)
(a) 60 days
(b) 57 days
(c) 54 days
(d) 50 days

Q5. The ratio of efficiencies of A , B and C is 3 : 5 : 1. Working together, they can complete a piece of work in 5 days. A and B worked together for 3 days. The remaining will be completed by C alone in :
A, B और C की कार्य क्षमता का अनुपात 3 : 5 : 1 है | एक साथ कार्य करते हुए, वे किसी कार्य को 5 दिनों में पूरा कर सकते हैं | A और B ने एक साथ 3 दिनों तक कार्य किया | C को अकेले शेष कार्य करने में कितना समय (दिन) लगेगा ?
SSC CGL 7 June 2019 (Evening)
(a) 18 Days
(b) 24 Days
(c) 21 Days
(d) 15 Days

Q6. The ratio of the efficiencies of A , B and C to do a certain work is 7 : 3 : 5. Working together, they can complete work in 21 days. A and C worked together for 15 days. The remaining work will be completed by B alone in :
A, B और C की कार्य क्षमता का अनुपात 7 : 3 : 5 है | एक साथ कार्य करते हुए, वे किसी कार्य को 21 दिनों में पूरा कर सकते हैं | A और C ने एक साथ 15 दिनों तक कार्य किया | शेष कार्य पूरा करने में B को अकेले कितने दिन लगेंगे ?
SSC CGL 10 June 2019 (Morning)
(a) 54 days
(b) 45 days
(c) 60 days
(d) 63 days

Q7. A is 40% more efficient than B and C is 20% less efficient than B. Working together, they can finish a task in 15 days. In how many days, will B alone will complete 75% of the task?
A, B से 40% अधिक कार्य कुशल है तथा C, B से 20% कम कार्य कुशल है | एक साथ कार्य करते हुए, वे किसी कार्य को 15 दिनों में समाप्त कर सकते हैं | B अकेले इस कार्य का 75% भाग कितने दिनों में पूरा करेगा ?
SSC CGL 11 June 2019 (Morning)
(a) 36
(b) 48
(c) 32
(d) 44

Q8. A is 40% more efficient than B and C is 20% less efficient than B. Working together, they can complete a task in 20 hours. In how many hours, will A alone can complete 35% of the task?
A, B से 40% अधिक कार्य कुशल है तथा C, B से 20% कम कार्य कुशल है | एक साथ कार्य करते हुए, वे किसी कार्य को 20 घंटों में पूरा कर सकते हैं | A को अकेले इस कार्य का 35% भाग पूरा करने में कितने घंटे लगेंगे ?
SSC CGL 11 June 2019 (Afternoon)
(a) 13
(b) 15
(c) 16
(d) 14

Q9. A is 50% more efficient than B and C is 40% less efficient than B. Working together, they can complete a task in 10 days. In how many days, will A alone complete 150% of that task?
A, B से 50% अधिक कार्य कुशल है और C, B से 40% कम कार्य कुशल है | एक साथ कार्य करते हुए वे किसी कार्य को दस दिनों में पूरा कर सकते हैं | इस कार्य का 150% भाग पूरा करने में A को अकेले कितने दिन लगेंगे ?
SSC CGL 11 June 2019 (Evening)
(a) 33
(b) 35
(c) 28
(d) 31

Q10. A is 50% more efficient than B and C is 40% less efficient than B.

Working together, they can complete a task in 20 days. In how many days will C alone complete 30% of that task?

A, B से 50% अधिक कार्य कुशल है तथा C, B से 40% कम कार्य कुशल है | एक साथ कार्य करते हुए, वे किसी कार्य को 20 दिनों में पूरा कर सकते हैं | C अकेले इस कार्य का 30% भाग कितने दिनों में पूरा करेगा ?

SSC CGL 12 June 2019 (Morning)

(a) 31
(b) 33
(c) 35
(d) 29

Q11. The efficiencies of A , B and C are 2 : 5 : 3. Working together, they can complete a task in 9 days. In how many days will C alone can complete 40% of that task?

A, B और C की कार्य क्षमता का अनुपात 2 : 5 : 3 है | एक साथ कार्य करते हुए वे किसी कार्य को 9 दिनों में पूरा कर सकते हैं | C को अकेले इस कार्य का 40% भाग पूरा करने में कितने दिन लगेंगे ?

SSC CGL 12 June 2019 (Evening)

(a) 14
(b) 16
(c) 15
(d) 12

Q12. The efficiencies of A, B and C are in the ratio 2:5:3. Working together, they can complete a task in 12 days. In how many days can A alone complete 30% of that task?

A, B और C की कार्य क्षमता का अनुपात 2 : 5 : 3 है | एक साथ कार्य करते हुए, वे किसी कार्य को 12 दिनों में पूरा कर सकते हैं | A अकेले इस कार्य का 30% भाग कितने दिनों में पूरा करेगा ?

SSC CGL 13 June 2019 (Morning)

(a)15
(b)16
(c)20
(d)18

Q13. The efficiencies of A, B and C are in the ratio of 5:3:2. Working together, they can complete a task in 21 hours. In how many hours will B alone complete 40% of that task?

A, B और C की कार्य क्षमता का अनुपात 5 : 3 : 2 है | एक साथ कार्य करते हुए, वे किसी कार्य को 21 घंटों में कर सकते हैं | इस कार्य का 40% भाग पूरा करने में B को अकेले कितने घंटे लगेंगे ?

SSC CGL 13 June 2019 (Afternoon)

(a)28
(b)24
(c)35
(d)21

Q14. If 30 persons take 10 days to complete a certain work working 8 hours a day. Then 40 persons should work how many hours a day so that the work is completed in 6 days?

यदि 30 लोग प्रतिदिन 8 घंटे कार्य करके किसी कार्य को 10 दिनों में पूरा करते हैं, तो इस कार्य को 6 दिनों में पूरा करने के लिए 40 व्यक्ति दिन में कितने घंटे कार्य करेंगे ?

SSC CHSL 2 July 2019 (Morning)

(a) 6
(b) 10
(c) 8
(d) 12

Q15. A and B together can do a piece of work in 10 days, B and C together can do it in 15 days while C and A together can do it in 20 days. They work together for 8 days. C alone will complete the remaining work in:

A और B एक साथ किसी कार्य को 10 दिनों में कर सकते हैं | B और C इसे एक साथ 15 दिनों में तथा C और A इसे एक साथ 20 दिनों में कर सकते हैं | वे 8 दिनों तक साथ कार्य करते हैं | शेष कार्य पूरा करने में C को अकेले कितने दिन लगेंगे ?

SSC CHSL 3 July 2019 (Afternoon)

(a) 12 Days
(b) $3\frac{1}{5}$ Days
(c) 16 Days
(d) $5\frac{1}{3}$ Days

Q16. A, B and C can complete a piece of work in 10, 20 and 60 respectively. Working together, they can complete the same work in how many days ?

A, B और C किसी कार्य को क्रमशः 10, 20 और 60 दिनों में पूरा कर सकते हैं | एक साथ कार्य करते हुए, वे इसी कार्य को कितने दिनों में पूरा करेंगे ?

SSC CHSL 4 July 2019 (Afternoon)

(a) 5
(b) 6
(c) 10
(d) 8

Q17. A, B and C can complete a piece of work in 4, 28 and 56 respectively. Working together, they can complete the same work in how many days ?

A, B और C किसी कार्य को क्रमशः 4, 28 और 56 दिनों में पूरा कर सकते हैं | एक साथ कार्य करते हुए, वे इस कार्य को कितने दिनों में पूरा करेंगे ?

SSC CHSL 4 July 2019 (Evening)

(a) $5\frac{5}{17}$
(b) $3\frac{1}{17}$
(c) $5\frac{1}{17}$
(d) $3\frac{5}{17}$

Q18. A, B and C can complete a piece of work in 5, 20 and 60 days respectively. Working together, they can complete the same work in how many days ?

A, B और C किसी कार्य को क्रमशः 5, 20 और 60 दिनों में पूरा कर सकते हैं | एक साथ कार्य करते हुए, वे इस कार्य को कितने दिनों में पूरा करेंगे ?

SSC CHSL 5 July 2019 (Morning)

(a) $3\frac{1}{4}$
(b) $3\frac{3}{4}$
(c) $5\frac{1}{4}$
(d) $5\frac{3}{4}$

Q19. A, B and C can complete a piece of work in 4, 20 and 60 days respectively. Working together, they can complete the same work in how many days ?
A, B और C किसी कार्य को क्रमशः 4, 20 और 60 दिनों में पूरा कर सकते हैं | एक साथ कार्य करते हुए वे इस कार्य को कितने दिनों में समाप्त करेंगे ?
SSC CHSL 5 July 2019 (Afternoon)
(a) $5\frac{3}{19}$
(b) $3\frac{1}{19}$
(c) $5\frac{1}{19}$
(d) $3\frac{3}{19}$

Q20. A, B and C can complete a piece of work in 4, 20 and 60 days respectively. Working together, they can complete the one third work in how many days ?
A, B और C किसी कार्य को क्रमशः 4, 20 और 60 दिनों में पूरा कर सकते हैं | एक साथ कार्य करते हुए, वे एक तिहाई कार्य कितने दिनों में समाप्त करेंगे ?
SSC CHSL 5 July 2019 (Evening)
(a) $1\frac{3}{19}$
(b) $1\frac{1}{19}$
(c) $\frac{3}{19}$
(d) $2\frac{1}{19}$

Q21. A and B can complete a piece of work in 15 days and 10 days respectively. They got a contract to complete the work for Rs. 35,000. The share of B in the contracted money will be :
A और B किसी कार्य को क्रमशः 15 दिन और 10 दिन में पूरा कर सकते हैं | उन्हें 35000 रुपये में यह कार्य पूरा करने का अनुबंध मिला | इस राशि में B का हिस्सा ज्ञात करें |
SSC CHSL 8 July 2019 (Afternoon)
(a) 7000
(b) 15000
(c) 14000
(d) 21000

Q22. A and B can complete a piece of work in 15 days and 10 days respectively. They got a contract to complete the work for Rs. 75,000. The share of B in the contracted money will be :
A और B किसी कार्य को क्रमशः 15 दिन और 10 दिन में कर सकते हैं | उन्हें 75000 रुपये में यह कार्य पूरा करने का अनुबंध मिला | इस राशि में B का हिस्सा ज्ञात करें |
SSC CHSL 8 July 2019 (Evening)
(a) 35000
(b) 40000
(c) 45000
(d) 30000

Q23. A earns Rs. 640 per day and works for 8 hours. B earns Rs. 360 per day and works for 6 hours. The ratio of per day wages of A to that of B is :
A हर दिन 640 रुपये कमाता है तथा 8 घंटे कार्य करता है | B हर दिन 6 घंटे कार्य करके 360 रुपये कमाता है | A और B के दैनिक वेतन का अनुपात ज्ञात करें |
SSC CHSL 8 July 2019 (Evening)
(a) 5:4
(b) 9:16
(c) 16:9
(d) 4:5

Q24. A and B can complete a piece of work in 15 days and 10 days respectively. They got a contract to complete the work for Rs. 75,000. The share of A in the contracted money will be :
A और B किसी कार्य को क्रमशः 15 और 10 दिनों में पूरा कर सकते हैं | उन्हें 75000 रुपये में यह कार्य पूरा करने का अनुबंध मिला | इस राशि में A का हिस्सा ज्ञात करें |
SSC CHSL 9 July 2019 (Morning)
(a) 35000
(b) 40000
(c) 45000
(d) 30000

Q25. A earns Rs. 100 per hour and works for 8 hours per day. B earns Rs. 120 per hour and works for 6 hours per day. The ratio of per day wages of B to that of A is :
A 100 रुपये प्रति घंटे कमाता है तथा दिन में 8 घंटे कार्य करता है | B 120 रुपये प्रति घंटे कमाता है और प्रतिदिन 6 घंटे कार्य करता है | B और A के दैनिक वेतन में क्या अनुपात है ?
SSC CHSL 9 July 2019 (Afternoon)
(a) 10 : 9
(b) 4 : 5
(c) 5 : 4
(d) 9 : 10

Q26. A and B can complete a piece of work in 15 days and 20 days respectively. They got a contract to complete the work for Rs. 77,000. The share of A in the contracted money will be :
A और B किसी कार्य को क्रमशः 15 दिन और 20 दिनों में कर सकते हैं | उन्हें 77000 रुपये में यह कार्य समाप्त करने का अनुबंध मिला | इस राशि में A का हिस्सा ज्ञात करें |
SSC CHSL 9 July 2019 (Afternoon)
(a) 45000
(b) 40000
(c) 44000
(d) 42000

Q27. A, B and C can complete a piece of work in 20, 24 and 36 days respectively. Working together, they can complete the same work in how many days ?
A, B और C किसी कार्य को क्रमशः 20, 24 और 36 दिनों में पूरा कर सकते हैं | एक साथ कार्य करते हुए, वे इसी कार्य को कितने दिनों में पूरा करेंगे ?
SSC CHSL 9 July 2019 (Evening)
(a) $8\frac{16}{43}$
(b) $6\frac{1}{4}$
(c) $9\frac{1}{4}$
(d) $7\frac{19}{20}$

Q28. If 16 men working 12 hours a day can complete a work in 27 days, then working for how many hours a day can 18 men complete the work in 24 days ?
यदि 16 पुरुष प्रतिदिन 12 घंटे कार्य करके किसी कार्य को 27 दिनों में पूरा करते हैं, तो इस कार्य को 24 दिनों में पूरा करने के लिए 18 पुरुषों को दिन में कितने घंटे कार्य करना पड़ेगा ?
SSC CHSL 10 July 2019 (Morning)
(a) 9 days
(b) 18 days
(c) 16 days
(d) 12 days

Q29. If 40 men working 12 hours a day can complete a work in 8 days, then how many men working 4 hours a day can complete the same work in 16 days ?
यदि 40 लोग प्रतिदिन 12 घंटे कार्य करके किसी कार्य को 8 दिनों में समाप्त कर सकते हैं, तो इस कार्य को प्रतिदिन 4 घंटे कार्य करते हुए 16 दिनों में समाप्त करने के लिए कितने पुरुषों की आवश्यकता होगी ?
SSC CHSL 10 July 2019 (Afternoon)
(a) 50
(b) 60
(c) 54
(d) 45

Q30. 36 persons working 8 hours a day can do 3 units of work in 12 days. How many persons are required to do 5 units of that work in 16 days, if they work for 6 hours a day?
प्रतिदिन 8 घंटे कार्य करके 36 लोग किसी कार्य की 3 इकाई 12 दिनों में कर सकते हैं| यदि वे एक दिन में 6 घंटे कार्य करें तो 16 दिन में इस कार्य की 5 इकाई समाप्त करने के लिए कितने लोगों की आवश्यकता होगी ?
SSC CPO 12 March 2019 (Evening)
(a) 50
(b) 55
(c) 60
(d) 45

Q 31. The efficiency of A, B and C are in the ratio 5:6:9 working together, they can complete a work in 18 days. In how many days can B alone can complete 25% of that work?
A, B और C की कार्य क्षमता 5 : 6 : 9 के अनुपात में है | एक साथ कार्य करते हुए वे किसी कार्य को 18 दिनों में समाप्त कर सकते हैं | B अकेले इस कार्य का 25% भाग कितने दिनों में पूरा कर सकता है ?
SSC CPO 12 March 2019 (Evening)
(a) 18
(b) 10
(c) 15
(d) 16

Q32. 16 persons working 6 hours a day can complete a work in 10 days. In how many days 24 persons working 8 hours a day will complete 80% of that work?
एक दिन में 6 घंटे कार्य करके 16 व्यक्ति किसी कार्य को 10 दिनों में समाप्त कर सकते हैं | एक दिन में 8 घंटे कार्य करके 24 व्यक्ति इस कार्य का 80% भाग कितने दिनों में समाप्त कर सकते हैं ? **SSC CPO 13 March 2019 (Evening)**
(a)3
(b)6
(c)4
(d)8

Q33. The efficiencies of A,B and C are in the ratio 5 : 6 : 8, working together, they can complete a piece of work in 120 hours. In how many hours will, B alone be able to complete 40% of that work?
A, B तथा C की कार्य क्षमता 5 : 6 : 8 के अनुपात में है | एक साथ कार्य करते हुए वे किसी कार्य को 120 घंटों में समाप्त कर सकते हैं | इस कार्य का 40% भाग पूरा करने में B को अकेले कितने घंटे लगेंगे ?
SSC CPO 13 March 2019 (Evening)
(a)114
(b)152
(c)182.4
(d)167.2

Q34. The efficiencies of A,B and C are in the ratio 4 : 5 : 6. Working together, they can complete a work in 12 days. In how many days will A alone be able to complete that work?
A, B तथा C की कार्य क्षमता 4 : 5 : 6 के अनुपात में है | एक साथ कार्य करते हुए वे किसी कार्य को 12 दिन में पूरा कर सकते हैं | A अकेले इस कार्य को कितने दिन में कर पाएगा ? **SSC CPO 12 March 2019 (Morning)**
(a) 45
(b) 36
(c) 30
(d) 40

Q35. 24 persons working 8 hours a day can complete 2 units of a work in 10 days. How many persons are required to complete 4 units of that work, if they work 6 hours a day for 16 days?
एक दिन में 8 घंटे कार्य करते हुए 24 व्यक्ति किसी कार्य की 2 इकाई 10 दिनों में समाप्त कर सकते हैं | इस कार्य की 4 इकाई समाप्त करने के लिए कितने लोगों की आवश्यकता होगी यदि वे 16 दिनों तक एक दिन में 6 घंटे कार्य करते हैं ?
SSC CPO 12 March 2019 (Morning)
(a) 48
(b) 36
(c) 40
(d) 32

Q36. 18 persons working 8 hours a day can complete 3 units of works in 10 days. How many persons are required to complete 5 units of that work in 16 days working 6 hours a day?

एक दिन में 8 घंटे कार्य करते हुए 18 व्यक्ति किसी कार्य की 3 इकाई 10 दिनों में समाप्त कर सकते हैं | प्रतिदिन 6 घंटे कार्य करते हुए 16 दिन में इस कार्य की 5 इकाई समाप्त करने के लिए कितने लोगों की आवश्यकता होगी ?

SSC CPO 13 March 2019 (Morning)

(a) 25
(b) 15
(c) 20
(d) 9

Q37. The efficiencies of A, B and C are in the ratio 2 : 5 : 7 working together, they can complete a work in 10 days. In how many days will, A alone be able to complete 30% of that work?

A, B और C की कार्य क्षमता 2 : 5 : 7 के अनुपात में है | एक साथ कार्य करते हुए वे किसी कार्य को 10 दिनों में समाप्त कर सकते हैं | इस कार्य का 30% भाग समाप्त करने में A को अकेले कितना समय (दिन) लगेगा ?

SSC CPO 13 March 2019 (Morning)

(a) 20
(b) 28
(c) 30
(d) 21

Q38. A can do a work in 12 days while B can do same work in 18 days. How long(in days) will it take if they do the work together?

A किसी कार्य को 12 दिनों में कर सकता है जबकि B इसी कार्य को 18 दिनों में कर सकता है | यदि वे साथ कार्य करें तो इसे पूरा होने में कितने दिन लगेंगे ? **SSC CPO 14 March 2019 (Morning)**

(a) $5\frac{3}{4}$
(b) $7\frac{1}{5}$
(c) $6\frac{1}{5}$
(d) $6\frac{2}{3}$

Q39. 3 men, 4 women and 6 children can complete a work in 7 days. A woman does double the work a man does and a child does half the work a man does. How many women alone can complete this work in 7 days?

3 पुरुष, 4 महिलाएं तथा 6 बच्चे किसी कार्य को 7 दिनों में पूरा कर सकते हैं | एक महिला एक पुरुष की तुलना में दोगुना कार्य करती है तथा एक बच्चा एक पुरुष की तुलना में आधा कार्य करता है | कितनी महिलाएं अकेले इस कार्य को 7 दिनों में पूरा कर लेंगी ?

SSC CPO 16 March 2019 (Evening)

(a)6
(b)7
(c)9
(d)8

Q40. Three painters have to spend 6 hours a day for 12 days to finish a work. If after 3 days one painter leaves, in how many days the remaining work will be completed?

तीन चित्रकारों को प्रति दिन 6 घंटे खर्च करके किसी कार्य को समाप्त करने में 12 दिन लगते हैं| यदि तीन दिन बाद एक चित्रकार छोड़ दे, तो शेष कार्य कितने दिनों में समाप्त होगा ? **SSC CPO 15 March 2019 (Morning)**

(a)$15\frac{2}{3}$
(b)$13\frac{1}{2}$
(c)11
(d)8

Q41.A can do a work in 30 days, B can do the same work in 48 days. After working alone for 20 days A left and B started working, how long will B take to complete the work?

A किसी कार्य को 30 दिनों में कर सकता है, B इसी कार्य को 48 दिनों में कर सकता है | 20 दिन तक अकेले कार्य करने के बाद A ने छोड़ दिया तथा B ने कार्य करना शुरू कर दिया | B को इस कार्य को पूरा करने में कितना समय लगेगा ?

SSC CPO 16 March 2019 (Afternoon)

(a)24 days
(b)28 days
(c) 38 days
(d)16 days

Q42. If 15 men can do a piece of work in 14 days, how many men will be needed to do the work in 30 days?

यदि 15 लोग किसी कार्य को 14 दिनों में कर सकते हैं, तो इस कार्य को 30 दिनों में करने के लिए कितने लोगों की आवश्यकता होगी ?

SSC CPO 16 March 2019 (Afternoon)

(a)8
(b)10
(c)7
(d)9

Q43. 21 typist can complete a task in 8 days. Then in how many days 15 typist can complete that task?

21 टाइपिस्ट 8 दिनों में एक कार्य पूरा कर सकता है। फिर 15 टाइपिस्ट कितने दिनों में उस कार्य को पूरा करेंगे ?

SSC CPO 14 March 2019 (Evening)

(a) 11.2
(b) 5.8
(c) 9.3
(d) 7

Q44. The efficiency of A is three times of B and efficiency of B is twice the efficiency of C. If B alone can complete one task in 15 days, then how many days will A and C take to complete this task

A की दक्षता B से तीन गुनी है और B की दक्षता C से दोगुनी है | यदि B अकेला एक कार्य को 15 दिनों में पूरा कर सकता है , तो A और C मिलकर इस कार्य को कितने दिनों में पूरा करेंगे

SSC CPO 14 March 2019 (Evening)

(a) $4\frac{1}{3}$
(b) $6\frac{1}{2}$
(c) $4\frac{2}{7}$
(d) $7\frac{4}{5}$

Q45. Both A and B working together can complete a task in $3\frac{2}{3}$ days. C and D complete the same task in $3\frac{1}{7}$ days. If A, B, C and D work together, how long will it take to complete half the work?
A और B दोनों मिलकर एक कार्य को $3\frac{2}{3}$ दिनों में पूरा करते हैं | C और D उसी कार्य को $3\frac{1}{7}$ दिनों में पूरा करते हैं | यदि A, B, C और D एक साथ मिलकर कार्य करते हैं तो आधे कार्य को पूरा करने में उन्हें कितना समय लगेगा ?
SSC CPO 15 March 2019 (Evening)
(a) $\frac{11}{13}$ Days / दिन
(b)$1\frac{1}{13}$ Days / दिन
(c) $\frac{8}{13}$ Days / दिन
(d) $\frac{2}{13}$ Days / दिन

Q46.A can do one fifth part of a task in 4 days, B can do one sixth part of the same work in 5 days. If they work together, how many days can this task be completed?
A, किसी कार्य का ⅕ वां भाग 4 दिनों में कर सकता है, B उसी कार्य का 1/6 वां भाग 5 दिनों में कर सकता है | यदि वे एक साथ मिलकर कार्य करते हैं तो इस कार्य को कितने दिनों में पूरा कर सकते हैं?
SSC CPO 15 March 2019 (Evening)
(a)12
(b)30
(c)20
(d)15

Q47. A earns Rs 40 per hour and works for 12 hours. B earns Rs 60 per hour and works for 10 hours. Find the ratio of their per day wages.
A 40 रुपये प्रति घंटा कमाता है तथा 12 घंटे कार्य करता है | B 60 रुपये प्रति घंटा कमाता है तथा 10 घंटे कार्य करता है | उनकी प्रतिदिन मजदूरी का अनुपात ज्ञात करें |
SSC CPO 16 March 2019 (Evening)
(a)15 : 4
(b)6 : 5
(c)4 : 5
(d)5 : 4

Q48.Two teachers A and B can complete an academic work in 10 days and 15 days respectively.They started the work together, but A left after 5 days and another teacher C joined, who alone can complete the work in 60 days. In how many days the work got completed?
दो शिक्षक A और B क्रमशः 10 दिनों और 15 दिनों में एक शैक्षणिक कार्य पूरा कर सकते हैं। उन्होंने एक साथ काम शुरू किया, लेकिन A 5 दिनों के बाद छोड़ दिया और एक अन्य शिक्षक C इस कार्य में शामिल हो गया, जो अकेले 60 दिनों में इस काम पूरा कर सकता है। यह कार्य कितने दिनों में पूरा होगा?
SSC MTS 2 August 2019 (Morning)
(a)7
(b)5
(c)6
(d)2

Q49. A alone can do a piece of work in 30 days. B alone can do the same work in 40 days. If they work alternately (Alternate Days) starting from A, then in how many days (upto two decimal places) the work will be completed?
A अकेला किसी कार्य को 30 दिन में कर सकता है | B अकेला उसी कार्य को 40 दिन में कर सकता है | यदि A से शुरुआत करके , वे बारी बारी काम करते हैं, तो कार्य कितने दिनों में पूरा हो जाएगा?
SSC MTS 2 August 2019 (Afternoon)
(a)34.25
(b)32.33
(c)16.33
(d)17.25

Q50.A and B together can do a piece work in 20 days. B and C together can do the same work in 25 days. C and A together can do the same work in 15 days. In how many days A alone can do the work?
A तथा B मिलकर किसी कार्य को 20 दिन में कर सकते हैं | B तथा C मिलकर उसी कार्य को 25 दिन में कर सकते हैं | C तथा A मिलकर उसी कार्य को 15 दिन में कर सकते हैं | A अकेला उस कार्य को कितने दिनों में कर सकता है?
SSC MTS 2 August 2019 (Afternoon)
(a) $\frac{600}{17}$
(b) $\frac{600}{23}$
(c) $\frac{1200}{23}$
(d) $\frac{1200}{17}$

Q51. A can do a piece of work alone in 8 days. B can do the same work alone in 21 days. If they work together for 3 days, then how much work is completed?
A अकेले किसी कार्य 8 दिनों में पूरा कर सकता है, B वही कार्य अकेले 21 दिनों में कर सकता है। यदि वे 3 दिनों के लिए एक साथ काम करते हैं, तो कितना काम पूरा होता है?
SSC MTS 2 August 2019 (Evening)
(a) $\frac{29}{67}$
(b) $\frac{31}{65}$
(c) $\frac{27}{64}$
(d) $\frac{29}{56}$

Q52. A, B and C, working alone can do a piece of work in 15, 30 and 75 days respectively. They work together and get Rs 1615 for completing the work. What is the difference in shares of A and C?
A, B और C, अकेले किसी कार्य को क्रमशः 15, 30 और 75 दिनों में कर सकते हैं। वे एक साथ काम करते हैं और काम पूरा करके 1615 रु. प्राप्त करते है। A और C के हिस्सों में कितना अंतर है?
SSC MTS 5 August 2019 (Morning)
(a)Rs 760
(b)Rs 620
(c)Rs 680
(d)Rs 540

Q 53. A can do a piece of work alone in 10 days. A and B together can do the same work in 20/3 days. A, B and C can do the same work together in 40/7 days. In how many days can B and C do the same work together?
A किसी कार्य को अकेले 10 दिन में कर सकता है | A तथा B उसी कार्य को मिलकर 20/3 दिनों में कर सकते हैं | A, B तथा C उसी कार्य को मिलकर 40/7 दिनों में कर सकते हैं | B तथा C उसी कार्य को मिलकर कितने दिनों में कर सकते हैं?
SSC MTS 5 August 2019 (Afternoon)
(a) $\frac{44}{3}$
(b) $\frac{20}{3}$
(c) $\frac{40}{3}$
(d) $\frac{44}{7}$

Q54. 10 men can complete a work in 30 days by working for 8 hours per day. In how many days 12 men working 4 hours a day will complete the work?
किसी कार्य को 10 पुरुष प्रतिदिन 8 घंटों तक कार्य कर 30 दिनों में पूरा कर सकते हैं | 12 पुरुष प्रतिदिन 4 घंटे कार्य कर उसी कार्य को कितने दिनों में पूरा करेंगे?
SSC MTS 5 August 2019 (Evening)
(a)30 Days / दिन
(b)50 Days / दिन
(c)40 Days / दिन
(d)60 Days / दिन

Q 55. A, B and C can complete a work alone - in 12, 24 and 36 days respectively. Together they complete the same work and get Rs. 3850. What is the difference between the share of B and C ?
A, B और C किसी कार्य को अकेले - अकेले कर उसे क्रमश: 12, 24 और 36 दिनों में पूरा कर सकते है | वे मिलकर उसी कार्य को पूरा कर 3850 रूपए प्राप्त करते है | B और C के हिस्से की राशियों में कितना अंतर है ?
SSC MTS 5 August 2019 (Evening)
(a) Rs. 350
(b) Rs. 1400
(c) Rs. 1050
(d) Rs. 700

Q56. X can do a work alone in 15 days. Y can do the same work in 30 days alone. X, Y and Z together can do that work in 9 days. In how many days Z alone can do that work?
X किसी कार्य को अकेला 15 दिन में कर सकता है | Y उसी कार्य को अकेला 30 दिन में कर सकता है | X, Y तथा Z एक साथ मिलकर उस कार्य को 9 दिन में कर सकते हैं | Z उस कार्य को अकेला कितने दिन में कर सकता है?
SSC MTS 6 August 2019 (Morning)
(a)120
(b)90
(c)45
(d)60

Q57. A alone can do a work in 30 days. B alone can do the same work in 60 days. If they work together for 5 days, then what part of the work will be left?
A किसी कार्य को अकेला 30 दिन में कर सकता है | B उसी कार्य को अकेला 60 दिन में कर सकता है | यदि वे 5 दिन तक एक साथ कार्य करते हैं, तो कार्य का कितना हिस्सा शेष रह जाएगा?
SSC MTS 6 August 2019 (Morning)
(a) $\frac{2}{3}$
(b) $\frac{1}{2}$
(c) $\frac{3}{4}$
(d) $\frac{5}{6}$

Q58. 5 technicians of Studio A can do a piece of work in 30 days. Studio B's 8 technicians can do the same work in 15 days. In how many days can 1 technician from Studio A and 1 technician from Studio B together do the same work?
स्टूडियो A के 5 तकनीशियन किसी कार्य को 30 दिनों में कर सकते हैं | स्टूडियो B के 8 तकनीशियन उसी कार्य को 15 दिनों में कर सकते हैं | स्टूडियो A के 1 तकनीशियन और स्टूडियो B के 1 तकनीशियन मिलकर उसी कार्य को कितने दिनों में कर सकते हैं?
SSC MTS 6 August 2019 (Afternoon)
(a) $\frac{190}{3}$
(b) $\frac{200}{3}$
(c) $\frac{250}{9}$
(d) $\frac{220}{9}$

Q59. A can do a work alone in 20 days. A and B together can do the same work in 15 days. B and C together can do the same work in 752 days. What is the ratio of efficiency of A, B and C in terms of working?
A किसी कार्य को अकेला 20 दिनों में कर सकता है | A तथा B मिलकर उसी कार्य को 15 दिनों में कर सकते हैं | B तथा C मिलकर उसी कार्य को $\frac{75}{2}$ दिनों में कर सकते हैं | कार्य करने की दृष्टि से A, B तथा C की दक्षता का अनुपात कितना है?
SSC MTS 6 August 2019 (Afternoon)
(a)5:3:1
(b)10:4:1
(c)5:4:3
(d)15:5:3

Q60. Mohit is five times more efficient as Rohit. If Mohit can complete a piece of work in 28 days less than Rohit, then in how many days can Rohit alone complete the same work?
मोहित रोहित से पांच गुना अधिक कार्य कुशल है। अगर मोहित किसी कार्य को पूरा करने में रोहित की तुलना में 28 दिन कम का समय लेता है,तो रोहित अकेले इस कार्य को कितने दिन में पूरा करेगा ?
SSC MTS 6 August 2019 (Evening)
(a)35 days
(b)32 days

(c)45 days
(d)40 days

Q61. Ravika alone can complete three-fifth of a work in 105 days. Mallika can complete one-third of work in 50 days. In how many days Ravika and Mallika working together, can complete $\frac{26}{35}$ of the work ?
किसी कार्य के $\frac{3}{5}$ भाग को रवीका 105 दिनों में पूरा कर सकती है। मल्लिका 50 दिनों में इसका एक तिहाई काम पूरा कर सकती हैं। राविका और मल्लिका दोनों मिलकर कितने समय में इस कार्य का $\frac{26}{35}$ भाग पूरा कर देगी ?
SSC MTS 6 August 2019 (Evening)
(a) 63 days
(b) 70 days
(c) 60 days
(d) 80 days

Q62. A man finish a piece of work in 15 days. A woman can complete the same work in 10 days. Both work together for 5 days, then the man leaves. How many days will be taken by the woman to finish the remaining work?
एक आदमी किसी कार्य 15 दिनों में पूरा करता है। एक महिला इसी कार्य को 10 दिनों में पूरा कर सकती है। दोनों 5 दिन तक साथ काम करते हैं, फिर आदमी इस कार्य को छोड़ देता है। शेष कार्य को पूरा करने में महिला को कितने दिन लगेंगे?
SSC MTS 7 August 2019 (Morning)
(a)2 $\frac{1}{2}$
(b)1 $\frac{1}{3}$
(c)2 $\frac{2}{3}$
(d)1 $\frac{2}{3}$

Q 63. Samrat alone can complete a work in 10 days and Virat alone can complete the same work in 40 days. If they are working on alternate days with Samrat starting the work, then in how many days will the total work be completed ?
सम्राट अकेले 10 दिनों में एक काम पूरा कर सकता है और विराट अकेले उसी काम को 40 दिनों में पूरा कर सकता है।सम्राट इस कार्य को आरम्भ करता है और फिर दोनों इसे बारी बारी से करते है, इस प्रकार यह कार्य कितने दिनों में समाप्त हो जाएगा ?
SSC MTS 7 August 2019 (Morning)
(a) 14 days
(b) 16 days
(c) 8 days
(d) 12 days

Q64. C and D together can make a chair in 4 days and C alone can make this chair in 12 days. In how many days D alone can make this chair?
C और D मिलकर 4 दिन में एक कुर्सी बना सकते हैं और C अकेले इस कुर्सी को 12 दिनों में बना सकता हैं। D कितने दिनों में अकेले इस कुर्सी को बना सकता है?
SSC MTS 7 August 2019 (Afternoon)
(a)10 days
(b)6 days
(c)4 days
(d)8 days

Q65. If Dev can make 40 chairs in 20 days, working 10 hours per day then in how many days can he make 10 chairs working 8 hours per day?
प्रतिदिन 10 घंटे काम करके यदि देव 20 दिनों में 40 कुर्सियाँ बना सकता है,तो प्रतिदिन 8 घंटे काम करके 10 कुर्सियाँ कितने दिन में बनाएगा ?
SSC MTS 7 August 2019 (Afternoon)
(a)8
(b)6
(c)6 $\frac{1}{4}$
(d)7 $\frac{1}{2}$

Q66. Piyush alone can complete a work in 8 days and Arun alone can complete the same work in 14 days. If they both get Rs 44000 to complete the work, then what is the share of Piyush?
पीयूष अकेले 8 दिनों में एक काम को पूरा कर सकता है और अरुण अकेले उसी काम को 14 दिनों में पूरा कर सकता है। अगर इन दोनों को काम पूरा करने के लिए 44000 रुपये मिलते हैं, तो पीयूष का हिस्सा कितना है?
SSC MTS 7 August 2019 (Evening)
(a)Rs 24000
(b)Rs 16000
(c)Rs 28000
(d)Rs 21000

Q 67. E, F and G together can complete a work in 12 days. If E and F together can complete the same work in 30 days, then in how many days can G alone complete the same work?
E,F और G एक साथ 12 दिनों में एक काम पूरा कर सकते हैं। यदि E और F मिलकर एक ही काम को 30 दिनों में पूरा कर सकते हैं, तो G कितने दिनों में अकेले उसी काम को पूरा कर सकता है?
SSC MTS 8 August 2019 (Morning)
(a)18 days
(b)20 days
(c)12 days
(d)24 days

Q68. Vishal alone can complete $\frac{1}{3}$ part of a work in 60 days and Ashok alone can complete $\frac{1}{4}$ part of the same work 30 days. In how many days Vishal and Ashok together can complete the same work?
विशाल अकेले एक काम के 13 वें हिस्से को 60 दिनों में पूरा कर सकता है और अकेले अशोक उसी काम के 14 वें हिस्से को 30 दिनों में पूरा कर सकता है। विशाल और अशोक एक साथ कितने दिनों में इस काम पूरा कर सकते हैं?
SSC MTS 8 August 2019 (Morning)

Pinnacle

(a)64
(b)20
(c)72
(d)56

Q69. Anil can make 20 bags in 4 days and Manoj can make 10 bags in 5 days. How many bags both Anil and Manoj together can make in one day?
अनिल 4 दिन में 20 बैग और मनोज 5 दिन में 10 बैग बना सकता हैं। अनिल और मनोज दोनों मिलकर एक दिन में कितने बैग बना सकते हैं?
SSC MTS 8 August 2019 (Afternoon)
(a)11 bags
(b)7 bags
(c)9 bags
(d)5 bags

Q70. N and K together can complete a work in 240 days, K and G together can complete the same work in 72 days and N and G together can complete the same work in 80 days. In how many days K alone can complete the same work?
N और K मिलकर एक काम को 240 दिनों में पूरा कर सकते हैं, K और G मिलकर उसी काम को 72 दिनों में पूरा कर सकते हैं और N और G मिलकर उसी काम को 80 दिनों में पूरा कर सकते हैं। K अकेले कितने दिनों में इस काम पूरा कर सकता है?
SSC MTS 8 August 2019 (Evening)

(a)280 days
(b)240 days
(c)360 days
(d)180 days

Q71. Vijay can complete a work in 50 days. How much part of work will be completed in 10 days ?
विजय 50 दिनों में एक काम को पूरा कर सकता है। 10 दिनों में काम का कितना हिस्सा पूरा होगा?
SSC MTS 8 August 2019 (Evening)
(a) $\frac{1}{5}$
(b) $\frac{1}{3}$
(c) $\frac{1}{10}$
(d) $\frac{1}{4}$

Q72. A can do 50% of the job in 16 days, B can do one-fourth of the same job in 24 days. Working together, in how many days they can do seven-fourth of the job?
A किसी कार्य का 50% भाग 16 दिनों में कर सकता है, B इस कार्य का एक चौथाई भाग 24 दिनों में पूरा कर सकता है। एक साथ काम करके वें कितने दिनों में वे सात-चौथाई कार्य कर सकते हैं?
SSC MTS 9 August 2019 (Morning)
(a)24
(b)28
(c)27
(d)42

Q73. Some persons can do a piece of work in 84 days. Two times the number of such persons will do half of the same work in how many days?
कुछ व्यक्ति 84 दिनों में एक काम को पूरा कर सकते हैं। ऐसे व्यक्तियों की दुगनी संख्या कितने दिनों में आधा काम पूरा कर देगी ?
SSC MTS 9 August 2019 (Morning)
(a)21 days
(b)14 days
(c)16 days
(d)15 days

Q74. Working together, A and B can complete a work in 12 days. They work together for 9 days after which B leaves. If A finishes the remaining work in 5 days, then the number of days that B alone would take to complete the work is:
एक साथ काम करते हुए, A और B एक कार्य को 12 दिनों में पूरा कर सकते हैं। वे 9 दिनों तक साथ में कार्य करते है और उसके बाद B उस कार्य को छोड़ देता है। यदि A शेष कार्य को 5 दिनों में पूरा करता है, तो B को कार्य पूरा करने में कितने दिन लगेंगे?
SSC MTS 9 August 2019 (Afternoon)
(a)12
(b)24
(c)30
(d)15

Q75. A contractor takes a contract to complete a road in 60 days and employs 70 labours. After 25 days, he found that one fourth work is completed. How many more labours he requires to complete the remaining work in time?
एक ठेकेदार 60 दिनों में एक सड़क को पूरा करने का ठेका लेता है और 70 मजदूरों को इस कार्य में लगाता है। 25 दिनों के बाद,एक चौथाई काम पूरा हो जाता है। शेष काम को दिए गए समय पर पूरा करने के लिए उसे कितने और मजदूरों की आवश्यकता पड़ेगी?
SSC MTS 9 August 2019 (Afternoon)
(a)90
(b)82
(c)80
(d)85

Q76. X takes 10 days less than the time taken by Y to finish a piece of work, if both X and Y together finish a work in 12 days. Find the time taken by Y to finish the work.
X, किसी कार्य को पूरा करने में Y की तुलना में 10 दिन का कम समय लेता है | X और Y दोनों मिलकर कार्य को 12 दिन में पूरा कर सकते हैं | Y कितने दिनों में अकेले कार्य को पूरा करेगा?
SSC MTS 9 August 2019 (Evening)
(a)22.5 Days / दिन
(b)25 Days / दिन
(c)32 Days / दिन
(d)30 Days / दिन

Q77. A is twice as efficient as B in writing novels. Together they can complete the work of writing a novel

in 24 days. In how many days A can write the novel alone?
A उपन्यास लिखने में B से दोगुना दक्ष है | वे एक साथ मिलकर 24 दिनों में एक उपन्यास लेखन का कार्य पूरा कर सकते हैं | A कितने दिनों में उपन्यास अकेले लिख सकता है?
SSC MTS 13 August 2019 (Morning)
(a)24
(b)18
(c)32
(d)36

Q78. A can do a work in 15 days. B is 25% more efficient than A. In how many days, working together A and B will complete the same work?
A किसी कार्य को 15 दिनों में पूरा कर सकता है, B, A की तुलना में 25% अधिक कार्य कुशल है। यदि दोनों एक साथ कार्य करते है तो इसी कार्य को पूरा करने में कितने दिन का समय लगेगा ?
SSC MTS 13 August 2019 (Afternoon)
(a) $\frac{21}{4}$
(b) $\frac{24}{5}$
(c) $\frac{20}{3}$
(d) $\frac{25}{7}$

Q79. A work can be completed by 35 workers in 30 days. If 5 workers leave after every 10 days then in how many days will the work be completed ?
एक काम 30 दिनों में 35 श्रमिकों द्वारा पूरा किया जा सकता है। यदि प्रत्येक 10 दिनों के बाद 5 श्रमिक कार्य छोड़ देते हैं तो कार्य कितने दिनों में पूरा होगा?
SSC MTS 13 August 2019 (Afternoon)
(a) 35.5 days
(b) 37.5 days
(c) 40 days
(d) 50 days

Q80. A contractor takes a contract to complete a road in 60 days and employed 105 labours. After 25 days, he found that one-third work is completed. How many more labours he requires to complete the remaining work in time?
एक ठेकेदार 60 दिनों में एक सड़क को पूरा करने का ठेका लेता है और 105 मजदूरों को इस कार्य में लगाता है। 25 दिनों के बाद, एक तिहाई काम पूरा हो जाता है। शेष काम को समय पर पूरा करने के लिए उसे कितने और मजदूरों की आवश्यकता पड़ेगी?
SSC MTS 13 August 2019 (Evening)
(a)45
(b)150
(c)75
(d)105

Q81. A and B together can complete some work in 36 days, B and C together can complete the same work in 60 days and A and C together can complete the same work in 45 days. In how many days, B alone can complete the same work?
A और B मिलकर किसी काम को 36 दिनों में पूरा कर सकते हैं, B और C मिलकर उसी काम को 60 दिनों में पूरा कर सकते हैं और A और C मिलकर उसी काम को 45 दिनों में पूरा कर सकते हैं। कितने दिनों में, B अकेले उसी काम को पूरा कर सकता है?
SSC MTS 13 August 2019 (Evening)
(a)180
(b)60
(c)100
(d)90

Q82. A alone can complete a piece of work in 30 days.He left after the completion of half of the work.If B alone can complete the entire work in 16 days, then how many days will B take to complete the remaining work?
A किसी कार्य को अकेले 30 दिनों में पूरा कर सकता है | उसने आधा कार्य करके छोड़ दिया | यदि B अकेले पूरे कार्य को 16 दिनों में सकता है, तो B को शेष कार्य को पूरा करने में कितने दिन लगेंगे?
SSC MTS 14 August 2019 (Morning)
(a)9
(b)12
(c)6
(d)8

Q 83.C can do a piece of work alone in 120 days. B is twice efficient than C and A is thrice efficient than B. In how many days they can complete the work together?
C किसी कार्य को 120 दिनों में अकेले कर सकता हैं | B, C से दोगुना कुशल है और A, B से तिगुना कुशल है | वे एक साथ मिलकर कार्य को कितने दिनों में पूरा कर सकते हैं?
SSC MTS 14 August 2019 (Morning)
(a)13.33
(b)16.67
(c)12.5
(d)15

Q84. X did a task for 24 days and left it incomplete. He could have finished the task all by himself in a total of 36 days. Y, who can finish the task alone in 18 days, will take how many more days to complete the task?
X ने 24 दिनों के लिए एक कार्य किया और उसे अधूरा छोड़ दिया। वह कुल 36 दिनों में अकेला सारा काम पूरा कर सकता था। Y, जो 18 दिनों में अकेले कार्य पूरा कर सकता है, उसे इस कार्य को पूरा करने में कितने और दिन लगेंगे?
SSC MTS 14 August 2019 (Afternoon)
(a)9
(b)6
(c)12
(d)8

Q85. A, B and C can complete a work alone in 400, 600 and 900 days respectively. In how many days can the work be completed if it is started by A and he is assisted by B and C on every second and third day respectively?

A, B और C क्रमशः 400, 600 और 900 दिनों में अकेले एक काम पूरा कर सकते हैं। यदि A द्वारा कार्य शुरू किया जाता है एवं B और C उसे क्रमशः दूसरे और तीसरे दिन सहायता प्रदान करते है,तो कितने दिनों में कार्य पूरा किया जा सकता है ?

SSC MTS 14 August 2019 (Afternoon)

(a)292
(b)270
(c)240
(d)293

Q86. A is 1.5 times as efficient as B. A & B together complete the work in 12 days. In how many days, A alone can complete the work?

A, B की तुलना में 1.5 गुना अधिक कार्य कुशल है और A और B दोनों मिलकर 12 दिनों में इस कार्य को पूरा कर सकते है,A अकेला इस कार्य को कितने दिनों में पूरा करेगा ?

SSC MTS 14 August 2019 (Evening)

(a)20
(b)26
(c)24
(d)27

Q87. An experienced carpenter can complete a woodwork in 8 days. A young carpenter can complete the same work in 12 days. Both work together for 3 days, and then the latter leaves. How many days will be taken by the former to complete the remaining work?

एक अनुभवी बढ़ई 8 दिनों में एक लकड़ी का काम पूरा कर सकता है। एक युवा बढ़ई उसी काम को 12 दिनों में पूरा कर सकता है। दोनों 3 दिनों के लिए एक साथ काम करते हैं, और फिर युवा बढ़ई इस कार्य को छोड़ देता है। शेष कार्य पूरा करने में अनुभवी बढ़ई कितने दिन का समय लेगा?

SSC MTS 16 August 2019 (Morning)

(a)3
(b)4
(c)2
(d)6

Q88. A and B can do a piece of work alone in 15 and 30 days respectively. In how many days can they together complete the work ?

A और B क्रमशः 15 और 30 दिनों में अकेले किसी काम को पूरा कर सकते हैं। वे कितने दिनों में एक साथ मिलकर इस काम पूरा कर सकते हैं?

SSC MTS 16 August 2019 (Morning)

(a) 10
(b) 8
(c) 9
(d) 12

Q89.A, B and C alone can do a piece of work in 40, 120 and 36 days respectively. A and B work together for 20 days and leave it incomplete. C carries out the work and finishes it alone. How many days did it take to complete the work?

A, B और C अकेले किसी कार्य को क्रमशः 40, 120 और 36 दिनों में कर सकते हैं | A और B एक साथ मिलकर 20 दिनों तक कार्य कर उसे अधूरा छोड़ देते हैं | C कार्य को आगे बढ़ाता है और उसे अकेले पूरा करता है | कार्य पूरा करने में चको कितने दिन लगे?

SSC MTS 16 August 2019 (Afternoon)

(a)12
(b)18
(c)20
(d)16

Q90.A and B together can complete a work in 21 days. If A takes 42 days to complete the work alone, how many days will B take to complete the same work alone?

A और B मिलकर किसी कार्य को 21 दिनों में पूरा कर सकते हैं | यदि A कार्य पूरा अकेले करने में 42 दिन लेता है, तो B को उसी कार्य को अकेले पूरा करने में कितने दिन लगेंगे?

SSC MTS 16 August 2019 (Afternoon)

(a)32
(b)36
(c)42
(d)27

Q91.A, B and C can do a work in 16 days, while A and B can do the same work in 40 days. C alone can do that work in how many days?

A, B और C किसी कार्य को 16 दिनों में कर सकते हैं, जबकि A और B उसी कार्य को 40 दिनों में कर सकते हैं | C उस कार्य को अकेले कितने दिनों में कर सकता है?

SSC MTS 16 August 2019 (Evening)

(a)26.67
(b)25
(c)23.33
(d)30

Q92.A alone can complete a piece of work in 96 days. B is three times efficient than A is . A worked alone for 24 days after which B joined him. In how many days will they complete the remaining work together?

A किसी कार्य को अकेले 96 दिनों में पूरा कर सकता है | B, A से तीन गुना कुशल है | A ने 24 दिनों तक अकेले कार्य किया जिसके बाद B उससे जुड़ गया | वे एक साथ मिलकर शेष कार्य को कितने दिनों में पूरा करेंगे?

SSC MTS 16 August 2019 (Evening)

(a)18
(b)16
(c)21
(d)14

Q93. A can do a piece of work alone in 10 days, whereas B alone can do it in 15 days. They work together and get Rs 2000 for their work. What is the share of B?

A अकेले 10 दिनों में एक काम को कर सकता है, जबकि B अकेले इसे 15 दिनों में कर सकता है। वे एक साथ काम करके 2000 रु कमाते है, B का हिस्सा कितना है?

SSC MTS 19 August 2019 (Morning)
(a)Rs 1200
(b)Rs 800
(c)Rs 1000
(d)Rs 1600

Q94.A can do a piece of work alone in 10 days. B can do the same work in 15 days alone. They start the work together but B leaves the work 2 days after the start and A alone completes the remaining work. How many days the work will be completed?
A किसी कार्य को अकेला 10 दिन में कर सकता है | B उसी कार्य को अकेला 15 दिन में कर सकता है | वे एक साथ मिलकर कार्य शुरू करते हैं परन्तु B कार्य आरंभ होने के 2 दिन बाद कार्य छोड़ देता है तथा A शेष कार्य को अकेला पूरा करता है | कार्य को पूरा होने में कुल कितने दिन लगेंगे?
SSC MTS 19 August 2019 (Afternoon)
(a) $\frac{17}{3}$
(b) $\frac{31}{3}$
(c) $\frac{26}{3}$
(d) $\frac{13}{3}$

Q95. Aditya can complete a piece of work in 24 days alone. Raman can complete the same work in 45 days alone. In how many days they can complete the same work together?
आदित्य किसी कार्य को अकेला 24 दिन में पूरा कर सकता है | रमन उसी कार्य को अकेला 45 दिन में पूरा कर सकता है | वे दोनों मिलकर कार्य को कितने दिन में पूरा कर सकते हैं?
SSC MTS 19 August 2019 (Afternoon)
(a) $\frac{720}{13}$
(b) $\frac{1080}{43}$
(c) $\frac{360}{23}$
(d) $\frac{960}{33}$

Q96. A can do a piece of work in 15 days and B can do it in $22\frac{1}{2}$ days. They worked together for 6 days and the remaining work was completed by C alone in 6 days. A, B and C together will do the same work in:
A किसी कार्य को 15 दिनों में पूरा कर सकता है एवं B उसे दिनों में पूरा कर सकता है। उन्होंने 6 दिनों तक एक साथ काम किया और शेष कार्य 6 दिनों में अकेले C ने पूरा किया। A, B और C मिलकर इस कार्य को कितने दिन में पूरा कर देंगे?
SSC MTS 19 August 2019 (Evening)
(a)8
(b)10
(c)6
(d)12

Q97.A can do a piece of work in 30 days. He completed 40% of the work and left it. B completed the remaining work in 21 days. In how many days will A and B complete 65% of the same work together?
A किसी कार्य को 30 दिनों में कर सकता है | उसने 40% कार्य पूरा कर उसे छोड़ दिया | B ने शेष कार्य 21 दिनों में पूरा किया | एक साथ मिलकर कार्य करते हुए, A और B उसी कार्य का 65% कितने दिनों में पूरा करेंगे?
SSC MTS 20 August 2019 (Morning)
(a)13
(b)10
(c)$10\frac{1}{2}$
(d)$13\frac{1}{2}$

Q98.A, B and C can complete a piece of work in 36 days, 54 days and 108 days respectively. They started working together, but 9 days after the start of work, A quit working and B also stopped working 3 days before the work was completed. How many days did C work?
A, B और C, एक कार्य को क्रमशः 36 दिनों, 54 दिनों और 108 दिनों में पूरा कर सकते हैं | उन्होंने एक साथ कार्य करना शुरू किया, लेकिन कार्य शुरू होने के 9 दिनों के बाद A ने कार्य करना छोड़ दिया और कार्य पूरा होने के 3 दिन पहले B ने भी कार्य करना छोड़ दिया | C ने कितने दिन कार्य किया?
SSC MTS 20 August 2019 (Afternoon)
(a)29
(b)33
(c)31
(d)30

Q99.6 men can repair a road in 14 hours. How many men will be required to repair the road in 4 hours?
6 पुरुष किसी सड़क की मरम्मत 14 घंटों में कर सकते हैं | 4 घंटों में सड़क की मरम्मत करने के लिए कितने पुरुषों की आवश्यकता होगी?
SSC MTS 20 August 2019 (Evening)

(a)21
(b)7
(c)28
(d)14

Q100. A and B can complete a piece of work in 20 days and 30 days respectively. A works full time while B works half of the time. In how many days the entire work will be completed?
A तथा B किसी कार्य को क्रमशः 20 दिनों तथा 30 दिनों में पूरा कर सकते हैं | A पूरे समय कार्य करता है जबकि B आधे समय कार्य करता है | पूरा कार्य कितने दिनों में समाप्त हो जाएगा?
SSC MTS 21 August 2019 (Morning)
(a)9
(b)15
(c)12
(d)10

Q101. Satyam and Shivam can do a piece of work in 10 days and 15 days respectively. They both started together. After 4 days Satyam quits working. The remaining work is to be completed by Shivam. In how

many days the entire work will be completed?
सत्यम और शिवम किसी कार्य को क्रमशः 10 दिनों और 15 दिनों में कर सकते हैं | दोनों साथ मिलकर शुरू करते हैं | 4 दिन बाद सत्यम कार्य करना छोड़ देता है | शेष कार्य शिवम को पूरा करना है | पूरा कार्य कितने दिनों में समाप्त हो जाएगा?
SSC MTS 21 August 2019 (Morning)
(a)9
(b)12
(c)10
(d)6

Q102.A, B and C can do a work in 12, 15 and 20 days respectively. In how many days will they complete the same work together?
A, B तथा C किसी कार्य को क्रमशः 12, 15 तथा 20 दिनों में कर सकते हैं | एक साथ मिलकर वे उसी कार्य को कितने दिनों में पूरा करेंगे?
SSC MTS 21 August 2019 (Afternoon)
(a) 5
(b)4
(c)7.5
(d)6

Q103. A can complete a work in 20 days and B in $22\frac{1}{2}$ days. They both work together for 6 days and the remaining work is completed by C in 26 days. In how many days the work will be completed, if all the three work together? / किसी कार्य को A, 20 दिनों में पूरा कर सकता है और B उसे $22\frac{1}{2}$ दिनों में पूरा कर सकता है | वे दोनों मिलकर 6 दिनों तक एक साथ कार्य करते हैं और शेष कार्य को C द्वारा 26 दिनों में पूरा किया गया है | तीनों एक साथ मिलकर उसी कार्य को कितने दिनों में पूरा करेंगे?
SSC MTS 21 August 2019 (Evening)

(a)8
(b)9
(c)12
(d)10

Q104. A is more efficient than B and they together can complete a work in 24 days. Had A done 50% of the work and then B, the remaining work, then the work would have been done in 50 days. B alone will complete 40% of the same work in:
A, B की तुलना में अधिक कार्य कुशल है और वे एक साथ 24 दिनों में एक काम को पूरा कर सकते हैं। यदि A ने 50% काम किया और फिर B ने शेष कार्य, तो वह कार्य 50 दिनों में पूरा हो जाता है। B अकेले उसी काम का 40% भाग कितने दिनों में पूरा करेगा?
SSC MTS 22 August 2019 (Morning)

(a)16 days
(b)24 days
(c)21 days
(d)20 days

Q105. 36 men and 48 women can do a certain work in one day whereas 6 men and 12 women can do it in 5 days. The number of women required to do the same work in 8 days is:
36 पुरुष और 48 महिलाएं एक दिन में एक काम को पूरा कर सकते हैं जबकि 6 पुरुष और 12 महिलाएं इसे 5 दिनों में पूरा कर सकते हैं। 8 दिनों में इस काम को करने के लिए आवश्यक महिलाओं की संख्या कितनी है?
SSC MTS 22 August 2019 (Afternoon)
(a)10
(b)15
(c)18
(d)12

Q106. A can complete one-third of a work in 5 days and B can do $\frac{2}{5}$ th of the same work in 10 days. They work together for 6 days. The remaining work is completed by C in 18 days. C alone will do the same work in:
A एक काम का एक तिहाई 5 दिनों में पूरा कर सकता है और B उसी काम के $\frac{2}{5}$ भाग को 10 दिनों में पूरा कर सकता है। वे 6 दिनों तक एक साथ काम करते हैं। शेष कार्य C द्वारा 18 दिनों में पूरा किया जाता है। अकेले C इस काम को कितने दिनों में पूरा करेगा ?
SSC MTS 22 August 2019 (Afternoon)
(a)50
(b)30
(c)25
(d)45

Q107.To do a certain work, the ratio of efficiencies of A and B is 3:7, working together, they can complete a work in 14 days. B started the work and after working for 8 days, he left and A completed the remaining work. For how many days did A work?
एक निश्चित कार्य करने के लिए, A और B की क्षमता का अनुपात 3: 7 है, एक साथ काम करते हुए, वे 14 दिनों में इस काम पूरा कर सकते हैं। B ने काम शुरू किया और 8 दिनों तक काम करने के बाद, उसने छोड़ दिया और A ने शेष कार्य पूरा कर लिया। A ने कितने दिनों तक काम किया?
SSC MTS 22 August 2019 (Evening)
(a)28
(b)30
(c)24
(d)27

Q108. A and B can complete a certain work in 24 days and 42 days, respectively. A started the work and after x days, B joined him and the whole work was completed in 20 days. The value of x is:
A और B एक कार्य को क्रमशः 24 दिनों और 42 दिनों में पूरा कर सकते है। A ने काम शुरू किया और x दिनों के बाद, B भी उस कार्य में लग गया,और सारा कार्य

20 दिनों में पूरा हो गया। x का मान कितना है?

SSC MTS 22 August 2019 (Evening)

(a)11
(b)13
(c)7
(d)9

Q109. A and B have to do $\frac{13}{15}$ part of a work together and B and C have to do $\frac{11}{20}$ th part of the work together. If the difference between the wages of A and C is Rs. 7600, then the total wages of A, B and C is :

A तथा B को एक साथ मिलकर $\frac{13}{15}$ भाग कार्य करना है और B तथा C को मिलकर $\frac{11}{20}$ भाग कार्य करना है | यदि A तथा C की मजदूरी का अंतर 7600 है, तो A, B तथा C की कुल मजदूरी है :

SSC MTS 21 August 2019(Afternoon)

(a) Rs. 24000
(b) Rs. 18000
(c) Rs. 36000
(d) Rs. 56000

Q110. 12 buckets of water fill a tank when the capacity of each bucket is 13.5 litres. How many buckets will be needed to fill the same tank, if the capacity of each bucket in 9 litres? /

किसी टंकी को भरने में 12 बाल्टी पानी लगता है जब प्रत्येक बाल्टी की धारिता 13.5 लीटर है | यदि प्रत्येक बाल्टी की धारिता 9 लीटर हो, तो इसी टंकी को भरने के लिए कितनी बाल्टियों की आवश्यकता होगी ?

SSC CPO 16 March 2019 (Evening)

(a)15
(b)16
(c)18
(d)17

Q111. Three pipes x, y, z leave three different chemicals A, B, C in a tank. These pipes can fill the tank in 20, 25 and 40 minutes, respectively. If all the pipes are left open for 10 minutes, what will be the ratio of chemical B in the tank?

तीन पाइप x , y , z एक टैंक में तीन भिन्न भिन्न रसायन A , B , C भरते है | ये पाइप क्रमश : 20 , 25 और 40 मिनट में टैंक को भर सकते है | यदि सभी पाइपों को 10 मिनट के लिए खुला छोड़ दिया जाता है तो टैंक में रसायन B का अनुपात क्या होगा ?

SSC CPO 14 March 2019 (Evening)

(a) $\frac{4}{7}$
(b) $\frac{13}{23}$
(c) $\frac{8}{23}$
(d) $\frac{11}{15}$

SSC CGL 2019 TIER I

Q1. A, B and C can individually complete a piece of work in 24 days, 15 days and 12 days respectively. B and C started the work and worked for 3 days and left. The number of days required by A alone to complete the remaining work is:

A, B और C अकेले-अकेले किसी कार्य को क्रमशः 24, 15 और 12 दिनों में पूरा कर सकते हैं | B और C ने कार्य करना शुरू किया तथा 3 दिनों तक कार्य करके छोड़ दिया| शेष कार्य अकेले पूरा करने में A को कितने दिन लगेंगे ?

SSC CGL 3 March 2020 (Morning)

(a) $15\frac{1}{2}$
(b) 18
(c) $13\frac{1}{5}$
(d) 11

Q2. A can complete a certain piece of work in 40 days. B is 25% more efficient than A and C is 28% more efficient than B. They work together for 5 days. The remaining work will be completed by B alone, in:

A किसी निश्चित कार्य को 40 दिनों में पूरा कर सकता है | B, A की तुलना में 25% अधिक कार्य कुशल है तथा C, B की तुलना में 28% अधिक कार्य कुशल है | वे 5 दिनों तक एक साथ कार्य करते हैं | शेष कार्य अकेले पूरा करने में B को कितने दिन लगेंगे ?

SSC CGL 3 March 2020 (Afternoon)

(a) $20\frac{3}{4}$ days
(b) $16\frac{1}{5}$ days
(c) $16\frac{3}{5}$ days
(d) $20\frac{1}{2}$ days

Q3. A can finish work in 20 days and B can finish the same work in 25 days. They began together, but B left the work after 5 days. How many more days will A take to finish the remaining work?

A 20 दिनों में कार्य समाप्त कर सकता है तथा B इसी कार्य को 25 दिनों में पूरा कर सकता है | उन्होंने एक साथ कार्य करना शुरू किया, लेकिन B ने 5 दिनों के बाद कार्य छोड़ दिया | शेष कार्य पूरा करने में A को कितने अतिरिक्त दिन लगेंगे ?

SSC CGL 3 March 2020 (Evening)

(a) 8
(b) 21
(c) 16
(d) 11

Q4. A can complete a certain work in 30 days. B is 25% more efficient than A and C is 20% more efficient than B. They all worked together for 3 days. B alone will complete the remaining work in: /

A किसी निश्चित कार्य को 30 दिनों में पूरा कर सकता है | B, A की तुलना में 25% अधिक कार्य कुशल है तथा C, B की तुलना में 20% अधिक कार्य कुशल है | उन सभी ने एक साथ तीन दिनों तक कार्य किया | शेष कार्य पूरा करने में B को अकेले कितने दिन लगेंगे ?

SSC CGL 4 March 2020 (Morning)

(a) 15 days
(b) 12 days
(c) 20 days
(d) 18 days

Q5. A and B, working together can complete a work in d days. Working

alone, A takes (8+d) days and B takes (18+d) days to complete the same work. A works for 4 days. The remaining work is completed by B alone, in: /
एक साथ कार्य करते हुए A और B किसी कार्य को d दिनों में पूरा कर सकते हैं | अकेले कार्य करते हुए इसी कार्य को पूरा करने में A को (8+d) तथा B को (18+d) दिन लगते हैं | A 4 दिनों तक कार्य करता है | शेष कार्य B अकेले कितने दिनों में पूरा करेगा ?
SSC CGL 4 March 2020 (Afternoon)
(a) 24days
(b) 16days
(c) 18days
(d) 20days

Q6. Four men and 6 women can complete a certain piece of work in 5 days whereas three men and 4 women can complete it in 7 days. How many should assist 25 women to complete $2\frac{1}{2}$ times the same work in 5 days? / 4 पुरुष और 6 महिलाएं एक निश्चित काम को 5 दिनों में पूरा कर सकते हैं, जबकि तीन पुरुष और 4 महिलाएं इसे 7 दिनों में पूरा कर सकती हैं। समान कार्य के $2\frac{1}{2}$ गुना कार्य को 5 दिनों में पूरा करने के लिए कितनी और महिलाओं को 25 महिलाओं की सहायता करनी होगी?
SSC CGL 4 March 2020(Evening)

(a) 8
(b) 10
(c) 4
(d) 5

Q7. To complete a certain task, X is 40% more efficient than Y, and Z is 40% less efficient than Y. Working together, they can complete the task in 21 days. Y and Z together worked for 35 days. The remaining work will be completed by A alone in:
किसी निश्चित कार्य को पूरा करने के लिए, X, Y की तुलना में 40% अधिक कार्य कुशल है तथा Z, Y से 40% कम कार्य कुशल है| एक साथ कार्य करते हुए, वे इस कार्य को 21 दिनों में पूरा कर सकते हैं | Y तथा Z ने 35 दिनों तक एक साथ कार्य किया | शेष कार्य A अकेला कितने दिनों में पूरा करेगा ?
SSC CGL 5 March 2020(Afternoon)
(a) 8 days
(b) 6 days
(c) 5 days
(d) 4 days

Q8. Sixteen men can finish a work in 8 days. Eight men and nine women working together can finish the same work in 10 days. In how many days will twenty women finish the same work?
सोलह पुरुष किसी कार्य को 8 दिनों में पूरा कर सकते हैं | आठ पुरुष तथा नौ महिलाएं एक साथ कार्य करके इसी कार्य को 10 दिनों में पूरा कर सकती हैं | इस कार्य को 20 महिलाएं कितने दिनों में पूरा करेंगी ?
SSC CGL 5 March 2020 (Evening)
(a) 13
(b) 12
(c) 9
(d) 11

Q9. A, B and C can individually complete a task in 24 days, 20 days and 18 days respectively. B and C start the task, and they work for 6 days and leave. The number of days required by A alone to finish the remaining task is:
A, B और C अकेले कार्य करते हुए किसी कार्य को क्रमशः 24 दिन, 20 दिन तथा 18 दिनों में पूरा कर सकते हैं | B और C ने कार्य शुरू किया और उन्होंने 6 दिन कार्य करके छोड़ दिया | शेष कार्य अकेले पूरा करने में A को कितने दिन लगेंगे ?
SSC CGL 6 March 2020 (Morning)
(a) $12\frac{1}{2}$ days
(b) $15\frac{2}{3}$ days
(c) 10 days
(d) $8\frac{4}{5}$ days

Q10. Amit and Sunil together can complete a work in 9 days, Sunil and Dinesh together can complete the same work in 12days, and Amit and Dinesh together can complete the same work in 18 days. In how many days will they complete the work if Amit, Sunil and Dinesh work together? /
अमित और सुनील एक साथ किसी कार्य को 9 दिनों में पूरा कर सकते हैं | सुनील तथा दिनेश एक साथ इस कार्य को 12 दिनों में पूरा कर सकते हैं तथा अमित और दिनेश इस कार्य को एक साथ 18 दिनों में पूरा कर सकते हैं | यदि अमित, सुनील तथा दिनेश एक साथ कार्य करें, तो वे इस कार्य को कितने दिनों में पूरा करेंगे ?
SSC CGL 6 March 2020 (Afternoon)
(a) 14 days
(b) 16 days
(c) 12 days
(d) 8 days

Q11. A, B and C can individually complete a task in 20 days, 16 days and 30 days, respectively. If A and B started working on the task, and they worked for 4 days and left, then the number of days required by C to finish the remaining tasks is:
A, B तथा C अकेले कार्य करते हुए किसी कार्य को क्रमशः 20, 16 तथा 30 दिनों में पूरा कर सकते हैं | यदि A और B ने यह कार्य शुरू किया तथा उन्होंने 4 दिन कार्य करके छोड़ दिया, तो शेष कार्य पूरा करने में C को कितने दिन लगेंगे ?
SSC CGL 6 March 2020 (Evening)
(a) $16\frac{1}{2}$ days
(b) 13 days
(c) $12\frac{1}{2}$ days
(d) 10 days

Q12. Ten men or twelve women can finish the same work in 10 days. If 5 men and 2 women undertake the work together; how many days will they take to complete the work?

दस पुरुष या बारह महिलाएं एक कार्य को 10 दिनों में पूरा कर सकती हैं | यदि 5 पुरुष तथा 2 महिलाओं ने उस कार्य को शुरू किया, तो कार्य पूरा करने में उन्हें कितने दिन लगेंगे ?

SSC CGL 7 March 2020 (Morning)

(a) 40
(b) 15
(c) 60
(d) 20

Q13. If 18 men can cut a field in 35 days, then in how many days can 21 men cut the same field? / यदि 18 पुरुष 35 दिनों में एक खेत को काट सकते हैं, तो 21 पुरुष यह खेत कितने दिनों में काट सकते हैं?

SSC CGL 7 March 2020(Afternoon)

(a) 27
(b) 28
(c) 30
(d) 32

Q14. A can do a piece of work in 6 days. B can do it in 9 days. With the assistance of C they completed the work in 3 days. In how many days can C alone do the work? / A 6 दिनों में एक काम कर सकता है। B इसे 9 दिनों में कर सकता हैं। C की सहायता से उन्होंने 3 दिनों में काम पूरा कर लिया। तो C अकेले कितने दिनों में यह काम करेगा?

SSC CGL 7 March 2020(Evening)

(a) 16
(b) 8
(c) 18
(d) 12

Q15. Ram and Shyam can complete a task in $6\frac{2}{3}$ days and 15 days respectively. They work together for 4 days and then Ram leaves. In how many days after Ram leaves, will Shyam complete the remaining task alone? / राम तथा श्याम किसी कार्य को क्रमशः $6\frac{2}{3}$ दिनों में तथा 15 दिनों में पूरा कर सकते हैं | उन्होंने 4 दिनों तक साथ कार्य किया तथा फिर राम चला गया | राम के जाने के कितने दिनों बाद श्याम अकेला इस कार्य को पूरा कर पायेगा ?

SSC CGL 9 March 2020(Morning)

(a) 2 days
(b) 3 days
(c) 4 days
(d) $1\frac{1}{2}$ days

Q16. A, B and C can individually complete a task in 24 days, 16 days and 32 days respectively. If A and C start the work and worked for 6 days and left, then the number of days required by B to complete the remaining task is:

A, B और C व्यक्तिगत रूप से किसी कार्य को क्रमशः 24, 16 और 32 दिनों में पूरा कर सकते हैं | यदि A और C ने कार्य शुरू किया तथा 6 दिनों तक कार्य करके छोड़ दिया, तो शेष कार्य पूरा करने में B को कितने दिन लगेंगे ?

SSC CGL 9 March 2020 (Afternoon)

(a) $17\frac{1}{2}$
(b) $7\frac{1}{2}$
(c) $12\frac{1}{2}$
(d) 9

Q17. Eight persons can finish a work in 20 days. After 5 days they were requested to complete the work in the next 8 days. How many more persons should join the group to fulfill the requirement?

आठ व्यक्ति 20 दिनों में एक काम पूरा कर सकते हैं। 5 दिनों काम करने के बाद उन्हें अगले 8 दिनों में काम पूरा करने का अनुरोध किया गया। आवश्यकता को पूरा करने के लिए कितने और व्यक्तियों को समूह में शामिल करना चाहिए?

SSC CGL 9 March 2020(Evening)

(a) 23
(b) 15
(c) 7
(d) 12

SSC CHSL 2019

Q1. 15 men can complete a task in 10 days. In how many days can 20 men complete the same task?

15 पुरुष किसी कार्य को 10 दिनों में पूरा कर सकते हैं। इसी कार्य को 20 पुरुष कितने दिनों में में पूरा करेंगे?

CHSL 12-10-2020 (morning shift)

(a) 7.5 days
(b) 5.5 days
(c) 6.5 days
(d) 8.5 days

Q2. 30 men working 8 hours per day can dig a pond in 16 days. By working how many hours per day can 32 men dig two same ponds, in 20 days?

30 पुरुष प्रतिदिन 8 घंटे कार्य करके 16 दिनों में एक तालाब खोद सकते हैं। 32 पुरुष प्रतिदिन कितने घंटे कार्य करके 20 दिनों में दो समान तालाब खोद सकते हैं?

CHSL 12-10-2020 (afternoon shift)

(a) 6 hours per day/ प्रतिदिन 6 घंटे
(b) 5 hours per day/ प्रतिदिन 5 घंटे
(c) 7 hours per day/ प्रतिदिन 7 घंटे
(d) 8 hours per day/ प्रतिदिन 8 घंटे

Q3. Shyam can complete a task in 12 days by working 10 hours a day. How many hours a day should he work to complete the task in 8 days?

श्याम एक दिन में 10 घंटे कार्य करके किसी कार्य को 12 दिनों में पूरा कर सकता है। इस कार्य को 8 दिनों में पूरा करने के लिए उसे प्रतिदिन कितने घंटे कार्य करना चाहिए?

CHSL 12-10-2020 (Evening shift)

(a) 14
(b) 16
(c) 12
(d) 15

Q4. 5 men and 8 women can complete a task in 34 days, whereas 4 men and 18 women can complete the same task in 28 days. In how many days can the same task can be completed by 3 men and 5 women?

5 पुरुष तथा 8 महिलाएं किसी कार्य को 34 दिनों में पूरा कर सकते हैं। जबकि 4 पुरुष और 18 महिलाएं इसी कार्य को 28

दिनों में पूरा कर सकते हैं। कितने दिनों में यही कार्य 3 पुरुषों तथा 5 महिलाओं के द्वारा किया जा सकता है?
CHSL 13-10-2020 (Morning Shift)
(a)64
(b)72
(c)56
(d)36

Q5. A can finish a piece of work in a certain number of days. B takes 45% more number of days to finish the same work independently. They worked together for 58 days and then the remaining work was done by B alone in 29 days. In how many days could A have completed the work, had he worked alone?
A किसी कार्य को कुछ निश्चित दिनों में समाप्त कर सकता है जबकि B को स्वतंत्र रूप से इसी कार्य को करने में 45% अधिक दिन लगते हैं। उन्होंने एक साथ 58 दिनों तक कार्य किया तथा शेष कार्य B ने अकेले 29 दिनों में पूरा किया। A इस कार्य को अकेले कितने दिनों में समाप्त कर सकता था?
CHSL 13-10-2020 (afternoon Shift)
(a) 110 days/ दिन
(b) 118 days/ दिन
(c) 98 days/ दिन
(d) 120 days/ दिन

Q6. Ramu works 4 times as fast as Somu. If Somu can complete a work in 20 days independently, then the number of days in which Ramu and Somu together can complete the work is:
रामू सोमू की तुलना में 4 गुणा अधिक तेज़ी से कार्य करता है। यदि सोमू किसी कार्य को स्वतंत्र रूप से 20 दिनों में कर सकता है, तो रामू और सोमू मिलकर उस कार्य को कितने दिनों में पूरा करेंगे ?
CHSL 14-10-2020 (Evening Shift)
(a) 5 days
(b) 4 days
(c) 6 days
(d) 3 days

Q7. A can do a work in 12 days and B can do the same work in 16 days. If they work on it together for 4 days, then the fraction of the work that is left is:
A एक कार्य को 12 दिनों में कर सकता है और B उसी कार्य को 16 दिनों में कर सकता है। यदि वे 4 दिनों के लिए इस पर एक साथ कार्य करते हैं, फिर जो कार्य बचा है उसका अंश है:
CHSL 15-10-2020 (Afternoon shift)
(a) $\frac{3}{5}$
(b) $\frac{9}{16}$
(c) $\frac{5}{12}$
(d) $\frac{7}{8}$

Q8. How many men will be required to plough 50 acres of land in 10 days if 15 men required 6 days to plough 10 acres of land?
अगर 10 आदमियों को 10 एकड़ ज़मीन जोतने के लिए 15 दिन की ज़रूरत होती है तो 10 दिनों में 50 एकड़ ज़मीन जोतने के लिए कितने आदमियों की ज़रूरत होगी?
CHSL 15-10-2020 (Evening shift)
(a) 45
(b) 40
(c) 55
(d) 50

Q9. Raju can finish a piece of work in 20 days. He worked at it for 5 days and then Jakob alone finished the remaining work in 15 days. In how many days can both finish it together?
राजू 20 दिनों में कार्य खत्म कर सकता है। उसने 5 दिनों तक इस पर कार्य किया और फिर जेकॉब ने अकेले 15 दिनों में शेष कार्य पूरा कर लिया। दोनों इसे कितने दिनों में पूरा कर सकते हैं?
CHSL 16-10-2020 (Morning Shift)
(a) 10 days
(b) 12 days
(c) 16 days
(d) 20 days

Q10. A and B separately can build a wall in 12 days and 16 days, respectively. If they work alternatively, starting with A, in how many days will the wall be built?
A और B अलग-अलग क्रमशः 12 दिनों और 16 दिनों में एक दीवार का निर्माण कर सकते हैं। यदि वे एक दिन छोड़कर कार्य करते हैं, तो A से शुरू करके, कितने दिनों में दीवार बनाई जाएगी?
CHSL 16-10-2020 (Afternoon shift)
(a) $7\frac{2}{3}$ days
(b) $12\frac{2}{3}$ days
(c) $13\frac{2}{3}$ days
(d) $6\frac{3}{4}$ days

Q11. A can complete a task in 18 days while B can complete the same task in 12 days. If both work together for 6 days, and then A leaves. In how many days will B complete the task?
A किसी कार्य को 18 दिनों में पूरा कर सकता है जबकि B उसी कार्य को 12 दिनों में पूरा कर सकता है। यदि दोनों 6 दिनों के लिए एक साथ कार्य करते हैं, और फिर A कार्य छोड़ देता है, तो B कार्य को कितने दिनों में पूरा करेगा?
CHSL 19-10-2020 (Morning shift)
(a) 3 days
(b) 6 days
(c) 2 days
(d) 4 days

Q12. Amir and Akbar can finish a task in 30 days and 15 days, respectively. Akbar worked on the task for 8 days and left the job. In how many days can Amir alone finish the remaining work?
आमिर और अकबर क्रमशः 30 दिनों और 15 दिनों में एक कार्य पूरा कर सकते हैं। अकबर ने 8 दिनों तक कार्य किया और नौकरी छोड़ दी। शेष कार्य को आमिर अकेले कितने दिनों में पूरा कर सकता है?
CHSL 19-10-2020 (Evening shift)

Pinnacle

(a) 14 days
(b) 15 days
(c) 16 days
(d) 17 days

Q13. A and B together can complete a piece of work in 15 days. B and C together can do it in 24 days. If A is twice as good a workman as C, then in how many days can B alone complete the work?
A और B मिलकर 15 दिनों में एक कार्य पूरा कर सकते हैं। B और C मिलकर इसे 24 दिनों में कर सकते हैं। यदि A, C से दोगुना अच्छा कार्य करने वाला है, तो B अकेले कितने दिनों में कार्य पूरा कर सकता है
CHSL 20-10-2020 (Morning shift)
(a) 40 days
(b) 60 days
(c) 52 days
(d) 45 days

Q14. Antony and Vikash together can complete a piece of work in 20 days and vikash alone can complete it in 25 days. In how many days can Antony alone complete the same work?
एंटनी और विकास एक साथ 20 दिनों में कार्य पूरा कर सकते हैं और अकेले विकास इसे 25 दिनों में पूरा कर सकता है। एंटनी अकेले इसी कार्य को कितने दिनों में पूरा कर सकता है?
CHSL 20-10-2020 (Evening shift)
(a) 90 days
(b) 80 days
(c) 100 days
(d) 110 days

Q15. A can do work in 15 days and B can do it in 10 days. If they work together for 4 days, then the fraction of the work left is:
A 15 दिनों में एक कार्य कर सकता है और B इसे 10 दिनों में कर सकता है। यदि वे 4 दिनों के लिए एक साथ कार्य करते हैं, तो बचे हुए कार्य का हिस्सा है:
CHSL 21-10-2020 (Morning Shift)
(a) 3/4
(b) 2/3
(c) 1/3
(d) 1/4

Q16. A is twice as good a workman as B and together they finish a piece of work in 22 days. In how many days will A alone finish the same work?
A, B से दोगुना अच्छा कारीगर है और साथ में वे 22 दिनों में एक कार्य पूरा कर लेते हैं। A अकेले कितने दिनों में कार्य पूरा करेगा
CHSL 21-10-2020 (Afternoon Shift)
(a) 11 days
(b) 44 days
(c) 30 days
(d) 33 days

Q17. A and B can do a work in 12 days, B and C can do it in 15 days and C and A can do it in 20 days. If A, B and C work together, then they will complete the same work in:
A और B एक कार्य को 12 दिनों में कर सकते हैं, B और C इसे 15 दिनों में कर सकते हैं और C और A इसे 20 दिनों में कर सकते हैं। यदि A, B और C एक साथ कार्य करते हैं, तो वे उसी कार्य को कितने समय में पूरा करेंगे?
CHSL 21-10-2020 (Evening Shift)
(a) 12 days
(b) 5 days
(c) 10 days
(d) 14 days

Q18. A and B can do a work in 15 days and 10 days respectively. They begin the work together but B leaves after two days. Now A completes the remaining work. The total number of days needed for the completion of the work is:
A और B क्रमशः 15 दिनों और 10 दिनों में एक कार्य कर सकते हैं। वे एक साथ कार्य शुरू करते हैं लेकिन B दो दिनों के बाद छोड़ देता हैं। अब A शेष कार्य को पूरा करता है। कार्य पूरा होने के लिए आवश्यक कुल दिनों की संख्या है:
CHSL 26-10-2020 (Morning Shift)
(a) 15 days
(b) 18 days
(c) 12 days
(d) 10 days

Q19. Ravi and Mohan together can complete a task in 3 days. Ravi alone can complete the same task in 7 days. How many days will Mohan alone take to complete the same task?
रवि और मोहन एक साथ 3 दिनों में एक कार्य पूरा कर सकते हैं। अकेले रवि 7 दिनों में उस कार्य पूरा कर सकता है। उसी कार्य को पूरा करने में मोहन को अकेले कितने दिन लगेंगे?
CHSL 26-10-2020 (Afternoon Shift)
(a) $5\frac{1}{4}$ days
(b) $4\frac{1}{5}$ days
(c) 10 days
(d) 4 days

Q20. A and B working together can do 45% of the work in 9 days. A alone can do the work in 30 days. How many days will B alone take to do the same work?
A और B एक साथ कार्य करते हुए 9 दिनों में 45% कार्य कर सकते हैं। एक अकेला 30 दिनों में कार्य कर सकता है। B अकेले उसी कार्य को करने में कितने दिन लगाएगा?
CHSL 26-10-2020 (Evening Shift)
(a) 60 days
(b) 70 days
(c) 48 days
(d) 50 days

Q21. X and Y together can finish a piece of work in 15 days, while Y alone can finish it in 40 days.X alone can finish the work in:
X और Y मिलकर 15 दिनों में एक कार्य पूरा कर सकते हैं, जबकि Y अकेले इसे 40 दिनों में पूरा कर सकता है। X अकेले कार्य पूरा कर सकता है:
CHSL 17-03-2020 (Morning Shift)

(a) 24 days
(b) 26 days
(c) 25 days
(d) 23 days

Q22. P and Q can finish a work in 10 days and 5 days, respectively. Q worked for 2 days and left the job. In how many days can P alone finish the remaining work?
P और Q क्रमशः 10 दिनों और 5 दिनों में एक कार्य खत्म कर सकते हैं। Q ने 2 दिन कार्य किया और नौकरी छोड़ दी। P शेष कार्य को कितने दिनों में पूरा कर सकता है?
CHSL 17-03-2020 (Afternoon shift)
(a) 4 days
(b) 10 days
(c) 6 days
(d) 8 days

Q23. Smith and Ajit can complete a task in 12 days and 18 days respectively. If they work together on a task for 4 days, then the fraction of task that will be left is:
स्मिथ और अजीत क्रमशः 12 दिनों और 18 दिनों में एक कार्य पूरा कर सकते हैं। यदि वे 4 दिनों के लिए एक कार्य पर एक साथ कार्य करते हैं, तो जो कार्य शेष होगा वह है:
CHSL 17-3-2020 (Evening Shift)
(a) $\frac{5}{9}$
(b) $\frac{2}{9}$
(c) $\frac{1}{9}$
(d) $\frac{4}{9}$

Q24. 25 men can complete a task in 16 days. Four days after they started working, 5 more men, with equal workmanship, joined them. How many days will be needed by all to complete the remaining task?
25 पुरुष एक कार्य को 16 दिनों में पूरा कर सकते हैं। कार्य शुरू करने के चार दिन बाद, 5 और पुरुष, समान कारीगरी के साथ, उनके साथ शामिल हो गए। शेष कार्य को पूरा करने के लिए सभी को कितने दिनों की आवश्यकता होगी?
CHSL 18-03-2020 (Morning shift)
(a) 12 days
(b) 10 days
(c) 15 days
(d) 18 days

Q25. P can work thrice as fast as Q. Working independently, Q can complete a task in 24 days. In how many days can P and Q together finish the same task?
P, Q से तीन गुना तेजी से कार्य कर सकता है। स्वतंत्र रूप से कार्य करते हुए, Q एक कार्य को 24 दिनों में पूरा कर सकता है। P और Q एक साथ उसी कार्य को कितने दिनों में पूरा कर सकते हैं?
CHSL 18-03-2020 (Afternoon Shift)
(a) 5
(b) 4
(c) 6
(d) 8

Q26. P can do a work in 10 days and Q can do the same work in 15 days. If they work on it together for 3 days, then the fraction of the work that is left is:
P एक कार्य को 10 दिनों में कर सकता है और Q वही कार्य 15 दिनों में कर सकता है। यदि वे 3 दिनों तक इस पर एक साथ कार्य करते हैं, तो जो कार्य बचा है उसका अंश है:
CHSL 18-03-2020 (Evening Shift)
(a) $\frac{1}{3}$
(b) $\frac{2}{3}$
(c) $\frac{1}{2}$
(d) $\frac{4}{3}$

Q27. Ravi, Mohan and Govind can complete a task in 12 days, 10 days and 15 days respectively. In how many days can Ravi, Mohan and Govind together complete the same task?
रवि, मोहन और गोविंद क्रमशः 12 दिनों, 10 दिनों और 15 दिनों में एक कार्य पूरा कर सकते हैं। रवि, मोहन और गोविंद मिलकर कितने दिनों में उसी कार्य को पूरा कर सकते हैं?
CHSL 19-03-2020 (Morning Shift)
(a) 8
(b) 4
(c) 2
(d) 6

Q28. Kamal and Anil can dig a pond in 8 days and 14 days, respectively. If the total expense of digging is Rs.4400, then how much money will Anil earn?
कमल और अनिल क्रमशः 8 दिन और 14 दिन में एक तालाब खोद सकते हैं। यदि खुदाई का कुल खर्च 4400 रुपये है, तो अनिल कितना पैसा कमाएगा?
CHSL 19-03-2020 (Afternoon Shift)
(a) 1500
(b) 1300
(c) 1600
(d) 1400

Q29. Ravi can complete a task in 6 days and Mohan can complete the same task in 9 days. In how many days can Ravi and Mohan together complete the same task?
रवि एक टास्क को 6 दिनों में पूरा कर सकता है और मोहन उसी टास्क को 9 दिनों में पूरा कर सकता है। रवि और मोहन एक साथ उसी टास्क को कितने दिनों में पूरा कर सकते हैं?
CHSL 19-03-2020 (Evening Shift)
(a) 15 days
(b) $3\frac{2}{5}$ days
(c) $3\frac{3}{5}$ days
(d) 9 days

SSC CGL 2019 TIER-II
Q30. A can do a piece of work in 15 days, B is 25% more efficient than A and C is 40% more efficient than B. A and C work together for 3 days and then C leaves A and B together will complete the remaining work in:
A 15 दिनों में एक कार्य करता है। B, A की तुलना में 25% अधिक कुशल है और C, B की तुलना में 40% अधिक कुशल

है। A और C एक साथ 3 दिनों के लिए कार्य करते हैं और फिर C चला जाता है। A और B एक साथ मिलकर शेष कार्य को पूरा करते हैं:

CGL 2019 Tier-II (15-11-2020)

(a) $2\frac{1}{2}$ days

(b) $3\frac{1}{2}$ days

(c) 4 days

(d) 3 days

Q31. A can do 20% of the work in 4 days, B can do $33\frac{1}{3}\%$ of the same work in 10 days. They worked together for 9 days. C completed the remaining work in 6 days. B and C together will complete 75% of the work in :

A 4 दिनों में 20% कार्य कर सकता है, B वही कार्य का $33\frac{1}{3}\%$ भाग 10 दिनों में कर सकता है। उन्होंने 9 दिनों तक एक साथ कार्य किया। C ने शेष कार्य 6 दिनों में पूरा कर लिया। B और C मिलकर 75% कार्य पूरा करेंगे

CGL 2019 Tier-II (15-11-2020)

(a) 12 days

(b) 15 days

(c) 10 days

(d) 9 days

Q32. Three men and 4 women can do a piece of work in 7 days, whereas 2 men and 1 woman can do it in 14 days. Seven women will complete the same work in:

तीन पुरुष और 4 महिलाएं एक कार्य को 7 दिनों में कर सकते हैं, जबकि 2 पुरुष और 1 महिला 14 दिनों में कर सकते हैं। उसी कार्य को 7 महिलाएं कितने दिन में पूरा करेंगी

CGL 2019 Tier-II (15-11-2020)

(a) 10 days

(b) 12days

(c) 8 days

(d) 9 days

Q33. To do a certain work, the ratio of the efficiencies of A and B is 7 : 5 . Working together, they can complete the same work in $17\frac{1}{2}$ days, A alone will complete the 60% of the same work in:

एक कार्य करने के लिए, A और B की क्षमता का अनुपात 7: 5 है। एक साथ कार्य करते हुए, वे $17\frac{1}{2}$ दिनों में कार्य पूरा कर सकते हैं, अकेले A 60% कार्य को कब तक पूरा करेंगे :

CGL 2019 Tier-II (16-11-2020)

(a) 16 days

(b) 18 days

(c) 21 days

(d) 15 days

Q34. Two men and 7 women can complete a work in 28 days, whereas 6 men and 16 women can do the work in 11 days. In how many days will 5 men and 4 women, working together, will complete the work?

दो पुरुष और 7 महिलाएं 28 दिनों में एक कार्य को पूरा कर सकते हैं, जबकि 6 पुरुष और 16 महिलाएं 11 दिनों में कार्य को पूरा कर सकते हैं। 5 पुरुष और 4 महिलाएं एक साथ कितने दिनों में कार्य को पूरा करेंगे

CGL 2019 Tier-II (16-11-2020)

(a) 18

(b) 14

(c) 22

(d) 20

Q35. A can do $\frac{1}{3}$ of work in 30 days, B can do $\frac{2}{5}$ of the same work in 24 days. They worked together for 20 days. C completed the remaining work in 8 days. Working together A, B and C will complete the work in:

A 30 दिनों में $\frac{1}{3}$ कार्य कर सकता है, B, 24 दिनों में उसी कार्य के $\frac{2}{5}$ भाग को कर सकता है। उन्होंने 20 दिनों तक साथ कार्य किया। C ने शेष कार्य 8 दिनों में पूरा किया। A, B और C के एक साथ कार्य करने से कार्य कितने दिनों में पूरा हो जाएगा.?

CGL 2019 Tier-II (16-11-2020)

(a) 10 days

(b) 12 days

(c) 18 days

(d) 15 days

Q36. A, B and C can do work separately in 18,36 and 54 days respectively. They started the work together, but B and C left 5 days and 10 days, respectively, before the completion of the work. In How many days was the work finished?

A, B और C अलग-अलग क्रमश 18, 36 और 54 दिनों में एक कार्य कर सकते हैं। उन्होंने एक साथ कार्य शुरू किया, लेकिन B और C ने कार्य पूरा होने से क्रमश: 5 दिन और 10 दिन पहले छोड़ दिया। कितने दिनों में कार्य पूरा हो गया था?

CGL 2019 Tier-II (18-11-2020)

(a) 13 days

(b) 12 days

(c) 14 days

(d) 15 days

Q37. A and B can do a piece of work in 18 days. B and C together can do it in 30 days. If A is twice as good a workman as C. B alone can do the work in

A और B 18 दिनों में एक कार्य को कर सकते हैं। B और C मिलकर इसे 30 दिनों में कर सकते हैं। यदि A, C से दोगुना कुशल है तो B अकेले कितने दिन में कार्य कर सकता है?

CGL 2019 Tier-II (18-11-2020)

(a) 80 days

(b) 100 days

(c) 75 days

(d) 90 days

Q38. A and B together can do a piece of work in 12 days. A alone can do it in 18 days. In how many days B alone can do the work?

A और B मिलकर 12 दिनों में एक कार्य कर सकते हैं। A अकेला इसे 18 दिनों में कर सकता है। B कितने दिनों में अकेले इस कार्य को कर सकता है?

CGL 2019 Tier-II (18-11-2020)

(a) 32 days

(b) 30 days

(c) 36 days

(d) 24 days

Q39. A and B can do a work together in 18 days. A is three times

as efficient as B. In how many days can B alone complete the work ?
A और B एक कार्य को 18 दिनों में एक साथ कर सकते हैं। A, B से तीन गुना अधिक कुशल है। B अकेले कितने दिनों में कार्य पूरा कर सकता है?
CGL 2019 Tier-II (18-11-2020)
(a) 60 days
(b) 54 days
(c) 72 days
(d) 64 days

SSC CPO 2019
Q40. A is twice as good a workman as B and together they finish a piece of work in 13 days .
In how many days will B alone finish the work?
A, B से दोगुना अच्छा कार्य करने वाला है और साथ में वे 13 दिनों में एक कार्य पूरा कर लेते हैं। B अकेले
कितने दिनों में कार्य पूरा करेगा?
CPO 2019 23-11-2020 (Morning Shift)
(a) 18.5
(b) 21
(c) 39
(d) 42

Q41. A and B can do a job in 10 days and 5 days respectively. They worked together for two days, after which B was replaced by C and the work was finished in the next three days. How long will C take to finish 60% of the job?
A और B क्रमशः 10 दिनों और 15 दिनों में एक कार्य कर सकते हैं। उन्होंने दो दिनों तक एक साथ कार्य किया, जिसके बाद B को C से बदल दिया गया और अगले तीन दिनों में कार्य खत्म कर दिया गया। C को 60% कार्य पूरा करने में कितना समय लगेगा?
CPO 2019 23-11-2020 (Morning Shift)
(a) 30 days
(b) 25 days
(c) 18 days
(d) 24 days

Q42. A and B can do a piece of work in 36 days, B and C can do the same work in 60 days. A and C can do the same work in 45 days. In how many days can A alone complete the work ?
A और B 36 दिनों में एक कार्य को कर सकते हैं, B और C 60 दिनों में उसी कार्य को कर सकते हैं। A और C उसी कार्य को 45 दिनों में कर सकते हैं। A अकेले कितने दिनों में वह कार्य पूरा कर सकता है?
CPO 2019 23-11-2020 (Evening Shift)
(a) 90
(b) 120
(c) 45
(d) 60

Q43. X can do a work in 3 day, Y does three times the same work in 8 days, and Z does five times the same work in 12 days. If they have to work together for 6 hours in a day, then in how much time can they complete the work?
X एक कार्य को 3 दिन में कर सकता है, Y, उसी कार्य का तीन गुना 8 दिन में करता है, और Z, उसी कार्य का पांच गुना 12 दिनों में करता है। यदि उन्हें प्रतिदिन 6 घंटे कार्य करना है, तो वे कितने समय में कार्य पूरा कर सकते हैं?
CPO 2019 23-11-2020 (Evening Shift)
(a) 4 hours 10 minutes
(b) 4 hours
(c) 5 hours
(d) 5 hours 20 minutes

Q44. A and B can do a piece of work in 36 days, B and C can do the same work in 60 days. A and C can do the same work in 45 days. In how many days can B alone complete the same work?
A और B एक कार्य 36 दिनों में कर सकते हैं, B और C उसी कार्य को 60 दिनों में कर सकते हैं। A और C उसी कार्य को 45 दिनों में कर सकते हैं। B अकेले कितने दिनों में कार्य पूरा कर सकता है?
CPO 2019 24-11-2020 (Morning Shift)
(a) 90
(b) 45
(c) 120
(d) 60

Q45. A and B can do a piece of work in 25 days, B alone can do 66 $\frac{2}{3}$ % of the same work in 30 days. In how many days A alone can do $\frac{4}{15}$ part of the same work ?
A और B एक कार्य 25 दिनों में कर सकते हैं, B अकेले 30 दिनों में 66 $\frac{2}{3}$ % कार्य कर सकता है। कितने दिनों में A अकेले उसी कार्य का $\frac{4}{15}$ भाग पूरा कर सकता है?
CPO 2019 24-11-2020 (Morning Shift)
(a) 12
(b) 15
(c) 18
(d) 20

Q46. A can complete some work in 35 days and B can complete the same work in 15 days. They worked together for 8 days, then B left the work. In how many days will A alone complete 60% of the remaining work?
A किसी कार्य को 35 दिनों में पूरा कर सकता है और B उसी कार्य को 15 दिनों में पूरा कर सकता है। उन्होंने 8 दिनों तक एक साथ कार्य किया, फिर B ने कार्य छोड़ दिया। कितने दिनों में A शेष कार्य का 60% पूरा करेगा?
CPO 2019 24-11-2020 (Evening Shift)
(a) 15
(b) 10
(c) 5
(d) 8

Q47.P and Q together can do a work in 12 days. P alone can do the same work in 18 days. In How many days can Q alone complete two-third part of the same work?
P और Q मिलकर एक कार्य को 12 दिनों में कर सकते हैं। P अकेले 18 दिनों में यह कार्य कर सकता है। कितने दिनों में Q अकेले इसी कार्य का दो-तिहाई हिस्सा पूरा कर सकता है ?
CPO 2019 24-11-2020 (Evening Shift)
(a) 21
(b) 36
(c) 24
(d) 30

Q48. A is twice as good as a workman as B, and together they finish a piece of work in 13 days. In how many days will A alone finish the work?
A, B से दोगुना अच्छा कार्य करता है, एक साथ वे 13 दिनों में एक कार्य खत्म कर देते हैं। A अकेले कितने दिनों में कार्य पूरा करेगा ?
CPO 2019 25-11-2020 (Morning Shift)
(a) $9\frac{1}{4}$
(b) 39
(c) $19\frac{1}{2}$
(d) 41

Q49. A and B can do a job in 10 days and 5 days, respectively. They worked together for two days, after which B was replaced by C and the work was finished in the next three days. How long will C alone take to finish 40% of the job?
A और B क्रमशः 10 दिनों और 5 दिनों में एक कार्य कर सकते हैं। उन्होंने दो दिनों तक एक साथ कार्य किया, जिसके बाद B को C से बदल दिया गया और अगले तीन दिनों में कार्य समाप्त हो गया। C को अकेले 40% कार्य पूरा करने में कितना समय लगेगा ?
CPO 2019 25-11-2020 (Morning Shift)
(a) 18 days
(b) 10 days
(c) 15 days
(d) 12 days

Q50. A can complete a certain work in 35 days and B can complete the same work in 15 days. They worked together for 7 days, then B left the work. In how many days will A alone complete 60% of the remaining work?
A किसी कार्य को 35 दिनों में पूरा कर सकता है और B उसी कार्य को 15 दिनों में पूरा कर सकता है। उन्होंने 7 दिनों तक एक साथ कार्य किया, फिर B ने कार्य छोड़ दिया। कितने दिनों में A शेष कार्य का 60% पूरा करेगा?
CPO 2019 25-11-2020 (Evening Shift)
(a) 10
(b) 7
(c) 8
(d) 15

Q51. P and Q together can do a work in 12 days, P alone can do the same work in 36 days, In how many days can Q alone complete two-third part of the same work?
P और Q मिलकर एक कार्य को 12 दिनों में कर सकते हैं, P अकेले उसी कार्य को 36 दिनों में कर सकता हैं, Q अकेले उसी कार्य का दो-तिहाई हिस्सा कितने दिनों में कर सकता हैं ?
CPO 2019 25-11-2020 (Evening Shift)
(a) 12
(b) 18
(c) 15
(d) 21

Pinnacle

SOLUTION

Variety Solutions

Sol 1.(c) Let the efficiency of A, B and C are 2 unit , 3 unit and 5 unit respectively.
Total work = 6(2+3+5) = 60 unit
20% of work = $60 \times \frac{20}{100}$ = 12 unit
Time taken by A = $\frac{12}{2}$ = 6 days

Sol 2. (b) Let the efficiency of A, B and C are 2 unit , 5 unit and 3 unit respectively.
Total work = $27 \times (2+5+3) = 270$ unit
Time taken by B and C to complete $\frac{4}{9}$ th part of that work = $\frac{270 \times \frac{4}{9}}{5+3}$ = 15 days

Sol 3. (c)
Let the efficiency of A = 1 unit
Total work = $48 \times 1 = 48$ unit
From $11\frac{1}{3}$ days, A worked for $5\frac{1}{3}$ days and B worked for 6 days
…...(B started the work)
Work done by A in $5\frac{1}{3}$ days = $\frac{16}{3} \times 1 = \frac{16}{3}$ unit
Work done by B = 48 - $\frac{16}{3}$ = $\frac{128}{3}$ unit
Efficiency of B = $\frac{128}{3 \times 6} = \frac{64}{9}$ unit
Time taken by B to finish 4 times of total work = $\frac{4 \times 48}{64/9}$ = 27 days

Sol 4. (d)
40% = $\frac{2}{5}$ ⇒ A : B = 7 : 5
20% = $\frac{1}{5}$ ⇒ B : C = 5 : 4
⇒ A:B:C = 7 : 5 : 4
Total work = 5 (7+5+4) = 80 unit
Time taken by A to complete the 70% of work = $\frac{80 \times 70}{7 \times 100}$ = 8 days

Sol 5. (a)
According to the question

	Man	:	Woman
Efficiency	1	:	3

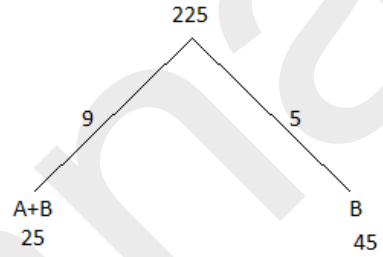
Man : Child
Efficiency 2 : 1
Balancing the ratio for man

	Man	:	Woman	:	Child
Efficiency	2	:	6	:	1

Total work = 6{3(2)+4(6)+6(1)}
= 216 unit
Let the required number of woman = w
$216 = 4 \times w \times 6$
⇒ w = 9

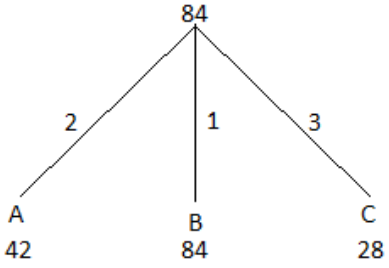
Sol 6. (d)
Per day wages of A = $180 \times 7 = 1260$
Per day wages of B = $160 \times 5 = 800$
Required Ratio = 1260 : 800
= 63 : 40

Sol 7. (a)
$33\frac{1}{3}\% = \frac{1}{3}$
1 unit work is done by B in 15 days
3 unit work is done by B in $3 \times 15 = 45$ days



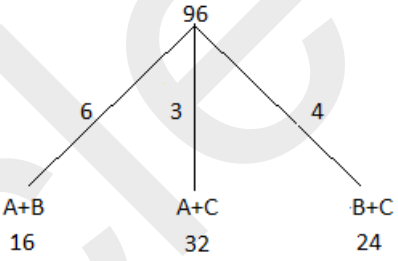
Total work = 225 unit
Efficiency of A+B = 9 unit
Efficiency of B = 5 unit
Efficiency of A = 9-5 = 4 unit
$\frac{4}{15}$ th of the task will be completed by A = $\frac{225 \times 4}{4 \times 15}$ = 15 unit

Sol 8. (c)



Let total work = 84 unit
Efficiency of A = 2 unit
Efficiency of B = 1 unit
Efficiency of C = 3 unit
Word done by A in first 3 days = $3 \times 2 = 6$ days
Work done by A and B in next 2 days = 2(2+1) = 6 days
Work remaining = 84-6-6 = 72 unit
Total time taken by all three to finish this work = $\frac{72}{2+1+3}$ = 12 days
A worked = 12+2+3 = 17 days

Sol 9. (b)



Total work = 96 unit
2(A+B+C) = 13 unit
A+B+C = 6.5 unit
Efficiency of C = 6.5-6 = 0.5 unit
Work done in 12 days = 12×6.5 = 78 unit
Work remaining = 96-78 = 18 unit
Required number of days = $\frac{18}{0.5}$ = 36

Sol 10. (a)
Total work = $18 \times 9 = 162$ unit
Work done = $18 \times 5 = 90$ unit
Remaining work = 162-90 = 72 unit
Required number of days = $\frac{72}{18+6}$ = 3

Sol 11. (b)
Man = 2 × Woman
⇒ $\frac{Man}{Woman} = \frac{2}{1}$
Total Work = $2 \times \{3(2)+2(1)\}$ = 16 unit
No of days required for a woman = $\frac{16}{1}$ = 16 days

Sol 12.(c)

	A	:	B
Time	15	:	10
Efficiency	4	:	6

A's share in the money = $35000 \times \frac{4}{4+6}$ = 14000

Sol 13. (c)
According to the question

	Helper		Labourer
Wages	2	:	1

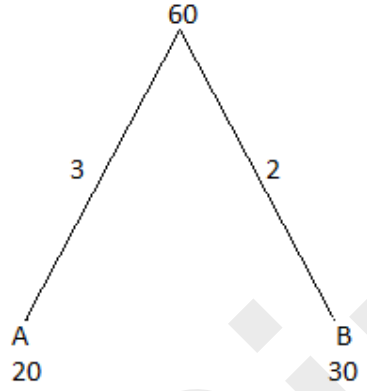
	Craftsman		Labourer
Wages	3	:	1

⇒

	Helper		Craftsman		Labourer
Wages	2	:	3	:	1

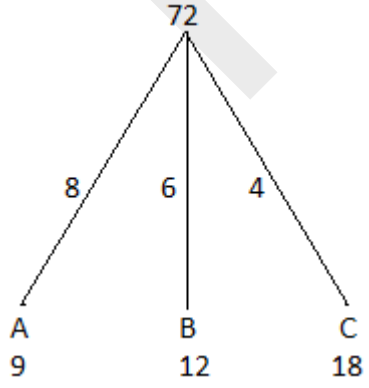
Total amount received = 3(3)+5(2)+6(1) = 25 unit
Now,
25 unit = 10000
1 unit = 400
Amount received by 3 craftsman (9 unit) = 9 × 400 = 3600

Sol 14. (b)
Number of days taken by B to complete 20%($\frac{1}{5}$) of Work = 6
Number of days taken by B to complete the work = 6 × 5 = 30 days



Required number of days = $\frac{60 \times 50}{(3+2) \times 100}$ = 6 days

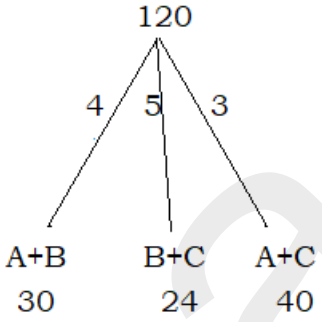
Sol 15. (d)



Let total work = 72 unit
Work done by All three in 3 days = 3(8+6+4) = 54 unit
Remaining work = 72-54 = 18 unit
Required number of days = $\frac{18}{6+4} = \frac{9}{5}$

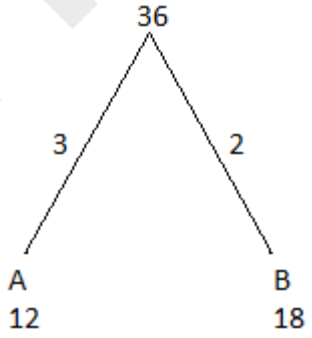
Alternate :
Work done by A in 3 days = 8 × 3 = 24 unit
Work remaining = 72-24 = 48 unit
Time taken by B and C to finish this work = $\frac{48}{6+4}$ =4 $\frac{4}{5}$
Number of days taken by B and C after exclusion of A = 4 $\frac{4}{5}$ -3 = 1 $\frac{4}{5}$ or $\frac{9}{5}$ days

Sol 16. (a)



Total work = 120 unit
2(A+B+C) = 4+5+3
A+B+C = 6 unit
Required number of days = $\frac{120}{6}$ = 20

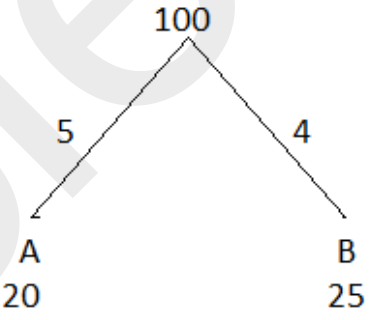
Sol 17. (d)



Total work = 36 unit
Work completed in 5 days = 5 × (3+2) = 25 unit
Remaining work = $\frac{36-25}{36} = \frac{11}{36}$

Sol 18. (a)
Let money earned by 6 men or 5 women in 2 days = 30 unit
Money earned by one man in 1 days = $\frac{30}{6\times2}$ = 2.5 unit
Money earned by one woman in 1 day = $\frac{30}{5\times2}$ =3 unit
4 women and 6 men earn in one day = 6(2.5)+4(3) = 27 unit
Now,
30 unit = 14820
1 unit = 494
27 unit = 27 × 494 = 13338

Sol 19. (d)



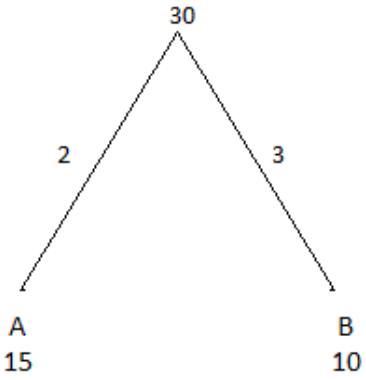
Work done by A+B in 10 days = 10(5+4) = 90 unit
Work done by C = 100-90 = 10 unit
Share of C = 700 × $\frac{10}{100}$ = 70

Sol 20. (c)
Total work = 42 × (7+5+8) = 840 unit
Work done in 21 days by C and B = 21 × (5+8) = 273 unit
Remaining work = 840-273 = 567
Time required by A to finish this work = $\frac{567}{7}$ = 81 days
Total number of days required to finish the work = 81+21 = 102

Alternate :
C and B worked 21 less number of days. So extra to be done by A = (5+8) × 21 = 273 unit
Extra days required by A to finish this work = $\frac{273}{7}$ = 39 days
Total number of days taken by A = 42+39 = 81
Total number of days required to finish the work = 81+21 = 102

Pinnacle

Sol 21. (b)
40% ($\frac{2}{5}$) work is done in 6 days.
$\Rightarrow$ 100% of the work will be done by A in $\frac{6\times5}{2}$ = 15 days
30% ($\frac{3}{10}$) of work is done by B in 3 days
$\Rightarrow$ 100% of the work will be done by B in $\frac{3\times10}{3}$ = 10 days



Let total work = 30 unit
Work done by B in 2 days = 2 × 3 = 6 unit
Work done by A = 30-6 = 24 unit
Number of days taken by A = Number of days required for the completion of work = $\frac{24}{2}$ = 12

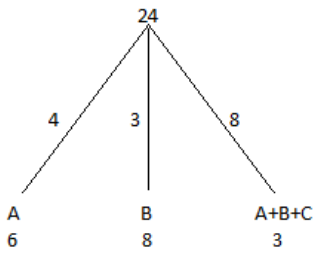
SSC CGL TIER II

Sol 1. (b)

	A : B
Efficiency	3 : 7

Total work = $\frac{21}{2}$ x (3+7) = 105 unit
Work done in 8 days = 8 x (3+7) = 80 unit
Work left = 105-80 = 25 unit
Time taken by A of finish 60 % of remaining work = $\frac{\frac{60}{100}\times25}{3}$ = 5 days

Sol 2. (a)
Let the total work = 24 unit



Efficiency of A = 4 unit
Efficiency of B = 3 unit
Efficiency of C = 8-4-3 = 1 unti
Since, all worked for the same time period, Share will be distributed according to the efficiency of worker
According to the question
8 unit = 1848
1 unit = 231

Sol 3. (d)
Let the number of Person = 100 and H be the desired number of hours.
$\Rightarrow$ Remaining persons = 60
According to the question
100 x 34 x 9 = 60 x 51 x H
$\Rightarrow$ H = 10 hours

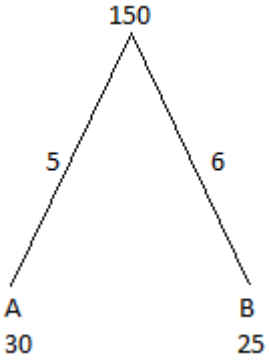
Sol 4. (d)
Let the efficiency of a man = m and efficiency of the woman = w and W be the desired number of woman.
{4(m)+5(w)} x 15 ={9(m)+6(w)} x 10
$\Rightarrow$ 60m + 75w = 90m + 60w
$\Rightarrow \frac{m}{w} = \frac{1}{2}$
Total work = {4(1)+5(2)} x 15 or {9(1)+6(2)} x 10 = 210 unit
According to question
210 = 7 x {4(1)+W(2)
$\Rightarrow$ 30 = 4 + 2W
$\Rightarrow$ W = 13

Sol 5. (a)

	X : Y
Efficiency	5 : 4

Total work = 10 x (5+4) = 90 unit
Work done by Y = 5 x 4 = 20 unit
Work left = 90-20 = 70 unit
Time taken by X to finish this work = $\frac{70}{5}$ = 14 days

Sol 6. (d)
40% ($\frac{2}{5}$ of work) is done by A = 12 days
Time taken by A to complete the work = 12 x $\frac{5}{2}$ =30 days
60% ($\frac{3}{5}$ of work) is done by B = 15 days
Time taken by B to complete the work = 15 x $\frac{5}{3}$ = 25 days



Let the total work = 150 unit
Work done in 10 days = 10 x (5+6) = 110 unit
Work left = 150-110 = 40 unit
Time taken by C = 4 days
Efficiency of C = $\frac{40}{4}$ = 10 unit
Time taken to finish 28% of the work = $\frac{\frac{28}{100}\times150}{5+6+10}$ = 2 days

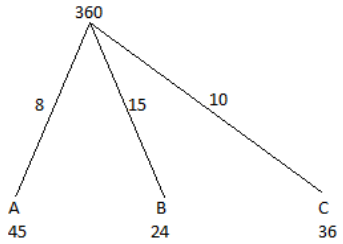
Sol 7. (a)

	A : B+C
Efficiency	1 : 1
	A+B : C
Time	36 : 60
Efficiency	5 : 3
Work	180 : 180

Balancing the ratio for total efficiency
A : B+C : A+B : C : Total
4 : 4 : 5 : 3 : 8
Efficiency of B =8-4-3 = 1 unit
Work done by A and C in 10 days = 10 x (4+3) = 70 unit
Work left = 180-70 = 110 unit
Time taken by B to finish this work = $\frac{110}{1}$ = 110 days

Sol 8. (c)
Time taken by A to finish 1/3rd of work = 15 days
Time taken by A to finish the complete work = 15 x 3 = 45 days
Time taken by B to finish 75%(3/4th) of work = 18 days
Time taken by B to finish the complete work = 18 x $\frac{4}{3}$ = 24 days

Pinnacle



Work done by B and C in 8 days = 8 x (15+10) = 200 units
Remaining work = 360-200 = 160 unit
Time taken by A to finish this work = $\frac{160}{8}$ = 20 days

Sol 9. (*)
Total work = 25 x 60 = 1500 unit
According to the question
1500 = 25x + 15(80-x)
1500 = 25x + 1200 - 15x
x = 30

Note : None of the given options is correct.

Practice Solutions

Sol 1. (d)
Efficiency of A : B : C = 4 : 5 : 3
Total work = (4+5+3)x25 = 12x25 = 300
Required time = $\frac{300\times35}{(4+3)\times100}$ = 15 *days*

Sol 2. (a)
Total work = 35 ×(7+5+4)unit = 560
Work done in 28 days by A and B = 28 ×(7+5) = 336 unit
Remaining work = 560-336 = 224
Time required by C to finish this work = $\frac{224}{4}$ = 56 days
Alternate :
A and B worked 7 fewer days. So extra to be done by C = (7+5) × 7 = 84 unit
Extra days required by C to finish this work = $\frac{84}{4}$ = 21 days
Total number of days taken by C = 35+21 = 56

Sol 3. (a)
Total work = 30 ×(5+3+8) = 480 unit
Work done in 20 days by A and B = 20 ×(5+3) = 160 unit
Remaining work = 480-160 = 320
Time required by C to finish this work = $\frac{320}{8}$ = 40 days
Alternate :
A and B worked 10 fewer days. So extra to be done by C = (5+3) × 10 = 80 unit
Extra days required by C to finish this work = $\frac{80}{8}$ = 10 days
Total number of days taken by C = 30+10 = 40

Sol 4. (b)
Total work = 35 ×(7+5+6) = 630 unit
Work done in 21 days by C and B = 21 ×(5+6) = 231 unit
Remaining work = 630-231 = 399
Time required by A to finish this work = $\frac{399}{7}$ = 57 days
Alternate :
C and B worked 14 less number of days. So extra to be done by A = (5+6) × 14 = 154 unit
Extra days required by A to finish this work = $\frac{154}{7}$ = 22 days
Total number of days taken by A = 35+22 = 57

Sol 5. (c)
Total work = 5 ×(3+5+1) = 45 unit
Work done in 3 days by A and B = 3 ×(3+5) = 24 unit
Remaining work = 45-24 = 21
Time required by C to finish this work = $\frac{21}{1}$ = 21 days
Alternate :
A and B worked 2 less days. So extra to be done by C = (3+5) × 2 = 16 unit
Extra days required by C to finish this extra work = $\frac{16}{1}$ = 16 days
Total number of days taken by C = 16+5 = 21 days

Sol 6. (b)
Total work = 21 ×(7+3+5) = 315 unit
Work done in 15 days by A and C = 15 × (7+5) = 180 unit
Remaining work = 315-180 = 135
Time required by B to finish this work = $\frac{135}{3}$ = 45 days
Alternate :
A and C worked 6 fewer days. So extra to be done by B = (7+5) × 6 = 72 unit
Extra days required by B to finish this extra work = $\frac{72}{3}$ = 24 days
Total number of days taken by C = 21+24 = 45 days

Sol 7. (a)
⇒ 40% = $\frac{2}{5}$ and 20% = $\frac{1}{5}$

	A : B
Efficiency	7 : 5
	B : C
Efficiency	5 : 4

A : B : C = 7 : 5 : 4
Total work = 16 × 15 = 240 unit
Number of days taken by B to finish 75% of work = $\frac{240\times75}{100\times5}$ = 36

Sol 8. (c)
⇒ 40% = $\frac{2}{5}$ and 20% = $\frac{1}{5}$

	A : B
Efficiency	7 : 5
	B : C
Efficiency	5 : 4

A : B : C = 7 : 5 : 4
Total work = 16 × 20 = 320 unit
Number of days taken by A to finish 35% of work = $\frac{320\times35}{100\times7}$ = 16

Sol 9. (d)
⇒ 50% = $\frac{1}{2}$ and 40% = $\frac{2}{5}$

	A : B
Efficiency	3 : 2
	B : C
Efficiency	5 : 3

Balancing the ratio for B
A : B : C = 15 : 10 : 6

Total work = (15+10+6) × 10 = 310 unit
Number of days taken by A to finish 150% of work = $\frac{310\times150}{100\times15}$ = 31

Sol 10. (a)
⇒ 50% = $\frac{1}{2}$ and 40% = $\frac{2}{5}$

	A : B
Efficiency	3 : 2
	B : C
Efficiency	5 : 3

Balancing the ratio for B
A : B : C = 15 : 10 : 6
Total work = (15+10+6) × 20 = 620 unit
Number of days taken by A to finish 30% of work = $\frac{620\times30}{100\times6}$ = 31

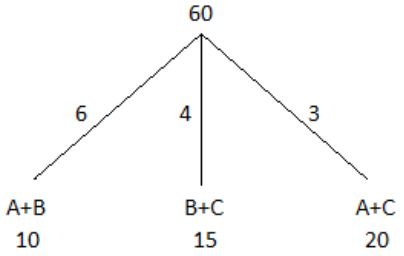
Sol 11. (d)
Total work = 9 × (2 + 5 + 3) = 90 unit
Number of days taken by C to finish 40% of work = $\frac{90\times40}{100\times3}$ = 12

Sol 12. (d)
Total work = 12 × (2 + 5 + 3) = 120 unit
Number of days taken by A to finish 30% of work = $\frac{120\times30}{100\times2}$ = 18

Sol 13. (a)
Total work = 21 × (5 + 3 + 2) = 210 unit
Number of days taken by B to finish 40% of work = $\frac{210\times40}{100\times3}$ = 28

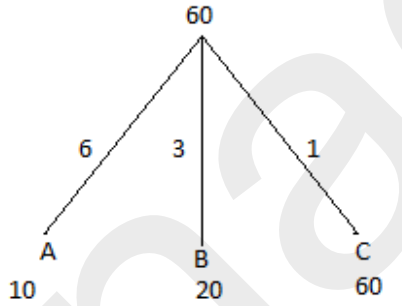
Sol 14. (b)
Total work = Number of men × Number of days × Number of hours
Let H be required the number of hours
⇒ 30 × 10 × 8 = 40 × 6 × H
⇒ H = 10 ans

Sol 15. (c)



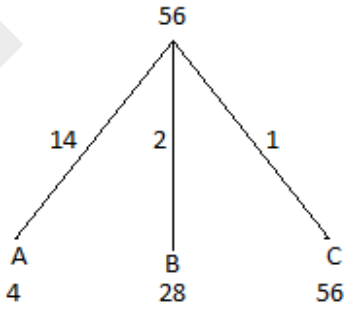
Total Work = 60 unit
2 × efficiency of (A+B+C) = 6+4+3
efficiency of (A+B+C) = 6.5
Efficiency of C = 6.5-6 = 0.5
Work done in 8 days = 8 × (A+B+C)
= 8 × 6.5 = 52 unit
Remaining work = 60-52 = 8 unit
Number of days taken by C = $\frac{8}{0.5}$ = 16

Sol 16.(b)



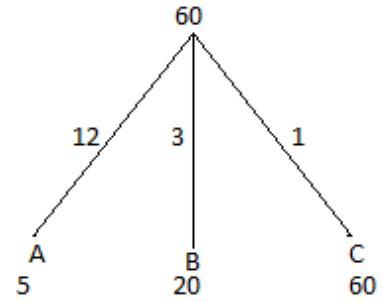
Total work = 60 unit
Required number of days = $\frac{60}{6+3+1}$ = 6

Sol 17.(d)



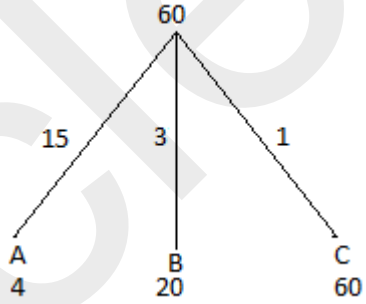
Total work = 56 unit
Required number of days = $\frac{56}{14+2+1}$ =3 $\frac{5}{17}$

Sol 18. (b)



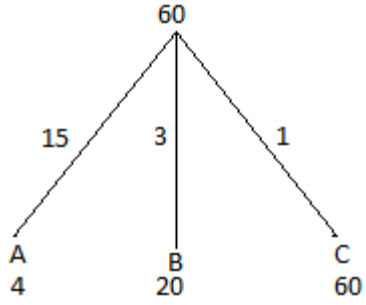
Total work = 60 unit
Required number of days = $\frac{60}{12+3+1}$ =3 $\frac{3}{4}$

Sol 19. (d)



Total work = 60 unit
Required number of days = $\frac{60}{15+3+1}$ =3 $\frac{3}{19}$

Sol 20. (b)



Total work = 60 unit
Required number of days = $\frac{60\times\frac{1}{3}}{15+3+1}$ =1 $\frac{1}{19}$

Sol 21. (d)

	A : B
Time	15 : 10
Efficiency	4 : 6

A's share in the money = 35000 × $\frac{6}{4+6}$ = 21000

Sol 22. (c)

Pinnacle

	A	:	B
Time	15	:	10
Efficiency	2	:	3

A's share in the money = $75000 \times \frac{3}{2+3} = 45000$

Sol 23. (c)
Required Ratio = 640 : 360
= 16 : 9

Sol 24. (d)

	A	:	B
Time	15	:	10
Efficiency	4	:	6

A's share in the money = $75000 \times \frac{4}{4+6} = 30000$

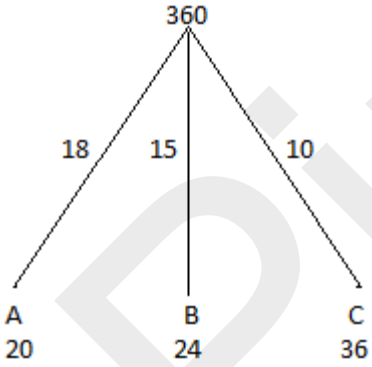
Sol 25.(d)
Total salary of A = $100 \times 8 = 800$
Total salary of B = $120 \times 6 = 720$
Required ratio = 720 : 800
= 9 : 10

Sol 26. (c)

	A	:	B
Days	15	:	20
Efficiency	4	:	3

A's share = $77000 \times \frac{4}{4+3} = 44000$

Sol 27.(a)



Total work = 360
Required number of days = $\frac{360}{18+15+10}$ $= 8\frac{16}{43}$

Sol 28. (d)
Total work = Number of men × Number of days × Number of hours
Let H be required the number of hours
$\Rightarrow 16 \times 27 \times 12 = 18 \times 24 \times H$
$\Rightarrow$ H = 12 ans

Sol 29. (b)
Total work = Number of men × Number of days × Number of hours
Let M be the required number of men
$\Rightarrow 40 \times 8 \times 12 = M \times 16 \times 4$
$\Rightarrow$ M = 60 ans

Sol 30. (c)
Let M be the required number of men
According to the question
$\frac{36\times8\times12}{3} = \frac{M\times16\times6}{5}$
Therefore, M = 60 men

Sol 31. (c) A : B : C = 5 : 6 : 9
Total Work = 18x(5+6+9) = 18x20 = 360
Number of days taken by B to finish 25% of work = $\frac{360\times\frac{25}{100}}{6} = 15$

Sol 32. (c)
Let D be the required number of days
According to the question
$\frac{16\times6\times10}{100} = \frac{24\times8\times D}{80}$
Therefore, D = 4 days

Sol 33. (b) Total work = 120x(5+6+8) = 120x19 = 2280 unit
Number of days taken by B to finish 40% of work = $\frac{2280\times\frac{40}{100}}{6} = 152$

Sol 33. (b) Let total capacity of tank be 240units
Efficiency of A=+15, B=+10 and C=-6
Therefore, Time to fill remaining tank = $\frac{240-152}{4} = \frac{88}{4} = 22\ hrs$

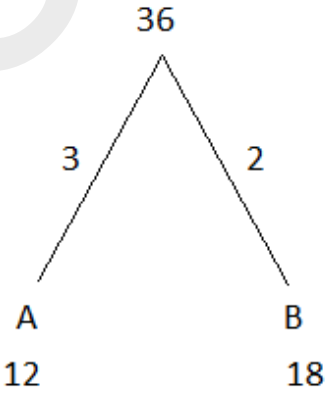
Sol 34. (a)
c
Therefore, time taken by A alone = $\frac{180}{4} = 45 days$

Sol 35. (c)
Let M be the required number of men
According to the question
$\frac{24\times8\times10}{2} = \frac{M\times6\times16}{4}$
Therefore, M=40

Sol 36. (a)
Let M be the required number of men
According to the question
$\frac{18\times8\times10}{3} = \frac{M\times6\times16}{5}$
$\Rightarrow M = 25$

Sol 37. (d)
Total work = $10 \times (2+5+7) = 140$ unit
Number of days taken by A to finish 30% of work = $\frac{10\times(2+5+7)\times30}{2\times100} = 21\ days$

Sol 38. (b)



Required number of days = $\frac{36}{3+2} = 7\frac{1}{5}$

Sol 39. (b)

	Woman	:	Man
Efficiency	2	:	1

	Man	:	Child
Efficiency	2	:	1

Balancing the ratio for man

	Woman	:	Man	:	Child
Efficiency	4	:	2	:	1

Total work = [3(2) + 4(4) + 6(1)]7 = 196
Required number of women = $\frac{196}{4\times7} = 7$

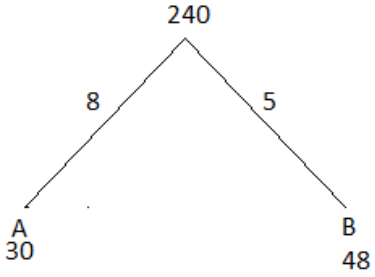
Pinnacle

Sol 40. (b)

Total work = Number of men × Number of days × Number of hours
= 3 × 12 × 6
= 216 unit
Work done in 3 days = 3 × 3 × 6
= 54 unit
Remaining work = 216-54 = 162 unit
Required number of days = $\frac{162}{2\times6}$ = 13 $\frac{1}{2}$

Alternate :
Let the required number of days = D
According to the question
3 × 9 × 6 = 2 × *D* × 6
D = 13 $\frac{1}{2}$

Sol 41. (d)



Work done by A in 20 days = 20 × 8 = 160 unit
Work left = 240-160 = 80 unit
Time taken by B = $\frac{80}{5}$ = 16

Sol 42 (c)
Let the required number of Men = M
According to the question
15 × 14 =M × 30
M = 7

Sol 43. (a)
Let D be the required number of days
According to the question
21x8=15xD
D = 11.2

Sol 44. (c)

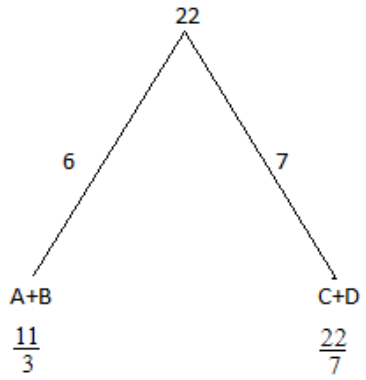
	A : B
Efficiency	3 : 1
	B : C
Efficiency	2 : 1

Balancing the ratio for B

A	:	B	:	C
6	:	2	:	1

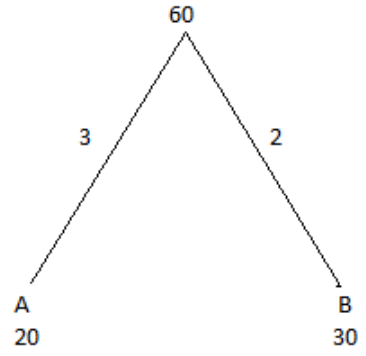
Total work = 2x15 = 30
Time taken by A & C together = $\frac{30}{7} = 4\frac{2}{7} days$

Sol 45. (a)



Let Total work = 22 unit
Total efficiency of A and B = 6
Total efficiency of C and D = 7
Required time = $\frac{22\times\frac{1}{2}}{6+7} = \frac{11}{13}$

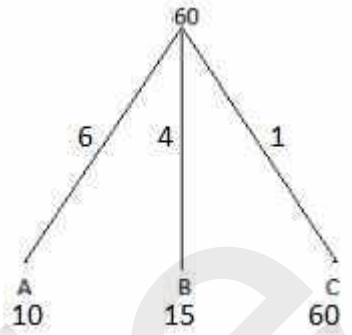
Sol 46. (a)
Number of days taken by A to complete 1/5th of work = 4 days
Number of days taken by A to complete the work = 4 × 5 = 20 days
Number of days taken by B to complete 1/6th of work = 5 days
Number of days taken by B to complete the work = 5 × 6 = 30 days



Let total work = 60 unit
Required number of days = $\frac{60}{3+2}$ = 12

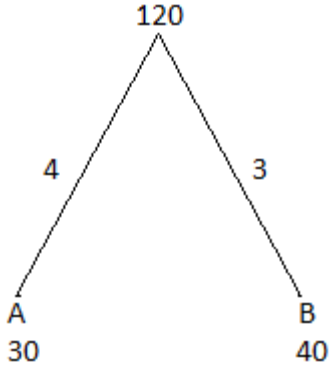
Sol 47. (c)
Required ratio = 40 × 12 : 60 × 10
= 4 : 5

Sol 48. (a)
Total work = 60 unit



Work done by A and B in 5 days = (6+4) x 5 = 50 unit
Work left = 60 - 50 = 10 unit
Time taken by B and C to finish this = $\frac{10}{4+1}$ = 2 days
Total time taken = 5+2 = 7 days

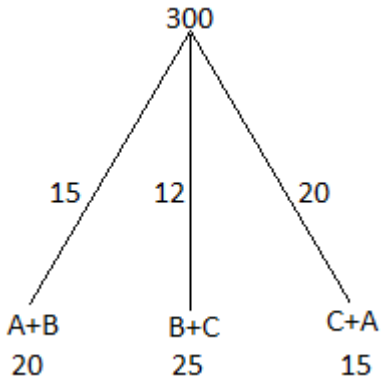
Sol 49. (a)



Work done in one cycle (2 days) = 4+3 = 7 unit
Work done in 17 cycles (34 days) = 17 x 7 = 119 unit
Work to be done in 35th day = $\frac{1}{4}$ = 0.25 days
Total time taken = 34 + 0.25 = 34.25 days

Sol 50. (b)
Let the total work = 300 unit

Pinnacle



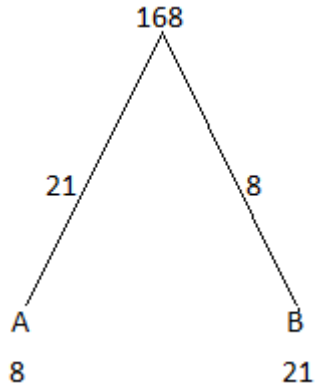
⇒ efficiency of (A+B+C) = $\frac{15+12+20}{2}$ = 23.5

⇒ efficiency of A = 23.5-12 = 11.5

Desired number of days = $\frac{300}{11.5}$ = $\frac{600}{23}$

Sol 51. (d)

Let the total work = 168 unit

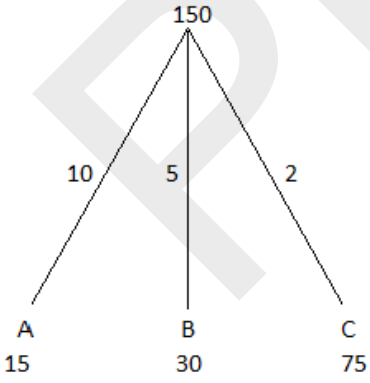


Work done in 3 days = (21+8) x 3 = 87 unit

⇒ Work done in fraction = $\frac{87}{168}$ = $\frac{29}{56}$

Sol 52. (a)

Total work = 150 unit



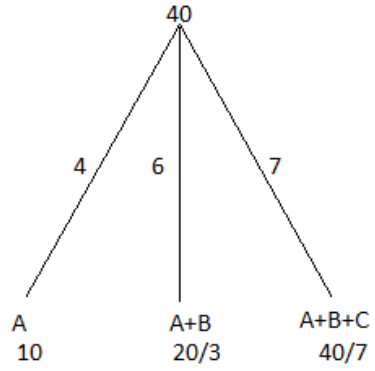
Ratio of the efficiency of A, B and C = 10 : 5 : 2

Since, they worked for the same period of time their share will be distributed in the ratio of their efficiency.

Desired difference = 1615 x $\frac{10-2}{10+5+2}$ = 760

Sol 53. (c)

Total work = 40 unit



⇒ Efficiency of B+C = 7-4 = 3

Desired number of days = $\frac{40}{3}$

Sol 54. (b)

Total work = Number of men × Number of days × Number of hours

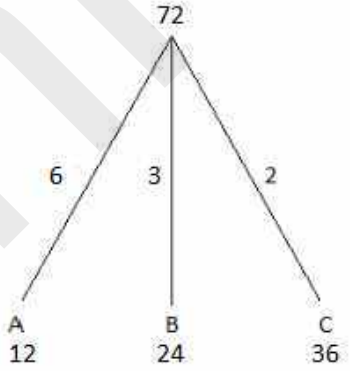
Let D be the required number of days

⇒ $10 \times 30 \times 8 = 12 \times 4 \times D$

⇒ D = 50 ans

Sol 55. (a)

Total work = 72 unit



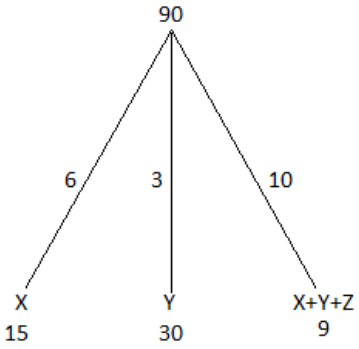
Ratio of the efficiency of A, B and C = 6 : 3 : 2

Since, they worked for the same period of time their share will be distributed in the ratio of their efficiency.

Desired difference = 3850 x $\frac{3-2}{6+3+2}$ = 350

Sol 56. (b)

Let the number of days = 90 unit

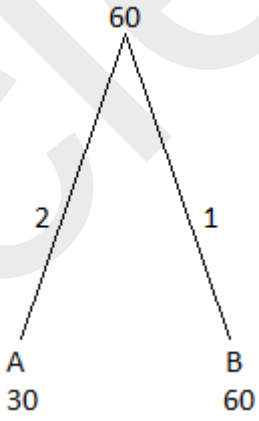


Efficiency of Z = 10-6-3 = 1 unit

Number of days taken by Z = $\frac{90}{1}$ = 90 days

Sol 57. (c)

Let the total work = 60 unit



Work done in 5 days = (2+1) x 5 = 15 unit

Work left = 60-15 = 45 unit

Desired fraction = $\frac{45}{60}$ = $\frac{3}{4}$

Sol 58. (b)

Let the efficiency of a technician in studio A = a

And the efficiency of a technician in studio B = b

According to the question

5 x a x 30 = 8 x b x 15

⇒ a:b = 4 : 5

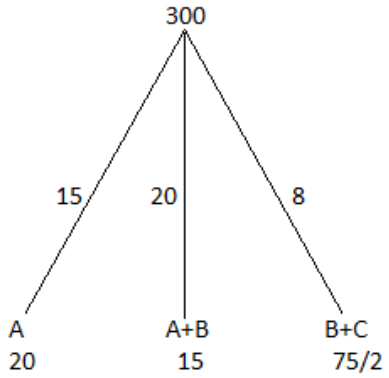
Total work = 5 x 4 x 30 = 8 x 5 x 15 = 600 unit

Desired number of days = $\frac{600}{4+5}$ = $\frac{200}{3}$

Sol 59. (d)

Total work = 300 unit

Pinnacle



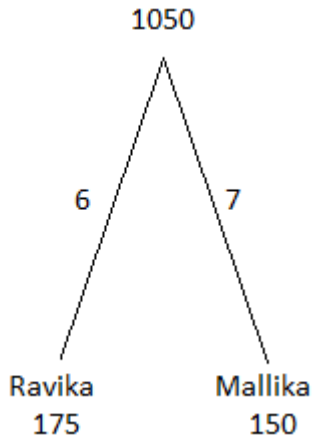
Efficiency of A = 15 unit
Efficiency of A+B = 20 unit
⇒ efficiency of B = 20-15 = 5 unit
Efficiency of B+C = 8 unit
⇒ efficiency of C = 8-5 = 3 unit
Desired ratio = 15 : 5 : 3

Sol 60. (a)

	Mohit : Rohit
Efficiency	5 : 1
Time	1 : 5

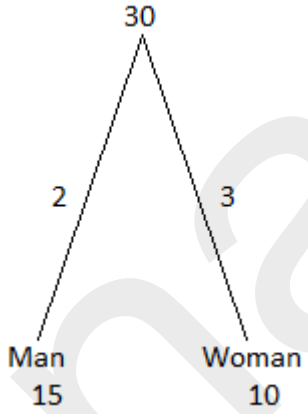
According to the question
(5-1) unit = 28
1 unit = 7
Number of days taken by Rohit = 5 x 7 = 35

Sol 61. (c)
Number of days taken by Ravika to complete three-fifth of the work = 105 days
Number of days taken by Ravika to complete the work = 105 x $\frac{5}{3}$ =175 days
Number of days taken by Mallika to complete one-third of the work = 50 days
Number of days taken by Mallika to complete the work = 50 x 3=150 days



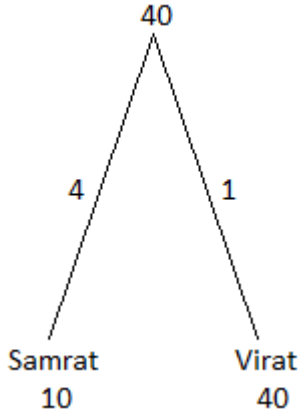
$\frac{26}{35}$ of the work = 1050 x $\frac{26}{35}$ = 780
Required number of days = $\frac{780}{6+7}$ = 60 days

Sol 62. (d)
Total work = 30 unit



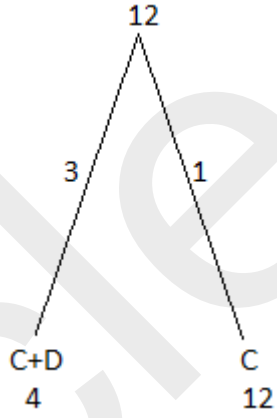
Work done in 5 days = (2+3) x 5 = 25 unit
Work left = 30-25 = 5 unit
Desired number of days = $\frac{5}{3}$ = $1\frac{2}{3}$ days

Sol 63. (b)
Total work = 40 unit



Work done in one cycle (2 days) = 4+1 = 5 unit
⇒ 40 unit will be done in = $\frac{40}{5}$ = 8 cycles
So, required number of days = 8 x 2 = 16

Sol 64. (b)
Let the total work = 12 unit



Efficiency of D = 3-1 = 2 unit
Desired number of days = $\frac{12}{2}$ = 6 days

Sol 65. (c)
Let D be the required number of days.
According to the question
⇒ $\frac{40}{10 \times 20} = \frac{10}{8 \times D}$
⇒ D = $6\frac{1}{4}$ days ans

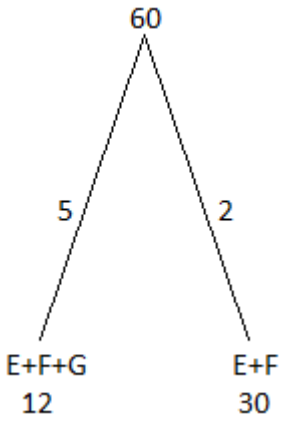
Sol 66. (c)

	Piyush : Arun
Time	8 : 14
Efficiency	14 : 8

According to the question
(14+8) unit = 44000
1 unit = 2000
Share of piyush = 14 unit = 28000

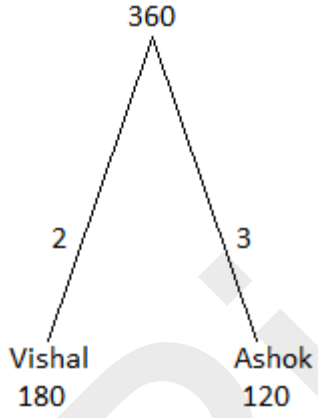
Sol 67. (b)
Let the total work = 60 unit

Pinnacle



Efficiency of G = 5-2 = 3 unit
Desired number of days = $\frac{60}{3}$ = 20

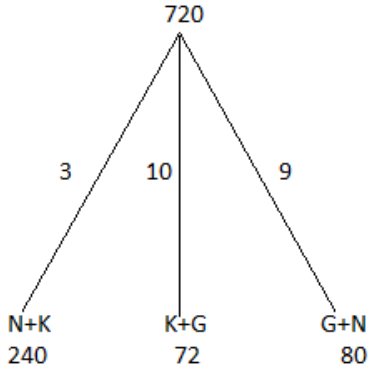
Sol 68. (c)
$\frac{1}{3}$ part of a work is completed by Vishal = 60 days
Total work is completed by Vishal = 60 x 3 = 180 days
$\frac{1}{4}$ part of a work is completed by Ashok = 30 days
Total work is completed by Ashok = 30 x 4 = 120 days



Desired number of days = $\frac{360}{2+3}$ = 72 days

Sol 69. (b)
Bags made by Anil in one day = $\frac{20}{4}$ = 5 bags
Bags made by Manoj in one day = $\frac{10}{5}$ = 2 bags
Total bags made in one day = 5+2 = 7 bags

Sol 70. (c)
Total work = 720 unit



Efficiency of N, K and G = $\frac{3+10+9}{2}$ = 11 unit
⇒ Efficiency of K = 11-9 = 2 unit
Desired number of days = $\frac{720}{2}$ = 360 days

Sol 71. (a)
Total work is done = 50 days
Work done in 10 days = $\frac{10}{50}$ = $\frac{1}{5}$

Sol 72. (d)
50% of work is done by A = 16 days
Total work is done by A = 16 x 2 = 32 days
1/4th of work is done by B = 24 days
Total work is done by B = 24 x 4 = 96 days



Desired number of days = $\frac{96\times\frac{7}{4}}{3+1}$ = 42 days

Sol 73. (a)
Let the number of person = n and efficiency = k
Total work = n × k × 84
Desired number of days = $\frac{\frac{1}{2}\times(n\times k\times 84)}{2n\times k}$ = 21

Sol 74. (c)
Let the efficiency of A = a and B = b
According to the question
(a+b) x 12 = (a+b) x 9 + 5a
⇒ $\frac{a}{b}$ = $\frac{3}{2}$
Total work = (3+2) x 12 = 60 unit
Desired number of days = $\frac{60}{2}$ = 30 days
Alternate :
B Worked three days less so A has to work 2 days more
⇒ b x 3 = a x 2
⇒ a:b = 3:2
Total work = (3+2) x 12 = 60 unit
⇒ Desired number of days = $\frac{60}{2}$ = 30 days

Sol 75. (c)
Let M be the total number of men
According to the question
$\frac{70\times25}{1}$ = $\frac{M\times35}{3}$
Therefore, M = 150 men
Additional number of men required = 150 - 70 = 80 men

Sol 76. (d)
Let the number of days taken by x = d
⇒ the number of days taken by y = d+10
According to the question
$\frac{d\times(d+10)}{d+(d+10)}$ = 12
⇒ d^2 + 10d = 24d+ 120
⇒ d^2 -14d - 120 = 0
⇒ d^2 -20d + 6d - 120 = 0
⇒ d(d-20) + 6(d-20) = 0
⇒ d = 20
Number of days taken by y = 20+10 = 30

Sol 77. (d)

	A : B
Efficiency	2 : 1

Total work = (2+1) x 24 = 72 unit
Number of days taken by A = $\frac{72}{2}$ = 36

Sol 78.(c)
25% = $\frac{1}{4}$

A : B

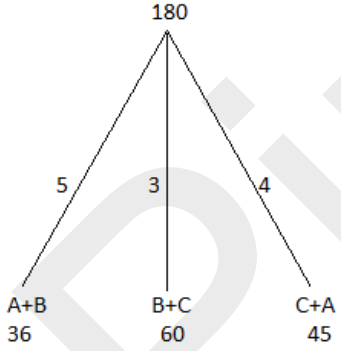
Pinnacle

Efficiency 4 : 5
Total work = 4 x 15 = 60 unit
Number of days taken by A+B = $\frac{60}{4+5} = \frac{20}{3}$

Sol 79. (b)
Total work = 35 x 30 = 1050 unit
Work done in first 10 days = 35 x 10 = 350 unit
Work done in next 10 days = 30 x 10 = 300 unit
Work done in next 10 days = 25 x 10 = 250 unit
Work left = 1050 - 350-300-250 = 150 unit
Time taken to finish this work = $\frac{150}{20}$ = 7.5 days
Total time taken = 10 + 10 + 10 + 7.5 = 37.5 days

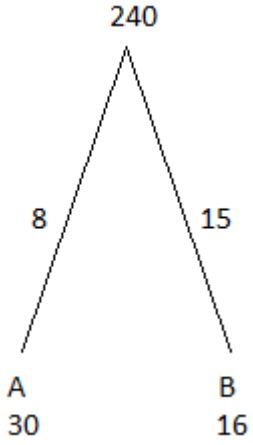
Sol 80. (a)
Let M be the total number of men
According to the question
$\frac{105\times25}{1} = \frac{M\times35}{2}$
Therefore, M = 150 men
Additional number of men required = 150 - 105 = 45 men

Sol 81. (d)
Let the total work = 180 unit



⇒ Efficiency of A+B+C = $\frac{5+3+4}{2}$ = 6 unit
So, Efficiency of B = 6-4 = 2 unit
Desired number of days = $\frac{180}{2}$ = 90 days

Sol 82. (d)
Let the total work = 240 unit

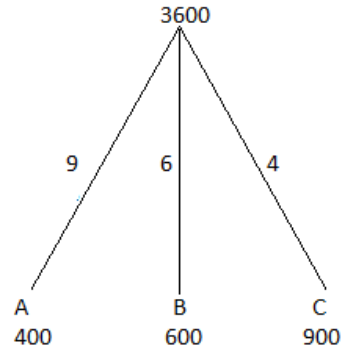


Work remaining = 240 x $\frac{1}{2}$ = 120 unit
Desired number of days = $\frac{120}{15}$ = 8

Sol 83. (a)
A : B
Efficiency 3 : 1
B : C
Efficiency 2 : 1
Balancing the ratio for B
A : B : C
Efficiency 6 : 2 : 1
Total work = 120 x 1 = 120 unit
Required number of days = $\frac{120}{3}$ = 13.33

Sol 84. (b)
Let the efficiency of X = x and Y = y
According to the question
$36 \times x = 18 \times y$
x:y = 1:2
Work left by x = 12 x 1 = 12 unit
Time required by y to finish it = $\frac{12}{2}$ = 6 days
Desired answer = 12-6 = 6 days
Note : Efficiency of x is half of y so number of days taken by x will be double.

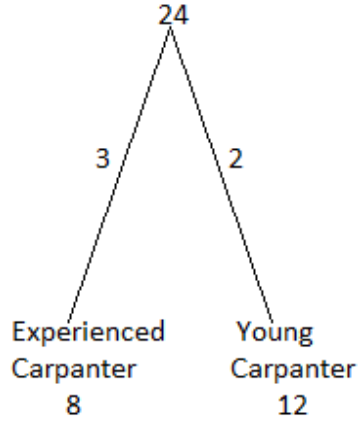
Sol 85. (d)
Let the total work = 3600 unit



Work done in one cycle (3 days) = 9 + (9+6) + (9+4) = 37 unit
Work done in 97 cycles (291 days) = 37 x 97 = 3589 unit
Work done on day 292 = 3589+9 = 3598 unit
Work left = 3600-3598 = 2 unit
Time taken to finish it = $\frac{2}{15}$ days
⇒ The work will be finished on 293 day.

Sol 86. (a)
A : B
Efficiency 1.5 : 1
Total work = (1.5+1) x 12 = 30
Number of days taken by A = $\frac{30}{1.5}$ = 20

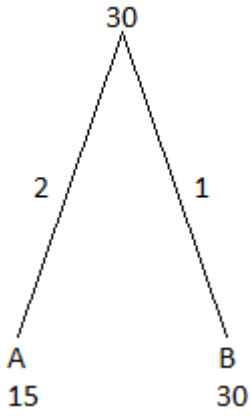
Sol 87. (a)
Let the total work = 24 unit



Work done in 3 days = (3+2) x 3 = 15
Remaining work = 24-15 = 9 unit
Desired number of days = $\frac{9}{3}$ = 3 days

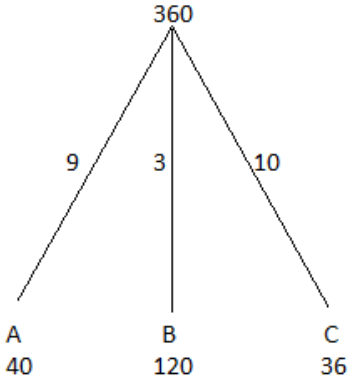
Sol 88. (a)
Let the total work = 30 unit

Pinnacle



Desired number of days = $\frac{30}{2+1}$ = 10 days

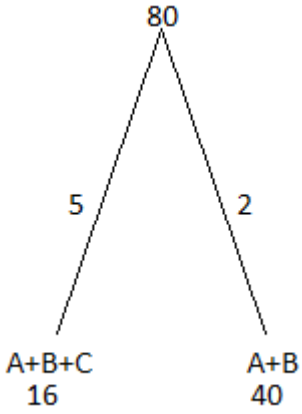
Sol 89. (a)
Let the total work = 360 unit



Work done in 20 days = (9+3) x 20 = 240 unit
Work left = 360-240 = 120 unit
Desired number of days = $\frac{120}{10}$ = 12 days

Sol 90. (c)
Let the efficiency of A = a and efficiency of B = b
(a+b) x 21 = 42 x a
⇒ a:b = 1:1
Total work = (1+1) x 21 = 42 x 1 = 42 unit
Number of days taken by B = $\frac{42}{1}$ = 42 days
Note : Efficiency of A and B is same so number of days taken will also be same.

Sol 91. (a)
Let the total work = 80 unit



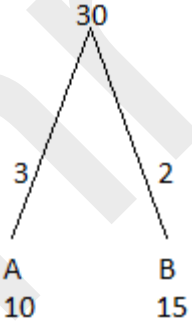
Efficiency of C = 5-2 = 3 unit
Desired number of days = $\frac{80}{3}$ = 26.67

Sol 92. (a)

	A : B
Efficiency	1 : 3

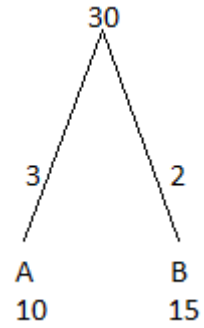
Total work = 96 x 1 = 96 unit
Work done by B in 24 days = 24 x 1 = 24 unit
Work left = 96-24 = 72 unit
Required number of days = $\frac{72}{1+3}$ = 18

Sol 93. (b)
Let the total work = 30 unit



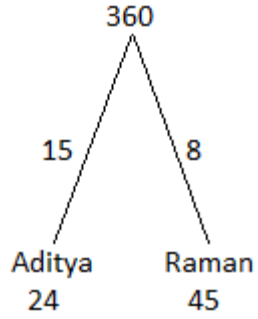
Since, Both worked for same number of days the amount will be distributed in the ratio of their efficiency.
⇒ (3+2) unit = 2000
1 unit = 400
Share of B (2 unit) = 2 x 400 = 800

Sol 94. (c)
Let the total work = 30 unit



Work done in 2 days = (3+2) x 2 = 10 unit
Work left = 30-10 = 20 unit
Time taken by A to finish this work = $\frac{20}{3}$
Total time taken to finish this work = $\frac{20}{3}$ +2 = $\frac{26}{3}$
Alternate :
Since A worked for the complete period total number of days taken to finish the work = number of days taken by A .
Work done by B in 2 days = 2 x 2 = 4 unit
Work done by A = 30-4 = 26 unit
Number of days taken by A = $\frac{26}{3}$

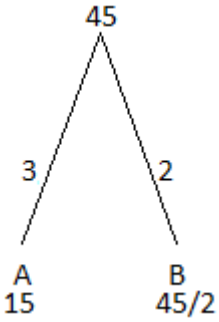
Sol 95. (c)
Let the total work = 360 unit



Desired number of days = $\frac{360}{15+8}$ = $\frac{360}{23}$

Sol 96. (c)
Let the total work = 45 unit

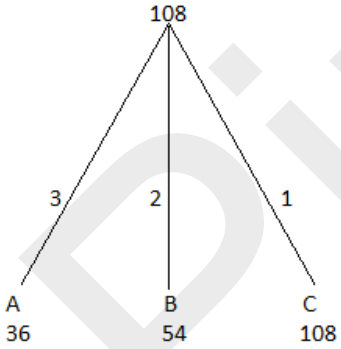
Pinnacle



Work done in 6 days = (3+2) x 6 = 30 unit
⇒ Work left = 45-30 = 15 unit
Efficiency of C = $\frac{15}{6}$ = 2.5
Desired number of days = $\frac{45}{3+2+2.5}$ = 6

Sol 97. (c)
100% work is done by A = 30 days
60% work is done by A = 18 days
According to the question
18 x A = 21 x B
⇒ A:B = 7:6
Total work = 7 x 30 = 210 unit
Work to be finished by A and B together = 210 x $\frac{65}{100}$
Desired number of days = $\frac{210 \times \frac{65}{100}}{7+6}$ =10 $\frac{1}{2}$ days

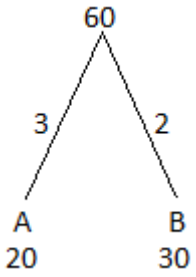
Sol 98. (a)
Let the total work = 108 unit



Work done in 9 days = 9 x (3+2+1) = 54 unit
Let D be the number of days in which this work was done.
⇒ 54 = 2 x (D-3) + 1 x D
⇒ 60 = 3D
⇒ D = 20
Total days taken to finish this work = 20 + 9 = 29 days
Alternate :
Had B worked 3 days more extra work done = 3 x 2 = 6 unit
Total work = 54+6 = 60 unit
Number of days taken to finish this work = $\frac{60}{2+1}$ = 20 days
Total days taken to finish this work = 20 + 9 = 29 days

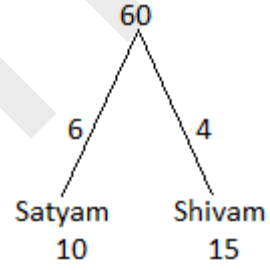
Sol 99. (a)
Let M be the required number of persons
According to the question
6 x 14 = 4 x M
⇒ M = 21

Sol 100. (b)
Let the total work = 60 unit



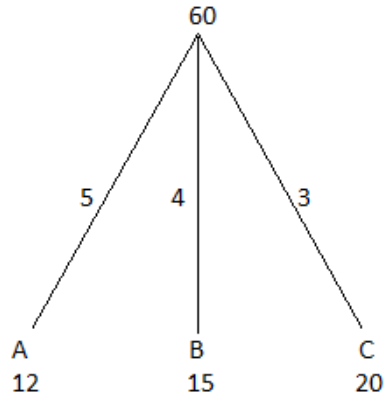
Work done by both in one day = 3+ $\frac{2}{2}$ = 4 unit
Desired number of days = $\frac{60}{4}$ = 15 days

Sol 101. (a)



Work done in 4 days = (6+4) x 4 = 40 unit
Work left = 60-40 = 20 unit
Number of days taken by Shivam to finish this work = $\frac{20}{4}$ = 5 days
Desired number of days = 4+5 = 9 days

Sol 102. (a)
Let total work = 60 unit



Desired number of days = $\frac{60}{5+4+3}$ = 5 days

Sol 103. (b)
Total work = 180 unit



Work done in 6 days = 6 x (9+8) = 102 unit
Work left = 180-102 = 78 unit
Efficiency of C = $\frac{78}{26}$ = 3 unit
Desired number of days = $\frac{180}{9+8+3}$ = 9 days

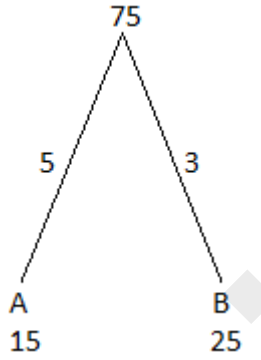
Sol 104. (b)
Let the efficiency of A = a and B = b
Total work = 24 (a+b)
According to the question
$\frac{24(a+b)}{2a} + \frac{24(a+b)}{2b} = 50$
⇒ $\frac{(a+b)^2}{ab} = \frac{25}{6}$
Only 3 and 2 can be the values of a and b to satisfy the given condition.
So a=3 and b = 2
…….(a ≻ b)
Total work = (3+2) x 24 = 120
Desired number of days = $\frac{120 \times \frac{40}{100}}{2}$ = 24 days

Sol 105. (b)

Pinnacle

Let efficiency of Man = m and efficiency of Woman = w
According to the question
(36m + 48w) = 5 x (6m+12w)
36m + 48w = 30m + 60w
6m = 12w
⇒ m:w = 2:1
Total work = 36(2) + 48(1) = 30(2) + 60 = 120
Desired number of woman = $\frac{120}{8\times 1}$ = 15

Sol 106. (a)
Number of days taken by A to complete one-third of a work = 5 days
Number of days taken by A to complete the full work = 5 x 3 = 15 days
Number of days taken by B to complete 2/5th of a work = 10 days
Number of days taken by B to complete the full work = 10 x $\frac{5}{2}$ = 25 days

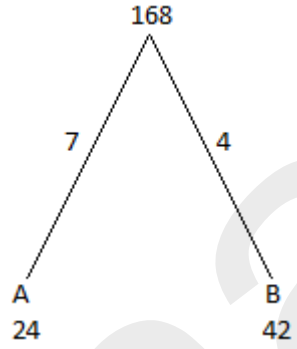


Let the total work = 75 unit
Work done in 6 days = (5+3) x 6 = 48 unit
Work remaining = 75-48 = 27 unit
Efficiency of C = $\frac{27}{18}$ = $\frac{3}{2}$
Required number of days = $\frac{75}{3/2}$ = 50 days

Sol 107. (a)
Total work = (3+7) x 14 = 140 unit
Work done in 8 days = (3+7) x 8 = 80 unit
Work remaining = 140-80 = 60 unit
This work will be finished by A = $\frac{60}{3}$ = 20 days
Total number of days = 20+8 = 28 days

Alternate :
Total work = (3+7) x 14 = 140 unit
Work done by B in 8 days = 7 x 8 = 56 unit
Work remaining = 140-56 = 84 unit
This work will be finished by A = $\frac{84}{3}$ = 28 days
Since A worked for the complete period total number of days taken to finish the work = number of days taken by A .

Sol 108. (b)
Let the total work = 168 unit



Work done by A in 20 days = 20 x 7 = 140 unit
Work done by B = 168-140 = 28 unit
⇒ B worked for $\frac{28}{4}$ = 7 days
⇒ X = 20-7 = 13 days
Alternate :
168 = 7x + (7+4)(20-x)
168 = 7x + 220 - 11x
4x = 52
⇒ x = 13

Sol 109. (a)

	A+B : A+B+C
Work	13 : 15
	C+B : A+B+C
Work	11 : 20

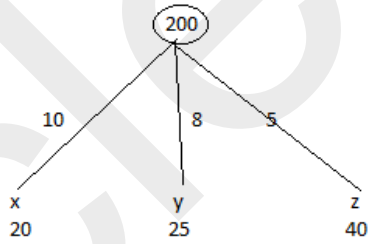
Balancing the ratio for total work

A+B	: B+C	: A+B+C
52	: 33	: 60

Work done by A = 60-33 = 27 unit
Work done b C = 60-52 = 8 unit
Amount will be distributed according to the amount of work done by each person.
According to the question
(27-8) unit = 7600
1 unit = 400
Total wages of A, B and C = 60 unit = 60 x 400 = 24000

Sol 110. (c) Let the required number of buckets = n
According to the question
12 x 13.5 = 9 x n
⇒ $n = \frac{12\times 13.5}{9}$ = 18

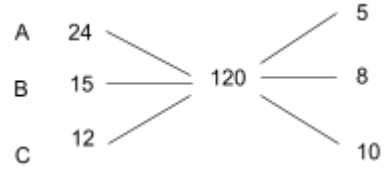
Sol111. (c)
Let the total work = 200 unit



Total amount filled in 1 minute = (10+8+5) unit
Total amount filled in 10 minutes = (10+8+5) x 10 = 230 unit
Amount of chemical B filled in 10 minutes = 10 x 8 = 80 unit
Required ratio = $\frac{80}{230}$ = $\frac{8}{23}$

SSC CGL TIER I

Sol 1. (c) A can complete the work in 24 days
B can complete the work in 15 days
C can complete the work in 12 days



Here, total work done be lcm(24,15,12) = 120 units
Thus, efficiency of A,B and C is $\frac{120}{24}$ =5, $\frac{120}{15}$ =8, $\frac{120}{12}$ =10 respectively.

Work done by B and C in 3 days is (18
× 3)= 54 units

Pinnacle

Work remaining = 120-54= 66 units
A will do 66 units work in $\frac{66}{5}$ days = $13\frac{1}{5}$ days

Sol 2. (c) A can complete the work in 40 days.

We know that,
efficiency $\propto \frac{1}{time\ taken}$
It is given that B is 25% more efficient than A and C is 28% more efficient than B
So, their efficiency can be stated as follows:
A:B:C = 4 : 5 : 6.4
Total work done by A in 40 days= 4 × 40 = 160 units
Total work done in 5 days = 5 × (15.4) = 77 units
Remaining work= 83 units
B can complete remaining work in $\frac{83}{5} = 16\frac{3}{5} days$.

Sol 3. (d) A can finish the work in 20 days
B can finish the work in 25 days
Total work = LCM(20,25) = 100 units

Efficiency of A = $\frac{100}{20}$ = 5unit/day
Efficiency of B = $\frac{100}{25}$ = 4unit/day

Work done by A and B together in 5 days = (5+4) × 5 = 45 units

Remaining work = 100-45=55 units
A complete remaining work in $\frac{55}{5}$ = 11 days.

Sol 4. (a) A can complete work in 30 days.
Efficiency of A:B = 4:5
Efficiency of B:C = 5:6
Efficiency A:B:C= 4:5:6
Total work done by A in 30 days= 4 × 30 = 120 units
In 3 days, they will together complete (3*[4+5+6])= 45 units of work
Remaining work = 75 units.
B complete remaining work in $\frac{75}{5}$ = 15 days.

Sol 5. (a) Working together A and B takes 'd' days.
Working alone, A takes '8+d' days
And B takes '18+d' days.
$\frac{1}{d} = \frac{1}{8+d} + \frac{1}{18+d}$
d= 12 days.
Now, working alone A takes '20 days' and B takes '30 days'.
Total work = lcm(20,30) = 60 units
Efficiency of A = $\frac{60}{20}$ = 3
Efficiency of B = $\frac{60}{30}$ = 2
In 4 days, A does 12 units of work
B complete work in $\frac{60-12}{2}$ = 24 days.

Sol 6 (d) Let efficiency of 1men = m units and efficiency of 1 woman = w units
According to question:
5(4m+6w)=7(3m+4w)
⇒ Efficiency of 1 men = 2women
Total work = 5[4(2w)+6w] = 70w units.
Let x men assist 25 women to complete $\frac{5}{2}$ times 70w units of work in 5 days.
$\frac{5}{2} \times 70w = 5[25w + x(2w)]$
⇒ 175w = 125w+ 10wx
⇒ 50 = 10x
⇒ x = 5

Sol 7. (c) According to question,
X:Y:Z = 7:5:3 = 15 units
Total work = 21 × (15) = 315 units
In 35 days, Y and Z completed = 35 × 8 = 280 units
Remaining work = 35 units
X can complete 35 units work in $\frac{35}{7}$ = 5 days.

Sol 8. (b) Let efficiency of a man = 'm' and efficiency of a woman = 'w'
Sixteen men can finish the work in 8 days, thus, total work = 16 × 8 × m
8 men and 9 women can finish work in 10 days, implies, total work = 10 × (8 × m+ 9 × w)
⇒ 16 × 8 × m = 10 × (8 × m+ 9 × w)
⇒ 48 × m = 90 × w
⇒ m:w = 15:8
20 women finish the work in = $\frac{16\times8\times15}{20\times8}$ = 12 days.

Sol 9. (d)
A, B and C can individually complete a task in 24 days, 20 days and 18 days respectively
Total work = lcm(24,20,18) = 360 units
Efficiency of A,B and C = $\frac{360}{24} = 15 units/day$,
$\frac{360}{20} = 18 units/day$,
$\frac{360}{18} = 20 units/day$ respectively.
Work done by B and C in 6 days = 6 × (38) = 228 units
Remaining work = 360-228 = 132 units.
A can complete remaining work in $\frac{132}{15} = 8\frac{4}{5}$ days

Sol 10. (d)
Time taken by Amit+Sunil = 9 days
Time taken by Sunil+Dinesh = 12 days
Time taken by Dinesh+Amit = 18 days
Total work = lcm (9,12,18) = 36 units
efficiency (Amit+Sunil) = $\frac{36}{9}$ = 4 unit/day
efficiency (Sunil+Dinesh) = $\frac{36}{12}$ = 3 unit/day
efficiency (Amit+Dinesh) = $\frac{36}{18}$ = 2 unit/day

Amit's efficiency = 1.5 unit/day
Sunil's efficiency = 2.5 unit/day
Dinesh's efficiency = 0.5 unit/day

Together they complete work in $\frac{36}{4.5}$ = 8 days

Sol 11. (a) A alone can complete work in = 20 days
B alone can complete work in = 16 days
C alone can complete work in = 30 days

Pinnacle

Total work = lcm(20,16,30) = 240 units
Individual efficiency of A, B and C = $\frac{240}{20}$ = 12, $\frac{240}{16}$ = 15 *and* $\frac{240}{30}$ = 8 respectively.
Work done by A and B in 4 days = 27 × 4 = 108 units
Remaining work = 132 units
Days required by C to finish remaining work = $\frac{132}{8}$ = 16 $\frac{1}{2}$ days

Sol 12. (b) 10 men = 12 women
⇒ m:w = 6:5
⇒ Total work = work done by 10 men in 10 days = 10 × 6 × 10 = 600 units
⇒ Work done by 5 men and 2 women in 1 day = 5 × 6+2 × 5 = 40 units
⇒ time to complete 600 units work = $\frac{600}{40}$ days = 15 days

Sol 13. (c) $M_1D_1 = M_2D_2$
⇒ $18 \times 35 = 21 \times D_2$
⇒ D_2 = 30 days

Sol 14. (c) A can do work in 6 days, B can do the same work in 9 days and (A,B and C) together complete work in 3 days
Total work = lcm(6,9,3) = 18 units
A's efficiency = $\frac{18}{6}$ = 3 unit/day
B's efficiency = $\frac{18}{9}$ = 2 unit/day
(A+B+C)'s efficiency = $\frac{18}{3}$ =6 unit/day
C's efficiency = (6-3-2) = 1 unit/day
C alone can do work in $\frac{18}{1}$ = 18 days

Sol 15. (a) Ram can complete work in 6 $\frac{2}{3}$ days = $\frac{20}{3}$ days
Shyam can complete work in 15 days
Total work = lcm($\frac{20}{3}$,15) = 60 units
Efficiency of Ram = 9 units/day
Efficiency of Shyam = 4 units/day
Work done in 4 days = 52 units
Shyam complete remaining work in $\frac{8}{4}$ = 2 days

Sol 16. (d) A can complete the task in 24 days
B can complete the task in 16 days
C can complete the task in 32 days
Total work = lcm(24,16,32) = 96 units
Efficiency of A = $\frac{96}{24}$ = 4 units/day
Efficiency of B = $\frac{96}{16}$ = 6 units/day
Efficiency of C = $\frac{96}{32}$ = 3 units/day

Work done by A and C in 6 days = 42 units
Remaining work = 96-42 = 54 units
Time required by B to complete remaining work = $\frac{54}{6}$ = 9 days

Sol 17. (c) Total work = 8 × 20 = 160 units
Work done by 8 workers in 5 days = 8 × 5 = 40 units
Remaining work = 120 units
Let x more workers be employed to complete remaining work in the next 8 days.
120 = (8+x) × 8
x = 7

SSC CHSL 2019

Sol:1.(b)
15 × 10 = 20 × *x*
x = 7.5 days

Sol:2.(a)
$\frac{M_1D_1H_1}{W_1} = \frac{M_2D_2H_2}{W_2}$
$\frac{30\times16\times8}{1} = \frac{32\times20\times H_2}{2}$
H_2 =12 hours per day

Sol:3.(d)
Total work completed by shyam in 12 days by working 10 hours a day = 12 × 10 = 120 *units* Required Hours a day to complete the task in 8 days = 120/8 = 15 hours.

Sol:4.(c)
(5m + 8w)34 = (4m + 18w)28
$\frac{m}{w} = \frac{4}{1}$
Total work = (5 × 4 + 8 × 1) 34 = 28 × 34
task completed by 3 men and 5 women in = $\frac{28\times34}{3\times4+5\times1}$ = 56 days

Sol:5.(b)
Efficiency ratio of A to B=29:20
B does remaining work in 29 days
Then work done by B=29 × 20=580
Total work = $\frac{(29+20)\times58+580}{29}$
=118 days

Sol:6.(b)
Ratio of efficiency of Ramu to Samu = 4 : 1
Ratio of time of Ramu to Samu = 1 : 4
4 unit = 20 days
1 unit = 5 days
Total work = 20 × 1 = 20 unit
Time taken by both = $\frac{20}{1+4}$ = 4 days

Sol:7.(c)
Let the total work = 48 unit (LCM of 12 and 16)
efficiency of A = 48/12 = 4
efficiency of B = 48/16 = 3
Work done by them in 4 days = (4+3) × 4 = 28
Remaining work = 48-28 = 20
left work in fraction = $\frac{20}{48}$ = $\frac{5}{12}$

Sol:8.(a)
Let number of men required = x
$\frac{x\times10}{50} = \frac{15\times6}{10}$
x = 45

Sol:9.(a)
Let the total work = 20 unit
Efficiency of Raju = 20/20 = 1
5 days work of Raju = 1 × 5 = 5 unit
Remaining work = 20-5 = 15 unit
Efficiency of Jakob = 15/15 = 1
Time taken by both = $\frac{20}{1+1}$ = 10 days

Sol:10.(c)
Let the total work = 48 unit (LCM of 12 and 16)
Efficiency of A = 48/12 = 4
Efficiency of B = 48/16 = 3
Total work in 2 days = (4+3) unit
Total work in 12 days = 42 unit

Pinnacle

On the day of 13th, work done = 46 unit
Remaining 2 unit work will be done by B in $\frac{2}{3}$ days
So, total time = $13\frac{2}{3}$ days

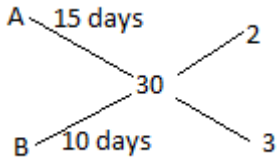
Sol:11.(c)
Let the total work = 36 unit (LCM of 12 and 18)
Efficiency of A = 36/12 = 3
Efficiency of B = 36/18 = 2
Total work in 6 days = (3+2) × 6 = 30
Remaining work = 36-30 = 6 unit
Time taken by B to complete the remaining work = $\frac{6}{3}$ = 2 days

Sol:12.(a)
Let the total work = 30 unit
Efficiency of Amir = 30/30 = 1
Efficiency of Akbar = 30/15 = 2
Work done by Akbar in 8 days = 8*2 = 16 unit
Remaining work = 30-16 = 14 unit
Time taken by Amir = 14/1 = 14 days

Sol:13.(b)
Let the total work = 120 unit (LCM of 15 and 24)
Efficiency of A and B together = $\frac{120}{15}$ = 8
Efficiency of B and C together = $\frac{120}{24}$ = 5
Efficiency ratio of A to C = 2 : 1 or 6:3
then, efficiency of B = 2
Time taken by B to complete the work = $\frac{120}{2}$ = 60 days

Sol:14.(c)
Let the total work = 100 unit
Efficiency of Antony and VIkash = $\frac{100}{20}$ = 5
Efficiency of VIkas = $\frac{100}{25}$ = 4
Efficiency of Atony = 5-4 = 1
Time taken by Atony to complete the work = $\frac{100}{1}$ = 100 days

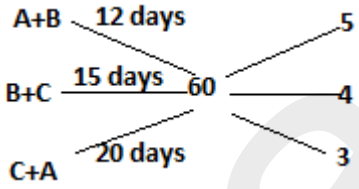
Sol:15.(c)



Work done by A and B in 4 days = (2+3)4 = 20
the fraction of the work left = 10/30 = 1/3

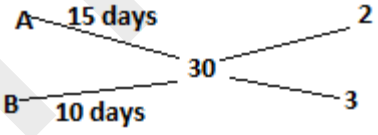
Sol:16.(d)
Efficiency ratio of A and B = 2 : 1
Total work = (2+1) × 22 = 66
A alone finish the work = $\frac{66}{2}$ = 33 days

Sol:17.(c)



2(A+B+C) = 12
A+B+C = 6
A, B and C work together, then they will complete the same work = 60/6 = 10 days

Sol:18.(c)



Work done by A and B together in 2 days = 2 × 5 = 10
Remaining work done by A = 20/2 = 10 days
The total number of days needed for the completion of the work = 2+10 = 12 days

Sol:19.(a)
Ravi + Mohan can complete work in → 3 days
Ravi alone can complete work in → 7 days
Total work = LCM(3, 7) = 21 units
Efficiency (Ravi + Mohan) = $\frac{21}{3}$ = 7 units/day
Efficiency (Ravi) = $\frac{21}{7}$ = 3 units/day
Efficiency (Mohan) = 7-3 = 4 units/day
Mohan alone can complete work in = $\frac{21}{4}$ = $5\frac{1}{4}$ days

Sol:20.(a)
(A + B) can finish 45% of work in 9 days.
∴ A + B can complete 100% of work in $9 \times \frac{100}{45}$ = 20 days
A can complete work in 30 days
Total work = LCM (20, 30) = 60 units
Efficiency (A+B) = $\frac{60}{20}$ = 3 units/day
Efficiency (A) = $\frac{60}{30}$ = 2 units/day
Efficiency (B) = 3 - 2 = 1 unit/day
B can complete work in = $\frac{60}{1}$ = 60 days

Sol:21.(a)
X + Y can finish work in 15 days
Y can finish work in 40 days.
Total work = LCM (15, 40) = 120
Efficiency (X+Y) = $\frac{120}{15}$ = 8
Efficiency (Y) = $\frac{120}{40}$ = 3
Therefore, efficiency (X) =
Efficiency (X+Y) - Efficiency (Y) = 8 - 3 = 5
X can finish work in $\frac{120}{5}$ = 24 days.

Sol:22.(c)
P can finish the work in 10 days
Q can finish the work in 5 days.
Total work = LCM (10,5) = 10 units
Efficiency (P) = $\frac{10}{10}$ = 1 unit per day
Efficiency (Q) = $\frac{10}{5}$ = 2 units per day
Work done by Q in 2 days = 2 × 2 = 4 units
Work left = 10 - 4 = 6 units
P can finish remaining work in = $\frac{6}{1}$ = 6 days

Sol:23.(d)
Let the total work = 36 unit

Efficiency of Smit = 36/12 = 3
Efficiency of Ajit = 36/18 = 2
Total work in 4 days = (3+2) × 4 = 20 unit
Remaining work = 36-20 = 16 unit
Required fraction = $\frac{16}{36} = \frac{4}{9}$

Sol:24.(b)
25 men can complete a task in 16 days.
Let efficiency of 1 men = a units/day
Total work = 25a × 16 a units = 400a units
25 men worked for four days, then 5 more men joined the work; i.e. 25 men in four days completed = 25a × 4 = 100a units
Remaining work = 400a- 100a = 300a units
Now, 5 more men joined the work, total men = 30
30 men can complete 300a units of work in = $\frac{300a}{30a}$ = 10 days

Sol:25.(c)
Ratio of efficiency of P and Q = 3 : 1
Thus, efficiency of P = 3a and efficiency of Q = a
Q can complete a task in 24 days.
Total work = Time taken by Q × Efficiency of Q = 24 × a
P and Q can together finish the work in = $\frac{\text{total work}}{\text{sum of efficiency of P and Q}} = \frac{24a}{3a+a} = \frac{24a}{4a}$ = 6 days

Sol 26. (c)
P can complete work in 10 days.
Q can complete work in 15 days.
Total work = LCM (10,15) = 60 units
Efficiency of P = $\frac{60}{10}$ = 6 units per day
Efficiency of Q = $\frac{60}{15}$ = 4 units per day
Work done by P and Q together in 3 days = (6 + 4) × 3 = 30 units
Work left = 60 - 30 = 30 units
Required fraction = $\frac{\text{work left}}{\text{total work}} = \frac{30}{60} = \frac{1}{2}$

Sol:27.(b)
Ravi can complete work in 12 days
Mohan can complete work in 10 days
Govind can complete work in 15 days
Total work = LCM (12, 10, 15) = 60 units
Efficiency (Ravi) = $\frac{60}{12}$ = 5 units per day
Efficiency (Mohan) = $\frac{60}{10}$ = 6 units per day
Efficiency (Govind) = $\frac{60}{15}$ = 4 units per day
Total efficiency = (5 + 6 + 4) units per day = 15 units per day
Time taken by them together to complete the work = $\frac{60}{15}$ = 4 days

Sol:28.(c)
Kamal can finish work in 8 days
Anil can finish the same work in 14 days.
Total work = LCM (8, 14) = 56 units
Efficiency (Kamal) = $\frac{56}{8}$ = 7 units per day
Efficiency (Anil) = $\frac{56}{14}$ = 4 units per day
Amount paid will be in the same ratio as the efficiency of Kamal and Anil respectively.
Total efficiency = 11 units per day
Anil earnings = $\frac{4400}{11}$ × 4 = Rs. 1600

Sol:29.(c)
Let the total work = 36 unit (LCM of 6 and 9)
Efficiency of Ravi = $\frac{36}{6}$ = 6 unit/d
Efficiency of Mohan = $\frac{36}{9}$ = 4 unit/d
Time taken by Ravi and Mohan = $\frac{36}{6+4} = \frac{18}{5} = 3\frac{3}{5}$ days

SSC CGL 2019 TIER-II

Sol:30.(d)
Efficiency of A : B = 4 : 5
Efficiency of B : C = 5 : 7
Efficiency of A : B : C = 4 : 5 : 7
If A can do work in 15 days then (let) total work is = 15 × 4 = 60
One day work of A and C = 4+7 =11
3 day work of A and C = 33
Work left = 60 - 33 = 27
One day work of A and B = 4+5 = 9
Time required = $\frac{27}{9}$ = 3 days

Sol:31.(c)
A can do complete work in = $\frac{100}{20} \times 4 = 20$ *days*
B can do complete work in = $\frac{100}{33\frac{1}{3}} \times 10 = 30$ *days*
Efficiency of A : B = 3 : 2
Let total work = 20 × 3 = 60 units
9 day work of A and B = 9 × (2+3) = 45 units
Remaining work = 60- 45 = 15
Efficiency of C = $\frac{15}{6}$ = 2.5
75% of work = 45 units
One day work of B and C =2+2.5 = 4.5
B and C can complete the work in = $\frac{45}{4.5}$ = 10 *days*

Sol:32.(a)
According to question = 3M + 4W = 7 days
21M + 28W can do it one day
According to question 2M + W = 14 days
28M + 14W can do it in one day
Comparing one day work
21M + 28W = 28M + 14W
Efficiency of M : W = 2 : 1
Total work = 21 × 2 + 28 × 1 = 70
7 women can do it in= $\frac{70}{7}$ = 10 days

Sol:33.(b)
efficiencies of A : B = 7 : 5
They can complete the work in 5x : 7x days
Together they can complete the work in $\frac{35x}{12}$
According to the question
$\frac{35x}{12} = \frac{35}{2}$
x = 6

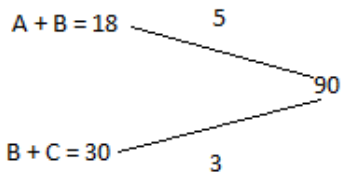
A can complete the work in = 30 days
60% work can be completed by A in = $30 \times \frac{60}{100}$ =18 days

Sol:34.(c)
2M + 7W = 28
6M + 16W = 11
Comparing both the equations
56M + 196W =66M + 176W
20W = 10M
Ratio of efficiency of M : W = 2 : 1
Total work =56 × 2 + 196 × 1 = 308
5M + 4W = 10 + 4 = 14
Time require = $\frac{308}{14}$ = 22

Sol:35.(b)
A can do complete work in = 90 days
B can do complete work in = 60 days
A and B 8 days work = 20 $\times (\frac{1}{90} + \frac{1}{60})$
A and B 8 days work = $20 \times (\frac{5}{180}) = \frac{5}{9}$
Work left = $\frac{4}{9}$
C can do the complete work in = 8 $\times \frac{9}{4}$ = 18 days
Working together their one day work = $(\frac{1}{90} + \frac{1}{60} + \frac{1}{18}) = \frac{15}{180} = \frac{1}{12}$
They can complete the work in = 12 days

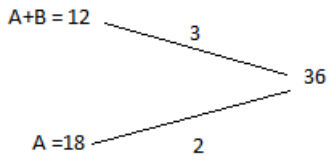
Sol:36.(a)
Total work= 108 unit(LCM of 18,36,54)
Efficiency of A=6
Efficiency of B=3
Efficiency of C=2
Let, The number of days to finish the work=x
Number of days B's work=x-5
Number of days C's work=x-10
6 × x+3(x-5)+2(x-10)=108
x=13 days

Sol:37.(d)



Efficiency of a = 2 × efficiency of c
2c + b = 5
c + b = 3
B = 1
hence,
B can complete the work in 90 days

Sol:38.(c)



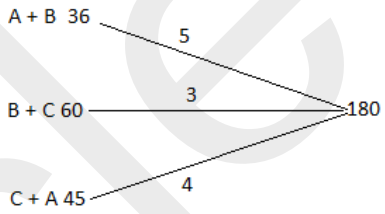
Efficiency of b = 1
B can complete the work in = 36 days

Sol:39(c)
Efficiency ratio of a : b = 3 : 1
A and B can complete the work in 18 days
Total work = 18 × 4 = 72
B can complete the work in = 72 days

SSC CPO 2019
Sol:40.(c)
Let efficiency of A= 2x
Efficiency of B= X
Total efficiency=2x+x=3x
Total work= efficiency × time
= 13 × 3x= 39x (total work)
Number of days in which B alone finishes the work=total work efficiency of B
=39x ÷ x=39.

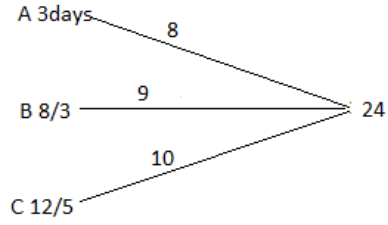
Sol:41.(c)
A can do a job in 10 days
B can do the job in 5 days
Let total work be 20units
A and B will do 2 units and 4 units of work in a day respectively.
It's given in the question that A works for 5 days and B is replaced by C after 2 days
Total work done by A =5 × 2=10 units
Total work done by B = 4 × 2=8 units
Work done by C in 3 days = 2 units
Therefore 20 units of work will be done by C in 30 days
60% of work will be done by C in .60 × 30= 18 days

Sol:42.(d)



Combined efficiency 2(A + B + C) = 12
A + B + C = 6
So A = 3
Time needed by A = $\frac{180}{3}$ = 60 days

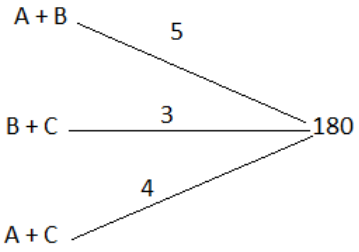
Sol:43.(d)
A can do in 3 days
B can do in 8/3 days
C can do in 12/5 days



Combined efficiency = 27
Time taken = $\frac{24}{27}$
Time taken (in hours) = $\frac{24}{27} \times 6 = \frac{16}{3}$
= 5 hours 20 minutes

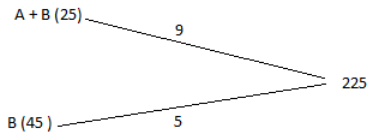
Sol:44.(a)
LCM of 36, 60 and 45 is 180

Pinnacle



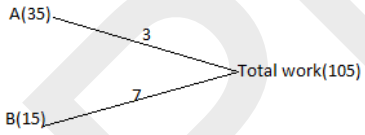
Combined efficiency 2(A + B + C) = 12
A + B + C = 6
So, efficiency of B = 2
Time taken by B = $\frac{180}{2}$ = 90 days

Sol:45.(b)



Efficiency of A = 4
Time taken by A = $\frac{225}{4}$
$\frac{4}{15}$ of the work will be completed in = $\frac{225}{4} \times \frac{4}{15}$ = 15 days

Sol:46.(c)
A and B worked for 8 days so total work done =(7+3) × 8=80
Work left to be completed=105-80= 25 units
25 units of work will be done by A in $\frac{25}{3}$ days
60% of this work will be completed in $\frac{3}{5} \times \frac{25}{3}$ =5 days

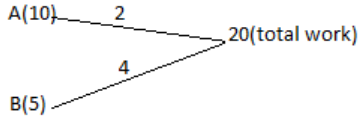


Sol:47.(c)
P and Q can together do a work in 12 days
P can do same work in 18 days
Let total work=36
Efficiency of P and Q =3 units
Efficiency of P=2 units
Then efficiency of Q= 1 unit
Q can complete $\frac{2}{3}$ of the same work in $\frac{2}{3}$ × 36=24 days.

Sol:48.(c)
Let efficiency of B=x
Then efficiency of A will be 2x
Together they finish the work in 13 days
So (x+2x) × 13 = total work

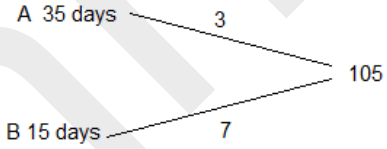
A alone4 will finish the work in
$\frac{Total\ work}{Efficiency\ of\ A}$
= $\frac{39x}{2x}$
=19.5 days

Sol:49.(d)



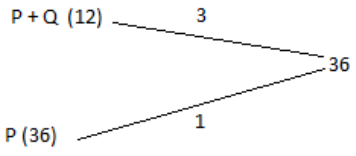
A worked for 5 days and B for 2 days
Total work completed by A and B is 5 × 2 + 4 × 2= 18 units
Remaining 2 units of work was done by C in 3 days
So 40%of Total work= 8 units of work will be done by C in $\frac{3}{2}$ × 8 =12 days

Sol:50.(b)



Total efficiency = 3 + 7 = 10
In 7 days work done = 7 × 10 = 70 units
Work left = 35units
60 % of the remaining work = $\frac{60}{100}$ × 35 = 21 units
A can complete it in = $\frac{21}{3}$ = 7 days

Sol:51.(a)



Efficiency of Q = 3 - 1 = 2
Time taken by Q = $\frac{36}{2}$ = 18

To complete two- third of the work = 18 × $\frac{2}{3}$ = 12

Pinnacle

PIPE AND CISTERN / पाइप और टंकी

Variety Questions

Q1. Pipes A and B can fill a tank in one hour and two hours respectively while pipe C can empty the filled up tank in one hour and fifteen minutes. A and C are turned on together at 9 a.m. After 2 hours, only A is closed and B is turned on. When will the tank be emptied ?
पाइप A और B किसी टंकी को क्रमशः एक घंटे और दो घंटे में भर सकते हैं लेकिन पाइप C भरी हुई टंकी को एक घंटे 15 मिनट में खाली कर सकता है | A और C को एक साथ सुबह 9 बजे चालू किया जाता है | 2 घंटे बाद, केवल A को बंद किया जाता है और B को चालू किया जाता है | टंकी कब खाली हो जाएगी ?
SSC CGL 6 June 2019 (Morning)
(a) 12:10 p.m.
(b) 11:30 a.m.
(c) 10:30 a.m.
(d) 12:20 p.m.

Q2. Pipes A and B can fill a tank in 8 hours and 12 hours, respectively whereas pipe C can empty the full tank in 6 hours. A and B are opened for 3 hours and then closed and C is opened instantly. C will empty the tank in : पाइप A और B किसी टंकी को क्रमशः 8 घंटे और 12 घंटे में भर सकते हैं जबकि पाइप C भरी हुई टंकी को 6 घंटों में खाली कर सकता है | A और B को 3 घंटे के लिए खोला जाता है तथा फिर बंद कर दिया जाता है और C को तुरंत चालू कर दिया जाता है | C टंकी को कितने समय में खाली कर देगा ? **SSC CHSL 3 July 2019 (Morning)**
(a) 4 $\frac{1}{2}$ hours
(b) 4 $\frac{1}{4}$ hours
(c) 3 $\frac{1}{2}$ hours
(d) 3 $\frac{3}{4}$ hours

Q3. An inlet pipe can fill a tank in 10 hours and an outlet pipe can empty the completely filled tank in 20 hours. Both the pipes are opened at 6.30 a.m. When will the tank get filled ?
एक अंतर्गम पाइप किसी टंकी को 10 घंटों में भर सकता है जबकि एक बहिर्गम पाइप पूरी तरह से भरी हुई टंकी को 20 घंटों में खाली कर सकता है | दोनों पाइपों को सुबह 6 : 30 बजे चालू किया जाता है | टंकी कब भर जाएगी ?
SSC CHSL 3 July 2019 (Afternoon)
(a) 2.30 a.m. next day/ अगले दिन 2.30 am बजे
(b) 2 a.m. next day/ अगले दिन 2am बजे
(c) 1 a.m. next day/ अगले दिन 1a.m बजे
(d) 12:00 midnight/ मध्यरात्रि 12:00 बजे

Q4. One tap can fill a tank in 3hours and a leak can empty it in 5 hours. If the tap and the leak (which was half closed) were left open, how long will it take for the tank to fill?
एक नल किसी टंकी को 3 घंटे में भर सकता है और एक छेद इसे 5 घंटे में खाली कर सकता है | यदि नल एवं छेद (जो आधा बंद था) को खुला छोड़ दिया जाए, तो टंकी को भरने में कितना समय लगेगा ?
SSC CPO 16 March 2019 (Morning)
(a) 4 $\frac{2}{7}$ hours
(b)5 $\frac{1}{3}$ hours
(c) 6 $\frac{2}{3}$ hours
(d)7 $\frac{1}{2}$ hours

Q5. Two pipes A and B can fill an empty tank in 8 hours and 12 hours respectively. They are opened alternately for 1 hour each starting with pipe A first. In how many hours will the empty tank be filled?
दो पाइप A और B किसी खाली टंकी को क्रमशः 8 और 12 घंटे में भर देते हैं | पाइप A से शुरुआत करते हुए उन्हें एक-एक करके 1 घंटे के लिए खोला जाता है | कितने घंटों में यह खाली टंकी भर जायेगी ?
SSC CPO 12 March 2019 (Evening)
(a) 9 $\frac{1}{3}$
(b) 9
(c) 9 $\frac{1}{2}$
(d) 9 $\frac{1}{4}$

Q6. Pipes A and B can fill a tank in 16 hours and 24 hours respectively whereas pipe C can empty the full tank in 40 hours. All three pipes are opened together, but pipe A is closed after 8 hours. After how many hours, the remaining part of the tank will be filled?
पाइप A तथा पाइप B किसी टंकी को क्रमशः 16 और 24 घंटों में भर सकते हैं जबकि पाइप C भरी हुई टंकी को 40 घंटे में खाली कर सकता है | इन तीनों पाइप को एक साथ खोल दिया जाता है लेकिन 8 घंटे बाद पाइप A बंद कर दिया गया | टंकी का शेष भाग कितने घंटों में भरेगा ?
SSC CPO 13 March 2019 (Evening)
(a) 28
(b) 22
(c) 26
(d) 30

SSC CGL TIER II

Q1. Pipes A, B and C can fill a tank in 30h, 40 h and 60 h respectively. Pipes A, B and C are opened at 7 a.m., 8 a.m., and 10 a.m., respectively on the same day. When will the tank be full?
पाइप A, B और C किसी टंकी को क्रमशः 30, 40 और 60 घंटों में भर सकते हैं | पाइप A, B और C को

एक ही दिन क्रमशः सुबह 7, 8 और 10 बजे चालू किया जाता है | टंकी किस समय भर जाएगी ?

SSC CGL TIER II (11 September 2019)

(a) 10.00 p.m.
(b) 10.20 p.m.
(c) 9.20 p.m.
(d) 9.40 p.m.

Q2. Pipes A and B can fill a tank in 16 hours and 24 hours, respectively, and pipe C alone can empty the full tank in x hours. All the pipes were opened together at 10.30 a.m., but C was closed at 2:30 p.m. If the tank was full at 8:30 p.m. on the same day, then what is the value of x ?

पाइप A और B किसी टंकी को क्रमशः 16 और 24 घंटे में भर सकते हैं , तथा पाइप C अकेला भरी हुई टंकी को x घने में खाली कर सकता है | सभी पाइपों को सुबह 10 : 30 बजे एक साथ चालू किया गया, लेकिन 2 : 30 pm में C को बंद कर दिया गया | यदि टंकी उसी दिन 8 : 30 pm में भर गई, तो x का मान ज्ञात करें |

SSC CGL TIER II (12 September 2019)

(a) 64
(b) 48
(c) 45
(d) 96

Q3. Pipes A and B are filling pipes while C is an emptying pipe. A and B can fill a tank in 72 and 90 minutes respectively. When all the three pipes are opened together, the tank gets filled in 2 hours. A and B are opened together for 12 minutes, then closed and C is opened. The tank will be empty after :

पाइप A और B भरने वाले पाइप हैं जबकि पाइप C खाली करने वाला पाइप है | A और B किसी टंकी को क्रमशः 72 और 90 मिनट में भर सकते हैं | जब इन तीनों पाइप को एक साथ चालू कर दिया जाता है, तो टंकी 2 घंटे में भर जाती है | A और B को 12 मिनट तक एक साथ चालू किया जाता है, फिर बंद करके C को चालू किया जाता है | टंकी कितने समय बाद खाली हो जाएगी ?

SSC CGL TIER II (13 September 2019)

(a) 15 minutes
(b) 18 minutes
(c) 12 minutes
(d) 16 minutes

Practice Questions

Q1. Pipe A can fill a cistern in 4 hours and another pipe B is installed. Both the pipes together fill the cistern in $2\frac{1}{2}$ hours. How long will it take for B alone to fill the cistern.

पाइप A किसी टंकी को 4 घंटे में भर सकती है | एक अन्य पाइप B लगाई गयी | दोनों पाइप एक साथ टंकी को $2\frac{1}{2}$ घंटे में भर सकती है | B को अकेले इस टंकी को भरने में कितना समय लगेगा ? SSC CPO 16 March 2019 (Morning)

(a) 5 hours
(b) $6\frac{3}{8}$ hours
(c) $6\frac{2}{3}$ hours
(d) $5\frac{1}{6}$ hours

Q2 . Pipes A and B can fill a tank in 6 hours and 8 hours respectively and pipe C can empty the full tank in 12 hours. All three pipes are opened together, but pipe A is closed after 3 hours. In how many hours will the remaining part of the tank be filled?

पाइप A और पाइप B किसी टंकी को क्रमशः 6 और 8 घंटे में भर सकते हैं तथा पाइप C भरी हुई टंकी को 12 घंटे में खाली कर सकता है | इन तीनो पाइप को एक साथ खोल दिया जाता है लेकिन 3 घंटे बाद पाइप A बंद कर दिया गया | टंकी का शेष हिस्सा कितने घंटे में भरेगा ?

SSC CPO 12 March 2019 (Evening)

(a) 9
(b) 12
(c) 11
(d) 10

Q3. Two pipes A and B can fill a tank in 16 hours and 20 hours respectively. They are opened alternatively for 1 hour each, starting with pipe A first. In how many hours with the empty tank be filled ?

दो पाइप A और B किसी टंकी को क्रमशः 16 और 20 घंटे में भर सकते हैं | पाइप A से शुरुआत करते हुए उन्हें 1 घंटे के लिए एक के बाद एक करके खोला जाता है | खाली टंकी कितने घंटों में भर जायेगी ?

SSC CPO 13 March 2019 (Evening)

(a) $17\frac{3}{5}$
(b) $17\frac{1}{5}$
(c) $17\frac{1}{4}$
(d) $17\frac{3}{4}$

Q4. Two pipes A and B can fill a tank in 6 hours and 9 hours respectively. They are opened alternately for 1 hour each, starting with pipe A first. In how many hours will the tank be filled?

दो पाइप A और B किसी टंकी को क्रमशः 6 और 9 घंटे में भर सकते हैं | पाइप A से शुरुआत करते हुए उनमें से प्रत्येक को एक-एक करके 1 घंटे के लिए खोला जाता है | टंकी को भरने में कितने घंटे लगेंगे ? **SSC CPO 12 March 2019 (Morning)**

(a) 5
(b) 4
(c) 6
(d) 7

Q5. Pipes A and B can fill a tank in 6 hours and 9 hours respectively and pipe C can

empty the full tank in 12 hours. If all three pipes are opened together when a tank is empty. In how many hours will 35% of the tank be filled?
पाइप A तथा पाइप B किसी टंकी को क्रमशः 6 घंटे और 9 घंटे में भर सकते हैं और पाइप C भरी हुई टंकी को 12 घंटे में खाली कर सकता है | यदि टंकी खाली होने पर तीनों पाइप एक साथ चालू कर दिए जाते हैं, तो टंकी का 35% भाग कितने घंटों में भर जाएगा ?
SSC CPO 12 March 2019 (Morning)
(a) 1.9
(b) 1.5
(c) 1.6
(d) 1.8

Q6. Two pipes A and B can fill an empty tank in 10 hours and 16 hours respectively. They are opened alternatively for 1 hour each, starting with pipe A first. In how many hours, the empty tank will be filled?
दो पाइप A और B किसी खाली टंकी को क्रमशः 10 घंटे एवं 16 घंटे में भर सकते हैं | A से शुरुआत करते हुए उन्हें एक-एक करके हर बार 1 घंटे के लिए खोला जाता है | कितने घंटों में खाली टंकी भर जायेगी ?
SSC CPO 13 March 2019 (Morning)
(a) $12\frac{1}{3}$
(b) $12\frac{1}{8}$
(c) $12\frac{1}{4}$
(d) $12\frac{1}{6}$

Q7. Pipes A and B can fill a tank in 12 hours and 16 hours respectively and pipe C can empty the full tank in 24 hours. All three pipes are opened together, but after 4 hours pipe A is closed. In how many hours from the beginning the tank be filled?
पाइप A और पाइप B किसी टंकी को क्रमशः 12 घंटे एवं 16 घंटे में भर सकते हैं जबकि पाइप C भरी हुई टंकी को 24 घंटों में खाली कर सकता है | इन तीनों पाइप को एक साथ चालू कर दिया जाता है तथा 4 घंटे बाद पाइप A बंद कर दिया जाता है | टंकी को भरने में कुल कितने घंटे लगेंगे ?
SSC CPO 13 March 2019 (Morning)
(a) 24
(b) 28
(c) 30
(d) 32

Q8. One-fourth of a tank can be filled in 3 hours by pipe A and one-third of the same tank can be filled in 2 hours by pipe B. How long will it take for the tank to be filled if both are pipes are kept open?
किसी टंकी का एक चौथाई भाग पाइप A के द्वारा 3 घंटे में तथा इसी टंकी का एक-तिहाई भाग पाइप B के द्वारा 2 घंटे में भरा जा सकता है | यदि दोनों पाइप चालू कर दिए जाते हैं, तो इस टंकी को भरने में कितना समय लगेगा ?
SSC CPO 14 March 2019 (Morning)
(a) 5 h
(b) 2 h
(c) 4 h
(d) $2\frac{1}{2}$ h

Q9. A tank can be filled by pipe A in 5 hours and emptied by pipe B in 8 hours respectively. How much time will it take for the tank to be half full?
एक टैंक को पाइप A द्वारा 5 घंटे में भरा जा सकता है और पाइप B द्वारा क्रमशः 8 घंटे में खाली किया जा सकता है। टैंक को आधा भरा होने में कितना समय लगेगा?
SSC CPO 14 March 2019 (Morning)
(a)$3\frac{1}{3}$ h
(b)$8\frac{2}{3}$ h
(c)$12\frac{1}{3}$ h
(d)$6\frac{2}{3}$ h

Q10. Pipe A can fill a tank in 16 minutes and pipe B empties it in 24 minutes. If both the pipes are opened together, after how many minutes should B be closed, so that the tank is filled in 30 minutes?
पाइप A किसी टंकी को 16 मिनट में भर सकता है तथा पाइप B इसे 24 मिनट में खाली कर सकता है | यदि इन दोनों पाइप को एक साथ चालू किया गया है, तो B को कितने मिनट बाद बंद करना होगा ताकि टंकी 30 मिनट में भर जाए ?
SSC CPO 16 March 2019 (Evening)
(a)21 min
(b)20 min
(c)18 min
(d)15 min

Q11. Two pipes A and B can fill a tank 45 minutes. If pipe A can fill an empty tank in 1 hour, how long will it take pipe B to fill the empty tank?
दो पाइप A तथा B किसी टंकी को 45 मिनट में भर सकते हैं | यदि पाइप A खाली टंकी को 1 घंटे में भर सकता है, तो इस खाली टंकी को भरने में पाइप B को कितना समय लगेगा ? **SSC CPO 15 March 2019 (Morning)**
(a) 2 hours
(b) 3 hours
(c) 1 hour
(d)4 hours

Q12. A pipe can fill a tank in 30 minutes. Due to two leakages A and B, the filled tank would be drained off in $1\frac{1}{2}$ hour and $1\frac{1}{4}$ hour respectively. How long will it take to fill the tank if the pipe, A and B left open?
एक पाइप किसी टंकी को 30 मिनट में भर सकता है | दो छिद्रों A एवं B

के कारण भरी हुई टंकी क्रमशः $1\frac{1}{2}$ घंटे तथा $1\frac{1}{4}$ घंटे में खाली हो सकती है | यदि A और B को खुला छोड़ दिया जाए, तो पाइप द्वारा टंकी को भरने में कितना समय लगेगा ? SSC CPO 15 March 2019 (Morning)

(a)$1\frac{7}{8}$ hour

(b)$1\frac{1}{3}$ hour

(c)$1\frac{4}{5}$ hour

(d)$1\frac{5}{6}$ hour

Q13. Two pipes can fill a cistern in 72 and 90 minutes respectively. If both the pipes are left open how long will it take for the cistern to be half full?

दो पाइप किसी टंकी को क्रमशः 72 और 90 मिनट में भर सकते हैं | यदि दोनों पाइप चालू कर दिए जाए, तो टंकी को आधा भरने में कितना समय लगेगा ? **SSC CPO 16 March 2019 (Afternoon)**

(a)40 minutes

(b)24 minutes

(c)48 minutes

(d)20 minutes

Q14. A pipe can fill a tank in 4 hours and a leak at the bottom can empty that full tank in 6 hours. If after the tank is 1/3 full, the leak is completely closed, how much time from beginning will it take for tank to get filled completely?

एक पाइप किसी टंकी को 4 घंटे में भर सकता है तथा तल पर मौजूद एक छिद्र इस भरी हुई टंकी को 6 घंटे में खाली कर सकता है | यदि टंकी के 1/3 भाग भर जाने के बाद इस छेद को पूरी तरह से बंद कर दिया जाता है, तो टंकी को पूर्णतः भरने में शुरू से कुल कितना समय लगेगा ?

SSC CPO 16 March 2019 (Afternoon)

(a)12 hours

(b)4 hours

(c)9 hours

(d) $\frac{20}{3}$ hours

Q15. A pipe can fill a tank in 32 minutes. Due to a leak the tank is filled in 48 minutes. How long will it take to empty the tank due to leakage?

एक पाइप 32 मिनट में एक टैंक भर सकता है | रिसाव के कारण टैंक 48 मिनट में भर पाता है | रिसाव के कारण भरा हुआ टैंक खाली होने में कितना समय लगेगा ?

SSC CPO 14 March 2019 (Evening)

(a) 1 hour 36 minute

(b) 1 hour 42 minute

(c) 1 hour 20 minute

(d) 1 hour 56 minute

Q16. Two pipes A and B fill tank in 20 min and 30 min. respectively. If A is kept open for only the 1/5th of starting time and A and B are kept open for remaining time; then how much time is taken by both pipe to fill tank.

दो पाइप A और B एक टैंक को क्रमश: 20 मिनट और 30 मिनट में भर सकते हैं| यदि शुरू में कुल समय के ⅕ वे भाग के लिए केवल पाइप A को और शेष समय के लिए पाइप A और B दोनों को खुला रखा गया था, तो टैंक को भरने में दोनों पाइपों को कितने मिनट लगे होंगे?

SSC CPO 15 March 2019 (Evening)

(a)$16\frac{5}{23}$

(b)$13\frac{1}{23}$

(c)$13\frac{5}{23}$

(d)$16\frac{1}{23}$

Q17. Three pipes A, B and C can fill a cistern in 15,24 and 36 minutes respectively. If pipe D can drain a full tank in 1 hour. how long will it take for the tank to be filled if all the four pipes are kept open together ?

तीन पाइप A, B और C क्रमश: 15, 24 और 36 मिनटों में टंकी को भर सकते हैं| वही, पाइप D पूरे भरे टैंक को 1 घंटे में खाली कर सकता है| यदि सभी चार पाइपों को एक साथ खुला रखा जाता है तो उस टैंक की भरने में कितना समय लगेगा? **SSC CPO 15 March 2019 (Evening)**

(a)$9\frac{1}{8}$

(b)$5\frac{12}{25}$

(c)$8\frac{16}{43}$

(d)$7\frac{2}{3}$

SSC MTS

Q18. Pipe A can fill a tank in 6 hours. Pipe B can fill the same tank in 8 hours. Pipe A, B and C together can fill the same tank in 12 hours. then which of the following statements is true for pipe C?

पाइप A, 6 घंटे में एक टैंक को भर सकता है। पाइप B उसी टैंक को 8 घंटे में भर सकता है। पाइप A, B और C मिलकर उसी टैंक को 12 घंटे में भर सकते हैं। फिर पाइप C के लिए निम्नलिखित में से कौन सा कथन सही है?

SSC MTS 2 August 2019 (Morning)

(a)It can fill the tank in 4 hours 40 minutes/यह टैंक को 4 घंटे 40 मिनट में भर सकता है

(b)It can fill the tank in 4 hours 48 minutes/यह 4 घंटे 48 मिनट में टैंक को भर सकता है

(c)It can empty the tank in 4 hours 48 minutes/यह 4 घंटे 48 मिनट में टैंक को खाली कर सकता है

(d)It can empty the tank in 4 hours 40 minutes/ यह 4 घंटे 40 मिनट में टैंक को खाली कर सकता है|

Q19. Pipe P can fill a tank alone in 7 hours. Pipe Q can fill the same tank alone in 13 hours. In how much time can they together fill the tank?

पाइप P, 7 घंटे में अकेले एक टैंक भर सकता है। पाइप Q उसी टैंक को 13 घंटे में भर सकता है। वे एक साथ

कितने समय में टैंक को भर सकते हैं?

SSC MTS 2 August 2019 (Evening)

(a)3 hours 18 minutes/3 घंटे 18 मिनट

(b)3 hours 45 minutes/3 घंटे 45 मिनट

(c)4 hours 12 minutes/4 घंटे 12 मिनट

(d)4 hours 33 minutes/4 घंटे 33 मिनट

Q20. An inlet pipe A originating from a river can fill a reservoir in 30 days. And an outlet pipe B, which is capable of emptying the completely filled reservoir in 50 days, drains out the water from the reservoir to an irrigation canal. The pipes are opened on alternate days starting with A. On which day from the beginning will the reservoir get completely filled for the first time?

एक आंतरिक पाइप एक नदी से उत्पन्न होने वाला एक जलाशय 30 दिनों में भर सकता है। और एक बाह्य पाइप B, जो 50 दिनों में पूरी तरह से भरे जलाशय को खाली करने में सक्षम है, जलाशय से एक सिंचाई नहर द्वारा पानी बाहर निकाला जाता है। A से आरम्भ होते हुए ये पाइप बारी बारी से खोले जाते है। शुरुआत के किस दिन के बाद जलाशय पूरी तरह से भर जाएगा?

SSC MTS 5 August 2019 (Morning)

(a)75th

(b)147th

(c)150th

(d) 74th

Q21.Pipe A can fill an empty tank completely in 11 hours. Pipe B can empty this fully filled tank in 15 hours. If both the pipes are opened simultaneously, in what time will the empty tank be filled?

पाइप A किसी खाली टैंक को 11 घंटे में पूर्ण रूप से भर सकता है | पाइप B इस पूर्ण रूप से भरे गए टैंक को 15 घंटे में खाली कर सकता है | यदि दोनों पाइपों को एक साथ खोला जाता है, तो खाली टैंक कितने समय में भरेगा?

SSC MTS 5 August 2019 (Afternoon)

(a) 41 hours and 15 minutes / 41 घंटे 15 मिनट

(b) 49 hours and 45 minutes / 49 घंटे 45 मिनट

(c) 47 hours and 30 minutes / 47 घंटे 30 मिनट

(d) 39 hours and 15 minutes / 39 घंटे 15 मिनट

Q22. Pipe D_1 can fill an empty tank in 80 minutes and Pipe D_2 can empty the same tank in 100 minutes. If pipes are opened simultaneously, then in how much time the tank gets completely filled?

पाइप D_1 एक खाली टैंक को 80 मिनट में भर सकता है और पाइप D_2 उसी टैंक को 100 मिनट में खाली कर सकता है। यदि दोनों पाइप एक साथ खोले जाते हैं, तो टैंक कितने समय में पूरी तरह से भर जाएगा?

SSC MTS 7 August 2019 (Evening)

(a)320 minutes

(b)400 minutes

(c)200 minutes

(d)240 minutes

Q23. Pipe V_1 can fill an empty tank in 8 hours. Pipe V_2 can fill the same tank in 16 hours. Pipe V_3 can empty the same, completely filled, tank in 12 hours. If three pipes are opened simultaneously, then in how much time will the tank get completely filled?

पाइप V_1 एक खाली टैंक को 8 घंटे में भर सकता है। पाइप V_2 उस टैंक को 16 घंटे में भर सकता है। पाइप V_3 उसी भरे हुए टैंक को 12 घंटों में खाली कर सकता है। यदि तीन पाइप एक साथ खोले जाते हैं, तो टैंक कितने समय में पूरी तरह भर जाएगा?

SSC MTS 8 August 2019 (Afternoon)

(a) $\frac{41}{3}$ hours

(b) $\frac{42}{11}$ hours

(c) $\frac{38}{5}$ hours

(d) $\frac{48}{5}$ hours

Q24.Pipe A can fill a tank in 36 minutes and pipe B is able to empty this in 45 minutes. If both pipes are opened simultaneously, then the tank will filled half in _____hours.

पाइप A किसी टैंक को 36 मिनट में भर सकता हैI और पाइप B उसे 45 मिनट में खाली कर सकता हैI यदि दोनों पाइपों को एक साथ खोल दिया है, तो टैंक की आधी क्षमता को भरने में लगने वाला समय (घंटो में) है:

SSC MTS 13 August 2019 (Morning)

(a) 2

(b) 1.5

(c) 1.25

(d) 1.75

Q25. Two pipes P and Q can fill an empty tank in 20 minutes and 10 minutes respectively. R can empty a full tank in 15 minutes. If all three pipes are opened together, how much time (in minutes) will they take to fill the tank?

दो पाइप P और Q क्रमशः 20 मिनट और 10 मिनट में एक खाली टैंक भर सकते हैं। R, 15 मिनट में एक पूरा टैंक खाली कर सकता है। यदि सभी तीन पाइप एक साथ खोले जाते हैं, तो टैंक को भरने में कितना समय लगेगा?

SSC MTS 14 August 2019 (Evening)
(a) 12
(b) 18
(c) 10
(d) 15

Q26. Pipe A can fill a tank in 10 hours. Pipe B can fill the same tank in 12 hours. Pipe C can empty a full tank in 16 hours. All the pipes are opened at 8:00 AM and pipe A and B are closed at 10:00 AM. After how much time from starting will the tank be empty?
पाइप A, 10 घंटे में एक टैंक भर सकता है। पाइप B उसी टैंक को 12 घंटे में भर सकता है। पाइप C, 16 घंटे में पूरा टैंक खाली कर सकता है। सभी पाइप सुबह 8:00 बजे खोले जाते हैं और पाइप A और B 10:00 AM पर बंद होते हैं। आरम्भ से कितने समय में टैंक खाली हो जाएगा ?
SSC MTS 19 August 2019 (Morning)
(a) 5 hours 52 minutes/5 घंटे 52 मिनट
(b) 5 hours 24 minutes/5 घंटे 24 मिनट
(c) 4 hours 30 minutes/4 घंटे 30 मिनट
(d) 4 hours 8 minutes/4 घंटे 8 मिनट

Q27. A pipe can fill a tank in 18 hours. In how much time (in hours) will another pipe operating at one-third the efficiency of the first pipe fill a tank whose capacity is 50% of that of the first tank?
एक पाइप 18 घंटे में एक टैंक भर सकता है। कितने समय में (घंटों में) पहले पाइप की एक तिहाई कार्य कुशलता पर चलने वाला दूसरा पाइप उस टैंक को भर देगा जिसकी धारिता पहले टैंक की तुलना में 50% है?
SSC MTS 19 August 2019 (Morning)
(a) 36
(b) 21
(c) 45
(d) 27

Q28. A pipe can fill a tank in 56 hours, but due to leakage in its base, it takes 16 hours more to fill it. Only in how much time (in hours) can the $83\frac{1}{3}\%$ portion of the leakage tank be consumed? /
एक पाइप 56 घंटे में किसी टैंक को भर सकता है, लेकिन इसकी तली में रिसाव के कारण उसे भरने में 16 घंटे अधिक लगते है। मात्र रिसाव के कारण टैंक के $83\frac{1}{3}\%$ हिस्से को कितने समय (घंटों में) में खाली कर सकता है| **SSC MTS 20 August 2019 (Morning)**
(a) 126
(b) 210
(c) 252
(d) 105

Q29. Pipes A and B can empty a fully filled tank in 8 and 12 hours respectively. C is a filling pipe. These three pipes were opened at the same time and in one hour the sixth part of the tank became empty in one hour. In how much time can C fill the tank alone?
पाइप A और B क्रमशः 8 और 12 घंटे में एक पूरी तरह से भरे टैंक को खाली कर सकते हैं | C भरने वाला पाइप है | इन तीनों पाइपों को एक ही समय पर खोल दिया गया और एक घंटे में उस टैंक का छठवां भाग एक घंटे में खाली हो गया | C अकेले टैंक को कितने समय में भर सकता है?
SSC MTS 20 August 2019 (Afternoon)
(a) 25 hours
(b) 20 hours
(c) 30 hours
(d) 24 hours

Q 30.An inlet pipe can fill a tank in 2 hours and an outlet pipe can empty a fully filled tank in 3 hours. If the inlet and outlet pipe are opened simultaneously, in what time will the empty tank be filled?
कोई आंतरिक पाइप 2 घंटे में किसी टंकी को भर सकता है और बाहरी पाइप 3 घंटे में पूरी भरी हुई टंकी को खली कर सकता है . यदि आंतरिक और बाहरी पाइप को एक साथ खोल दिया जाता है, तो खाली टंकी कितने समय में भर जाएगी?
SSC MTS 20 August 2019 (Evening)
(a) 2 h
(b) $\frac{3}{2}$ h
(c) 3 h
(d) 6 h

Q31. Pipes A and B can empty a filled tank in 20 hours and 15 hours respectively, while pipe C alone can fill the same tank in x hours. The three pipes have been opened simultaneously and they took 40 minutes to finish the 1/18 (one-eighteenth) part of the tank. The value of x is:
पाइप A और B एक भरे टैंक को क्रमश: 20 घंटे में और 15 घंटे में खाली कर सकते है, जबकि उसी टैंक को पाइप C अकेला x घंटों में भर सकता है. तीनो पाइप एक साथ खोल दिए गए है और उन्होंने टैंक के 1/18 (one-eighteenth) भाग को खाली करने में 40 मिनट का समय लिया I x का मान है :
SSC MTS 21 August 2019 (Evening)
(a) 21
(b) 30
(c) 26
(d) 24

Q32.Pipes A and B can fill a tank in 24 hours and 30 hours, respectively, while pipe C can emptyl it in x hours. A and B are kept open for 10 hours at the same time and then C is opened. If the tank become empty in 90 hours, then what is the value of

x? / पाइप A और B क्रमशः 24 घंटे और 30 घंटे में किसी टैंक को भर सकते है, जबकि पाइप C इसे x घंटे में खाली कर सकता है। A और B को एक ही समय पर 10 घंटे क लिए खुला रखा जाता है और फिर C को भी खोल दिया जाता है । यदि टैंक 90 घंटे में खाली होता है, तो x का मान कितना है?

SSC MTS 22 August 2019 (Morning)

(a) 15
(b) 16
(c) 18
(d) 20

SSC CGL TIER I

Q1. Pipes A and B can fill a tank in 10 hours and 40 hours, respectively. C is an outlet pipe attached to the tank. If all the three pipes are opened simultaneously, it takes 80 minutes more time than what A and B together take to fill the tank. A and B are kept open for 7 hours and then closed and C is opened. C will now empty the tank in: / पाइप A तथा B किसी टंकी को क्रमशः 10 घंटे तथा 40 घंटे में भर सकते हैं | C एक निकास पाइप है जो टंकी से जुड़ा हुआ है | यदि सभी तीन पाइपों को एक साथ चालू कर दिया जाए, तो टंकी को भरने में A और B के द्वारा एक साथ लिए गए समय की तुलना में 80 मिनट अधिक लगते हैं | A और B को 7 घंटों तक चालू छोड़ा जाता है तथा फिर बंद करके पाइप C को चालू किया जाता है | C इस टंकी को कितने समय में खाली करेगा ?

SSC CGL 5 March 2020 (Morning)

(a) 45.5 hours
(b) 38.5 hours
(c) 42 hours
(d) 49 hours

SSC CHSL 2019

Q1. Tap A can fill a tank in 6 hours, tap B can fill the same task in 8 hours and tap C can empty the same tank in 4 hours. If all three taps A, B and C are opened together, then how much time (in hours) will be taken to fill the tank?
टैप A 6 घंटे में एक टैंक भर सकता है, टैप B उसी टैंक को 8 घंटे में भर सकता है और C उसी टैंक को 4 घंटे में खाली कर सकता है। यदि सभी तीन टैप A, B और C को एक साथ खोला जाता है, तो टैंक को भरने में कितना समय (घंटों में) लगेगा?

CHSL 13-10-2020 (Evening shift)

(a)24
(b)30
(c)28
(d)20

Q2. Tap A can fill a tank in 20 hours and tap B can fill the same tank in 30 hours. If both taps are opened together, then how much time will be taken to fill the tank?
टैप A 20 घंटे में एक टैंक भर सकता है और टैप B 30 घंटे में एक ही टैंक भर सकता है। यदि दोनों नल एक साथ खोले जाते हैं, तो टैंक को भरने में कितना समय लगेगा?

CHSL 14-10-2020 (Morning shift)

(a) 10 hours
(b) 16 hours
(c) 12 hours
(d) 24 hours

Q3.Tap A can fill a tank in 6 hours and tap B can empty the same tank in 10 hours. If both taps are opened together, then how much time (in hours) will be taken to fill the tank?
नल A, 6 घंटे में एक टैंक भर सकता है और नल B,10 घंटे में उसी टैंक को खाली कर सकता है। यदि दोनों नल एक साथ खोले जाते हैं, तो टैंक को भरने में कितना समय (घंटों में) लगेगा?

CHSL 15-10-2020 (Morning shift)

(a)15
(b)18
(c)20
(d)16

SSC CGL 2019 TIER-II

Q4. Pipe A and B fill a tank in 43.2 minutes and 108 minutes, respectively, Pipe C can empty it at 3 litres minutes. When all the three pipes are opened together, they will fill the tank in 54 minutes. The capacity (in litres) of the tank is:
पाइप A और B क्रमशः 43.2 मिनट और 108 मिनट में एक टैंक भरते हैं, पाइप C इसे 3 लीटर मिनट पर खाली कर सकता है। जब तीनों पाइप एक साथ खोले जाएंगे, तो वे 54 मिनट में टैंक को भर देंगे। टैंक की क्षमता (लीटर में) है:

CGL 2019 Tier-II (15/10/2020)

(a) 160
(b) 180
(c) 216
(d) 200

Q5. Pipes A and B can fill a tank in 12 minutes and 15 minutes, respectively. The tank when full can be emptied by pipe C in x minutes. When all the three pipes are opened simultaneously, the tank is full in 10 minutes. The value of x is:
पाइप A और B क्रमश 12 मिनट और 15 मिनट में एक टैंक भर सकते हैं। जब टैंक भरी हो तो पाइप C द्वारा x मिनट में खाली किया जा सकता है। जब तीनों पाइप एक साथ खोले जाते हैं, तो टैंक 10 मिनट में भर जाता है। X का मान है

CGL 2019 Tier-II (16/10/2020)

(a) 18
(b) 15
(c) 20
(d) 24

SSC CPO 2019

Q6. Two pipes A and B can fill a tank in 15 hours and 18 hours, respectively. Both pipes are opened simultaneously to fill the tank. In how many hours will the tank be filled?
दो पाइप A और B क्रमशः 15 घंटे और 18 घंटे में एक टैंक भर सकते हैं। टैंक को भरने के लिए दोनों पाइप एक साथ खोले जाते हैं। कितने घंटे में टैंक भर जाएगा|
CPO 2019 23/11/2020(morning)
(a) $7\frac{2}{11}$
(b) $9\frac{2}{11}$
(c) $10\frac{2}{11}$
(d) $8\frac{2}{11}$

Q7. Pipes A and B can fill a tank in 16 hours and 24 hours, respectively, whereas pipe C can empty the full tank in 40 hours. All three pipes are opened together, but pipe A is closed after 10 hours. After how many hours will the remaining tank be filled?
पाइप A और B क्रमशः 16 घंटे और 24 घंटे में एक टैंक भर सकते हैं, जबकि पाइप C, 40 घंटे में पूरा टैंक खाली कर सकता है। सभी तीन पाइप एक साथ खोले जाते हैं, लेकिन 10 घंटे के बाद पाइप A बंद कर दिया जाता है। कितने घंटे बाद शेष टैंक भर जाएगा?
CPO 2019 23/11/2020(morning)
(a) 15.5
(b) 12.5
(c) 20
(d) 10

Q8. When operated separately , pipe A takes 5 hours less than pipe B to fill a cistern, and when both pipes are operated together, the cistern gets filled in 6 hours. In how much time (in hours) will pipe B fill the cistern, if operated.
पाइप A, जब अलग से संचालित किया जाता है तो टंकी को भरने के लिए पाइप B से 5 घंटे कम लेता है, और जब दोनों पाइप एक साथ संचालित होते हैं, तो टंकी 6 घंटे में भर जाता है। संचालित होने पर कितने घंटे (घंटों में) पाइप B, टंकी को भर देगा।
CPO 2019 23/11/2020(Evening)
(a) 9
(b) 18
(c) 10
(d) 15

Q9. Two pipes can fill a tank in 15 hours and 4 hours, respectively , while a third pipe can empty it in 12 hours. How long (in hours) will it take to fill the empty if all the three pipes are opened simultaneously?
दो पाइप क्रमशः 15 घंटे और 4 घंटे में एक टैंक भर सकते हैं, जबकि एक तीसरा पाइप 12 घंटे में इसे खाली कर सकता है। यदि तीनों पाइप एक साथ खोले जाते हैं तो खाली टैंक को भरने में कितना समय लगेगा |
CPO 2019 23/11/2020(Evening)
(a) $\frac{15}{7}$
(b) $\frac{30}{7}$
(c) $\frac{20}{7}$
(d) $\frac{50}{7}$

Q10. Pipe A, B and C can fill an empty tank in $\frac{30}{7}$ hours, if all the three pipes are opened simultaneously A and B are filling pipe and C is an emptying pipe. Pipe a can fill the tank in 15 hours and pipe C can empty it in 12 hours. In how many hours can pipe B alone fill the empty tank ?
पाइप A, B और C $\frac{30}{7}$ घंटे में एक खाली टैंक भर सकते हैं, यदि तीनों पाइप एक साथ खुलते हैं A और B पाइप भर रहे हैं और C पाइप खाली कर रहा है। पाइप A टैंक को 15 घंटे में भर सकता है और पाइप C टैंक को 12 घंटे में खाली कर सकता है। पाइप B कितने घंटे में अकेले खाली टैंक भर सकता है?
CPO 2019 24/11/2020(morning)
(a) 6
(b) 3
(c) 5
(d) 4

Q11. Pipes A,B and C can fill a tank in 15, 30 and 40 hours respectively. Pipes A,B and C are opened at 6 am 8 am and 10 am respectively on the same day, when will be tank be full?
पाइप A, B और C क्रमशः 15, 30 और 40 घंटे में एक टैंक भर सकते हैं। पाइप A, B और C को उसी दिन क्रमशः सुबह 6 बजे सुबह 8 बजे और सुबह 10 बजे खोला जाता है, जब टैंक कब भर जाएगा
CPO 2019 24/11/2020(Evening)
(a) 3:20 p.m.
(b) 5:20 p.m.
(c) 7 :20 p.m.
(d) 11:20 p.m

Q12. Pipes A and B can fill a tank in 16 hours and 24hours respectively, whereas pipe C can empty the tank in 40 hours. All three pipes are opened together, but pipe C is closed after 10 hours. After how many hours will the remaining tank be filled ?
पाइप A और B क्रमशः 16 घंटे और 24 घंटे में एक टैंक भर सकते हैं, जबकि पाइप C टैंक को 40 घंटे में खाली कर सकता है। सभी तीन पाइप एक साथ खोले जाते हैं, लेकिन पाइप C 10 घंटे बाद बंद हो जाता है। कितने घंटे के बाद शेष भाग भर जाएगा
CPO 2019 25/11/2020(morning)
(a) $5\frac{1}{2}$
(b) 5
(c) 2
(d) $2\frac{1}{2}$

Q13. Two pipes a and b can fill a tank in 12 hours and 18 hours, respectively. Both pipes are opened simultaneously In how much time will the empty tank be filled completely

दो पाइप A और B क्रमशः 12 घंटे और 18 घंटे में एक टैंक भर सकते हैं। दोनों पाइप एक साथ खोले जाते हैं। खाली टैंक को पूरी तरह से भरने में कितना समय लगेगा?

CPO 2019 25/11/2020(morning)

(a) 9 hours 30 minutes
(b) 7 hours 12 minutes
(c) 6 hours
(d) 10 hours 24 minutes

Q14. A pump can fill a tank with water in 1 hour, Because of a leak, it took $1\frac{1}{3}$ hours to fill the tank. In how many hours can the leak alone drain all the water of the tank when it is full ?

एक पंप एक टैंक को पानी से 1 घंटे में भर सकता है, छेद के कारण, टैंक को भरने में $1\frac{1}{3}$ घंटे लग गए। छेद कितने घंटे में टंकी का सारा पानी खाली कर सकता है ?

CPO 2019 25/11/2020(Evening)

(a) 5
(b) 1
(c) 4
(d) 2

Q15. Two pipes A and B can fill a cistern in $12\frac{1}{2}$ hours and 25 hours, respectively. The pipes are opened simultaneously and it is found that due to a leakage it the bottom, It took 1 hour and 40 minutes more to fill the cistern. When the cistern is full, in how much time will the leak empty the cistern?

दो पाइप A और B क्रमशः $12\frac{1}{2}$ घंटे और 25 घंटे में एक टंकी भर सकते हैं। पाइप एक साथ खोले जाते हैं और यह पाया जाता है कि एक नीचे छिद्र के कारण, 1 घंटे और 40 मिनट अधिक समय लगा। जब टंकी भर जाती है, तो टंकी को छिद्र कितने समय में खाली कर देगा?

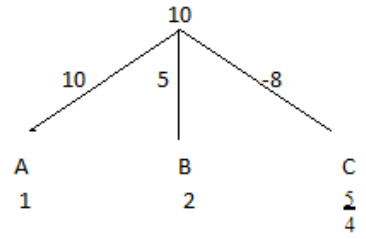
CPO 2019 25/11/2020(Evening)

(a) 42 hours
(b) 48 hours
(c) 45 hours
(d) 50 hours

Pinnacle

Variety Questions

Sol 1. (d)



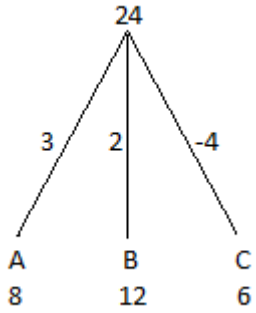
Tank filled in 2 hours(at 11am) = 2 {10+(-8)} = 4 unit.

Time taken to empty it = $\frac{4}{5+(-8)}$ = 1 hour 20 minutes

Required time = 11 am + 1 hour 20 min = 12:20 pm

Sol 2. (d)

Let total capacity of tank = 24 unit

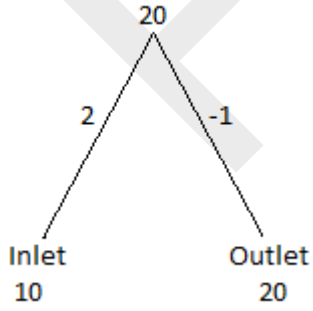


Quantity filled in 3 minutes = 3 x (3+2) = 15 unit

Time taken to empty this quantity = $\frac{15}{4}$ = 3 $\frac{3}{4}$ hours

Sol 3. (a)

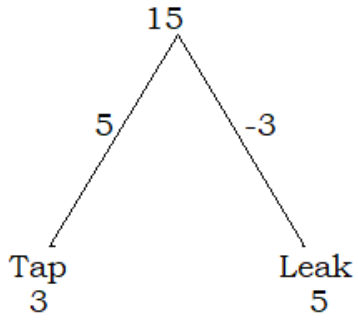
Let total capacity of tank = 20 unit



Time taken to fill the tank = $\frac{20}{2-1}$ = 20 hours

Desired time = 6:30 a.m. + 20 hours = 2:30 a.m. next day

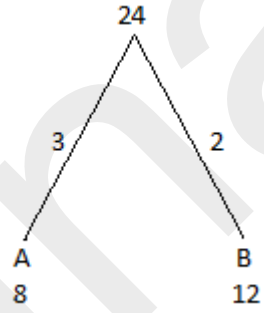
Sol 4. (a)



Let the total capacity of tank = 15 unit

Desired time = $\frac{15}{5-\frac{3}{2}}$ =4 $\frac{2}{7}$ hours

Sol 5. (c) Let the total volume of empty tank be 24 units.



Efficiency of A=3 and B=2

Part filled in one cycle (2 hrs) =3+2 = 5 units

Part filled in 4 cycle (8 hrs) =4 x 5 = 20 units

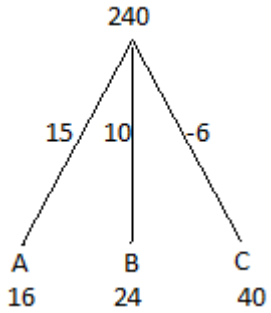
In 9th hr quantity filled = 3 unit

Quantity remaining = 24-20-3 = 1 unit

Time taken to fill this quantity = $\frac{1}{2}$ hour

Therefore,to fill it completely 9 $\frac{1}{2}$ hour time is required.

Sol 6. (b) Let total capacity of tank be 240 units



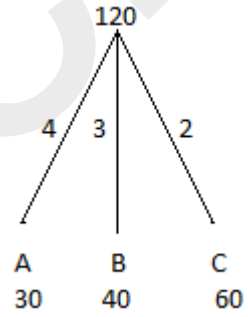
Efficiency of A=+15, B=+10 and C=-6

Therefore, Time to fill remaining tank = $\frac{240-152}{4}$ = $\frac{88}{4}$ = 22 *hrs*

SSC CGL TIER II

Sol 1. (c)

Let total capacity of tank = 120 unit



Quantity filled by pipe A till 10:00 AM = 4 x 3 = 12 unit

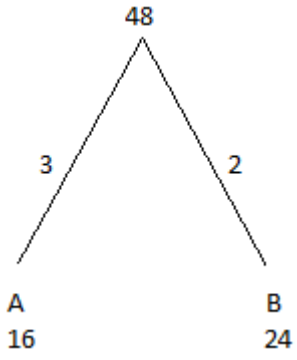
Quantity filled by pipe B till 10:00 AM = 3 x 2 = 6 unit

Remaining quantity = 120-12-6 = 102 unit

Time taken to fill this quantity = $\frac{102}{4+3+2}$ = 11 $\frac{1}{3}$ hours

⇒ Tank will be filled at 10:00 AM + 11 $\frac{1}{3}$ hr = 9:20 PM

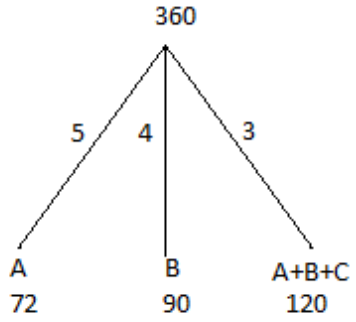
Sol 2. (d)



Pinnacle

Let total capacity of tank = 48 unit
Quantity filled by pipe A and B (from 10:30 a.m. to 8:30 pm)=10 x (3+2)=50 unit
Quantity drained by pipe c (from 10:30 a.m. to 2:30 pm) = 50-48 = 2 unit
Efficiency of pipe C = $\frac{2}{4} = \frac{1}{2}$ unit
Time taken by pipe C to drain the tank = $\frac{48}{1/2}$ = 96 hours

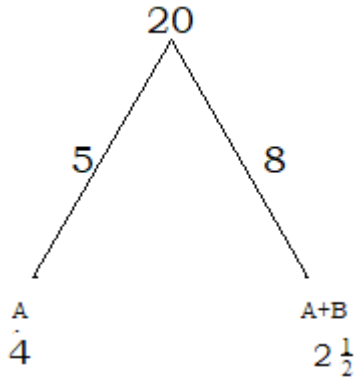
Sol 3. (b)



Efficiency of pipe C = 3-5-4 = -6 unit
Note : Negative sign indicates that it is an outlet pipe.
Quantity filled by pipe A and B in 12 minutes = 12 x (5+4) = 108 unit
Time taken by pipe C to drain it = $\frac{108}{6}$ = 18 minutes

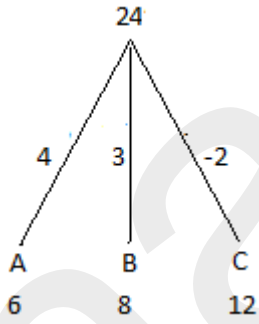
Practice Questions

Sol 1. (c)



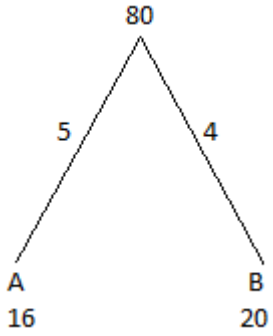
Let the total capacity = 20 unit
Efficiency of B = 8-5 = 3 unit
Number of days taken by B = $\frac{20}{3}$ = 6 $\frac{2}{3}$ hours

Sol 2. (a) Let the total capacity of the tank be 24 units



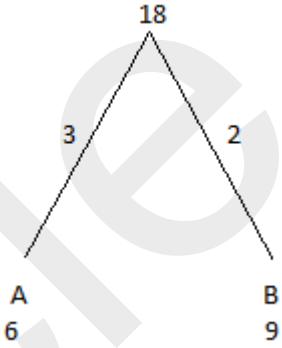
Efficiency of A=+4, B=+3 and C=-2
After 3 hrs, quantity remaining = 24 - (4+3-2)x3 = 24 - 15 = 9
Therefore, Time to fill remaining tank
= $\frac{9}{3-2}$ = 9 hours

Sol 3. (d) Let the total capacity of the tank be 80 units.



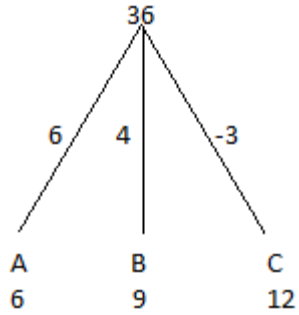
Efficiency of A=5 and B=4
In 2 hours 9units is filled.
In 16hours 72 units will be filled.
Therefore, In $17\frac{3}{4}$ hrs the entire tank will be filled.

Sol 4. (d) Let the capacity of tank be 18 units.



Quantity filled in one cycle (2 hrs) = 3+2 = 5units
Quantity filled in 3 cycle (6 hrs) = 5 x 3 = 15 units
Quantity filled in 7th hour = 3 unit
Therefore, total time taken to fill the tank = 6+1 = 7 hours.

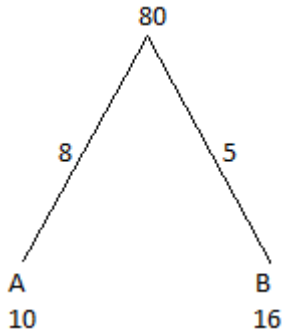
Sol 5. (d) Let the capacity of tank be 36 units.



Efficiency of A=6, B=4 and C=-3
Therefore, Required time to fill 35% of the tank = $\frac{36\times\frac{35}{100}}{(6+4-3)}$ = 1.8 hr

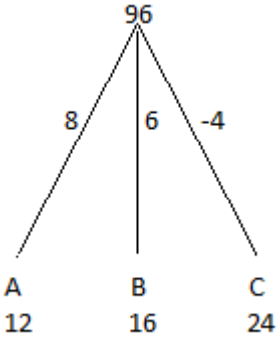
Sol 6. (c) Let the capacity of the tank be 80 units.

Pinnacle



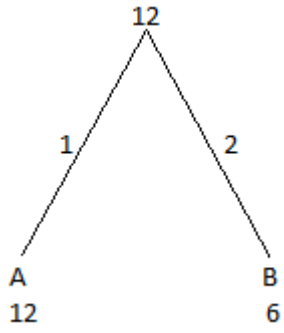
Efficiency of A = 8, B = 5
Quantity filled in one cycle (2 hrs) = 13 units
Quantity filled in 6 cycle (12 hrs) = 13x6 = 78 units
Quantity to be filled in 13th hour = 80-78 = 2 unit
Time taken to fill this quantity = $\frac{2}{8} = \frac{1}{4}$ hour
Total time taken = $12+\frac{1}{4} = 12\frac{1}{4}$ hr

Sol 7. (d) Let the capacity of tank be 96 units.



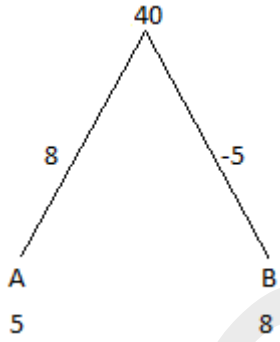
Efficiency of A=+8, B=+6 and C=-4
In 4 hours 4x(8+6-4) = 40 units filled.
Time taken to fill remaining tank by B and C = $\frac{96-40}{2}$ = 28 *hours*
Total time taken = 28+4 = 32 hours

Sol 8. (c)
Time taken by A to fill ¼ th of tank = 3 hr
Time taken by A to fill complete tank =3 x 4 =12 hr
Time taken by B to fill ⅓ rd of tank = 2 hr
Time taken by B to fill complete tank =2 x 3 =6 hr



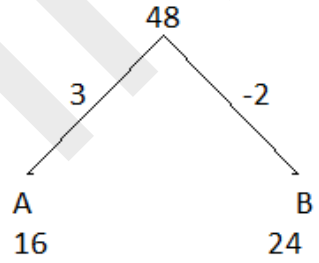
Let total capacity of tank = 12 unit
Desired time = $\frac{12}{1+2}$ = 4 hours

Sol 9. (d)



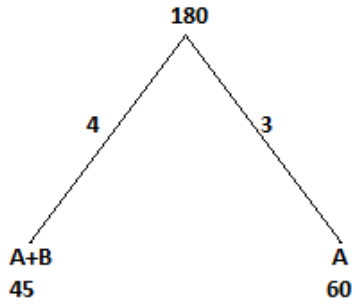
Let total capacity of tank = 40 unit
Desired time = $\frac{\frac{1}{2}\times 40}{8-5} = 6\frac{2}{3}$ *hr*

Sol 10. (a)



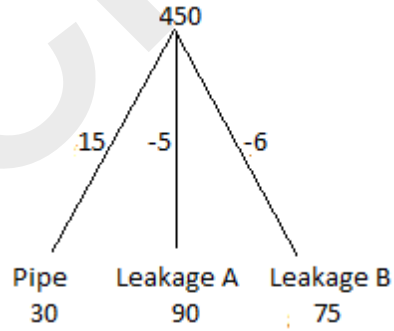
Let both the pipes were opened for x minutes
48 = (3-2)x + 3(30-x)
48 = x + 90 -3x
2x = 42
x = 21

Sol 11. (b)



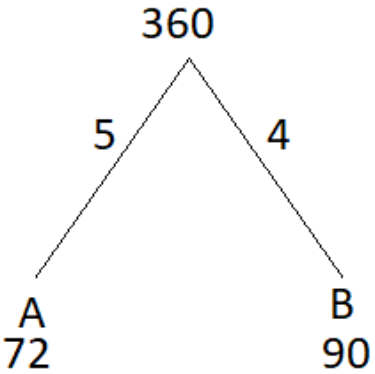
Let the total capacity of tank = 180 unit
Total efficiency of A and B = 4
Efficiency of A = 3
Efficiency of B = 4-3 = 1
Time taken by B = $\frac{180}{1}$ = 180 minutes or 3 hours

Sol 12. (a)



Let total capacity of the tank = 450 unit
Desired time = $\frac{450}{15-5-6} = \frac{450}{4}$ min or $1\frac{7}{8}$ hr

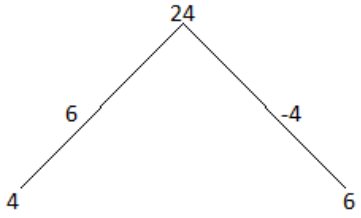
Sol 13. (d)



Let the total capacity of cistern = 360 unit
Required time = $\frac{\frac{1}{2}\times 360}{5+4}$ = 20 minutes.

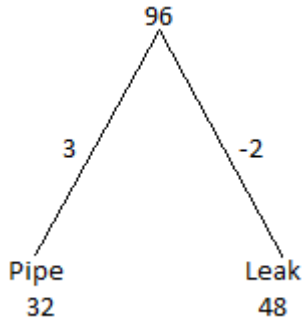
Pinnacle

Sol 14. (d)



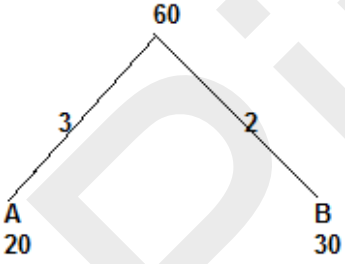
Total capacity = 24 unit
Time taken to fill 1/3rd or 8 unit = $\frac{8}{6-4}$ = 4 hours
Tank to be filled = 24-8 = 16
Time taken = $\frac{16}{6} = \frac{8}{3}$
Total time = $\frac{8}{3}$ +4 = $\frac{20}{3}$ hours

Sol 15. (a)



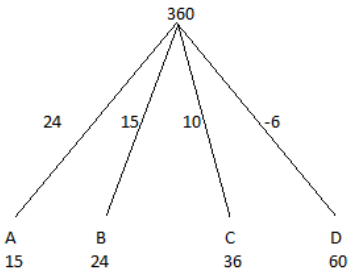
Let total capacity of the tank = 96 unit
Desired time = $\frac{96}{3-2}$ = 96 minutes or 1hr 36 min.

Sol 16. (b)



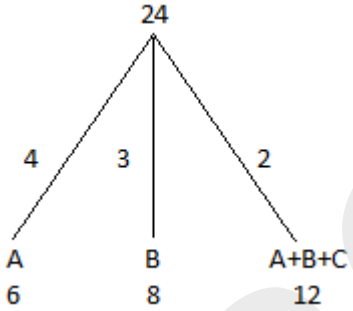
Let total time taken be 5x.
ATQ, 3x+(5 × 4x) =60
23x=60
Therefore, Total time, 5x = $\frac{300}{23} = 13\frac{1}{23}$

Sol 17. (c)



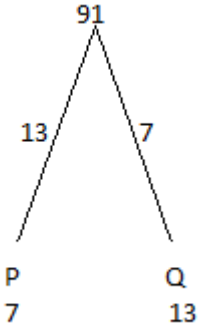
Let total capacity of the tank = 360 unit
Desired time = $\frac{360}{24+15+10-6} = 8\frac{16}{43}$

Sol 18. (c)
Let the capacity of tank = 24 unit



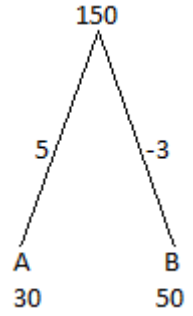
Efficiency of A+B > Efficiency of A+B+C
⇒ C is an outlet pipe.
Efficiency of C = 4+3-2 = 5 unit
Time taken by C to empty the tank = $\frac{24}{5} = 4\frac{4}{5}$
Clearly option 'c' is the right answer.

Sol 19. (d)
Let the total capacity of tank = 91 unit



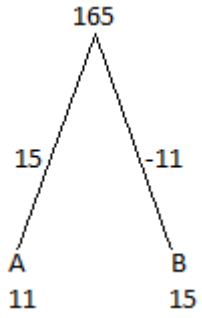
Time taken to fill the tank = $\frac{91}{13+7}$ = $4\frac{11}{20}$ hours or 4 hours 33 minutes

Sol 20. (b)
Let the total capacity of tank = 150 unit



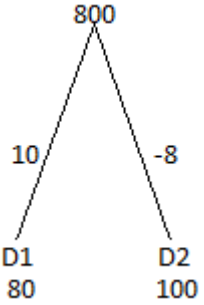
Quantity filled in one cycle (2 days) = 5-3 = 2 unit
146 unit will be filled in $\frac{146}{2}$ = 73 cycles of 146 days
Quantity to be filled till 147th day = 150-146 = 4 unit
Time taken to fill this quantity = $\frac{4}{5}$ day
⇒ the reservoir will get completely filled on 147th day.

Sol 21. (a)
Total capacity of the tank = 165



Time taken to fill the tank = $\frac{165}{15-11} = 41\frac{1}{4}$ hours or 41 hours 15 minutes

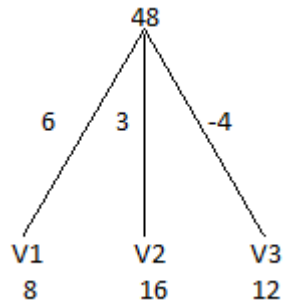
Sol 22. (b)
Total capacity of the tank = 800 unit



Required time = $\frac{800}{10-8}$ = 400 minutes

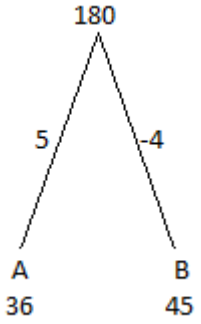
Pinnacle

Sol 23. (d)
Let the total capacity of tank = 48 unit



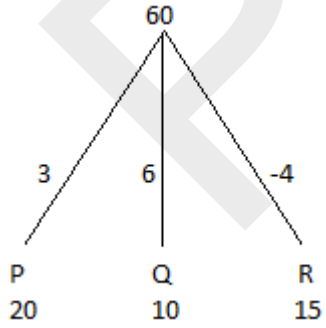
Required time = $\frac{48}{6+3-4} = \frac{48}{5}$ hours

Sol 24. (b)
Let the total capacity of tank = 180 unit



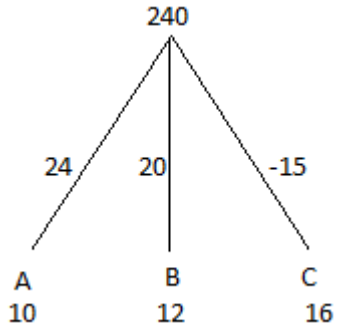
Quantity to be filled = $\frac{1}{2}$ x 180 = 90 unit
Time taken to fill this = $\frac{90}{5-4}$ = 90 minutes or 1.5 hours

Sol 25. (a)
Let the total capacity of tank = 60 unit



Required time = $\frac{60}{3+6-4}$ = 12 minutes

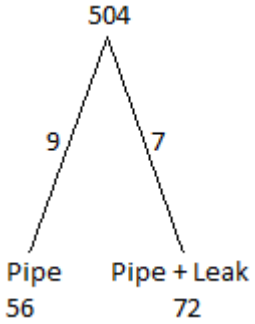
Sol 26. (a)
Let the total capacity of tank = 240 unit



Quantity filled till 10 AM = 2 x (24+20-15) = 58 unit
Time taken to empty this = $\frac{58}{15}$ = 3 $\frac{13}{15}$ hours or 3 hours and 52 minutes
Total time taken = 2 hours + 3 hours and 52 minutes
= 5 hours and 52 minutes

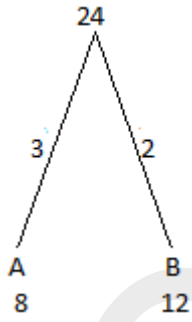
Sol 27. (d)
Let the efficiency of the pipe = 3 unit
⇒ Total capacity of tank = 18 x 3 = 54 unit
Quantity to be filled = $\frac{1}{2}$ x 54 = 27 unit
Efficiency of new pipe = $\frac{1}{3}$ x 3 = 1 unit
Required time = $\frac{27}{1}$ = 27 hours

Sol 28. (b)
Let the capacity of tank = 504 unit



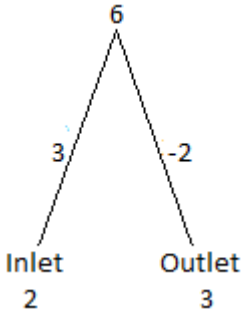
Quantity leaked per hour = 9-7 = 2 unit
83 $\frac{1}{3}$ % = $\frac{5}{6}$
Quantity to be drained = 504 x $\frac{5}{6}$ = 420 unit
Required time = $\frac{420}{2}$ = 210 hours

Sol 29. (d)
Let the quantity to be filled = 24 unit



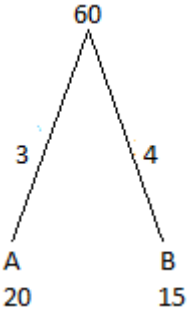
Quantity drained = 24 x $\frac{1}{6}$ = 4 unit
Total efficiency of A, B and C = $\frac{4}{1}$ = 4 unit
⇒ Efficiency of C = 5-4 = 1 unit
Required time = $\frac{24}{1}$ = 24 hours

Sol 30. (d)
Let the total capacity of tank = 6 unit



Required time = $\frac{6}{3-2}$ = 6 hours

Sol 31. (b)
Let the capacity of tank = 60 unit



Quantity drained = 60 x $\frac{1}{18}$ = $\frac{10}{3}$ unit

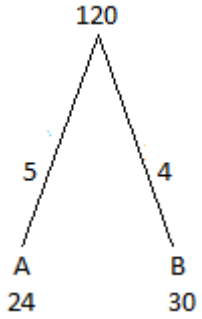
Pinnacle

Total efficiency of A, B and C = $\frac{10/3}{40/60}$ = 5 unit

⇒ Efficiency of C = 7-5 = 2 unit

So, Time taken by C to fill the tank = x = $\frac{60}{2}$ = 30 hours

Sol 32. (a)



Quantity filled in 10 hours = (5+4) x 10 = 90 unit

Total efficiency of A, B and C = $\frac{90}{90}$ = 1 unit

So, efficiency of C = 5+4-1 = 8 unit

⇒ Time taken by C to empty the tank = x = $\frac{120}{8}$ = 15 hours

SSC CGL TIER I

Sol 1. (d) Pipe A can fill a tank in 10 hours

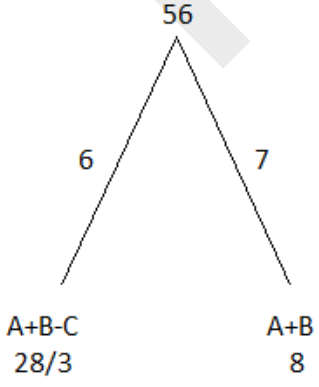
Pipe B can fill a tank in 40 hours

Total capacity = l cm (10,40) = 40 units

In 1 hour, Pipe A fills = 4 units and pipe B fills = 1 unit

A and B together fills tank in $\frac{40}{4+1}$ = 8 hour

Together A, B and C fill the tank in 8+ $\frac{80}{60}$ = $\frac{28}{3}$ hours



⇒ Efficiency of C = 1 unit

Total capacity of tank = 56 units

In 7 hours, A and B fills = 7 × 7 = 49 units

Time taken by C to empty 49 units = 49 hours

SSC CHSL 2019

Sol:1.(a)

LCM of 6,8,4 = 24 units = Total work

Efficiency of A = 4

Efficiency of B = 3

Efficiency of C = -6

Total time= $\frac{24}{4+3-6}$ = 24 hours

Sol:2. (c)

Let the total work = 60 unit (LCM of 20 and 30)

Efficiency of A = $\frac{60}{20}$ = 3

Efficiency of B = $\frac{60}{30}$ = 2

Time taken by both = $\frac{60}{2+3}$ = 12 hours

Sol:3. (a)

Let the total work = 30 unit (LCM of 6 and 10)

Efficiency of A = 30/6 = 5

Efficiency of B = 30/10 = -3

Time taken by both tap = $\frac{30}{2}$ = 15 hour

SSC CGL 2019 TIER-II

Sol:4.(c)

LCM of 43.2,108 and 54 = 432

Then let the capacity of the tank = 432 x

Efficiency of A = 10x

Efficiency of B = 4x

Efficiency of A, B and C combined = 8x

Efficiency of C = 6X

C can empty the tank in = $\frac{432}{6}$ = 72 *min*

Capacity of the tank = 72 × 3 = 216 *l*

Sol:5.(c)

LCM of 10,12,15 is = 60

Efficiency of A and B = 5 : 4

Overall efficiency = $\frac{60}{10}$ = 6

Efficiency of c = 5 + 4 - 6 = 3

Time taken by C = $\frac{60}{3}$ = 20

SSC CPO 2019

Sol:6..(d)

Time taken by pipe A to Fill the tank is 15 hours

Time taken by pipe B to Fill the Tank is 18 hours

Let Total work be 90 units

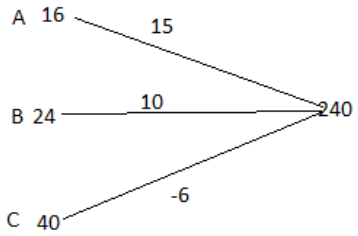
Efficiency of Pipe A= $\frac{90}{15}$ = 6units per hour

Efficiency of Pipe B = $\frac{90}{18}$ =5 units per hour

Combined efficiency of A and B is 11 units per hour

Talk will be filled by A and B combined in $\frac{90}{11}$ units per hour= 8 $\frac{2}{11}$

Sol:7..(b)



Total work done by A,B,C in 10 hours is (15+10-6) is 19 units

Total work done in 10 hours is 190 units

Remaining work to be done is 50 units.which will be done by B and C

So total time to complete the remaining work will be $\frac{50}{4}$ =12.5 hours

Sol:8..(d)

Let time taken by A be x hours

According to the question

$\frac{x(x+5)}{2x+5}$ = 6

$x^2 + 5x = 12x + 30$

$x^2 - 7x + 30 = 0$

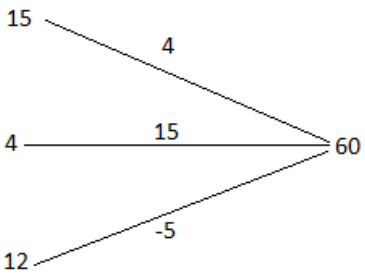
(x - 10)(x + 3)= 0

x = 10 hours

Pinnacle

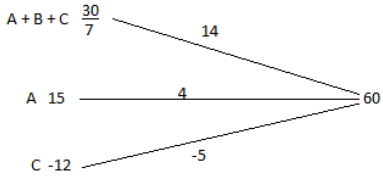
Time taken by B = x + 5 = 15 hours

Sol:9.(b)



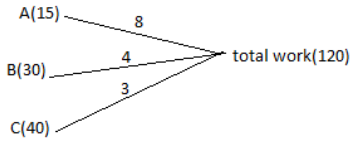
Total efficiency = 4 + 15 -5 = 14
Time required = $\frac{60}{14} = \frac{30}{7}$

Sol:10..(d)



Efficiency of B = 14 - 4 + 5 = 15
Time taken by B = $\frac{60}{15} = 4$

Sol:11..(a)



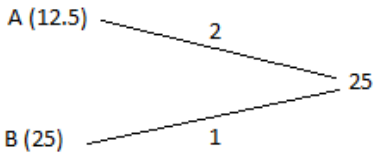
A worked alone for 4 hrs
B worked alone for 2 hrs
Total work done by A and B= 8 × 4+4 × 2=40
Work left to be done by A,B and C=80units
Time taken for the work to be completed= $\frac{80}{8+4+3} = \frac{80}{15} = \frac{16}{3}$ = 5 hrs 20 minutes
The tank will be fill in 10 am +5hrs 20 min= 3:20 pm

Sol:12.(c)
Time taken by pipe A to Fill the tank is 16 hours
Time taken by pipe B to Fill the Tank is 24 hours
Time taken by pipe C to empty the Tank is 40 hours
Let Total work be 240 units (L.C.M. of 16,24,40)
Efficiency of Pipe A= $\frac{240}{16}$ = 15units per hour
Efficiency of Pipe B = $\frac{240}{24}$ =10 units per hour
Efficiency of Pipe C = $\frac{240}{40}$ =6 units per hour
Combined efficiency of A , B and C is 19(15+10-6) units per hour
Tank will be filled by all the three pipes in 10 hours is equal to 15+10-6=19 units × 10=190 units
Work left to be done is 50 units
Combined efficiency of A And B =25 units
Time taken by A and B to fill remaining tank=50 ÷ 25=2 hours

Sol:13.(b)
Time taken by pipe A to Fill the tank is 12 hours
Time taken by pipe B to Fill the Tank is 18 hours
Let Total work be 36 units (L.C.M. of 12,18)
Efficiency of Pipe A= $\frac{36}{12}$ = 3units per hour
Efficiency of Pipe B = $\frac{36}{18}$ =2 units per hour
When both pipes are opened simultaneously then total units of work done by them in 1 hour= 2+3=5 units
Total time required to complete 36 units of work= $\frac{36}{5}$
= 7 $\frac{1}{5}$ hours = 7 hours 12 minutes

Sol:14.(c)
Pump can fill theTank in 1 hours
Due to leakage time taken = 1 $\frac{1}{3}$ = $\frac{4}{3}$
Let capacity of tank be 4 units
Efficiency of the pump without leak=3
Efficiency of the pump with leak=2
Efficiency of leak= 4-3=1
Time taken by leak to empty the tank= $\frac{4}{1}$ =4 hours

Sol:15.(d)



Without leakage tank filling time = $\frac{25}{3}$ = 8 hr 20 min
With leakage = 8 hr + 20 min = 1 hr + 40 min = 10 hr
Efficiency with leakage = $\frac{25}{10}$ = 2.5
Efficiency of leakage = 0.5
Time required to empty the tank = $\frac{25}{0.5}$ = 50 hr

Pinnacle

SPEED AND DISTANCE / चाल और दुरी

KEY- POINTS/ प्रमुख बिंदु

1). $Time = \frac{Distance}{Speed}$

We just need to remember this formula. If two values are given the third can be found easily.

हमे ये सूत्र याद रखना चाहिए| अगर दो मूल्य दिए गए हो तो हम तीसरा निकाल सकते है|

Ex. A man travels from Delhi to Chandigarh at a speed of 50 km/h covering a distance of 300 km. Find the time taken?

एक व्यक्ति दिल्ली से चंडीगढ़ की 300 km की दुरी को 50 km/hr की गति से पूरा करता है| उसे कितना समय लगा?

Here, we are given, Distance(D) = 300 km and Speed(S) = 50 km/h.

$\therefore Time\,(T) = \frac{D}{S} = \frac{300}{50} = 6\ hours$

2). $Average\ Speed = \frac{Total\ Distance}{Total\ Time}$

Ex. A person travels from point A to point B at a speed of 30 km/h and comes back at a speed of 20 km/h. What is his average speed?

एक व्यक्ति पॉइंट A से पॉइंट B तक 30 km/hr की गति से जाता है और 20 km/hr की गति से वापस आता है| उसकी औसत गति क्या है?

Let's take the distance between A and B be 60 km. (LCM of 30 and 20.)

Time taken to travel from A to B $= \frac{Distance}{Speed} = \frac{60}{30} = 2\ hours$

Time taken to travel from B to A $= \frac{Distance}{Speed} = \frac{60}{20} = 3\ hours$

Total distance covered = 60 + 60 = 120 km

Total time taken = 2 + 3 = 5 hours

$\therefore$ Average Speed $= \frac{120}{5} = 24\ km/h$

3). Relative Speed/ सापेक्ष गति

i. Same Direction -: When two things are moving in the same direction, the relative speed is given by the difference between their respective speeds.

जब दो चीजे एक दिशा में चलती है तो उनकी सापेक्ष गति एक दूसरे की गति के अंतर से दिया जाता है|

Ex. A and B are going to a same point Z at speeds of 80 km/h and 60 km/h respectively.

Relative speed of A with respect to B will be = 80 – 60 = 20 km/h.

ii. Opposite direction :- When two things are moving in opposite directions, the relative speed is given by the addition of their respective speeds.

जब दो चीजे विपरीत दिशा में चलती है तो उनकी सापेक्ष गति एक दूसरे की गति के योग से दिया जाता है|

Ex. A is moving towards point Z at 60 km/h and B is going away from point Z at 80 km/h.

Relative speed of A with respect to B = 60 + 80 = 140 km/h.

4). **Unit Conversion:**

$1\ \frac{km}{hr} = 1 \times \frac{1000\ m}{3600\ s} = \frac{5}{18}\ \frac{m}{s}$

So, to convert km/hr to m/sec just multiply by $\frac{5}{18}$ and to convert m/sec to km/hr multiply by $\frac{18}{5}$.

Ex. $90\ \frac{km}{hr} = 90 \times \frac{5}{18}\ \frac{m}{s} = 25\ \frac{m}{s}$

Also, $25\ \frac{m}{s} = 25 \times \frac{18}{5}\ \frac{km}{hr} = 90\ \frac{km}{hr}$

5). **TRAINS/ रेलगाड़ी**

Case 1: Train crossing a person or, pole./ रेल किसी व्यक्ति या पोल को पार करे|

In such case the length of the person or pole is taken to be negligible. To cross the person the train has to cover distance equal to its length.

इस स्थिति में व्यक्ति या पोल की लम्बाई को नगण्य मान लिया जाता है| व्यक्ति को पार करने के लिए रेल को अपनी लम्बाई

जितनी दूरी तय करनी पड़ेगी

Ex. A train, of length 100 m, travelling at 90 km/hr will take how much time to cross a man?

Here, Speed = 90 km/hr $= 90 \times \frac{5}{18}\ \frac{m}{s} = 25\ \frac{m}{s}$

Distance = Length of train = 100 m

Time = Distance / Speed $= \frac{100}{25} = 4\ seconds$

Case 2: Train crossing a platform./ रेल किसी प्लेटफार्म को पार करे|

In such case the distance covered by train to cross the platform will be equal to sum of length of train and platform.

Ex. A train, of length 100 m, travelling at 90 km/hr will take how much time to cross a platform of length 150 m?

Here, Speed = 90 km/hr $= 90 \times \frac{5}{18}\ \frac{m}{s} = 25\ \frac{m}{s}$

Distance = Length of train + Length of platform = 100 + 150 = 250 m

Time $= \frac{Distance}{Speed} = \frac{250}{25} = 10\ seconds$

Case 3: Train crossing another train moving in same direction./ रेल किसी दूसरी रेल को पार करे जो उसी दिशा में चल रही हो|

Pinnacle

In such case the distance covered by train to cross the other train will be equal to sum of lengths of the two trains. To calculate time we need to consider relative speed of one train with respect to the other.

Ex. A train, of length 100 m, travelling at 90 km/hr will take how much time to cross another train, of length 50 m, moving in same direction at speed of 36 km/hr?

Here, Relative speed of first train with respect to second train = (90 – 36) $\frac{km}{hr} = 54 \times \frac{5}{18}\frac{m}{s} = 15\ \frac{m}{s}$

Distance = Length of first train + Length of second train = 100 + 50 = 150 m

Time = $\frac{Distance}{Speed} = \frac{150}{15}$ = 10 *seconds*

Case 4: Train crossing another train moving in opposite direction./ रेल किसी दूसरी रेल को पार करे जो विपरीत दिशा में चल रही हो|

In such case the distance covered by train to cross the other train will be equal to sum of lengths of the two trains. To calculate time we need to consider relative speed of one train with respect to the other.

Ex. A train, of length 100 m, travelling at 90 km/hr will take how much time to cross another train, of length 50 m, moving in opposite direction at speed of 36 km/hr?

Here, Relative speed of first train with respect to second train = (90 + 36) $\frac{km}{hr} = 126 \times \frac{5}{18}\frac{m}{s} = 35\ \frac{m}{s}$

Distance = Length of first train + Length of second train = 100 + 50 = 150 m

Time = $\frac{Distance}{Speed} = \frac{150}{35} = \frac{30}{7}$ *seconds*

Case 5: Train crossing a man sitting in another train moving in same direction./ रेल किसी व्यक्ति को पार करे जो किसी दूसरी रेल में बैठा हो जो उसी दिशा में चल रही हो|

In such case the distance covered by train to cross the man will be equal to length of the train. To calculate time we need to consider relative speed of train with respect to the man. Length of the second train will not be considered.

Ex. A train, of length 100 m, travelling at 90 km/hr will take how much time to cross a man sitting in another train, of length 50 m, moving in same direction at speed of 36 km/hr?

Speed of the man = 36 km/hr

Here, Relative speed of first train with respect to the man = (90 – 36) $\frac{km}{hr} = 54 \times \frac{5}{18}\frac{m}{s} = 15\ \frac{m}{s}$

Distance = Length of first train = 100 m

Time = $\frac{Distance}{Speed} = \frac{100}{15} = \frac{20}{3}$ *seconds*

Case 6: Train crossing a man sitting in another train moving in opposite direction./ रेल किसी व्यक्ति को पार करे जो किसी दूसरी रेल में बैठा हो जो विपरीत दिशा में चल रही हो|

In such case the distance covered by train to cross the man will be equal to length of the train. To calculate time we need to consider relative speed of train with respect to the man. Length of the second train will not be considered.

Ex. A train, of length 100 m, travelling at 90 km/hr will take how much time to cross a man sitting in another train, of length 50 m, moving in opposite direction at speed of 54 km/hr?

Speed of the man = 54 km/hr

Here, Relative speed of first train with respect to the man = (90 + 54) $\frac{km}{hr} = 144 \times \frac{5}{18}\frac{m}{s} = 40\ \frac{m}{s}$

Distance = Length of first train = 100 m

Time = $\frac{Distance}{Speed} = \frac{100}{40} = \frac{5}{3}$ *seconds*

Variety Questions

Q1. A truck covers a distance of 384 km at a certain speed. If the speed is decreased by 16 km/h, it will take 2 hours more to cover the same distance. 75% of its original speed (in km/h) is :

एक ट्रक 384 किमी की दूरी एक निश्चित चाल से तय करता है | यदि चाल 16 किमी/घंटा से कम कर दी जाए, तो इसे इसी दूरी को तय करने में दो घंटे अधिक लगेंगे | इसकी आरंभिक चाल (किमी/घंटा में) का 75% है :

SSC CGL 4 June 2019 (Morning)

(a) 45
(b) 54
(c) 48
(d) 42

Q 2. A takes 30 minutes more than B to cover a distance of 15 km at a certain speed. But if A doubles his speed, he takes one hour less than B to cover the same distance. What is the speed (in km/h) of B?

A को एक निश्चित चाल से 15 किमी की दूरी तय करने में B से 30 मिनट अधिक लगते हैं | लेकिन यदि A अपनी चाल दोगुनी कर ले, तो उसे इसी दूरी को तय करने में B से एक घंटा कम लगेगा | B की चाल (किमी/घंटा में) ज्ञात करें |

SSC CGL 4 June 2019 (Afternoon)
(a) 6
(b) 5
(c) $6\frac{1}{2}$
(d) $5\frac{1}{2}$

Q3. A and B are travelling towards each other from the points P and Q respectively. After crossing each other A and B take $6\frac{1}{8}$ hours and 8 hours, respectively, to reach their destinations Q and P, respectively. If the speed of B is 16.8 km/h then the speed (in km/h) of A is:
A और B क्रमशः बिंदु P और Q से एक-दूसरे की तरफ आ रहे हैं | एक-दूसरे को पार करने के बाद, A और B को अपने-अपने गंतव्यों अर्थात Q और P तक पहुँचने में क्रमशः $6\frac{1}{8}$ घंटे और 8 घंटे लगते हैं | यदि B की चाल 16.8 किमी/घंटा है, तो A की चाल (किमी/घंटा में) ज्ञात करें |
SSC CGL 6 June 2019 (Morning)
(a) 20.8
(b) 19.8
(c) 19.2
(d) 20.4

Q4. The distance between two stations A and B is 800 km. A train X starts from point A and moves towards point B at a speed of 40 km/h and another train Y starts from point B and moves towards A at 60 km/h. How far from A will they cross each other?
दो स्टेशनों A और B के बीच की दूरी 800 किमी है | एक ट्रेन X बिंदु A से चलती है और B की तरफ 40 किमी/घंटा की चाल से जाती है तथा दूसरी ट्रेन Y बिंदु B से A की ओर 60 किमी/घंटा की चाल से चलना शुरू करती है | A से कितनी दूरी पर वे एक-दूसरे को पार करेंगी ?
SSC CGL 6 June 2019 (Afternoon)
(a) 380
(b) 320
(c) 300
(d) 360

Q5. A train travelling at 44 km/h crosses a man walking with a speed of 8 km/h, in the same direction, in 15 seconds. If the train crosses a woman coming from the opposite direction in 10 seconds, then what is the speed (In km/h) of the woman?
44 किमी/घंटा की चाल से चल रही कोई ट्रेन उसी दिशा में 8 किमी/घंटा की चाल से चल रहे एक व्यक्ति को 15 सेकंड में पार करती है | यदि यह ट्रेन सामने से आ रही एक महिला को 10 सेकंड में पार करती है, तो महिला की चाल (किमी/घंटा में) ज्ञात करें |
SSC CGL 6 June 2019 (Evening)
(a) 10.5
(b) 10
(c) 9
(d) 8.5

Q6. The speed of train A is 25 km/h more than the speed of train B. A takes 4 hours less time to travel a distance of 300 km than what train B takes to travel 250 km. What is the speed (In km/h) of A?
ट्रेन A की चाल ट्रेन B की चाल से 25 किमी/घंटा अधिक है | A को 300 किमी की दूरी तय करने में B द्वारा 250 किमी की दूरी तय करने में लिए गए समय से 4 घंटे कम लगते हैं| A की चाल (किमी/घंटा में) ज्ञात करें |
SSC CGL 10 June 2019 (Morning)
(a) 60
(b) 50
(c) 65
(d) 55

Q7. A train without stoppage travel with an average speed of 50 km/h and with stoppage, it travels with an average speed of 40 km/h. For how many minutes does the train stop on an average per hour?
बिना रुके हुए कोई ट्रेन 50 किमी/घंटा की औसत चाल से चलती है तथा रुक-रुक कर यह 40 किमी/घंटा की औसत चाल से चलती है | हर घंटे यह ट्रेन औसतन कितने मिनट रूकती है ?
SSC CGL 10 June 2019 (Afternoon)
(a) 12
(b) 13
(c) 14
(d) 15

Q8. Walking at 3/4 of his usual speed, a person reaches his office 18 minutes later than the usual time. His usual time in minutes is:
अपनी सामान्य चाल की तुलना में ¾ चाल से चलते हुए एक व्यक्ति सामान्य समय से 18 मिनट देर से कार्यालय पहुँचता है | उसका सामान्य समय (मिनट में) क्या है ?
SSC CGL 12 June 2019 (Afternoon)
(a) 60
(b) 54
(c) 72
(d) 45

Q9. A starts walking at 4 kmph and after 4 hours, B starts cycling from the same point as that of A, in the same direction at 10 kmph. After how much distance from the starting point will B catch up with A (correct to two decimal places)?
A, 4 किमी/घंटा की चाल से चलना शुरू करता है और 4 घंटे के बाद, B, A के ही आरंभिक बिंदु से उसी दिशा में 10 किमी/घंटा की चाल से साइकिल चलाता है | आरंभिक बिंदु से कितनी दूरी (दो दशमलव स्थान तक सही) पर B, A को पकड़ लेगा ?
SSC CGL 13 June 2019 (Evening)
(a)24.67 km
(b)26.67 km

(c)25.67 km
(d)23.67 km

Q10. A man travels a certain distance at 12km/h and returns to the starting point at 9km/h. The total time taken by him for the entire journey is $2\frac{1}{3}$ hours. The total distance (In km) covered by him is: / एक व्यक्ति कोई निश्चित दूरी 12 किमी/घंटा की चाल से तय करता है और आरंभिक बिंदु पर 9 किमी/घंटा की चाल से लौटता है | पूरी यात्रा में उसे कुल $2\frac{1}{3}$ घंटे का समय लगता है | उसके द्वारा तय की गयी कुल दूरी ज्ञात करें |
SSC CHSL 1 July 2019 (Evening)
(a) 25
(b) 12
(c) 24
(d) 28

Q11. Two trains of the same length are running on parallel tracks in the same direction at 54 km/h and 42 km/h respectively. The faster train passes the other train in 63 seconds. What is the length (In metres) of each train?
समान लंबाई की दो ट्रेनें समानांतर पटरियों पर एक ही दिशा में क्रमशः 54 किमी/घंटा और 42 किमी/घंटा की चाल से चल रही हैं | तेज़ ट्रेन दूसरी ट्रेन को 63 सेकंड में पीछे छोड़ देती है | प्रत्येक ट्रेन की लंबाई (मीटर में) ज्ञात करें |
SSC CHSL 2 July 2019 (Morning)
(a) 90
(b) 81
(c) 105
(d) 210

Q12.Amit travelled from A to B at an average speed of 80 km/h. He travelled the first 75% of the distance in two-third of the time and the rest at a constant speed of x km/h. The value of x is:
अमित ने A से B तक 80 किमी/घंटा की औसत चाल से यात्रा की | उसने पहली 75% दूरी दो-तिहाई समय में तथा शेष दूरी x किमी/घंटा की चाल से तय की | x का मान क्या है ?
SSC CHSL 2 July 2019 (Afternoon)
(a)56
(b)60
(c)64
(d)54

Q13. A 360 m long running at a uniform speed, crosses a platform in 55 seconds and a man standing on the platform in 24 seconds. What is the length (in metre) of the platform?
360 मी लंबी एक ट्रेन एक समान चाल से चलते हुए किसी प्लेटफ़ॉर्म को 55 सेकंड में तथा प्लेटफ़ॉर्म पर खड़े एक व्यक्ति को 24 सेकंड में पार करती है | प्लेटफ़ॉर्म की लंबाई (मीटर में) कितनी है ?
SSC CHSL 3 July 2019 (Morning)
(a) 480
(b) 445
(c) 410
(d) 465

Q14.Two trains of equal length travelling in opposite directions at 72 km/h and 108 km/h cross each other in 10 seconds. In how much time (in seconds) does the first train cross a platform of length 350 m?
विपरीत दिशाओं में क्रमशः 72 किमी/घंटा और 108 किमी/घंटा की चाल से चल रही बराबर लंबाई की दो ट्रेनें एक-दूसरे को 10 सेकंड में पार करती हैं | पहली ट्रेन 350 मी लंबे प्लेटफ़ॉर्म को कितने समय (सेकंड में) पार करेगी ?
SSC CHSL 3 July 2019 (Evening)
(a)30
(b)32
(c)36
(d)24

Q15. The ratio between the speeds of two trains is 2 : 5. If the first train covers 350 km in 5 hours, then the speed (in km/h) of the second train is:
दो ट्रेनों की चाल में 2 : 5 का अनुपात है | यदि पहली ट्रेन 350 किमी की दूरी 5 घंटे में तय करती है, तो दूसरी ट्रेन की चाल (किमी/घंटा में) ज्ञात करें |
SSC CHSL 8 July 2019 (Morning)
(a)175
(b)150
(c)180
(d)165

Q16. Given that the lengths of the paths of a ball thrown with different speeds by two boys are the same, if they take 0.6 seconds and 1 second respectively to cover the said length, what is the average speed of travel for the first throw, if the same for the second is 96 km/h?
दिया गया है कि दो लड़कों के द्वारा अलग-अलग चाल से फेंकी गयी गेंदों के मार्ग की लंबाई समान है | यदि उन्हें इस लंबाई तक जाने में क्रमशः 0.6 सेकंड और 1 सेकंड लगते हैं, तो पहली थ्रो में गेंद की औसत चाल ज्ञात करें, यदि इसी के लिए दूसरी गेंद की औसत चाल 96 किमी/घंटा है | **SSC CHSL 10 July 2019 (Afternoon)**
(a)100 km/h
(b)150 km/h
(c)160 km/h
(d)200 km/h

Q17.The platform of a station 400 m long starts exactly where the last span of a bridge 1.2 km long ends. How long will a train 200 m long and travelling at the speed of 72 km/h take to cover the distance between the starting point of the span of the bridge and the far end of the platform?

किसी स्टेशन का 400 मीटर लंबा प्लेटफ़ॉर्म ठीक वहीं से शुरू होता है जहाँ 1.2 किमी लंबे पुल का अंतिम पाट समाप्त होता है | 72 किमी/घंटा की चाल से चल रही 200 मीटर लंबी एक ट्रेन को पुल के पाट के आरंभिक बिंदु तथा प्लेटफ़ॉर्म के अंतिम बिंदु तक जाने में कितना समय लगेगा ?

SSC CHSL 11 July 2019 (Morning)

(a)1.6 min
(b)1.5 min
(c)1.8 min
(d)1.2 min

Q18. A train goes from P to Q with a speed μ km/h, then from Q to R (QR = 2PQ) with a speed 3 μ km/h, and returns from R to P with a speed μ/2 km/h. What is the average speed (in km/h) of the train for the entire journey starting from P and back to P?

एक ट्रेन P से Q तक μ किमी/घंटा की चाल से जाती है तथा फिर Q से R तक (QR = 2PQ) 3 μ किमी/घंटा की चाल से जाती है और R से P तक μ/2 किमी/घंटा की चाल से वापस आती है | P से शुरू होकर P तक वापस आने के दौरान इस पूरी यात्रा में ट्रेन की औसत चाल (किमी/घंटा में) ज्ञात करें |

SSC CHSL 11 July 2019 (Afternoon)

(a) $\frac{18\mu}{23}$
(b) $\frac{4\mu}{3}$
(c) $\frac{16\mu}{23}$
(d) $\frac{3\mu}{2}$

Q19.A person covers 40% of a distance with a speed of 60 km/h and the remaining with a speed of 40 km/h. What is his average speed for the whole journey in km/h?

एक व्यक्ति किसी दूरी का 40% हिस्सा 60 किमी/घंटा की चाल से तथा शेष दूरी 40 किमी/घंटा की चाल से तय करता है | पूरी यात्रा में उसकी औसत चाल (किमी/घंटा में) ज्ञात करें |

SSC CHSL 11 July 2019 (Evening)

(a) $\frac{500}{11}$
(b) $\frac{600}{13}$
(c) $\frac{500}{13}$
(d) $\frac{600}{11}$

Q20. The speed of a car increases by 2km/h after every one hour. If the distance travelled in the first one hour was 35 km, what was the total distance travelled in 12 hours?

एक कार की चाल हर एक घंटे के बाद 2 किमी/घंटा से बढ़ जाती है | यदि पहले एक घंटे में तय की गयी दूरी 35 किमी थी, तो 12 घंटे में कितनी दूरी तय की गयी थी ?

SSC CPO 16 March 2019 (Evening)

(a)560 km
(b)650 km
(c)558 km
(d)552 km

SSC CGL TIER II

Q1. Travelling at 60 km/h, a person reaches his destination in a certain time. He covers 60% of his journey in 2/5th of the time. At what speed (in km/h) should he travel to cover the remaining journey so that he reaches the destination right on time?

60 किमी प्रति घंटा की चाल से चलते हुए एक व्यक्ति अपने गंतव्य स्थल पर किसी निश्चित समय में पहुँचता है | वह अपनी 60% यात्रा ⅖ समय में कर लेता है | शेष यात्रा (किमी/घंटा में) उसे किस चाल से करनी चाहिए ताकि वह गंतव्य स्थल पर सही समय पर पहुंचे ?

SSC CGL TIER II (11 September 2019)

(a) 40
(b) 48
(c) 42
(d) 36

Q2. A train travelling at the speed of x km/h crossed a 200 m long platform in 30 seconds and overtook a man walking in the same direction at the speed of 6 km/h in 20 seconds. What is the value of x ?

x किमी/घंटा की चाल से चलती हुई कोई ट्रेन 200 मीटर लंबे प्लेटफ़ॉर्म को 30 सेकंड में पार करती है तथा उसी दिशा में 6 किमी/घंटा की चाल से चल रहे एक व्यक्ति को 20 सेकंड में पीछे छोड़ देती है | x का मान क्या है ?

SSC CGL TIER II (11 September 2019)

(a) 50
(b) 54
(c) 56
(d) 60

Q3. A and B started their journeys from X to Y and Y to X, respectively. After crossing each other, A and B completed the remaining parts of their journey in $6\frac{1}{8}$ h and 8h respectively. If the speed of B is 28 km/h, then the speed (in km/h), then the speed (in km/h) of A is :

A और B ने क्रमशः X से Y और Y से X तक की अपनी यात्राएं शुरू की | एक-दूसरे को पार करने के बाद, A और B ने अपनी यात्रा का शेष भाग क्रमशः $6\frac{1}{8}$ घंटे एवं 8 घंटे में पूरा किया | यदि B की चाल 28 किमी/घंटा है, तो A की चाल (किमी/घंटा में) ज्ञात करें |

SSC CGL TIER II (11 September 2019)

(a) 40
(b) 42
(c) 32
(d) 36

Q4. Renu was sitting inside train A, which was travelling at 50 km/h. Another train, B, whose length was three times the length

Pinnacle

of A crossed her in the opposite direction in 15 seconds. If the speed of train B was 58 km/h, then the length of train A (in m) is :
रेणु एक ट्रेन के भीतर बैठी हुई थी, जो 50 किमी/घंटा की चाल से चल रही थी | A की लंबाई से तिगुनी लंबाई की एक अन्य ट्रेन B ने उसे विपरीत दिशा से 15 सेकंड में पार किया | यदि ट्रेन B की चाल 58 किमी/घंटा थी, तो ट्रेन A की लंबाई (मीटर में) ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 210
(b) 180
(c) 160
(d) 150

Q5. Places A and B are 396 km apart. Train X leaves from A for B and train Y leaves from B for A at the same time on the same day on parallel tracks. Both trains meet after $5\frac{1}{2}$ hours. The speed of Y is 10 km/h more than that of X. What is the speed (in km/h) of Y ?
स्थान A और B 396 किमी दूर हैं | ट्रेन X, A से B के लिए तथा ट्रेन Y, B से A के लिए एक ही दिन एक ही समय पर समानांतर पटरियों पर रवाना होती हैं | दोनों ट्रेनें $5\frac{1}{2}$ घंटे के बाद मिलती हैं | Y की चाल X की चाल से 10 किमी/घंटा अधिक है | Y की चाल (किमी/घंटा में) कितनी है ? SSC CGL TIER II (12 September 2019)
(a) 41
(b) 54
(c) 31
(d) 56

Q6. A man starts from his house and travels at 30 km/h, he reaches his office late by 10 minutes, and travelling at 24 km/h, he reaches his office late by 18 minutes. The distance (in km) from his house to his office is :
एक व्यक्ति अपने घर से निकलता है और 30 किमी/घंटा की चाल से चलता है | वह अपने कार्यालय 10 मिनट की देरी से पहुँचता है | जब वह 24 किमी/घंटा की चाल से चलता है, तब वह 18 मिनट की देरी से कार्यालय पहुँचता है | उसके घर से उसके कार्यालय की दूरी (किमी में) है :
SSC CGL TIER II (12 September 2019)
(a) 18
(b) 16
(c) 12
(d) 20

Q7. To cover a distance of 416 km, a train A takes $2\frac{2}{3}$ hours more than train B. If the speed of A is doubled, it would take $1\frac{1}{3}$ hours less than B. What is the speed (in km/h) of train A ?
416 किमी की दूरी तय करने में, ट्रेन A को ट्रेन B से $2\frac{2}{3}$ घंटे अधिक लगते हैं | यदि A की चाल दोगुनी कर दी जाए, तो इसे B से $1\frac{1}{3}$ घंटे कम लगेंगे | ट्रेन A की चाल (किमी/घंटा में) कितनी है ? **SSC CGL TIER II (13 September 2019)**
(a) 56
(b) 54
(c) 52
(d) 65

Q8. A person covers 40% of the distance from A to B at 8 km/h, 40% of the remaining distance at 9 km/h and the rest at 12 km/h. His average speed (in km/h) for the journey is :
एक व्यक्ति A से B तक की 40% दूरी 8 किमी/घंटा की चाल से, शेष दूरी का 40%, 9 किमी/घंटा की चाल से तथा शेष दूरी 12 किमी/घंटा की चाल से तय करता है | इस यात्रा में उसकी औसत चाल (किमी/घंटा में) कितनी रही है ?
SSC CGL TIER II (13 September 2019)
(a) $9\frac{5}{8}$
(b) $9\frac{2}{3}$
(c) $9\frac{3}{8}$
(d) $9\frac{1}{3}$

Q9. Walking at 60% of his usual speed, a man reaches his destination 1 hour 40 minutes late. His usual time (in hours) to reach the destination is :
अपनी सामान्य चाल की तुलना में 60% चाल से चलते हुए एक व्यक्ति अपने गंतव्य स्थल पर 1 घंटे 40 मिनट की देरी से पहुँचता है | गंतव्य स्थल तक पहुँचने में उसे लगने वाला सामान्य समय (घंटे में) है : **SSC CGL TIER II (13 September 2019)**
(a) $2\frac{1}{2}$
(b) $2\frac{1}{4}$
(c) $3\frac{1}{8}$
(d) $3\frac{1}{4}$

Practice Questions

Q1. A journey of 96 km takes one hour less by a fast train (A) than by a slow train (B) If the average speed of B is 16 km/h less than that of A, then the average speed (in km/h) of A is:
96 किमी की एक यात्रा में तेज़ ट्रेन (A) धीमी ट्रेन (B) की तुलना में एक घंटा कम लेती है | यदि B की औसत चाल A की औसत चाल से 16 किमी कम है, तो A की औसत चाल ज्ञात करें |
SSC CGL 7 June 2019 (Evening)
(a) 64
(b) 48
(c) 54
(d) 60

Q2. A train without stoppage travels with an average speed of 70 km/h, and with stoppage, it travels with an average speed of 56 km/h. How many minutes

does the train stop on an average per hour?
बिना रुके कोई ट्रेन 70 किमी/घंटा की औसत चाल से चलती है तथा रुक-रुक कर, यह 56 किमी/घंटा की औसत चाल से चलती है | प्रति घंटे यह ट्रेन औसतन कितने मिनट रूकती है ?
SSC CGL 10 June 2019 (Evening)
(a) 12
(b) 14
(c) 16
(d) 15

Q3. A train without stoppage travels with an average speed of 65 km/h, and with stoppage, it travels with an average speed of 52 km/h. For how many minutes does the train stop on an average per hour?
बिना रुके कोई ट्रेन 65 किमी/घंटा की चाल से चलती है और रुक-रुक कर यह 52 किमी/घंटा की चाल से चलती है | हर घंटे यह ट्रेन औसतन कितने मिनट रूकती है ?
SSC CGL 11 June 2019 (Morning)
(a) 13
(b) 15
(c) 12
(d) 14

Q4. A train without stoppage travels with an average speed of 72 km/h and with stoppage, it travels with an average speed of 60 km/h. For how many minutes does the train stop on an average per hour?
बिना रुके एक ट्रेन 72 किमी/घंटा की औसत चाल से चलती है तथा रुक-रुक कर यह 60 किमी/घंटा की औसत चाल से चलती है | हर घंटे यह ट्रेन औसतन कितने मिनट रूकती है ?
SSC CGL 11 June 2019 (Afternoon)
(a) 10
(b) 12
(c) 6
(d) 8

Q5. A train without a stoppage travels with an average speed of 80 km/h and with a stoppage , it travels with an average speed of 72 km/h. For how many minutes does the train stop on an average per hour?
बिना रुके कोई ट्रेन 80 किमी/घंटा की औसत चाल से चलती है जबकि रुक-रुक कर यह 72 किमी/घंटा की औसत चाल से चलती है | हर घंटे यह ट्रेन औसतन कितने मिनट रूकती है ?
SSC CGL 11 June 2019 (Evening)
(a) 8
(b) 6
(c) 7
(d) 9

Q6. A train without stoppage travels with an average speed of 80 km/h and with stoppage, it travels with an average speed of 64 km/h. For how many minutes does the train stop on an average per hour?
बिना रुके एक ट्रेन 80 किमी/घंटा की औसत चाल से चलती है जबकि रुक-रुक कर यह 64 किमी/घंटा की औसत चाल से चलती है | हर घंटे यह ट्रेन औसतन कितने मिनट रूकती है ?
SSC CGL 12 June 2019 (Morning)
(a) 12
(b) 8
(c) 10
(d) 14

Q7. Walking at ⅗ of his usual speed , a person reaches his office 20 minutes later than the usual time. His usual time in minutes is :
अपनी सामान्य चाल की तुलना में ⅗ चाल से चलते हुए, एक व्यक्ति सामान्य समय से 20 मिनट देरी से कार्यालय पहुँचता है | उसका सामान्य समय (मिनट में) क्या है ?
SSC CGL 12 June 2019 (Evening)
(a) 25
(b) 30
(c) 20
(d) 40

Q8. Walking 5/7 of his usual speed, a person reaches his office 10 minutes later than the usual time. His usual time in minutes is:
अपनी सामान्य चाल की तुलना में 5/7 चाल से चलते हुए, एक व्यक्ति सामान्य समय से 10 मिनट की देरी से कार्यालय पहुँचता है | उसका सामान्य समय (मिनट में) है -
SSC CGL 13 June 2019 (Morning)
(a)28
(b)30
(c)25
(d)35

Q9. Walking at 7/9 of his usual speed, a person reaches his office 10 minutes later than the usual time. His usual time in minutes is:
अपनी सामान्य चाल की तुलना में 7/9 चाल से चलते हुए एक व्यक्ति कार्यालय सामान्य समय से 10 मिनट की देरी से पहुँचता है | उसका सामान्य समय (मिनट में) है -
SSC CGL 13 June 2019 (Afternoon)
(a)35
(b)27
(c)42
(d)30

Q10.The ratio of speeds of A and B is 3:5. If A takes 24 minutes more than B to cover a certain distance, then how much time (in minutes) will B take to cover the same distance?
A और B की चाल का अनुपात 3 : 5 है | यदि A को एक निश्चित दूरी तय करने में B से 24 मिनट अधिक लगते

हैं, तो इसी दूरी को तय करने में B को कितना समय (मिनट में) लगेगा ?
SSC CHSL 3 July 2019 (Afternoon)
(a)40
(b)36
(c)20
(d)18

Q11. A train covers a certain distance in 45 minutes. If its speed is reduced by 5 km/h, it takes 3 minutes more to cover the same distance. The distance (in km) is:
एक ट्रेन कोई निश्चित दूरी 45 मिनट में तय करती है | यदि इसकी चाल 5 किमी/घंटा से कम कर दी जाए, तो इसे यह दूरी तय करने में 3 मिनट अधिक लगेंगे | यह दूरी है -
SSC CHSL 4 July 2019 (Morning)
(a)64
(b)60
(c)54
(d)80

Q12. A train covers 360 km at a uniform speed. If the speed had been 10 km/h more, it would have taken 3 hours less for the same journey. What is the speed of the train (in km/h)?
एक ट्रेन 360 किमी की दूरी एक समान चाल से तय करती है | यदि इसकी चाल 10 किमी/घंटा अधिक होती, तो इसे इस यात्रा में 3 घंटे कम लगते | ट्रेन की चाल (किमी/घंटा में) ज्ञात करें |
SSC CHSL 4 July 2019 (Afternoon)
(a)40
(b)25
(c)30
(d)50

Q13. A train covers 60 km at a uniform speed. If the speed had been 8 km/h more. it would have taken 10 hours less for the same journey. What is the speed of the train (in km/h)?
एक ट्रेन 60 किमी की दूरी एक समान चाल से तय करती है | यदि इसकी चाल 8 किमी/घंटा अधिक होती, तो इसे इस यात्रा में 10 घंटे कम लगते | इस ट्रेन की चाल (किमी/घंटा में) ज्ञात करें |
SSC CHSL 4 July 2019 (Evening)
(a)4
(b)2.5
(c)3
(d)5

Q14.A car covers 25 km at a uniform speed. If the speed had been 8 km/h more, it would have taken 10 hours less for the same journey. What is the speed of the car (in km/h)?
एक कार 25 किमी की दूरी एक समान चाल से तय करती है | यदि चाल 8 किमी/घंटा अधिक होती, तो इसे इस यात्रा में 10 घंटे कम लगते | कार की चाल (किमी/घंटा में)कितनी है ?
SSC CHSL 5 July 2019 (Morning)
(a)2.5
(b)4
(c)3
(d)2

Q15. The ratio between the speeds of two trains is 2 : 5. If the first train runs 350 km in 5 hours, then the sum of the speed (in km/h) of both the trains is:
दो ट्रेनों की चाल में 2 : 5 का अनुपात है | यदि पहली ट्रेन 5 घंटे में 350 किमी की दूरी तय करती है, तो दोनों ट्रेनों की चालों का योग ज्ञात करें |
SSC CHSL 8 July 2019 (Afternoon)
(a)180
(b)265
(c)245
(d)350

Q16. The ratio between the speeds of two trains is 2 : 5. If the first train runs 350 km in 5h, then the difference between the speeds (in km/h) of both the trains is:
दो ट्रेनों की चाल में 2 : 5 का अनुपात है | यदि पहली ट्रेन 5 घंटे में 350 किमी की दूरी तय करती है, तो दोनों ट्रेनों की चालों में अंतर ज्ञात करें |
SSC CHSL 8 July 2019 (Evening)
(a)165
(b)180
(c)350
(d)105

Q17.The ratio between the speeds of two trains is 2 : 5. If the first train runs 250 km in 5 h, then the difference between the speeds (in km/h) of both the trains is:
दो ट्रेनों की चाल में 2 : 5 का अनुपात है | यदि पहली ट्रेन 5 घंटे में 250 किमी की दूरी तय करती है, तो दोनों ट्रेनों की चालों में अंतर ज्ञात करें |
SSC CHSL 9 July 2019 (Morning)
(a)75
(b)180
(c)65
(d)150

Q18. The ratio between the speeds of two trains is 2 : 5. If the first train runs 250 km in 5 h, then the sum of the speeds (in km/h) of both the trains is:
दो ट्रेनों की चाल में 2 : 5 का अनुपात है | यदि पहली ट्रेन 5 घंटे में 250 किमी की दूरी तय करती है, तो दोनों ट्रेनों की चालों का योग ज्ञात करें |
SSC CHSL 9 July 2019 (Afternoon)
(a)175
(b)150
(c)180
(d)165

Q19. If I travel by bus, I reach my office 15 min late, and if I travel

by car, I reach 10 min early. If the distance between my home and my office is 25 km, then the difference of the reciprocals of average speeds of the bus and the car, is second per metre is:
यदि मैं बस से यात्रा करता हूँ, तो मैं अपने कार्यालय 15 मिनट देर से पहुँचता हूँ तथा यदि मैं कार से यात्रा करता हूँ, तो मैं 10 मिनट पहले पहुँच जाता हूँ | यदि मेरे घर से मेरे कार्यालय की दूरी 25 किमी है, तो बस और कार की औसत चाल के पारस्परिक का अंतर (मीटर प्रति सेकंड में) है :
SSC CHSL 9 July 2019 (Evening)
(a) $\frac{3}{25}$
(b) $\frac{3}{50}$
(c) $\frac{3}{20}$
(d) $\frac{3}{10}$

Q20. A boy standing by the side of a railway track that an Up train crosses him in 8 seconds and a Down train of twice the length of that of the Up train crosses him in 20 seconds. How long (in seconds) will the two trains take to cross each other?
रेलवे ट्रैक के किनारे खड़ा एक लड़का देखता है कि अप-ट्रेन उसे 8 सेकंड में पार कर जाती है जबकि अप-ट्रेन से दोगुनी लंबाई की डाउन ट्रेन को उसे पार करने में 20 सेकंड लगते हैं | दोनों ट्रेनों को एक दूसरे को पार करने में कितना समय (सेकंड में) लगेगा ?
SSC CHSL 10 July 2019 (Morning)
(a)13 $\frac{1}{3}$
(b)15
(c)20
(d)12 $\frac{1}{3}$

Q21. Given that the lengths of the paths of a ball thrown with different speeds by two boys are the same, and the average speed for the first and second throws are respectively 90 km/h and 162 km/h, then what is the time taken by the first throw to cover the length if the same for the second thrown is one second?
दिया गया है कि दो लड़कों के द्वारा अलग-अलग चाल से फेंकी गयी गेंदों के मार्ग की लंबाई समान है तथा पहले और दूसरे फेंकी गयी गेंदों की औसत गति क्रमशः 90 किमी / घंटा और 162 किमी / घंटा है, अगर दूसरे फेंकी गयी गेंद ने इस लंबाई को कवर करने के लिए एक सेकंड का समय लिया तो पहली फेंकी गयी गेंद द्वारा इस लंबाई को कवर करने के लिए लिया गया समय क्या है?
SSC CHSL 10 July 2019 (Evening)
(a) $\frac{3}{2}$ sec
(b)1 sec
(c) $\frac{9}{5}$ sec
(d) $\frac{2}{3}$ sec

Q22. A train travels at a speed of 76 km/hr. If it crosses a pole in 36 sec. The length of the train is:
एक ट्रेन 76 किमी/घंटा की चाल से चलती है | यदि यह एक खंभे को 36 सेकंड में पार करती है, तो ट्रेन की लंबाई क्या है ?
SSC CPO 16 March 2019 (Morning)
(a) 760m
(b) 675 m
(c) 720m
(d) 630m

Q23. If an airplane covers a distance of 980 km in 35 minutes, then what time it will take to cover a distance of 1470 km?
यदि कोई हवाई जहाज 35 मिनट में 980 किमी की दूरी तय करता है, तो 1470 किमी की दूरी तय करने में कितना समय लगेगा? **SSC CPO 16 March 2019 (Morning)**
(a) $\frac{1}{2}$ hours
(b) 1 $\frac{1}{8}$ hours
(c) 1 $\frac{1}{6}$ hours
(d) $\frac{7}{8}$ hours

Q24. If a train runs with the speed of 48 km/hr, it reaches its destination late by 12 minutes. However, if its speed in 64 km/hr it is late by 3 minutes only. The right time for the train to cover the journey (in minutes) is:
यदि कोई ट्रेन 48/घंटा की चाल से चलती है, तो यह अपने गंतव्य पर 12 मिनट की देरी से पहुँचती है| हालाँकि जब इसकी चाल 64 किमी/घंटा होती है, तो यह केवल 3 मिनट की देरी से पहुँचती है | इस यात्रा को पूरा करने में ट्रेन द्वारा लिया गया सही समय है -
SSC CPO 12 March 2019 (Evening)
(a) 24
(b) 18
(c) 20
(d) 22

Q25. If a train runs with the speed of 52km/h, it reaches its destination late by 15 minutes. However, if its speed is 65km/h, it is late by 5 minutes only. The right time for the train to cover its journey is:
यदि कोई ट्रेन 52 किमी/घंटा की चाल से चलती है, तो यह अपने गंतव्य स्थल पर 15 मिनट की देरी से पहुँचती है | लेकिन, जब इसकी चाल 65 किमी/घंटा होती है, तो यह केवल 5 मिनट देर करती है | ट्रेन को यात्रा पूर्ण करने में लगने वाला सही समय क्या है ?
SSC CPO 13 March 2019 (Evening)
(a)45 minutes
(b)40 minutes
(c)35 minutes
(d)30 minutes

Q26. If a train runs at 60 Km/h, it reaches its destination 15 late. But, if it runs at 80 Km/h, it is late by 7 minutes only. The right time for the train to cover its journey is:
यदि एक ट्रेन 60 किमी/घंटा की चाल से चलती है तो यह अपने गंतव्य स्थल

पर 15 मिनट देर से पहुँचती है | लेकिन, यदि यह 80 किमी/घंटा की चाल से चलती है, तो इसे केवल 7 मिनट की देरी होती है | इस यात्रा को पूर्ण करने में ट्रेन को लगने वाला सही समय ज्ञात करें |

SSC CPO 12 March 2019 (Morning)

(a) 18 minutes
(b) 17 minutes
(c) 20 minutes
(d) 21 minutes

Q27. If a train runs with the speed of 36 km/h, it reaches its destination 15 minutes late. However, if its speed is 45 km/h, it is late by only 4 minutes. The correct time to cover its journey in minutes is :

यदि एक ट्रेन 36 किमी/घंटा की चाल से चलती है तो यह अपने गंतव्य स्थल पर 15 मिनट देर से पहुँचती है | लेकिन, यदि यह 45 किमी/घंटा की चाल से चलती है, तो इसे केवल 4 मिनट की देरी होती है | इस यात्रा को पूर्ण करने में ट्रेन को लगने वाला सही समय ज्ञात करें |

SSC CPO 13 March 2019 (Morning)

(a) 22
(b) 27
(c) 25
(d) 40

Q28. A goes to a mall from his house on a cycle at 8km\h and comes back to his house on a cycle at 6km/h. If he takes 1 hour 10 minutes in all, what is the distance between his house and the mall?

A अपने घर से 8 किमी/घंटा की चाल से साइकिल चला कर मॉल गया और वापस अपने घर साइकिल से 6 किमी/घंटा की चाल से आया | यदि उसे कुल मिलाकर 1 घंटा 10 मिनट का समय लगा, तो उसके घर एवं मॉल के बीच की दूरी ज्ञात करें |

SSC CPO 14 March 2019 (Morning)

(a)8 km
(b)4 km
(c)5 km
(d)6 km

Q29. A and B at a distance of 1.7 km apart and they start running towards each other at a speed of 8m/s and 9 m/s respectively. After how much time, will they meet each other?

A और B 1.7 किमी की दूरी पर अलग हैं और वे क्रमशः 8 मीटर / सेकंड और 9 मीटर / सेकंड की गति से एक दूसरे की ओर दौड़ना शुरू करते हैं। कितने समय के बाद, वे एक दूसरे से मिलेंगे?

SSC CPO 14 March 2019 (Morning)

(a)1 minute 40 seconds / 1 मिनट 40 सेकेंड
(b)1 minute 4 seconds / 1 मिनट 4 सेकेंड
(c)14 minute / 14 मिनट
(d)14 seconds / 14 सेकेंड

Q30. A boy increases his speed to 9/5 times of his original speed. By this he reaches his school 30 minutes before the usual time. How much time does he takes usually?

एक लड़का चाल में वृद्धि करके वास्तविक चाल का 9/5 गुना कर लेता है | इसके कारण वह अपने विद्यालय सामान्य समय से 30 मिनट पहले पहुँच जाता है | उसे आमतौर पर कितना समय लगता है ?

SSC CPO 16 March 2019 (Evening)

(a) 67.75 min
(b) 67.50 min
(c) 67.25 min
(d) 67.10 min

Q31. The distance between two cities in $3\frac{1}{4}$ hours at a speed of 52 km/h. If the speed is increased to 65 km/h, how much time would be saved?

दो शहरों के बीच की दूरी 52 किमी/घंटा की चाल से $3\frac{1}{4}$ घंटे में तय की जाती है | यदि चाल बढ़ाकर 65 किमी/घंटा कर दी जाये, तो कितना समय बचेगा ?

SSC CPO 15 March 2019 (Morning)

(a) 39 minutes
(b) 45 minutes
(c) 40 minutes
(d) 42 minutes

Q32.A drives at the rate of 45km/h and reaches its destination 4 minutes late. If speed is 60 km/h, A reaches 5 minutes early.The distance travelled by A is :

A 45 किमी/घंटा की चाल से वाहन चलाता है और अपने गंतव्य स्थल पर 4 मिनट देर से पहुँचता है | यदि चाल 60 किमी/घंटा होती है, तो A 5 मिनट पहले पहुँचता है | A द्वारा तय की गयी दूरी ज्ञात करें |

SSC CPO 15 March 2019 (Morning)

(a)24 km
(b)21 km
(c)27 km
(d)30 km

Q33. A boy walks 15 m in 7 seconds and then walks back in 5 seconds. His average speed (in m/s) is:

एक लड़का 7 सेकंड में 15 मीटर चलता है तथा फिर 5 सेकंड में वापस आ जाता है | उसकी औसत चाल (मीटर/सेकंड में) ज्ञात करें |

SSC CPO 16 March 2019 (Afternoon)

(a)6
(b)2.5
(c) 3.25
(d)4

Q34. A part of the journey is covered in 31.5 minutes at 80

km/h and the remaining part in 16 minutes at 75 km/h. The total distance of the journey is:
यात्रा का एक हिस्सा 80 किमी/घंटा की चाल से 31.5 मिनट में तथा शेष भाग 75 किमी/घंटा की चाल से 16 मिनट में पूर्ण होता है | यात्रा की कुल दूरी ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)45 km
(b)38 km
(c) 62 km
(d)54 km

Q35. A train 100 m long running running speed crosses a station which is 500 m long in 25 seconds. How long will it take for the train to pass a station that is 380 m long?
100 मीटर लंबी एक ट्रेन एक स्टेशन को 25 सेकंड में पार करती है जो 500 मीटर लंबा है | 380 मीटर लंबे स्टेशन को पार करने में ट्रेन को कितना समय लगेगा ?
SSC CPO 16 March 2019 (Afternoon)
(a)21 seconds
(b)20 seconds
(c)19 seconds
(d)22 seconds

Q36. At the speed of 5 km/h a girl, walks from her home to school in 24 minute, and in the return at 8 km/h from the cycle. It took time to come back from a cycle:
एक लड़की 5 km/h की गति से 24 मिनट में अपने घर से स्कूल पैदल पहुँचती है और वापसी में वही दूरी साईकिल से 8 km/h की गति से तय करती है | साईकिल से वापस आने से समय लगा : **SSC CPO 14 March 2019 (Evening)**
(a) 15 minute
(b) 10 minute
(c) 8 minute
(d) 21 minute

Q37. A boy goes from his home to the park 500 m away in 5 minutes and comes back in 7 minutes. Their average move :
एक लड़का अपने घर से पार्क तक 500m दूर 5 मिनट में जाता है और 7 मिनट में वापिस आ जाता है | उनकी औसत चाल है : **SSC CPO 14 March 2019 (Evening)**
(a) 1
(b) 12
(c) 2.5
(d) 5

Q38. A person completes 210 km of his journey at 60 km/h and completes the next 198 km at 66 km/h. What is the average speed during the whole trip?
एक व्यक्ति अपनी यात्रा के पहले 210 km को 60 km/h की गई से और अगले 198 km को 66 km/h की गति से पूरा करता है | पूरी यात्रा के दौरान औसत गति क्या है ?
SSC CPO 14 March 2019 (Evening)
(a) 68.5 km/h
(b) 64 km/h
(c) 63 km/h
(d) 62.8 km/h

Q39. A train of length 230m has to cross a platform of length 750m. If train is moving at the speed of 72 km/h. Then find the time taken to cross the platform?
230 m लम्बी एक ट्रेन को 750 m लंबे प्लेटफॉर्म को पार करना है | यदि ट्रेन 72 km/h की गति से चल रही है और की छूट देता है | वस्तु का लागत मूल्य है :
SSC CPO 14 March 2019 (Evening)
(a)72 Seconds / सेकंड
(b)58 Seconds / सेकंड
(c)64 Seconds / सेकंड
(d)49 Seconds / सेकंड

SSC MTS

Q40. A travels 15 km with a speed of 30 km/h. He travels another 25 km with a speed of 10km/h. What is his average speed for the entire journey?
A 15 km की दूरी को 30 km/h की चाल से तय करता है। वह 10 किमी / घंटा की गति के साथ 25 किमी की यात्रा और करता है। पूरी यात्रा के लिए उसकी औसत गति क्या है?
SSC MTS 2 August 2019 (Morning)
(a) $\frac{40}{3}$ km/h
(b) $\frac{80}{3}$ km/h
(c) 20 km/h
(d) 12 km/h

Q41. A man leaves from P at 6 am and reaches Q at 2 pm on the same day. Another man leaves Q at 8 am and reaches P at 3 pm on the same day. At what time do they meet?
एक आदमी P से सुबह 6 बजे निकलता है और उसी दिन दोपहर 2 बजे Q पर पहुंचता है। एक अन्य व्यक्ति सुबह 8 बजे Q को छोड़ता है और उसी दिन दोपहर 3 बजे P पर पहुंचता है। वे किस समय मिलते हैं?
SSC MTS 2 August 2019 (Morning)
(a) 11 : 46 am
(b) 11 : 24 am
(c) 10 : 48 am
(d) 11 : 00 am

Q42.A car can cover 300 meters in 6 minutes. What is its average speed in km / h?
एक कार 6 मिनट में 300 मीटर की दूरी तय कर सकती है | इसकी औसत गति km/h में कितनी है ?
SSC MTS 2 August 2019 (Afternoon)
(a) 50
(b) 3
(c) 12
(d) 6

Pinnacle

Q43. A train crosses a 600 metres long platform in 50 seconds. It crosses another 900 metres long platform in 60 seconds. What are the length and the speed of the train?
एक ट्रेन 50 सेकंड में 600 मीटर लंबे प्लेटफार्म को पार करती है। यह 60 सेकंड में 900 मीटर लंबा एक और प्लेटफार्म पार करती है। ट्रेन की लंबाई और गति क्या हैं?
SSC MTS 2 August 2019 (Evening)
(a) 900 metres, 96 km/h
(b) 900 metres, 108 km/h
(c) 600 metres, 108 km/h
(d) 700 metres, 96 km/h

Q44. A train leaves P at 9 am with speed of 30 km/h. Another train leaves Q at 11 am with speed of 45 km/h. The trains are travelling towards each other on parallel tracks. Distance between P and Q is 300 km. When they meet, what is the ratio of the distances covered by them?
एक ट्रेन सुबह 9 बजे 30 km/h की गति से P से निकलती है। एक अन्य ट्रेन सुबह 11 बजे 45 km/h की गति से Q से निकलती है। ट्रेनें समानांतर पटरियों पर एक-दूसरे की ओर जा रही हैं। P और Q के बीच की दूरी 300 km है। वे कब मिलेंगीं, एवं उनके द्वारा तय की गई दूरियों का अनुपात कितना होगा?
SSC MTS 5 August 2019 (Morning)
(a) 8 : 5
(b) 13 : 12
(c) 17 : 14
(d) 11 : 9

Q45. Alok starts walking from P with speed of 6 km/h towards Q. Raman starts at same time from P towards Q with speed of 9 km/h. Raman reaches Q, turns back and starts walking towards P. He meets Alok at R. If PQ is 15 km, then what is PR?
आलोक P बिंदु से Q की ओर 6 km/h की गति से चलना शुरू करता है। रमन 9 km/h की गति के साथ P से की Q की ओर चलना आरम्भ करता है। रमन Q पर पहुँचता है, वापस मुड़ता है और P की ओर चलना शुरू कर देता है। वह आलोक से R पर मिलता है। यदि PQ 15 km है, तो PR कितना है?
SSC MTS 5 August 2019 (Morning)
(a) 20 km
(b) 12 km
(c) 15 km
(d) 18 km

Q46.A train crosses a 900 meter long platform in 300 seconds. If the length of the train is 600 meters, then in what time can it cross a stationary pole (stationary pole)?
एक रेलगाड़ी 900 मीटर लंबे प्लेटफॉर्म को 300 सेकण्ड में पार करती है | यदि रेलगाड़ी की लंबाई 600 मीटर है, तब वह एक स्थिर खंभे (स्टेशनरी पोल) को कितने समय में पार कर सकती है ?
SSC MTS 5 August 2019 (Afternoon)
(a) 5 Minutes
(b) 2 Minutes
(c) 3 Minutes
(d) 4 Minutes

Q47. A travels a certain distance with three different speeds; first covers 3 km with a speed of 9 km / h, the second 6 km with a speed of 15 km / h and the third 9 km with a speed of 18 km / h. What is the average speed of A's entire journey?
A किसी निश्चित दूरी को तीन भिन्न गतियों के साथ तय करता है; पहली 3 km की दूरी 9 km/h की गति के साथ, दूसरी 6 km की दूरी 15 km/h की गति के साथ और तीसरी 9 km की दूरी 18 km/h की गति के साथ तय करता है | A की पूरी यात्रा की औसत गति कितनी है ?
SSC MTS 5 August 2019 (Afternoon)
(a) $\frac{660}{37}$ km/h
(b) $\frac{480}{37}$ km/h
(c) $\frac{460}{37}$ km/h
(d) $\frac{540}{37}$ km/h

Q48. A train takes 1 minute to cross a stationary pole. How long (in seconds) will the train take to cross a bridge whose length is twice the length of the train?
एक रेलगाड़ी किसी स्थिर खंभे को पार करने में 1 मिनट का समय लेती है | किसी पुल, जिसकी लंबाई रेलगाड़ी की लंबाई से दोगुनी है, को पार करने में रेलगाड़ी को कितना समय लगेगा (सेकंड में)?
SSC MTS 5 August 2019 (Evening)
(a) 150
(b) 90
(c) 120
(d) 180

Q49. The average speed of a car is 600 m / min. How much slower does the car run (in meters / second) than a runner who travels 100 meters in 9.6 seconds?
एक कार की औसत गति 600 मीटर/मिनट है | कोई धावक, जो 9.6 सेकंड में 100 मीटर की दूरी तय करता है, की तुलना में कार कितनी धीमी गति (मीटर/सेकंड में) से चलती है ?
SSC MTS 5 August 2019 (Evening)
(a) $\frac{5}{24}$
(b) $\frac{1}{2}$
(c) $\frac{7}{12}$
(d) $\frac{5}{12}$

Q50. A car can cover a distance of 18 km in 24 minutes. The speed of a bus is twice that of a car. In how many minutes can the bus cover a distance of 135 km?

Pinnacle

एक कार 24 मिनट में 18 km की दूरी तय कर सकती है | किसी बस की गति कार की दुगुनी है | बस 135 km की दूरी कितने मिनट में तय कर सकती है ?

SSC MTS 6 August 2019 (Morning)

(a) 48 Minutes
(b) 90 Minutes
(c) 50 Minutes
(d) 75 Minutes

Q 51. A train crosses a stationary pole in 3 minutes. it crosses the 600 meter long platform in 5 minutes. The Length and speed of train is-

कोई रेलगाड़ी किसी स्थिर खंभे को 3 मिनट में पार करती है | वह 600 मीटर लंबे प्लेटफॉर्म को 5 मिनट में पार करती है | रेलगाड़ी की लंबाई तथा गति कितनी है ?

SSC MTS 6 August 2019 (Afternoon)

(a) 3600 m, 18 km/h
(b) 900 m, 18 km/h
(c) 900 m, 15 km/h
(d) 1200 m, 15 km/h

Q 52. A person travels from A to B with a speed of 30 km /h. He returns from B to A at with speed of 20 km / h. What is his average speed in the entire journey?

एक व्यक्ति A से B तक 30 km/h की गति से जाता है | वह B से A तक 20 km/h की गति से वापस लौट आता है | पूरी यात्रा में उसकी औसत गति कितनी है ?

SSC MTS 6 August 2019 (Afternoon)

(a) 26.5 km/h
(b) 24 km/h
(c) 25 km/h
(d) 27.5 km/h

Q53. The speed of a car is 36 km/h. How much time (in minutes) will a bus traveling at one-fifth of the speed of the car take to cover a distance of 900 m?

एक कार की गति 36 km/h है।एक बस जिसकी गति कार की गति का ⅕ है, 900 मीटर की दूरी तय करने में कितना समय लेगी ?

SSC MTS 6 August 2019 (Evening)

(a) $5\frac{1}{2}$
(b) $7\frac{1}{2}$
(c) $10\frac{1}{2}$
(d) $8\frac{1}{2}$

Q54. A train, 700 m long crosses a pole in 35 seconds. How much time does it take to cross a platform of length 740 m?

एक रेलगाड़ी , 700 मीटर लंबी 35 सेकंड में एक खम्भे को पार करती है। 740 मीटर के प्लेटफॉर्म को पार करने में इसे कितना समय लगेगा ?

SSC MTS 6 August 2019 (Evening)

(a) 1 min 24 sec
(b) 1 min 30 sec
(c) 1 min 12 sec
(d) 1 min 20 sec

Q55. A bus covers first 200 km of a journey in 4 hours and the next 600 km in 6 hours. What is the average speed of the bus for the whole journey?

एक बस पहले 200 km की यात्रा 4 घंटे में और अगली 600 km की दूरी 6 घंटे में तय करती है। पूरी यात्रा के लिए बस की औसत गति क्या है?

SSC MTS 7 August 2019 (Morning)

(a) 100 km/h
(b) 90 km/h
(c) 60 km/h
(d) 80 km/h

Q56. A takes 10 minutes more than B in covering a certain distance. If their speeds are in the ratio of 3:4, then what is the time taken by B to cover the same distance?

A किसी निश्चित दूरी को तय करने में B से 10 मिनट अधिक लेता है। यदि उनकी गति 3: 4 के अनुपात में है, तो B द्वारा समान दूरी तय करने में कितना समय लगेगा?

SSC MTS 7 August 2019 (Afternoon)

(a)40 minutes
(b)30 minutes
(c)50 minutes
(d)20 minutes

Q57. A train moves at the speed of 80 km/h and crosses a platform in 0.75 minutes. If the length of the train is equal to the length of the platform, then what is the length of the platform?

एक ट्रेन 80 km/h की गति से चलती है और एक प्लेटफॉर्म को 0.75 मिनट में पार करती है। यदि ट्रेन की लंबाई प्लेटफ़ॉर्म की लंबाई के बराबर है, तो प्लेटफ़ॉर्म की लंबाई क्या है?

SSC MTS 7 August 2019 (Afternoon)

(a)400 m
(b)480 m
(c)450 m
(d)500 m

Q58. A bus covers a distance of 1.8 km in 3 minutes. How much faster (in m/s) is it than a young athlete who runs 200 m in 25 seconds ?

एक बस 3 मिनट में 1.8 किमी की दूरी तय करती है। 25 सेकंड में 200 मीटर दौड़ने वाले युवा धावक की तुलना में यह कितना तेज (m/s) है?

SSC MTS 7 August 2019 (Evening)

(a) 1.5
(b) 1
(c) 2
(d) 2.5

Q59. A train with 72 km/h speed crosses a stationary pole in 35 seconds. How much time (in minutes) does it take to cross a 1.1 km long bridge?

72 km/h की गति वाली ट्रेन 35 सेकंड में एक स्थिर खम्भे को पार करती है। 1.1 km लंबे पुल को पार करने में कितना समय (मिनटों में) लगेगा?
SSC MTS 8 August 2019 (Morning)
(a) 2.5
(b) 3
(c) 2
(d) 1.5

Q60. A man travels from P to Q at the speed of 60 km/h and travels from Q to P at the speed of 90 km/h. What is the average speed of the man for the whole journey?
एक आदमी 60 km/h की गति से P से Q की ओर यात्रा करता है और 90 km/h की गति से Q से P की ओर यात्रा करता है। पूरी यात्रा के लिए आदमी की औसत गति क्या है?
SSC MTS 8 August 2019 (Afternoon)
(a) 75 km/h
(b) 78 km/h
(c) 70 km/h
(d) 72 km/h

Q61. A train starts from A at 6 AM and reaches B at 11 AM on the same day. Another train starts from B at 8 AM and reaches A at 3 PM on the same day. At what time the two trains will have crossed each other?
एक ट्रेन सुबह 6 बजे शुरू होती है और उसी दिन सुबह 11 बजे B पर पहुंचती है। एक अन्य ट्रेन B से सुबह 8 बजे शुरू होती है और उसी दिन दोपहर 3 बजे A पहुंचती है। किस समय पर दोनों ट्रेनें एक-दूसरे को पार कर लेगी ?
SSC MTS 8 August 2019 (Evening)
(a) 9:45 AM
(b) 8:45 AM
(c) 10:30 AM
(d) 7:45 AM

Q62. A man goes from C to D at 40 km/h and he returns from D to C at x km/h. If the average speed of the man for the whole journey is 60 km/h, then what is the value of x?
एक आदमी 40 km/h की गति से C से D तक जाता है और वह X km/h की गति से D से C पर लौटता है। यदि पूरी यात्रा के लिए आदमी की औसत गति 60 km/h है, तो x का मान क्या है?
SSC MTS 8 August 2019 (Evening)
(a) 100
(b) 120
(c) 110
(d) 80

Q63. A motor car moves at a speed of 72 km/h and 54 km/h after and before repairing respectively. It covers X distance in 6 hours after repairing. How much time (in hours) will it take to cover 5X distance before repairing?
एक मोटर कार क्रमशः मरम्मत करने से पहले और बाद में 72 km/h और 54 km/h की गति से चलती है। यह मरम्मत के बाद 6 घंटे में x दूरी तय करती है। मरम्मत से पहले 5x दूरी को तय करने में कितना समय (घंटों में) लगेगा?
SSC MTS 9 August 2019 (Morning)
(a) 40
(b) 45
(c) 30
(d) 36

Q64. A sports car going at an average speed of 108 km/h takes 15 minutes to complete a lap on a racing track. How much speed (in km/h) should be increased to complete the lap in 9 minutes?
108 km/h की औसत गति से चलने वाली एक स्पोर्ट्स कार को रेसिंग ट्रैक पर एक घेरे को पूरा करने में 15 मिनट लगते हैं। 9 मिनट में घेरे को पूरा करने के लिए कितनी गति (km /h) बढ़ाई जानी चाहिए?
SSC MTS 9 August 2019 (Morning)
(a) 180
(b) 108
(c) 72
(d) 100

Q65. In 100m race A beats B by 10 m and B beats C by 10m. By what distance A beat C (in m) ?
100 m की दौड़ में A, B से 10 m आगे हो जाता है, B, C से 10 m आगे हो जाता है। A, C से कितना आगे निकला है?
SSC MTS 9 August 2019 (Afternoon)
(a) 19
(b) 18
(c) 20
(d) 21

Q66. A fighter aircraft runs at a speed of 1440 km / hr. How many meters does it cover in one second?
एक लड़ाकू विमान 1440 km/hr की गति से चलता है | एक सेकंड में वह कितने मीटर की दूरी तय करता है?
SSC MTS 9 August 2019 (Evening)
(a)394
(b)385
(c)374
(d)400

Q67. A man is walking at a speed of 12 km / h. After every kilometer, he takes rest for 4 minutes. How much time (in minutes) will it take to cover a distance of 8 kilometers?
एक आदमी 12 किमी/घंटा की गति से चल रहा है | प्रत्येक किलोमीटर के बाद, वह 4 मिनट आराम करता है | 8 किलोमीटर की दूरी तय करने में वह कितना समय (मिनट में) लेगा?
SSC MTS 13 August 2019 (Morning)
(a)68

(b)64
(c)60
(d)72

Q68. A woman travelling at 130% of her usual speed reaches her office 12 minutes early. Her usual time to cover the journey is :
अपनी सामान्य गति से 130% यात्रा करने वाली महिला अपने कार्यालय में 12 मिनट पहले पहुँचती है। यात्रा को तय करने के लिए उसका सामान्य समय क्या है?
SSC MTS 13 August 2019 (Afternoon)
(a) 0.52 hr
(b) 0.48 hr
(c) 2 hrs
(d) 1 hr

Q69. Each wheel of a bus is making 7 revolutions per second. If the diameter of a wheel is 56 cm, then the speed of the bus (in cm/sec) would be:
एक बस का प्रत्येक पहिया प्रति सेकंड 7 चक्कर लगा रहा है। यदि पहिये का व्यास 56 cm है, तो बस की गति कितनी (cm/s) होगी?
SSC MTS 13 August 2019 (Evening)
(a)616
(b)1232
(c)1000
(d)176

Q70. Two trains each having length of 160 meters moving in opposite direction crossed each other in 9 seconds. If one train crossed a 200 meters long platform in 18 seconds, then the ratio of the speeds is:
विपरीत दिशा में चलते हुए 160 मीटर लम्बाई वाली दो ट्रेनें एक-दूसरे को 9 सेकंड में पार करती है। यदि एक ट्रेन 18 सेकंड में 200 मीटर लंबे प्लेटफार्म को पार करती है, तो इनकी गति का अनुपात है:
SSC MTS 13 August 2019 (Evening)
(a)2:3
(b)9:7
(c)5:8
(d)3:4

Q71. A man goes to a place on car at speed of 160 km/h and comes back at lower speed. If the average speed is 64 km/h in total, them the return speed (in km/h) is:
एक व्यक्ति कार से किसी स्थान को 160 किमी/घंटा की चाल से जाता है तथा कम चाल से वापस आता है | यदि कुल मिलाकर औसत चाल 64 किमी/घंटा है, तो वापसी की चाल (किमी/घंटा में) है :
SSC MTS 13 August 2019 (Evening)
(a)25
(b)80
(c)40
(d)60

Q72. The ratio in the speeds of two aeroplanes is 11 : 18. If the first covers a distance of 1650 Km in 3 hours, then find the speed of the second one (in m/s).
दो हवाई जहाज़ों की गतियों का अनुपात 11:18 है | यदि पहला हवाई जहाज 3 घंटों में 1650 km की दूरी तय करता है, तो दूसरे हवाई जहाज की गति (m/s में) कितनी है?
SSC MTS 14 August 2019 (Morning)
(a)270
(b)200
(c)225
(d)250

Q73. A car can cover a distance of 420 km in 7 hours. How much speed should be increased to cover this distance in 6 hours ?
कोई कार 7 h में 420 km की दूरी तय कर सकती है | दूरी को 6 h में तय करने के लिए गति कितनी बढ़ानी होगी?
SSC MTS 14 August 2019 (Morning)
(a)7.5 km/h
(b)10 km/h
(c)8 km/h
(d)5 km/h

Q74. A train's average speed is 72 km/h but is reduced to 60 km/h due to stoppages. For how much time does the train stop in an hour?
एक ट्रेन की औसत चाल 72 किमी/घंटा है लेकिन रुकने के कारण यह कम हो कर 60 किमी/घंटा रह जाती है | एक घंटे में ट्रेन कितने समय के लिए रूकती है ?
SSC MTS 14 August 2019 (Afternoon)
(a)10 minutes
(b)12 minutes
(c)15 minutes
(d)8 minutes

Q75. If a student walks with speed 30% more than the usual speed, he reaches 15 min earlier to his destination. How much time (in minutes) does he take to reach his destination normally?
यदि कोई छात्र सामान्य चाल से 30% तेज़ चाल से चलता है, तो वह अपने गंतव्य स्थल पर 15 मिनट पहले पहुँच जाता है | आमतौर पर गंतव्य स्थल तक पहुँचने में उसे कितना समय (मिनट में) लगता है ?
SSC MTS 14 August 2019 (Evening)
(a) 45
(b) 65
(c) 50
(d) 39

Q76. A man on a tour travels first 360 km by train at 72 km/h, the next 160 km on a motor cycle at 12.80 km/h and the last 200 km by on a bicycle at 16 km/h. Ignoring the buffer times between

the different modes of travel, what is the average speed (in m/s) for his tour?
किसी यात्रा में एक व्यक्ति पहली 360 किमी की दूरी 72 किमी/घंटा की चाल से ट्रेन से तय करता है, अगली 160 किमी की दूरी मोटरसाइकिल पर 12.80 किमी/घंटा की चाल से तथा अंतिम 200 किमी की दूरी एक साइकिल पर 16 किमी/घंटा की चाल से तय करता है| परिवहन के विभिन्न साधनों के बीच मध्यवर्ती समय को नज़रअंदाज़ करते हुए, इस यात्रा में उसकी औसत चाल (मी/सेकंड में) ज्ञात करें |
SSC MTS 16 August 2019 (Morning)
(a) 6.67
(b) 7.33
(c) 4.33
(d) 5.67

Q77. The ratio in the speeds of two aeroplanes is 7 : 15. If the first aeroplane covers a distance of 1050 km in 3 hours, then what is the speed of the second aeroplane ?
दो हवाई जहाजों की गतियों का अनुपात 7 : 15 है | यदि पहला हवाई जहाज 3 घंटों में 1050 km की दूरी तय करता है, तो दूसरे हवाई जहाज की गति कितनी है ?
SSC MTS 16 August 2019 (Afternoon)
(a) 720 km/h
(b) 675 km/h
(c) 900 km/h
(d) 750 km/h

Q78. A person goes on a journey. He travelled 16 hours in all. He covered the first half of the distance @ 40 km/h and the other half @ 60 km/h. Find the total distance covered by him.
एक आदमी यात्रा पर निकलता है | उसने कुल 16 घंटों की यात्रा की | दूरी का पहला आधा भाग उसने 40 km/h और दूसरा आधा भाग 60 km/h की गति से तय किया | उसने कुल कितनी दूरी तय की ?
SSC MTS 16 August 2019 (Afternoon)
(a) 384 km
(b) 768 km
(c) 576 km
(d) 960 km

Q79. A car travels for 6 hours at different speeds. For the first two hours at 60 m/s, for the next 2 hours at 50 m/s and for the remaining time at x m/s. If the average speed for the entire journey is 52 m/s, what is the value of x?
एक कार अलग-अलग चाल से 6 घंटे तक यात्रा करती है | पहले दो घंटे वह 60 मी/सेकंड की चाल से चली, अगले दो घंटे 50 मी/सेकंड और शेष समय वह x मी/सेकंड से चली | यदि पूरी यात्रा के लिए औसत चाल 52 मी/सेकंड रही है, तो x का मान ज्ञात करें |
SSC MTS 22 August 2019 (Evening)
(a) 46
(b) $44\frac{1}{2}$
(c) 48
(d) $45\frac{1}{2}$

Q80. Speed of a man is 45 km/h. In how much time (in seconds) will he cover a distance of 225 metres?
एक व्यक्ति की चाल 45 किमी/घंटा है | वह 225 मीटर की दूरी कितने समय (सेकंड में) में तय करेगा ?
SSC MTS 19 August 2019 (Morning)
(a) 24
(b) 16
(c) 18
(d) 22

Q81. A 600 metres long train can cross a 1200 metres long platform in 36 seconds. In how much time (in seconds) can it cross a bridge 2200 metres long?
600 मीटर लंबी एक ट्रेन 1200 मीटर लंबे प्लेटफ़ॉर्म को 36 सेकंड में पार कर सकती है | यह 2200 मीटर लंबे पुल को कितने समय (सेकंड में) में पार करेगी ?
SSC MTS 19 August 2019 (Morning)
(a) 56
(b) 52
(c) 48
(d) 44

Q82. The speed of a car is 20 m/s. What distance (in km) will it cover in 2.5 hours ?
एक कार की गति 20 m/s है | कार 2.5 घंटे में कितनी दूरी (km में) तय करेगी ?
SSC MTS 19 August 2019 (Afternoon)
(a) 108
(b) 180
(c) 144
(d) 72

Q83. A person travels a certain distance at a speed of 18 km/h and returns to the starting point at 12 km/h. If he takes 2 hours 55 minutes for the whole journey, the distance one way is:
एक व्यक्ति कोई निश्चित दूरी 18 किमी/घंटा की चाल से तय करता है और आरंभिक बिंदु पर 12 किमी/घंटा की चाल से वापस आता है | यदि पूरी यात्रा में उसे 2 घंटे 55 मिनट लगते हैं, तो एक तरफ की दूरी है :
SSC MTS 19 August 2019 (Evening)
(a) 21 km
(b) 25 km
(c) 18 km
(d) 24 km

Q84. A train X travelling at 72 km/h crosses another train Y travelling at 63 km/h (in opposite direction) in 18 seconds. If the length of train Y is two-third the

length of X, then length of train X is:
72 किमी/घंटा की चाल से चल रही कोई ट्रेन X , 63 किमी/घंटा की चाल से विपरीत दिशा में चल रही दूसरी ट्रेन Y को 18 सेकंड में पार करती है | यदि ट्रेन Y की लंबाई ट्रेन X की लंबाई की दो-तिहाई है, तो ट्रेन X की लंबाई ज्ञात करें |
SSC MTS 19 August 2019 (Evening)
(a) 300 m
(b) 420 m
(c) 405 m
(d) 270 m

Q85. A and B start travelling towards each other at the same time at the respective speeds of 10 km/h and 20 km/h. The distance between them is 49 km. What is the distance (in meters) between them before 5 minutes of meeting ?
A और B एक ही समय पर क्रमश: 10 km/h और 20 km/h की गति से एक दूसरे की ओर चलना शुरू करते हैं और उनके बीच की दूरी 49 km है | आपस में मिलने से 5 मिनट पहले, उनके बीच की दूरी, m में, कितनी है ?
SSC MTS 20 August 2019 (Morning)
(a) 1600
(b) 1800
(c) 2500
(d) 2000

Q86. The speed of A for walking two times is equal to the speed of B for walking three times. To cover a distance, A takes 42 minutes less than B to cover the same distance. What is the time (in minutes) taken by B to cover the same distance ?
A की दो बार चलने की गति B के तीन बार चलने की गति के बराबर है | किसी दूरी को तय करने में A को B की तुलना में समान दूरी तय करने में 42 मिनट कम समय लगता है | B को समान दूरी तय करने में कितना समय (मिनटों में) लगता है ?
SSC MTS 20 August 2019 (Afternoon)
(a) 135
(b) 126
(c) 120
(d) 96

Q87. Two trains running in the opposite directions cross each other in 12 seconds and they take 60 seconds when they run in the same direction. The possible speeds (m/s) of these two trains can be :
दो रेलगाड़ियां विपरीत दिशा में चलते हुए एक दूसरे को 12 सेकंड में पार करती हैं, और समान दिशा में चलने पर वे 60 सेकंड का समय लेती हैं | दोनों रेलगाड़ियों की संभावित गतियां (m/sec में) हो सकती हैं:
SSC MTS 20 August 2019 (Afternoon)
(a) 18, 40
(b) 15, 45
(c) 20, 30
(d) 15, 30

Q88. A train with the average speed of 54 km/h, covers a distance in 200 minutes. To reduce this time to 90 minutes, at what speed (km/h) the train should run ?
एक रेलगाड़ी जिसकी औसत गति 54 km/h है, किसी दूरी को 200 मिनट में तय करती है | यात्रा समय को कम कर 90 मिनट करने हेतु रेलगाड़ी को किस गति (km/h में) से चलना चाहिए?
SSC MTS 20 August 2019 (Evening)
(a) 120
(b) 60
(c) 180
(d) 220

Q89. If Shivan runs at 19 km/h, then find the time (in minutes) taken by him to cover a distance of 665 m.
यदि शिवान 19 km/h की गति से चलता है, तो 665 m की दूरी तय करने में उसे कितना समय (मिनट में) लगेगा ?
SSC MTS 21 August 2019 (Morning)
(a) 3
(b) $2\frac{1}{10}$
(c) $1\frac{1}{2}$
(d) 2

Q90. A 180 m long train running at 20 m/s will take what time (in seconds) to cross a child walking at 10 m/s in the same direction ?
20 m/sec की गति से चल रही 180 m लम्बी एक रेलगाड़ी 10 m/sec की गति से उसी दिशा में चल रहे एक बच्चे को पार करने में कितना समय (sec में) लेगी ?
SSC MTS 21 August 2019 (Morning)
(a) 12
(b) 36
(c) 15
(d) 18

Q91. A person travels 75 km at a speed of 25 km/h, next 60 km at a speed of 20 km/h and the last 90 km at a speed of 15 km/h. His average speed is :
एक व्यक्ति 75 km की यात्रा 25 km/h की गति से, अगली 60 km की यात्रा 20 km/h की गति से और उसके बाद 90 km की यात्रा 15 km/h की गति से तय करता है | उसकी औसत गति है:
SSC MTS 21 August 2019 (Afternoon)
(a) 25.5 km/h
(b) 18.75 km/h
(c) 20.25 km/h
(d) 15 km/h

Q92. A bus covers a distance of 10 km in 12 minutes. If its speed is reduced by 25 km/h, then what

time (in minutes) will it take to cover the same distance?
एक बस 10 km की दूरी 12 मिनट में तय करती है | यदि उसकी गति 25 km/h कम कर दी जाए, तो उसी दूरी को तय करने में बस को कितना समय (मिनट में) लगेगा ?
SSC MTS 21 August 2019 (Afternoon)
(a) 36
(b) 13
(c) 15
(d) 24

Q93. A person covers a distance of 390 km in 3.25 hours. His speed in m/s is :
एक व्यक्ति 390 km की दूरी 3.25 घंटों में तय करता है | उसकी गति, m/sec में, है :
SSC MTS 21 August 2019 (Evening)
(a) $33\frac{1}{3}$
(b) 24
(c) $30\frac{2}{3}$
(d) 25

Q94. The diameter of a wheel is 70 cm. It completes 600 revolutions in 1 minute. The speed, in km/h, of the vehicle is: (Take $\pi = \frac{22}{7}$)
एक पहिये का व्यास 70 सेमी है | यह 1 मिनट में 600 चक्कर लगाता है | वाहन की चाल (किमी/घंटा में) है :
SSC MTS 22 August 2019 (Morning)
(a) 78.4
(b) 79.2
(c) 77.8
(d) 78.2

Q95. The speed of a train is 3 times that of a car and 1.5 times that of a steamer. A person travelled x km by steamer, 3.75x km by train and $\frac{x}{2}$ km by car. If the speed of the car is 40 km/h and total time taken by him is $4\frac{1}{2}$ hours, then the total distance travelled by him in three modes is:
किसी ट्रेन की चाल एक कार की चाल से तिगुनी तथा एक स्टीमर की चाल से 1.5 गुनी है | एक व्यक्ति ने स्टीमर से x किमी, ट्रेन से 3.75x किमी तथा कार से $\frac{x}{2}$ किमी की यात्रा की | यदि कार की चाल 40 किमी/घंटा है और उसके द्वारा लिया गया कुल समय $4\frac{1}{2}$ घंटा है, तो इन तीन साधनों की सहायता से उसके द्वारा तय की गयी कुल दूरी ज्ञात करें |
SSC MTS 22 August 2019 (Morning)
(a) 450 km
(b) 520 km
(c) 480 km
(d) 420 km

Q96. A and B started walking in the opposite direction from X and Y respectively at the same time. After meeting, A and B took 2.7 hours and 1.2 hours to reach Y and X respectively. If the speed of B is 48 km/hr, then find the speed of A (in km/h) .
A और B ने क्रमश X और Y से एक ही समय पर विपरीत दिशा में चलना शुरू किया | मिलने के बाद, A और B को Y और X पर पहुंचने में क्रमश: 2.7 घंटे और 1.2 घंटे लगे | यदि B की गति 48 km/h है, तो A की गति (km/h में) कितनी है ?
SSC MTS 22 August 2019 (Afternoon)
(a) 32
(b) 36
(c) 40
(d) 30

Q97. The ratio of the lengths of train A and B is 5 : 3 and their speeds are in the ratio of 2 : 3. Walking in the opposite direction, Train A took $2\frac{1}{2}$ minutes to cross B. The time (in minutes) taken by train A to cross a stationary pole is :
ट्रेन A और B की लंबाइओं का अनुपात 5:3 है और उनकी गतियों का अनुपात 2:3 है | विपरीत दिशा में चलते हुए, ट्रेन A द्वारा B को पार करने में $2\frac{1}{2}$ मिनट का समय लगा | एक स्थिर स्तम्भ (स्टेशनरी पोल) को पार करने में ट्रेन A द्वारा लिया गया समय (मिनट में) है :
SSC MTS 21 August 2019 (Evening)
(a) 2
(b) 3
(c) $\frac{125}{32}$
(d) $\frac{25}{16}$

Q98. Two trains are moving in opposite directions with the speed of 35 m/s and 45 m/s respectively. From the time they are 12 km apart, how much time would they take to cross each other ?
दो ट्रेनें विपरीत दिशाओं में क्रमशः 35 मी/सेकंड और 40 मी/सेकंड की चाल से यात्रा कर रही हैं | जब उनके बीच की दूरी 12 किमी है, उस समय से उन्हें एक-दूसरे को पार करने में कितना समय लगेगा ?
SSC MTS 14 August 2019 (Afternoon)
(a) 2 minutes 30 seconds
(b) 2 minutes
(c) 3 minutes
(d) 3 minutes 30 seconds

Q99. A train running at a speed of 108 km/h crosses a pole in 32 seconds. The length of the train is :
108 km/h की गति से चल रही कोई ट्रेन किसी खम्भे को 32 सेकंड में पार करती है | ट्रेन की लम्बाई (m में) है :
SSC MTS 13 August 2019 (Evening)
(a) 960
(b) 1024
(c) 1200
(d) 1240

Q100. Train A takes 9 hours more than train B to cover a distance of 612 km. If its speed is doubled then it takes 3 hours less than the time taken by train B. The speed of the train B is :
612 km की यात्रा करने के लिए ट्रेन B की तुलना में, ट्रेन A 9 घंटे अधिक समय लेती है | यदि ट्रेन की गति को दोगुना किया जाता है, तो वह ट्रेन B की तुलना में 3 घंटे का समय कम लेती है | ट्रेन B की गति (km/h में) है :-
SSC MTS 9 August 2019 (Evening)
(a) 51 km/h
(b) 1.2 km/h
(c) 40.8 km/h
(d) 30.6 km/h

Q101. A train crosses a stationary object in 25 seconds. If the speed of the train is 25 m/s, then find the length of the train.
एक रेलगाड़ी किसी स्थिर वस्तु (स्टेशनरी ऑब्जेक्ट) को 25 सेकंड में पार करती है | यदि रेलगाड़ी की गति 25 m/s है | तो रेलगाड़ी की लम्बाई कितनी है ?
SSC MTS 9 August 2019 (Evening)
(a) 625 m
(b) 500 m
(c) 300 m
(d) 620 m

Q102. A train crosses two platform of length 1000 m and 600 m in 80 seconds and 60 seconds respectively. What is the length of the train ?
कोई ट्रेन 1000 मी तथा 600 मी लंबाई वाले दो प्लेटफ़ॉर्म को क्रमशः 80 सेकंड और 60 सेकंड में पार करती है | ट्रेन की लंबाई कितनी है ?
SSC MTS 8 August 2019 (Afternoon)
(a) 720 m
(b) 600 m
(c) 540 m
(d) 400 m

Q103. A train x running at 84 km/h crosses another train y running at 52 km/h in opposite direction in 12 seconds. If the length of y is two-third that of x, then what is the length of x ? / 84 किमी/घंटा की चाल से चल रही एक ट्रेन x सामने से 52 किमी/घंटा की चाल से आ रही दूसरी ट्रेन y को 12 सेकंड में पार करती है | यदि y की लंबाई x की लंबाई से दो-तिहाई है, तो x की लंबाई कितनी है ?
SSC CHSL 2 July 2019 (Evening)
(a) 250 m
(b) 242 m
(c) 272 m
(d) 408 m

Q104. The ratio between the speeds of two trains is 5:7. If the first train covers 300 km in 3 hours, then the speed (in km/h) of the second train is :
दो ट्रेनों की चाल में 5 : 7 का अनुपात है | यदि पहली ट्रेन 300 किमी की दूरी 3 घंटे में तय करती है, तो दूसरी ट्रेन की चाल (किमी/घंटा में) कितनी है ?
SSC CHSL 5 July 2019 (Afternoon)
(a) 150
(b) 140
(c) 120
(d) 100

Q105. The ratio between the speeds of two trains is 5:7. If the first train covers 300 km in 3 hours, then the speed (in km/h) of the first train is :
दो ट्रेनों की चाल 5 : 7 के अनुपात में है | यदि पहली ट्रेन 300 किमी की दूरी 3 घंटे में तय करती है, तो पहली ट्रेन की चाल (किमी/घंटा में) कितनी है ?
SSC CHSL 5 July 2019 (Evening)
(a) 150
(b) 140
(c) 100
(d) 120

Q106. A car consumes 5.4 litres of petrol to cover 60.48 km. how many kilometers be covered with 22 litres of petrol?
एक कार 60.48 किमी की दूरी तय करने में 5.4 लीटर पेट्रोल खपत करती है | 22 लीटर पेट्रोल में कितनी दूरी तय की जायेगी ?
SSC CPO 15 March 2019 (Morning)
(a) 246.4
(b) 238.62
(c) 240.24
(d) 243.5

Q107. A person completes 210 km of his journey at 60 km/h and completes the next 198 km at 66 km/h. What is the average speed during the whole trip? / एक व्यक्ति अपनी यात्रा के पहले 210 km को 60 km/h की गई से और अगले 198 km को 66 km/h की गति से पूरा करता है | पूरी यात्रा के दौरान औसत गति क्या है ?
SSC CPO 15 March 2019 (Evening)
(a) 68.5 km/h
(b) 64 km/h
(c) 63 km/h
(d) 62.8 km/h

Q108. A train of length 230m has to cross a platform of length 750m. If train is moving at the speed of 72 km/h. Then find the time taken to cross the platform? / 230 m लम्बी एक ट्रेन को 750 m लंबे प्लेटफॉर्म को पार करना है | यदि ट्रेन 72 km/h की गति से चल रही है तो प्लेटफॉर्म पार करने में ट्रैन द्वारा लिया गया समय ज्ञात करे : **SSC CPO 15 March 2019 (Evening)**
(a)72 Seconds / सेकंड
(b)58 Seconds / सेकंड
(c)64 Seconds / सेकंड
(d)49 Seconds / सेकंड

Q109. Each wheel of a bus is making 7 revolutions per second. If the diameter of a wheel is 56 cm, then the speed of the bus (in cm/sec) would be : / एक बस का प्रत्येक पहिया प्रति सेकंड 7 चक्कर लगाता है | यदि एक पहिये का व्यास 56 सेमी है, तो बस की चाल (सेमी/सेकंड में) होगी :
SSC MTS 13 August 2019 (Evening)
(a) 616
(b) 1232
(c) 1000
(d) 176

Q110. A train runs 50% faster than a car. Both start running from the same point and meet after covering a distance of 360 km. In the middle of this journey, the train stops for two hours due to some faults in engine. What is the speed of the train ? / कोई रेलगाड़ी एक कार से 50% तेजी से चलती है | दोनों एक ही बिंदू से चलना शुरू करते हैं और 360 km की यात्रा के बाद आपस में मिलते हैं | यात्रा के बीच रेलगाड़ी इंजन में खराबी के कारण किसी स्टेशन पर 2 घंटों के लिए रुक जाती है | रेलगाड़ी की गति कितनी है ?
SSC MTS 16 August 2019 (Evening)
(a) 80 km/h
(b) 60 km/h
(c) 72 km/h
(d) 90 km/h

SSC CGL TIER I

Q1. A train crosses a pole in 12 sec., and a bridge of length 170m in 36 sec. Then the speed of the train is: / एक ट्रेन किसी खंभे को 12 सेकंड में तथा 170 मीटर लंबे पुल को 36 सेकंड में पार करती है | इस ट्रेन की चाल है :
SSC CGL 3 March 2020 (Morning)
(a) 30.75 km/h
(b) 10.8 km/h
(c) 25.5 km/h
(d) 32.45 km/h

Q2. A and B start moving toward each other from places X and Y, respectively at the same time. The speed of A is 20% more than that of B. After meeting on the way, A and B take $2\frac{1}{2}$ hours and x hours, now to reach Y and X, respectively. What is the value of x? / A और B क्रमशः स्थान X और Y से एक ही समय में एक-दूसरे की ओर चलना शुरू करते हैं | A की चाल B की चाल से 20% अधिक है | रास्ते में मिलने के बाद, A और B को Y और X तक पहुँचने में क्रमशः $2\frac{1}{2}$ घंटे और x घंटे लगते हैं | x का मान क्या है ? **SSC CGL 3 March 2020 (Afternoon)**

(a) $3\frac{3}{5}$
(b) $3\frac{2}{3}$
(c) $3\frac{1}{2}$
(d) $3\frac{2}{5}$

Q3. Two racers run at a speed of 100m/min and 120m/min respectively. If the second racer takes 10 minute less than the first to complete the run, then how long is the race?
दो धावक क्रमशः 100 मीटर/मिनट तथा 120 मीटर / मिनट की चाल से दौड़ते हैं | यदि दूसरे धावक को पहले धावक की तुलना में दौड़ पूरी करने में 10 मिनट कम लगते हैं, तो दौड़ की लंबाई कितनी है ?
SSC CGL 3 March 2020 (Evening)

(a) 4 cm
(b) 6 cm
(c) 1 cm
(d) 2 cm

Q4. Places A and B are 144 km apart. Two cars start simultaneously, one from A and the other from B. If they move in the same direction, they meet after 12 hours, but if they move towards each other they meet after $\frac{9}{8}$ *hours* . The speed(in km/h) of the car moving at a faster speed, is: / स्थान A और B 144 किमी दूर हैं | दो कारें एक ही समय चलना शुरू करती हैं, पहली कार A से तथा दूसरी कार B से | ये वे समान दिशा में चलती हैं, तो वे 12 घंटों के बाद मिलती हैं, लेकिन यदि वे एक-दूसरे की ओर चलती हैं, तो $\frac{9}{8}$ घंटे के बाद मिलती हैं| तीव्र गति से चलने वाली कार की चाल (किमी/घंटा में) कितनी है ? **SSC CGL 4 March 2020 (Evening)**

(a) 70
(b) 72
(c) 60
(d) 64

Q5. A train takes $2\frac{1}{2}$ hours less for a journey of 300 km, if its speed is increased by 20km/h from its usual speed . How much time will it take to cover a distance of 192 km at its usual speed? / यदि एक ट्रेन की चाल उसकी सामान्य चाल से 20 किमी/घंटा बढ़ा दी जाए, तो इसे 300 किमी की यात्रा में $2\frac{1}{2}$ घंटे कम लगते हैं | अपनी सामान्य चाल से इसे 192 किमी की दूरी तय करने में कितना समय लगेगा ? **SSC CGL 5 March 2020 (Morning)**

(a) 4.8 hours
(b) 2.4 hours
(c) 3 hours
(d) 6 hours

Q6. The distance between two stations, A and B is 428 km. A train starts from station 'A' at 6:00 a.m. and moves towards station 'B' at an average speed of 48km/h . Another train starts

from station 'B' at 6:20 a.m. and moves towards station 'A' at an average speed of 55km/h. At what time will the train meet?
दो स्टेशनों - A और B के बीच की दूरी 428 किमी है | एक ट्रेन स्टेशन A से सुबह 6 बजे निकलती है तथा स्टेशन B की ओर 48 किमी/घंटा की औसत चाल से जाती है | एक अन्य ट्रेन स्टेशन B से सुबह 6 : 20 में चलती है तथा स्टेशन A की ओर 55 किमी/घंटा की चाल से जाती है | ये ट्रेनें किस समय मिलेंगी ?
SSC CGL 5 March 2020 (Evening)
(a) 10:20 a.m.
(b) 9:40 a.m.
(c) 10:00 a.m.
(d) 10:40 a.m.

Q7. A student takes 1.25 hours to travel from home to school at a speed of 4 km/h. By what percentage should he increase his speed to reduce the time by 25% to cover the same distance from school to home?
एक छात्र को 4 किमी/घंटा की चाल से चलते हुए घर से विद्यालय पहुँचने में 1.25 घंटे लगते हैं | विद्यालय से घर तक इतनी ही दूरी तय करने के दौरान समय में 25% कटौती करने के लिए उसे अपनी चाल में कितने प्रतिशत की वृद्धि करनी चाहिए ?
SSC CGL 6 March 2020 (Morning)

(a) 45%
(b) 50%
(c) 25%
(d) $33\frac{1}{3}$ %

Q8. Two cyclists X and Y start at the same time from place A to go towards place B at a speed of 6 km/h and 8 km/h, respectively. Despite stopping for 15 minutes during the journey, Y reaches 10 minutes earlier than X. The distance between the places A and B is:
दो साइकिलिस्ट X और Y स्थान A से एक ही समय पर चलते हैं तथा B की तरफ क्रमशः 6 किमी/घंटा और 8 किमी/घंटा की चाल से जाते हैं | अपनी यात्रा के दौरान 15 मिनट तक रुकने के बाद भी, Y, X से 10 मिनट पहले पहुँच जाता है | स्थान A और B के बीच की दूरी है : **SSC CGL 6 March 2020 (Afternoon)**

(a) 10 km
(b) 16.5 km
(c) 8 km
(d) 6 km

Q9. A train crosses a platform 180 m long in 60 sec at a speed of 72 km/h. The time taken by the train to cross an electric pole is:
एक ट्रेन 72 किमी/घंटा की चाल से 180 मीटर लंबे प्लेटफ़ॉर्म को 60 सेकंड में पार करती है | बिजली के खंभे को पार करने में ट्रेन को कितना समय लगेगा ?
SSC CGL 6 March 2020 (Evening)
(a) 0.51 min
(b) 5.1 min
(c) 51 sec
(d) 5.1 sec

Q10. Two cars A and B leave Delhi at 8:30 a.m. and 9 a.m. for Shimla, respectively. They travel at the speeds of 40km/h and 50 km/h respectively. How many kilometres away from Delhi will the two cars be together?
दो कारें A तथा B दिल्ली से क्रमशः 8 : 30 a.m एवं 9 a.m में शिमला जाने के लिए खुलती है | वे क्रमशः 40 किमी/घंटा तथा 50 किमी/घंटा की चाल से यात्रा करती हैं | दोनों कारें दिल्ली से कितने किलोमीटर की दूरी पर एक साथ होंगी ?
SSC CGL 7 March 2020 (Morning)

(a) 200 km
(b) 45 km
(c) 100 km
(d) 5 km

Q11. The two trains leave Varanasi for Lucknow at 11:00 a.m. and at 11:30 a.m., respectively and travel at a speed of 110 km/h and 140 km/h, respectively. How many kilometers from Varanasi will both the trains meet?
दो ट्रेनें वाराणसी से लखनऊ के लिए क्रमशः 11 : 00 am तथा 11 : 30 a.m में खुलती हैं तथा क्रमशः 110 किमी/घंटा और 140 किमी/घंटा की चाल से यात्रा करती हैं| वाराणसी से कितने किलोमीटर की दूरी पर ये दोनों ट्रेनें मिलेंगी ?
SSC CGL 7 March 2020 (Afternoon)

(a) $255\frac{1}{3}$ km
(b) $238\frac{2}{3}$ km
(c) $246\frac{1}{3}$ km
(d) $256\frac{2}{3}$ km

Q12. X and Y are two stations which are 280 km apart. A train starts at a certain time from X and travels towards Y at 60 km/h. After 2 hours, another train starts from Y and travels towards X at 20 km/h. After how many hours does the train leaving from X meets the train which left from Y? / X और Y दो स्टेशन हैं जो एक दूसरे से 280 किमी दूर हैं। एक ट्रेन स्टेशन X से एक निश्चित समय पर शुरू होती है और 60 किमी / घंटा की गति से स्टेशन Y की ओर जाती है। 2 घंटे के बाद, एक और ट्रेन स्टेशन Y से शुरू होती है और 20 किमी / घंटा की गति से स्टेशन X की ओर जाती है। स्टेशन X से निकलने वाली ट्रेन कितने घंटों के बाद स्टेशन Y से रवाना हुई ट्रेन से मिलेगी?
SSC CGL 9 March 2020 (Morning)

(a) 3 hours
(b) 6 hours
(c) 4 hours
(d) 2 hours

Q13. Amit travelled a distance of 50 km in 9 hours. He travelled partly on foot at 5km/h and partly by bicycle at 10km/h. The distance travelled on the bicycle is: / अमित ने 9 घंटे में 50 किमी की दूरी तय की। उन्होंने आंशिक रूप से 5 किमी / घंटा की पैदल यात्रा की और आंशिक रूप से 10 किमी / घंटा की दर से साइकिल से यात्रा की। साइकिल पर तय की गई दूरी है:
SSC CGL 9 March 2020 (Afternoon)

(a) 12 km
(b) 10 km
(c) 11 km
(d) 13 km

Q14. The distance between two stations, A and B is 575 km. A train starts from station 'A' at 3:00 p.m. and moves towards station 'B' at an average speed of 50 km/h. Another train starts from station 'B' at 3:30 p.m. and moves towards station 'A' at an average speed of 60 km/h. How far from station 'A' will the trains meet?
दो स्टेशनों A और B के बीच की दूरी 575 किमी है | एक ट्रेन स्टेशन A से 3 : 00 p.m में खुलती है तथा स्टेशन B की तरफ 50 किमी/घंटा की औसत चाल से जाती है | एक अन्य ट्रेन स्टेशन B से 3:30 p.m में खुलती है तथा स्टेशन A की तरफ 60 किमी/घंटा की औसत चाल से जाती है | दोनों ट्रेनें स्टेशन A से कितनी दूरी पर मिलेंगी ?
SSC CGL 9 March 2020 (Evening)

(a) 275 km
(b) 325 km
(c) 300 km
(d) 225 km

SSC CHSL 2019

Q1. Richa travels from A to B at the speed of 15 km/h, from B to C at 20 km/h, and from C to D at 30 km/h. If AB = BC = CD, then find the Richa's average speed.
रिचा ने A से B तक 15 किमी/घंटा की चाल से, B से C तक 20 किमी/घंटा की चाल से तथा C से D तक 30 किमी/घंटा की चाल से यात्रा की। यदि AB= BC= CD है, तो रिचा की औसत चाल ज्ञात कीजिए।
CHSL 12-10-2020 (morning shift)
(a) 19 km/h
(b) 18 km/h
(c) 17 km/h
(d) 20 km/h

Q2. A man divided his journey into three parts of distances of 18 km, 20 km and 27 km. He travelled the distances at the speeds of 6 km/h, 5 km/h and 9 km/h, respectively. What was his average speed during the entire journey?
एक व्यक्ति ने अपनी यात्रा को 18 किमी, 20 किमी तथा 27 किमी की दूरियों में विभाजित किया। उसने इन दूरियों को क्रमशः 6 किमी/घंटा, 5 किमी/घंटा और 9 किमी/घंटा की चाल से तय किया। पूरी यात्रा के दौरान उसकी औसत चाल कितनी रही ?
CHSL 12-10-2020 (Afternoon shift)
(a) 4.5 km/h
(b) 5.5 km/h
(c) 6.5 km/h
(d) 7.5 km/h

Q3. A runner is running at a speed of 40 km/h. If he runs at a speed of 30 km/h, then what will the decrease in the percentage of his speed be?
एक धावक 40 किमी/घंटा की चाल से दौड़ रहा है। यदि वह 30 किमी/घंटा की चाल से दौड़ता है, तो उसकी चाल में कितने प्रतिशत की कमी आएगी ?
CHSL 12-10-2020 (Afternoon shift)
(a) 15%
(b) 20%
(c) 25%
(d) 30%

Q4. A train of length 350 m crosses a bridge of length 250 m in 20 seconds. What is the speed of the train (in km/h)?
350 मीटर लंबी रेलगाड़ी 250 मीटर लंबे पुल को 20 सेकंड में पार करती है। इस रेलगाड़ी की चाल (किमी/घंटा में) कितनी है?
CHSL 12-10-2020 (Evening shift)
(a) 95
(b) 72
(c) 108
(d) 88

Q5. The distance between two railway stations is 1176 km. To cover this distance, an express train 5 hours less than a passenger train while the average speed of the passenger train is 70 km/h less than that of the express train. The time taken by the passenger train to complete the travel is:
दो रेलवे स्टेशनों के बीच की दूरी 1176 किमी है। इस दूरी को तय करने के लिए, एक एक्सप्रेस ट्रेन यात्री ट्रेन की तुलना में 5 घंटे कम लेती है जबकि यात्री ट्रेन की औसत चाल एक्सप्रेस ट्रेन की औसत चाल की तुलना में 70 किमी/घंटा कम है। यात्रा को पूर्ण करने में यात्री ट्रेन द्वारा लिया गया समय कितना है ?
CHSL 13-10-2020 (Morning Shift)
(a)18 hours/ घंटे
(b)17 hours/ घंटे
(c)23 hours/ घंटे
(d)12 hours/ घंटे

Q6. The distance between the places H and O is D units. The average speed that gets a person from H to O in a stipulated time is S units. He takes 20 minutes more time than usual if he travels at 60 km/h, and reaches 44 minutes early if he travels 75 km/h. The sum of the numerical values of D and S is:
H और O स्थानों के बीच की दूरी D इकाई है। H से O तक जाने में एक व्यक्ति निर्धारित समय में S इकाई की औसत चाल को प्राप्त करता है। यदि वह 60 किमी/घंटा की चाल से यात्रा करे, तो उसे सामान्य की तुलना में 20 मिनट अधिक समय लगेगा और वह यदि वह 75 किमी/घंटा की चाल से यात्रा करे, तो वह 44 मिनट पहले पहुँचेगा। D और S के संख्यात्मक मान का जोड़ है:
CHSL 13-10-2020 (Afternoon Shift)
a) 358
(b) 384
(c) 376
(d) 344

Q7.A train that is running at the speed of 72 km/h crosses an electric pole in 36 seconds. The length of the train (in metres) is:
एक ट्रेन जो 72 किमी/घंटा की चाल से चल रही है और 36 सेकंड में एक विद्युत पोल को पार करती है। ट्रेन की लंबाई (मीटर में) है:
CHSL 13-10-2020 (Evening Shift)
(a)360 m
(b)460 m
(c)620 m
(d)720 m

Q8. A train travels the distance between stations P and Q at a speed of 126 km/h, while in the opposite direction it comes back at 90 km/h. Another train travels the same distance at the average speed of the first train. The time taken by the second train to travel 525 km is:
एक ट्रेन 126 किमी/घंटा की चाल से स्टेशनों P और Q के बीच की दूरी तय करती है, जबकि विपरीत दिशा में यह 90 किमी/घंटा की चाल से वापस आती है। दूसरी ट्रेन पहले ट्रेन की औसत चाल से समान दूरी तय करती है। 525 किमी की यात्रा के लिए दूसरी ट्रेन द्वारा लिया गया समय है:
CHSL 14-10-2020 (Afternoon shift)
a) 5 hours/ घंटे
(b) 4 hours/ घंटे
(c) 5 hours 20 min/ 5 घंटे 20 मिनट
(d) 4 hours 20 min/ 4 घंटे 20 मिनट

Q9. An athlete crosses a distance of 900 m in 10 minutes. What is his speed in km per hour?
एक एथलीट 900 मीटर की दूरी 10 मिनट में तय करता है। किमी/घंटा में उसकी चाल कितनी है?
CHSL 14-10-2020 (Evening shift)
(a) 5.4 km/h
(b) 3.6 km/h
(c) 4.8 km/h
(d) 6.9 km/h

Q10.Mohan covers a distance of 2.5 km by scooter at the rate of 30 km/h. The time taken by Mohan to cover the given distance (in minute) is:
मोहन ने स्कूटर द्वारा 30 किमी/घंटा की चाल से 2.5 किमी की दूरी तय की। मोहन द्वारा दी गयी दूरी को मिनटों में तय करने का समय (मिनटों में) है:
CHSL 15-10-2020 (Morning Shift)
(a)10
(b)5
(c)6
(d)8

Q11. A car is running at a speed of 64 km/h to cover a certain distance in 40 min. At what speed should the car run to reduce the time of the journey to 30 min?
40 मिनट में एक निश्चित दूरी तय करने के लिए एक कार 64 किमी/घंटा की चाल से चल रही है। यात्रा के समय को 30 मिनट कम करने के लिए कार को किस चाल से चलना चाहिए?
CHSL 15-10-2020 (Afternoon Shift)
(a) 85.33 km/h
(b) 74.65 km/h
(c) 54 km/h
(d) 84.78 km/h

Q12. Rakesh walking at the speed of 8km/h crosses a bridge in 30 minutes. What is the length of the bridge in kilometers?
8 किमी/घंटा की चाल से चलने वाला राकेश 30 मिनट में एक पुल को पार कर जाता है। किलोमीटर में पुल की लंबाई कितनी है?
CHSL 15-10-2020 (Evening Shift)
(a) 4 km
(b) 2 km
(c) 3 km
(d) 5 km

Q13. A train, 150 m long, is running at 90 km/h. How long (in seconds) will it take to cross a platform that is 300 m long?
150 मीटर लंबी एक ट्रेन, 90 किमी/घंटा की चाल से चल रही है। 300 मीटर लंबाई के एक प्लेटफॉर्म को पार करने में इसे कितना समय (सेकंड में) लगेगा?
CHSL 16-10-2020 (Morning Shift)
(a) 6
(b) 18
(c) 12
(d) 50

Q14. Two trains start at the same time from stations A and B, 1800 km apart, and
proceed towards each other at an average speed of 44km/h and 46 km/h, respectively. Where will the trains meet?

Pinnacle

दो ट्रेनें एक ही समय में स्टेशनों A और B से शुरू होती हैं, जो 1800 किमी की दूरी पर हैं और क्रमशः 44 किमी/घंटा और 46 किमी/घंटा की औसत चाल से एक दूसरे की ओर बढ़ती हैं। ट्रेनें कहां मिलेंगी ?

CHSL 16-10-2020 (Afternoon Shift)

(a) 920 km from station A/स्टेशन A से 920 कि.मी.
(b) 900 km from station B/स्टेशन Bसे 920 कि.मी.
(c) 880 km from station A/स्टेशन A से 880 कि.मी.
(d) 880 km from station B/स्टेशन B से 880 कि.मी.

Q15. A person walks a distance from point A to B at 15km/h, and from point B to A at 30km/h. If he takes 3 hours to complete the journey, then what is the distance from point A to B?

एक व्यक्ति बिंदु A से B की दूरी 15 किमी/घंटा और बिंदु B से A की दूरी 30 किमी/घंटा की चाल से तय करता है। यदि उसे यात्रा पूरी करने में 3 घंटे लगते हैं, तो बिंदु A से B की दूरी क्या है?

CHSL 16-10-2020 (Evening Shift)

(a) 25km
(b) 10km
(c) 15km
(d) 30km

Q16. The distance covered by a train in (x + 1) hours is $(x^3 + 1)$ km. What is the speed of the train?

(x + 1) घंटे में ट्रेन द्वारा तय की गई दूरी $(x^3 + 1)$ किमी है। ट्रेन की चाल क्या है?

CHSL 16-10-2020 (Evening Shift)

(a) $(x^3 - 1)$ km/h
(b) $(x^2 - x + 1)$ km/h
(c) $(x^2 + x + 1)$ km/h
(d) (x + 1) km/h

Q17. A man travelled a distance of 1200 km in 16 hours. He travelled partly by car at a speed of 40 km/h and partly by train at a speed of 80 km/h. What is the distance travelled by car?

एक आदमी ने 16 घंटे में 1200 किमी की दूरी तय की। उन्होंने आंशिक दूरी 40 किमी/घंटा की चाल से कार से और आंशिक दूरी 80 किमी/घंटा की चाल से ट्रेन से तय की। कार द्वारा तय की गई दूरी कितनी है?

CHSL 19-10-2020 (Morning Shift)

(a) 100 km
(b) 120 km
(c) 96 km
(d) 80 km

Q18. Mohan travels three equal distances at speeds of 12 km/h, 18 km/h and 24 km/h. If he takes a total of 13 hours, then what is the total distance covered?

मोहन 12 किमी / घंटा, 18 किमी/घंटा और 24 किमी/घंटा की चाल से तीन समान दूरी तय करता है। यदि उसे कुल 13 घंटे लगते हैं, तो कुल दूरी कितनी है?

CHSL 19-10-2020 (Afternoon Shift)

(a) 212 km
(b) 216 km
(c) 214 km
(d) 218 km

Q19. How much time (in minutes) will a dog take to run around a square field of side 75 m if it runs at the rate of 6 km/hr?

6 किमी/घंटा की चाल से दौड़ने वाले एक कुत्ते को 75 मीटर भुजा के वर्ग के चारो तरफ दौड़ने में कितना समय (मिनट में) लगेगा?

CHSL 19-10-2020 (Evening Shift)

(a) 2.5
(b) 3.6
(c) 3
(d) 1.8

Q20. Rahul and Mithun travel a distance of 30 km. The sum of their speeds is 70 km/h and the total time taken by both travel the distance is 2 hours 6 minutes. The difference between their speeds is:

राहुल और मिथुन 30 किमी की दूरी तय करते हैं। उनकी चाल का योग 70 किमी/घंटा है और दोनों के द्वारा दूरी तय करने में लगने वाला कुल समय 2 घंटे 6 मिनट है। उनकी चाल के बीच का अंतर है:

CHSL 20-10-2020 (Morning Shift)

(a) 30 km/h
(b) 25 km/h
(c) 20 km/h
(d) 35 km/h

Q.21. A man travelled a distance of 35 km in 5 hours. He travelled partly on foot at the rate of 4km/h and the rest on bicycle at the rate of 9 km/h. The distance travelled on foot is:

एक आदमी ने 5 घंटे में 35 किमी की दूरी तय की। उसने आंशिक रूप से 4 किमी/घंटा की चाल से पैदल यात्रा की और बाकी साइकिल 9 किमी/घंटा की चाल से यात्रा की। पैदल यात्रा की दूरी ज्ञात करे।

CHSL 20-10-2020 (Afternoon Shift)

(a) 8 km
(b) 12 km
(c) 10 km
(d) 15 km

Q.22 How many minutes does Shyam take to over a distance of 500m if he runs at a speed of 30 km/h?

30 किमी/घंटा की चाल से चलने पर श्याम को 500 मीटर की दूरी को तय करने में कितने मिनट लगते हैं

CHSL 20-10-2020 (Evening Shift)

(a) 2

(b) $2\frac{1}{2}$
(c) $1\frac{1}{2}$
(d) 1

Q.23. A train covers a distance of 12 km in 12 minutes, if its speed is decreased by 5 km/h, then the time taken by it to cover the distance of 22 km will be:
एक ट्रेन 12 मिनट में 12 किमी की दूरी तय करती है, अगर इसकी चाल 5 किमी/घंटा कम हो जाती है, तो इसके द्वारा 22 किमी की दूरी तय करने में लगने वाला समय होगा:
CHSL 21-10-2020 (Morning Shift)
(a) 24 minutes/ मिनट
(b) 20 minutes/ मिनट
(c) 22 minutes/ मिनट
(d) 18 minutes/ मिनट

Q.24. A man is walking at a speed of 12km/h. After every km, he takes a rest for 3 minutes. How much time will he take to cover a distance of 6 km?
एक आदमी 12 किमी/घंटा की चाल से चल रहा है। प्रत्येक किमी के बाद, वह 3 मिनट के लिए आराम करता है। 6 किमी की दूरी तय करने में उसे कितना समय लगेगा?
CHSL 21-10-2020 (Afternoon Shift)
(a) 42
(b) 40
(c) 48
(d) 45

Q.25. A man is walking at a speed of 12km/h. After every km, he takes a rest for 3 minutes. How much time will he take to cover a distance of 6 km?
एक आदमी 12 किमी/घंटा की चाल से चल रहा है। प्रत्येक किमी के बाद, वह 3 मिनट के लिए आराम करता है। 6 किमी की दूरी तय करने में उसे कितना समय लगेगा?
CHSL 21-10-2020 (Evening Shift)
(a) 42
(b) 40
(c) 48
(d) 45

Q.26. A train takes 45 minutes to cover a certain distance at a speed of 80 km/h. If the speed is increased by 125%, then how long will it take the train to cover 8/5 of the same distance?
एक ट्रेन को 80 किमी/घंटा की चाल से एक निश्चित दूरी तय करने में 45 मिनट का समय लगता है। यदि चाल 125% बढ़ जाती है, तो ट्रेन को उसी दूरी के 8/5 भाग को तय करने में कितना समय लगेगा?
CHSL 26-10-2020 (Morning Shift)
(a) 25 minutes/ मिनट
(b) 30 minutes/ मिनट
(c) 32 minutes/ मिनट
(d) 28 minutes/ मिनट

Q.27. Abhi finishes a journey by car in 9 hours. He travels the first half of the journey at a speed of 40 km/h and the second half of the journey at a speed of 50 km/h. The total distance covered is:
अभि 9 घंटे में कार से यात्रा समाप्त करता है। वह यात्रा का पहला आधा भाग 40 किमी/घंटा की चाल से और दूसरा आधा भाग 50 किमी/घंटा की चाल पूरा करता है। तय की गई कुल दूरी है:
CHSL 26-10-2020 (Afternoon Shift)
(a) 350 km
(b) 450 km
(c) 400 km
(d) 300 km

Q.28. A car moves a distance of 600 km with uniform speed. The number of hours taken for the journey is 2/3 of the number representing speed in km/h. The time taken to cover the distance is:
एक कार एकसमान चाल के साथ 600 किमी की दूरी तय करती है। यात्रा के लिए लगने वाले घंटों की संख्या किमी/घंटा में चाल का प्रतिनिधित्व करने वाली संख्या का 2/3 है। दूरी तय करने में लगने वाला समय है:
CHSL 26-10-2020 (Evening Shift)
(a) 15 hours/ घंटे
(b) 18 hours/ घंटे
(c) 24 hours/ घंटे
(d) 20 hours/ घंटे

Q.29. A man walks from point X to Y at a speed of 20 km/h, but comes back from point Y to X at a speed of 25 km/h. Find his average speed.
एक आदमी 20 किमी/घंटा की चाल से बिंदु X से Y तक जाता है, लेकिन 25 किमी/घंटा की चाल से बिंदु Y से X तक वापस आता है। उसकी औसत चाल ज्ञात कीजिए।
CHSL 17-03-2020 (Morning Shift)
(a) $22\frac{2}{9}$
(b) $23\frac{2}{9}$
(c) $25\frac{2}{9}$
(d) $24\frac{2}{9}$

Q30. How much time will a horse take to run around a square field of side 175 m if it runs at the speed of 15 km/hr?
यदि घोड़ा 15 किमी/घंटा की चाल से दौड़ता है, तो 175 मीटर भुजा के वर्ग का चक्कर लगाने में घोड़े को कितना समय लगेगा?
CHSL 17-03-2020 (Afternoon Shift)
(a) 180 sec
(b) 175 sec
(c) 155 sec
(d) 168 sec

Q31. A car travels 105 km in 3 hours and a train travels 252 km in 4 hours. The ratio of speed of the car to that of the train is:
एक कार 3 घंटे में 105 किमी की यात्रा करती है और एक ट्रेन 4 घंटे में

252 किमी की यात्रा करती है। ट्रेन की चाल का कार की चाल से अनुपात है:

CHSL 17-03-2020 (Afternoon Shift)

(a) 2 : 7
(b) 3 : 5
(c) 9 : 11
(d) 5 : 9

Q32. Two cars start from the same place at the same time at right angles to each other. Their speeds are 54 km/h and 72 km/h, respectively. After 20 seconds, the distance between them will be:

दो कारें एक ही स्थान से एक ही समय में एक दूसरे से समकोण पर चलना शुरू करती हैं। उनकी चाल क्रमशः 54 किमी/घंटा और 72 किमी/घंटा है। 20 सेकंड के बाद, उनके बीच की दूरी होगी:

CHSL 17-03-2020 (Evening Shift)

(a) 480 m
(b) 540 m
(c) 720 m
(d) 500 m

Q33. Ravi starts for his school from his house on his cycle at 8 : 20 a.m. If he runs his cycle at a speed of 10 km/h, he reaches his school 8 minutes late, and if he drives the cycle at a speed of 16 km/h, he reaches his school 10 minutes early. The school starts at:

रवि अपने स्कूल के लिए अपनी साइकिल से 8: 20 बजे अपने घर से निकलता है। यदि वह 10 किमी/घंटा की चाल से अपनी साइकिल चलाता है, तो वह अपने स्कूल 8 मिनट देरी से पहुंचता है और अगर वह 16 किमी/घंटा की चाल से साइकिल चलाता है, तो वह अपने स्कूल 10 मिनट पहले पहुँचता है। स्कूल शुरू होता है:

CHSL 18-03-2020 (Morning Shift)

(a) 8:50 a.m.
(b) 8:40 a.m.
(c) 9:00 a.m.
(d) 9:40 a.m.

Q34. A person covers 700 m distance in 6 minutes. What is his speed in km/h?

एक व्यक्ति 6 मिनट में 700 मीटर की दूरी तय करता है। किमी/घंटा में उसकी चाल क्या है?

CHSL 18-03-2020 (Afternoon Shift)

(a) 6 km/h
(b) 3.45 km/h
(c) 4.23 km/h
(d) 7 km/h

Q35. A train covers a distance in 30 min if it runs at a speed of 54 km/h on an average. The speed at which the train must run to reduce the time of the journey to 20 min is:

एक ट्रेन 30 मिनट में एक दूरी तय करती है, यदि यह औसतन 54 किमी/घंटा की चाल से चलती है। यात्रा के समय को 20 मिनट तक कम करने के लिए ट्रेन को किस चाल से चलना चाहिए?

CHSL 18-03-2020 (Evening Shift)

(a) none of these/ इनमें से कोई नहीं
(b) 81 km/h
(c) 60 km/h
(d) 75 km/h

Q.36. A car covered 150 km in 5 hours. If it travels at one-third its usual speed, then how much more time will it take to cover the same distance?

5 घंटे में एक कार 150 किमी की दूरी तय करती है। यदि यह अपनी सामान्य चाल से एक-तिहाई चाल से यात्रा करे, तो समान दूरी तय करने में कितना अधिक समय लगेगा?

CHSL 19-03-2020 (Afternoon shift)

(a) 14 hours/ घंटे
(b) 10 hours/ घंटे
(c) 12 hours/ घंटे
(d) 8 hours/ घंटे

Q.37. Mohan finishes a journey by scooter in 5 hours. He travels the first half of the journey at 30 km/h and the second half of the journey at 20 km/h. The distance covered by him is:

मोहन ने 5 घंटे में स्कूटर से यात्रा पूरी की। वह यात्रा का पहला आधा भाग 30 किमी/घंटा और दूसरा आधा भाग 20 किमी/घंटा की चाल से पूरा करता है। उसके द्वारा तय की गई दूरी है:

CHSL 19-03-2020 (Evening shift)

(a) 140 km
(b) 100 km
(c) 120 km
(d) 130 km

SSC CGL 2019 TIER-II

Q38. A train of length 287m, running at 80km/h, crosses another train moving in the opposite direction at 37km/h in 18 seconds. What is the length of the other train ?

एक रेलगाड़ी जिसकी लम्बाई 287 मी, चाल 80 किमी/घंटा है, दूसरी रेलगाड़ी को, जिसकी चाल 37 किमी/घंटा है,
18 सेकंड में पार करती है। तो दूसरी रेलगाड़ी की चाल क्या है ?

CGL 2019 Tier-II (15-11-2020)

(a) 300m
(b) 298m
(c) 285m
(d) 289m

Q39. A and B start moving towards each other from X and Y, respectively, at the same time on the same day. The speed of A is 20% more than the speed of B. After meeting on the way, A and B take p hours and $7\frac{1}{5}$ hours, respectively to reach Y and X respectively. What is the value of p?

A और B एक ही दिन को एक ही समय में क्रमशः X और Y से एक दूसरे की ओर बढ़ने लगते हैं। A की चाल B की चाल से 20% अधिक है। रास्ते में मिलने के बाद A और B, क्रमशः Y और X तक पहुँचने के लिए p घंटे और $7\frac{1}{5}$ घंटे लेते है। p मान क्या है?

CGL 2019 Tier-II (15-11-2020)

(a) 5
(b) 5.5
(c) 6
(d) 4.5

Q40. A takes 2 hours more than B to cover a distance of 40km. If A doubles his speed he takes $1\frac{1}{2}$ hours more than B to cover 80 km. To cover a distance of 90 km, how much time will B take travelling at his speed?

A को 40 किमी की दूरी तय करने में B से 2 घंटे अधिक लगते हैं। यदि A अपनी चाल को दोगुना कर देता है तो उसे 80 किमी की दूरी तय करने में B से$1\frac{1}{2}$ घंटे अधिक लगते हैं। 90 किमी की दूरी तय करने के लिए, B को अपनी चाल से यात्रा करने में कितना समय लगेगा ?

CGL 2019 Tier-II (15-11-2020)

(a) $1\frac{1}{8}$ hours/ घंटे
(b) $1\frac{3}{8}$ hours/ घंटे
(c) $1\frac{1}{6}$ hours/ घंटे
(d) $1\frac{1}{3}$ hours/ घंटे

Q41. A person has to cover a distance of 160km in 15 hours. If he covers $\frac{4}{5}$ of the distance in $\frac{2}{3}$ of the time, then what should be his speed (in km/hr) to cover the remaining distance in remaining time ?

एक व्यक्ति को 15 घंटे में 160 किमी की दूरी तय करनी होती है। यदि वह $\frac{2}{3}$ समय में $\frac{4}{5}$ दूरी को तय करता है, तो शेष समय में शेष दूरी को तय करने के लिए उसकी चाल (किमी/घंटा में) क्या होनी चाहिए?

CGL 2019 Tier-II (15-11-2020)

(a) 6
(b) 6.5
(c) 6.4
(d) 8

Q42. A train travelling at 36km/h crosses a pole in 25 seconds. How much time (n seconds) will it make to cross a bridge 350m long ?

36 किमी/घंटा की चाल से यात्रा करने वाली ट्रेन 25 सेकंड में एक पोल को पार करती है। 350 मीटर लंबे पुल को पार करने में कितना समय (सेकंड में) लगेगा?

CGL 2019 Tier-II (16-11-2020)

(a) 48
(b) 56
(c) 72
(d) 60

Q43. Amita travels from her house at $3\frac{1}{2}$ km/h and reaches her school 6 minutes late. The next day she travels at $4\frac{1}{2}$ km/h and reaches school 10 min early. What is the distance between her house and the school ?

अमिता अपने घर से $3\frac{1}{2}$ किमी/घंटा की चाल से यात्रा करती है और 6 मिनट की देरी से अपने स्कूल पहुँचती है। अगले दिन वह $4\frac{1}{2}$ किमी/घंटा की चाल से यात्रा करती है और स्कूल 10 मिनट पहले पहुँचती है। उसके घर और स्कूल के बीच की दूरी क्या है?

CGL 2019 Tier-II (16-11-2020)

(a) 5.4km
(b) 5.6km
(c) 4.8km
(d) 4.2km

Q44. A and B start moving from places X and Y and Y to X, respectively, at the same time on the same day. After crossing each other, A and B take $5\frac{4}{9}$ hours and 9 hours, respectively, to reach their respective destination. If the speed of A is 33km/hr, then the speed (in km/hr) of B is:

A और B एक ही दिन को एक ही समय में क्रमश X से Y और Y से X तक चलना शुरू करते हैं। एक दूसरे को पार करने के बाद, A और B अपने संबंधित गंतव्य तक पहुंचने के लिए क्रमश: $5\frac{4}{9}$ घंटे और 9 घंटे लेते हैं। यदि A की चाल 33 किमी/घंटा है, तो B की चाल (किमी/घंटा में) है:

CGL 2019 Tier-II (16-11-2020)

(a) 22
(b) $25\frac{2}{3}$
(c) $24\frac{1}{3}$
(d) 2

Q.45 A delivery boy started from his office at 10a.m. to deliver an article. He rode his scooter at a speed of 32 km/h. He delivered the article and waited for 15 minutes to get the payment. After the payment was made, he reached his office at 11.25a.m., travelling at a speed of 24km/h. Find the total distance travelled by the boy.

एक डिलीवरी बॉय सुबह 10 बजे अपने कार्यालय से एक वस्तु पहुँचाने के लिए निकला। उसने अपने स्कूटर को 32 किमी/घंटा की चाल से दौड़ाया। उन्होंने वस्तु को दिया और भुगतान प्राप्त करने के लिए 15 मिनट तक इंतजार किया। भुगतान किए जाने के बाद, वह 24.2 किमी/घंटा की चाल से यात्रा करते हुए अपने कार्यालय में 11.25 बजे पहुंचा। लड़के द्वारा तय की गई कुल दूरी का ज्ञात करे।

CGL 2019 Tier-II (18-11-2020)

(a) 32km
(b) 30km
(c) 35km
(d) 40km

Q46. An athlete runs an 800 m race in 96 seconds. His speed (in km/h) is:

एक धावक 96 सेकंड में 800 मीटर की दौड़ लगाता है। उसकी चाल (किमी/घंटा में) है:

CGL 2019 Tier-II (18-11-2020)

(a) 40 km/h
(b) 20 km/h
(c) 25 km/h
(d) 30 km/h

Q.47 A man travelled a distance of 42 km in 5 hours. He travelled partly on foot at the rate of 6 km/h and partly on bicycle at the rate of 10 km/h. The distance travelled on foot is:

एक आदमी ने 5 घंटे में 42 किमी की दूरी तय की। उसने आंशिक रूप से 6 किमी/घंटा की चाल से पैदल यात्रा की और आंशिक रूप से 10 किमी/घंटा की चाल से साइकिल पर यात्रा की। पैदल यात्रा की दूरी है:

CGL 2019 Tier-II (18-11-2020)

(a) 10 km
(b) 12 km
(c) 18 km
(d) 15km

Q.48. A man walks at a speed of 8km/h. After every kilometer, he takes a rest for 4 minutes. How much time will he take to cover a distance of 6km?

एक आदमी 8 किमी/घंटा की चाल से चलता है। हर किलोमीटर के बाद, वह 4 मिनट के लिए आराम करता है। 6 किमी की दूरी तय करने में उसे कितना समय लगेगा?

CGL 2019 Tier-II (18-11-2020)

(a) 60 minutes/ मिनट
(b) 65 minutes/ मिनट
(c) 70 minutes/ मिनट
(d) 69 minutes/ मिनट

SSC CPO 2019

49. A train x running at 74 km/h crosses another train y running at 52 km/h in the opposite direction in 12 seconds. If the length of y is two-thirds that of x , then what is the length of x (in m)?

74 किमी/घंटा की चाल से चलने वाली एक ट्रेन x, 12 सेकंड में विपरीत दिशा से 52 किमी/घंटा की चाल से चलने वाली एक अन्य ट्रेन y को पार करती है। यदि y की लंबाई x की दो-तिहाई है, तो x की लंबाई (मीटर में) क्या है?

CPO 23-11-2020 (Morning shift)

(a) 168
(b) 252
(c) 210
(d) 200

Q50. A bus covers a 50-kilometer distance in 1 hour 15 minutes, whereas the same distance is covered by a car in 45 minutes, what is the ratio of the bus to the speed of the car?

एक बस 1 घंटे 15 मिनट में 50 किलोमीटर की दूरी तय करती है, जबकि वही दूरी 45 मिनट में कार द्वारा तय की जाती है। कार की चाल से बस की चाल का अनुपात क्या है?

CPO 23-11-2020 (Evening shift)

(a) 3 : 1
(b) 5 : 3
(c) 1 : 3
(d) 3 : 5

Q51. A person travels a distance of 300km and then returns to the starting point. The time taken by him for the outward journey is 5 hours more than the time taken for the return journey. If he returns at a speed of 10km/h more than the speed of going, what is the average speed (in km/h) for the entire journey ?

एक व्यक्ति 300 किमी की दूरी तय करता है और फिर शुरुआती बिंदु पर लौटता है। जाने की यात्रा के लिए उसके द्वारा लिया गया समय वापसी की यात्रा के लिए, लिए गए समय से 5 घंटे अधिक है। अगर वह जाने की चाल से 10 किमी/घंटा अधिक की चाल से लौटता है, तो पूरी यात्रा में औसत चाल (किमी / घंटा) क्या है?

CPO 23-11-2020 (Evening shift)

(a) 24
(b) 15
(c) 20
(d) 30

Q52. A person covers a distance of 300 km and then returns to the starting point. The time taken by him for the outward journey is 5 hours more than the time taken for the return journey. If he returns at a speed of 10km/h more than the speed of going, What was the speed (in km/h) for the outward journey?

एक व्यक्ति 300 किमी की दूरी तय करता है और फिर शुरुआती बिंदु पर लौटता है। जाने की यात्रा के लिए उसके द्वारा लिया गया समय वापसी की यात्रा के लिए, लिए गए समय से 5 घंटे अधिक है। अगर वह जाने की चाल से 10 किमी/घंटा अधिक की चाल से लौटता है, तो जाने की यात्रा के लिए चाल (किमी/घंटा में) क्या है?

CPO 24-11-2020 (Morning shift)

(a) 20
(b) 15
(c) 25
(d) 30

Q53. A train travelling at the speed of x km/h crossed a 300m long platform in 30 sec. And overtook a man walking in the same direction at 6km/h in 20 sec. What is the value of x?

X किमी/घंटा की चाल से यात्रा करने वाली एक ट्रेन ने 30 सेकंड में 300 मीटर लंबा प्लेटफॉर्म पार करती है और 20 सेकंड में 6 किमी/घंटा की चाल से उसी दिशा में चलने वाले एक व्यक्ति को पीछे छोड़ देती है। X का मान ज्ञात करे।

CPO 24-11-2020 (Evening shift)

(a) 48
(b) 60
(c) 102

(d) 96

Q54. A train x running at 74km/hr crosses another train y running at 52km/h in the opposite direction in 12 seconds. If the length of y is two-third that of x, then what is the length of y(in m) ?

74 किमी/घंटा की चाल से चलने वाली एक ट्रेन x, 12 सेकंड में विपरीत दिशा में 52 किमी/घंटा की चाल से चलने वाली एक अन्य ट्रेन y को पार करती है। यदि y की लंबाई x की दो-तिहाई है, तो y की लंबाई (मीटर में) क्या है?

CPO 25-11-2020 (Morning shift)

(a) 168
(b) 200
(c) 180
(d) 252

Q55. A takes 2 hours 30 minutes more than B to walk 40km, If A doubles his speed, then he can make it in 1 hours less than B. What is the average time taken by A and B to walk a 40 km distance ?

40 किमी तक चलने में A को B से 2 घंटे 30 मिनट अधिक लगते हैं। यदि A अपनी चाल को दोगुना कर देता है, तो वह B से 1 घंटे कम लगाता है। A और B द्वारा 40 किमी की दूरी तय करने में औसत कितना समय लगता है?

CPO 25-11-2020 (Morning shift)

(a) 5 hours 15 minutes/ 5 घंटे 15 मिनट
(b) 7 hours 15 minutes/ 7 घंटे 15 मिनट
(c) 6 hours / घंटे
(d) 5 hours 45 minutes/ 5 घंटे 45 मिनट

Q56. A train covers 400km at a uniform speed. If the speed had been 10km/h more. It would have taken 2 hrs less for the same journey. What is the usual time taken (in hours) by it to complete the journey ?

एक ट्रेन एक समान चाल से 400 किमी की दूरी तय करती है। यदि चाल 10 किमी/घंटा अधिक होती तो उसी यात्रा के लिए ट्रेन को 2 घंटे कम लगते । यात्रा को पूरा करने के लिए इसके द्वारा (घंटों में) सामान्य रूप से कितना समय लगता है?

CPO 25-11-2020 (Evening shift)

(a) 10
(b) 8
(c) 15
(d) 12

Pinnacle

SOLUTION

Sol 1. (c) Let the original speed = s km/h, decreased speed = (s-16) km/h
We know that
D = $\frac{S_1 \times S_2}{S_1 - S_2}$ x t
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference

According to the given question
$\frac{s(s-16)}{s-(s-16)} \times 2 = 384$
s(s-16) = 384 × 8
s(s-16) = 48 × 8 × 8
s(s-16) = 48 × 64
Clearly s = 64 km/h
75% of original speed = 64 × $\frac{75}{100}$
= 48 km/h ans

Sol 2. (a)
Let the speed of A and B be a and b respectively,
ATQ: $\frac{15}{a} - \frac{15}{b} = \frac{1}{2}$ ----- (i)
$\frac{15}{b} - \frac{15}{2a} = 1$ ----- (ii)
Adding (i) and (ii)
$\frac{15}{2a} = \frac{3}{2}$ $\Rightarrow a = 5$
Putting the value of a in eq. (i), we get
$3 - \frac{15}{b} = \frac{1}{2}$
$\Rightarrow b = 6\ km/h$

Alternate :
Let the speed of A = a km/h and b = b km/h
We know that
D = $\frac{S_1 \times S_2}{S_1 - S_2}$ x t
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference
According to first condition
$\frac{a \times b}{b-a} \times \frac{30}{60} = 15$ ……..(1)
According to the second condition
$\frac{2a \times b}{2a-b} \times 1 = 15$ ……(2)
From (1) and (2)
$\Rightarrow \frac{a \times b}{b-a} \times \frac{30}{60} = \frac{2a \times b}{2a-b} \times 1$
$\Rightarrow$ 2a-b = 4(b-a)
$\Rightarrow$ 6a = 5b
$\Rightarrow \frac{a}{b} = \frac{5}{6}$
Let a = 5 unit and b= 6 unit
Put the values in either of the given equations
$\frac{a \times b}{b-a} \times \frac{30}{60} = 15 \Rightarrow \frac{5 \times 6}{6-5} \times \frac{30}{60} = 15$
$\Rightarrow$ 15 unit =15
$\Rightarrow$ 1 unit =1
Speed of B (6 unit) = 6 x 1 = 6 km/h

Sol 3. (c)
We know that, if time taken to cover same distance at speed S_1 is T_1 and time taken at speed S_2 is T_2 then,
$\frac{S_1}{S_2} = \sqrt{\frac{T_2}{T_1}}$
Here S_2 = 16.8 km/h, $T_1 = \frac{49}{8}$ h and T_2 = 8 h
$\Rightarrow \frac{S_1}{16.8} = \sqrt{\frac{8}{49/8}}$
$\Rightarrow S_1 = \frac{8}{7} \times 16.8 = 19.2$ km/h

Sol 4. (b)
Distance between A and B = 800 km
Time taken to cover this distance = $\frac{800}{60+40}$ = 8 hours
Distance covered by train X in 8 hours = 8 x 40 = 320 km

Sol 5. (b)
Let the speed of the woman = w km/h
$\Rightarrow$ (44-8) × 15 = (44+w) x 10
$\Rightarrow$ 540 = 440 + 10w
$\Rightarrow$ w = 10 km/h

Sol 6. (b)
Let speed of slower train = s and faster train = f
According to the question
f = (s+25) km/h
Also
$\frac{250}{s} - \frac{300}{f} = 4$
$\Rightarrow \frac{250}{s} - \frac{300}{s+25} = 4$
$\Rightarrow 50\{\frac{5(s+25)-6s}{s(s+25)}\} = 4$
$\Rightarrow$ -50s+(125 × 50) = 4s(s+25)
$\Rightarrow 4s^2 + 150s - 6250 = 0$
$\Rightarrow 2s^2 + 75s - 3125 = 0$
$\Rightarrow 2s^2 + 125s - 50s - 3125 = 0$
$\Rightarrow 2s(s + 62.5) - 50(s+62.5) = 0$
$\Rightarrow$ s = 25 km/h and f = s+25 $\Rightarrow$ 25+25 = 50 km/h

Sol 7. (a)
Tricky approach :
t = $\frac{f-s}{f}$ hours
Here, t = time of stoppage
f = speed without stoppage
s = speed with stoppage
t = $\frac{50-40}{50}$
= $\frac{1}{5}$ hours = 12 minutes

Sol 8. (b)

	Original	:	New
Speed	4	:	3
Time	3	:	4

According to the question
(4-3) unit = 18 minutes
Original Time (3 unit) = 3 x 18 = 54

Sol 9. (b)
Distance travelled by A in 4 hours = 4 x 4 = 16 km
Relative speed = (10-4) km/h
Time taken by B to catch A = $\frac{16}{10-4} = \frac{16}{6}$ h
Distance covered by B before catching A = $\frac{16}{6}$ x 10 = 26.67 km

Sol 10. (c)
Average speed of the journey = $\frac{2 \times s_1 \times s_2}{s_1 + s_2} = \frac{2 \times 12 \times 9}{12+9}$ km/h
Total time = 2 $\frac{1}{3}$ h
Total distance travelled = $\frac{2 \times 12 \times 9}{12+9}$ × $\frac{7}{3}$ = 24 km

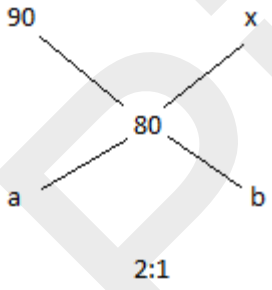
Sol 11. (c)
Let the length of each train = a
Relative speed = (54-42) = 12 km/h
Total distance covered = a+a = 2a

According to the question
$2a = 12 \times \frac{5}{18} \times 63$
$\Rightarrow a = 105$ m

Sol 12. (b)
Let the distance = 4D
Time = 3 unit
According to the question
$\frac{3D}{2} - \frac{D}{1} = 80$
$\Rightarrow D = 160$ unit
According to the question
Total time = $\frac{4D}{80} = \frac{4\times160}{80} = 8$ unit
Time for which amit travelled at x km/h = $8 \times \frac{1}{3} = \frac{8}{3}$ unit
Now, x = $\frac{160}{8/3} = 60$ km/h

Alternate :

Let total time = 3 unit
Total distance = 80 x 3 = 240 unit km
Distance covered in 2 unit of time = $240 \times \frac{75}{100} = 180$ unit km
Speed at which this distance was covered = $\frac{180\ unit}{2\ unit} = 90$ km/h
Time for which amit travelled at 90 km/h = 2 unit
Time for which amit travelled at x km/h = 1 unit



b = 90-80 = 10
$\Rightarrow$ a = 10 x 2 = 20
also
a = 80 - x
$\Rightarrow$ 20 = 80 - x
$\Rightarrow$ x = 60 km/h

Sol 13. (d)
The time in which train covered its length and length of the platform =55 seconds
The time in which Train covered its length = 24 seconds
$\Rightarrow$ Time in which train covered platform = 55-24 = 31 seconds
Speed of train = $\frac{360}{24} = 15$ m/s
Length of platform = 15 x 31 = 465 metre

Sol 14. (a)
Relative speed = (72+108) = 180 km/h or $180 \times \frac{5}{18}$ m/s
Total length of two trains = $180 \times \frac{5}{18} \times 10 = 500$ metre
Length of each train = $\frac{500}{2} = 250$ m
Time taken by first train to cross the platform = $\frac{250+350}{72\times\frac{5}{18}} = 30$ seconds

Sol 15. (a)
Let the speed of first train = 2 unit and second train = 5 unit
Speed of first train = $\frac{350}{5} = 70$ km/h
2 unit = 70
1 unit = 35
5 unit = 5 x 35 = 175 km/h

Sol 16. (c)

	Ball 1	:	Ball 2
Time	0.6	:	1
	3	:	5
Speed	5	:	3

According to the question
3 unit = 96 km/h
1 unit = 32
5 unit = 160 km/h

Sol 17. (b)
Total distance to be covered = 400 +1200+200 = 1800 metres
Speed of the train = 72 km/h or $72 \times \frac{5}{18} = 20$ m/s
Time taken to cover this distance = $\frac{1800}{20} = 90$ s or 1.5 m

Sol 18.(a)
Let PQ = 1 unit
$\Rightarrow$ QR = 2 unit
$\Rightarrow$ PR = 1+2 = 3 unit
Average speed of the journey = $\frac{Total\ distance}{Total\ time} = \frac{3+3}{\frac{1}{\mu}+\frac{2}{3\mu}+\frac{3}{\mu/2}}$
$= \frac{6}{\frac{3+2+18}{3\mu}} = \frac{18\mu}{23}$

Sol 19.(b)
40% = $\frac{2}{5}$
Let total distance = 5 unit
Distance covered at the speed of 60 km/h = 2 unit
Distance covered at the speed of 40 km/h = 3 unit
$\Rightarrow$ average speed of the journey = $\frac{5}{\frac{2}{60}+\frac{3}{40}} = \frac{5\times120}{4+9} = \frac{600}{13}$

Sol 20. (d)
Initial speed = $\frac{35}{1} = 35$ kmph
Distance covered in 1st hour = 35
Distance covered in 2nd hour = 35+2 = 37 and so on.
First term = 35
Common difference = 37-35 = 2
Number of terms = 12
Total distance covered = $\frac{12}{2}$ [2(35)+(12-1)2]
= 552 km

SSC CGL TIER II

Sol 1.(a)
Let the total time = 5 unit
Total distance to be travelled = 60 x 5 = 300 unit
According to the question
Distance to be travelled in 3 unit time = $300 \times \frac{40}{100} = 120$ unit
Desired Speed = $\frac{120}{3} = 40$ kmph

Sol 2.(d)
Let 't' metres be the length of the train.
According to the question
$\frac{t+200}{x\times\frac{5}{18}} = 30$
$t+200 = 30\ (\frac{5x}{18})$
$\Rightarrow t = \frac{150x}{18} - 200$ ……(1)

Also

$\frac{t}{(x-6)\times\frac{5}{18}} = 20$

$\Rightarrow t = (x-6) \times \frac{100}{18}$

Put the value of t

$\frac{150x}{18} - 200 = (x-6) \times \frac{100}{18}$

$\frac{150x}{18} - \frac{100x}{18} = 200 - \frac{100}{3}$

$x = \frac{500}{3} \times \frac{18}{50} = 60$

Sol 3.(c)

We know that, if time taken to cover same distance at speed S_1 is T_1 and time taken at speed S_2 is T_2 then,

$\frac{S_1}{S_2} = \sqrt{\frac{T_2}{T_1}}$

Here $S_2 = 28$ km/h, $T_1 = \frac{49}{8}$ h and $T_2 = 8$ h

$\Rightarrow \frac{S_1}{28} = \sqrt{\frac{8}{49/8}}$

$\Rightarrow S_1 = \frac{8}{7} \times 28 = 32$ km/h

Sol 4. (d)

Let the length of train A = L

$\Rightarrow$ the length of train B = 3L

Relative speed of the trains = (50+58) km/h

According to the question

$\frac{3L}{(50+58)\times\frac{5}{18}} = 15$

$\Rightarrow 3L = 15 \times 30$

$\Rightarrow L = 150$ m

Sol 5. (a)

Let speed of train X = x

$\Rightarrow$ Speed of train Y = x+10

Relative speed = x+x+10

According to the question

$\frac{396}{(x+x+10)} = \frac{11}{2}$

$72 = 2x+10$

$\Rightarrow x = 31$ km/h

Speed of train y = 31+10 = 41 km/h

Sol 6.(b)

We know that

$D = \frac{S_1 \times S_2}{S_1 - S_2} \times t$

Here D = distance

$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)

t = time difference

Let D be the distance

$\Rightarrow D = \frac{30\times24}{30-24} \times \frac{18-10}{60} = 16$ km

Sol 7.(c)

Let the speed of train A = a km/h and train B = b km/h

According to the question

$\frac{416}{a} - \frac{416}{b} = \frac{8}{3}$ .....(1)

Also

$\frac{416}{b} - \frac{416}{2a} = \frac{4}{3}$ .....(2)

Adding (1) and (2)

$\frac{416}{a} - \frac{416}{b} + \frac{416}{b} - \frac{416}{2a} = \frac{8}{3} + \frac{4}{3}$

$416(\frac{1}{a} - \frac{1}{2a}) = 4$

$\Rightarrow \frac{1}{2a} = \frac{1}{104}$

$\Rightarrow a = 52$

Sol 8.(c)

Let the total distance = 50 unit

Time taken to cover first 40 % of the distance = $\frac{50\times\frac{40}{100}}{8} = \frac{20}{8}$

Time taken to cover first 40 % of the remaining distance = $\frac{30\times\frac{40}{100}}{9} = \frac{12}{9}$

Time taken to cover the remaining distance = $\frac{50-20-12}{12} = \frac{18}{12}$

Average speed = $\frac{50}{\frac{20}{8}+\frac{12}{9}+\frac{18}{12}} = 9\frac{3}{8}$

Sol 9.(a)

	Original		New
Speed	5	:	3
Time	3	:	5

According to the question

(5-3) unit = 1 h 40 min

1 unit = 50 min

Original time (3 unit) = 3 x 50 = 150 min or $2\frac{1}{2}$ h

Practice Questions

Sol 1. (b)

Let the speed of slower train = s km/h and faster train = (s+16) km/h

We know that

$D = \frac{S_1 \times S_2}{S_1 - S_2} \times t$

Here D = distance

$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)

t = time difference

According to the question

$\{\frac{s(s+16)}{(s+16)-s}\} \times 1 = 96$

$\Rightarrow s(s+16) = 96 \times 16$

$\Rightarrow s(s+16) = 48 \times 32$

$\Rightarrow s(s+16) = (32+16) \times 32$

Clearly s = 32 km/h

$\Rightarrow$ speed of faster train = 32+16 = 48 km/h

Sol 2. (a)

Tricky approach :

$t = \frac{f-s}{f}$ hours

Here, t = time of stoppage

f = speed without stoppage

s = speed with stoppage

$t = \frac{70-56}{70}$

$= \frac{1}{5}$ hours = 12 minutes

Sol 3. (c)

Tricky approach :

$t = \frac{f-s}{f}$ hours

Here, t = time of stoppage

f = speed without stoppage

s = speed with stoppage

$t = \frac{65-52}{65}$

$= \frac{1}{5}$ hours = 12 minutes

Sol 4.(a)

Tricky approach :

$t = \frac{f-s}{f}$ hours

Here, t = time of stoppage

f = speed without stoppage

s = speed with stoppage

$t = \frac{72-60}{72}$

$= \frac{1}{6}$ hours = 10 minutes

Sol 5. (b)

Tricky approach :

$t = \frac{f-s}{f}$ hours

Here, t = time of stoppage

f = speed without stoppage

s = speed with stoppage

$t = \frac{80-72}{80}$

Pinnacle

$= \frac{1}{10}$ hours = 6 minutes

Sol 6. (a)
Tricky approach :
$t = \frac{f-s}{f}$ hours
Here, t = time of stoppage
f = speed without stoppage
s = speed with stoppage
$t = \frac{80-64}{80}$
$= \frac{1}{5}$ hours = 12 minutes

Sol 7. (b)

	Original	:	New
Speed	5	:	3
Time	3	:	5

According to the question
(5-3) unit = 20 minutes
1 unit = 10 minutes
Original time (3 unit) = 3 x 10 = 30

Sol 8. (c)

	Original	:	New
Speed	7	:	5
Time	5	:	7

According to the question
(7-5) unit = 10 minutes
1 unit = 5 minutes
Original time (5 unit) = 5 x 5 = 25

Sol 9. (a)

	Original	:	New
Speed	9	:	7
Time	7	:	9

According to the question
(9-7) unit = 10 minutes
1 unit = 5 minutes
Original time (7 unit) = 7 x 5 = 35

Sol 10.(b)

	A	:	B
Speed	3	:	5
Time	5	:	3

According to the question
(5-3) unit = 24 minutes
1 unit = 12 minutes
B's time (3 unit) = 3 x 12 = 36

Sol 11. (b)
Let the original speed = s km/h
$\Rightarrow$ new speed = (s-5) km/h
We know that
$D = \frac{S_1 \times S_2}{S_1 - S_2} \times t$
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference
According to the question
$s \times \frac{45}{60} = (s-5) \times \frac{(45+3)}{60}$ 45s = 48s - 240
s=80 km/h
$\Rightarrow$ Desired distance = $80 \times \frac{45}{60}$ or $(s-5) \times \frac{(45+3)}{60}$ = 60 km
Alternate :

	Original	:	New
Time	45	:	48
	15	:	16
Speed	16	:	15

According to the question
(16-15) unit = 5 km/h
1 unit = 5 km/h
16 unit = 80 km/h
15 unit = 75 km/h
$\Rightarrow$ Desired distance = $80 \times \frac{45}{60}$ or $(s-5) \times \frac{(45+3)}{60}$ = 60 km

Sol 12. (c)
Let the original speed = s km/h
$\Rightarrow$ new speed = (s+10) km/h
We know that
$D = \frac{S_1 \times S_2}{S_1 - S_2} \times t$
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference
Now,
$\frac{s(s+10)}{(s+10)-s} \times 3 = 360$
s(s+10) = 120 x 10
$\Rightarrow$ s(s+10) = 40 x 30
$\Rightarrow$ s(s+10) = (30+10) x 30
$\Rightarrow$ s = 30 km/h

Sol 13. (a)
Let original speed = s km/h and increased speed = (s+8) km/h
We know that
$D = \frac{S_1 \times S_2}{S_1 - S_2} \times t$
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference
$\Rightarrow \frac{s(s+8)}{(s+8)-s} \times 10 = 60$
$\Rightarrow$ s(s+8) = 48
$\Rightarrow$ s(s+8) = 4 x 12
$\Rightarrow$ s(s+8) = 4 x (4+8)
Clearly s = 4 km/h

Sol 14. (d)
Let original speed = s km/h and increased speed = (s+8) km/h
We know that
$D = \frac{S_1 \times S_2}{S_1 - S_2} \times t$
Here D = distance
$s_1 and\ s_2$ = two speeds
t = time difference
$\Rightarrow \frac{s(s+8)}{(s+8)-s} \times 10 = 25$
$\Rightarrow$ s(s+8) = 20
$\Rightarrow$ s(s+8) = 2 x 10
$\Rightarrow$ s(s+8) = 2 x (2+8)
Clearly s = 2 km/h

Sol 15. (c)
Speed of first train = $\frac{350}{5}$ = 70 km/h

	Train 1	:	Train 2
Speed	2	:	5

According to the question
2 unit = 70 km/h
1 unit = 35 km/h
Sum of the speed of both the trains (2+5) unit = 7 x 35 = 245 km/h

Sol 16. (d)
Speed of first train = $\frac{350}{5}$ = 70 km/h

	Train 1	:	Train 2
Speed	2	:	5

According to the question
2 unit = 70 km/h
1 unit = 35 km/h

Pinnacle

Difference of the speed of both the trains (5-2) unit = 3 x 35 = 105 km/h

Sol 17.(a)
Speed of first train = $\frac{250}{5}$ = 50 km/h

	Train 1	:	Train 2
Speed	2	:	5

According to the question
2 unit = 50 km/h
1 unit = 25 km/h
Difference of the speed of both the trains (5-2) unit = 3 x 25 = 75 km/h

Sol 18. (a)
Speed of first train = $\frac{250}{5}$ = 50 km/h

	Train 1	:	Train 2
Speed	2	:	5

According to the question
2 unit = 50 km/h
1 unit = 25 km/h
Sum of the speed of both the trains (2+5) unit = 7 x 25 = 175 km/h

Sol 19. (b)
Let the speed of bus = b and speed of car = c
We know that
D = $\frac{S_1 \times S_2}{S_1 - S_2}$ x t
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference
$\Rightarrow \frac{b \times c}{c-b} \times \frac{15+10}{60} = 25$
$\Rightarrow \frac{b \times c}{c-b}$ = 60 km/h
= 60 $\times \frac{5}{18} = \frac{50}{3}$ ……..(1)
the difference of the reciprocals of average speeds of the bus and the car = $\frac{1}{b} - \frac{1}{c} = \frac{c-b}{b \times c}$
From equation (1)
$\frac{c-b}{b \times c} = \frac{1}{\frac{50}{3}} = \frac{3}{50}$

Sol 20. (a)
Had length of the second train been same as the first train, time taken by it to cross the person = $\frac{20}{2}$ = 10 seconds

	Up Train	:	Down Train
Time	8	:	10
Speed	10	:	8
Distance	80	:	80

Distance travelled = length of the train
Length of down train = 80 unit
Length of up train = 2 x 80 = 160 unit
Relative speed of the trains = 10+8 = 18 unit
Desired time = $\frac{80+160}{18}$ = 13 $\frac{1}{3}$ seconds

Sol 21. (c)
Speed of first ball = 90 km/h or 90 × $\frac{5}{18}$ = 25 m/s
Speed of 2nd ball = 162 km/h or 162 × $\frac{5}{18}$ = 45 m/s
Distance covered by the second ball = 45 x1 = 45 m
Time taken by first ball to travel this distance = $\frac{45}{25} = \frac{9}{5}$ sec

Sol 22. (a)
Speed of the train = 76 km/h or 76 × $\frac{5}{18}$ m/s
Time taken = 36 seconds
Length of the train = 76 × $\frac{5}{18}$ × 36 = 760 m

Sol 23. (d)
Distance covered = 980 km
Time taken = 35 min or $\frac{35}{60}$ h
Speed of the train = $\frac{980}{35/60}$ = 28 x 60 kmph
Desired time = $\frac{1470}{28 \times 60} = \frac{7}{8}$ hours

Alternate :
Time taken to cover 980 km = 35 min
⇒ Time taken to cover 490 km = $\frac{35}{2}$ min
⇒ Time taken to cover 1470 (980+490) km =35+ $\frac{35}{2}$ min

= $\frac{105}{2}$ min or $\frac{7}{8}$ hours

Sol 24.(a)
We know that
D = $\frac{S_1 \times S_2}{S_1 - S_2}$ x t
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference
Let D be the distance travelled
⇒ D = $\frac{64 \times 48}{64-48} \times \frac{12-3}{60}$ = 28.8 km
Time taken by train to travel this distance = $\frac{28.8}{48}$ = 0.6 hours or 36 min
The right time for the train to cover the journey = 36-12 = 24 min
Alternate :
Let ‘t’ minutes be the desired time.
According to the question
48 x (t+12) = 64 (t+3)
48t + 576 = 64t + 192
384 = 16t
t = 24

Sol 25. (c)
We know that
D = $\frac{S_1 \times S_2}{S_1 - S_2}$ x t
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference

Let D be the distance travelled
⇒ D = $\frac{52 \times 65}{65-52} \times \frac{15-5}{60} = \frac{130}{3}$ km
Time taken by train to travel this distance = $\frac{130}{3 \times 52} = \frac{10}{12}$ hours or 50 min
The right time for the train to cover the journey = 50-15 = 35 min
Alternate :

Pinnacle

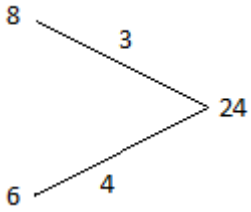
Let 't' minutes be the desired time.
According to the question
52 x (t+15) = 65 (t+5)
52t + 780 = 65t + 325
455 = 13t
t = 35

Sol 26. (b)
We know that
D = $\frac{S_1 \times S_2}{S_1 - S_2}$ x t
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference
Let D be the distance travelled
⇒ D = $\frac{80 \times 60}{80-60} \times \frac{15-7}{60}$ = 32 km
Time taken by train to travel this distance = $\frac{32}{60} = \frac{8}{15}$ hours or 32 min
The right time for the train to cover the journey = 32-15 = 17 min
Alternate :
Let 't' minutes be the desired time.
According to the question
60 x (t+15) = 80 (t+7)
60t + 900 = 80t + 560
340 = 20t
t = 17

Sol 27. (d)
We know that
D = $\frac{S_1 \times S_2}{S_1 - S_2}$ x t
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference

Let D be the distance travelled
⇒ D = $\frac{36 \times 45}{45-36} \times \frac{15-4}{60}$ = 33 km
Time taken by train to travel this distance = $\frac{33}{36} = \frac{11}{12}$ hours or 55 min
The right time for the train to cover the journey = 55-15 = 40 min
Alternate :
Let 't' minutes be the desired time.
According to the question
36 x (t+15) = 45 (t+4)
36t + 540 = 45t + 180
360 = 9t
t = 40

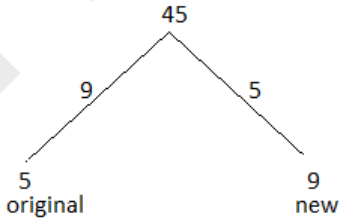
Sol 28. (b)
Time taken = 1h 10 min or $\frac{7}{6}$ h



According to the question
(3+4) unit = $\frac{7}{6}$
1 unit = $\frac{1}{6}$
Distance (24 unit) = 24 x $\frac{1}{6}$ = 4 km

Sol 29. (a)
Distance travelled = 1.7 km or 1700
Time taken =
$\frac{1700}{8+9}$ = 100 *sec* = 1*min* 40*sec*

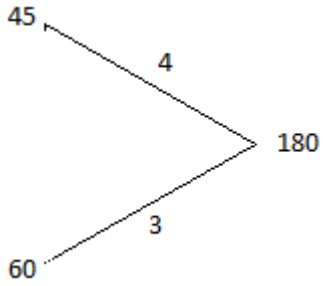
Sol 30. (b)
Let the original speed = 5 unit
New speed = 9 unit



According to question
9-5 unit = 4 unit = 30
1 unit = $\frac{30}{4}$
9 unit = $\frac{30}{4}$ ×9 = 67.50 minute

Sol 31. (a)
Case 1 : Case 2
Speed 52 : 65
4 : 5
Time 5 : 4
According to the question
5 unit = $\frac{13}{4}$ hour or 195 min
Time saved 1(5-4) unit = 39 min

Sol 32. (c)



4-3 = 1unit = $\frac{9}{60}$
180 unit = 180 × $\frac{9}{60}$ = 27 km

Alternate :
We know that
D = $\frac{S_1 \times S_2}{S_1 - S_2}$ x t
Here D = distance
$s_1 and\ s_2$ = two speeds ($s_1 > s_2$)
t = time difference

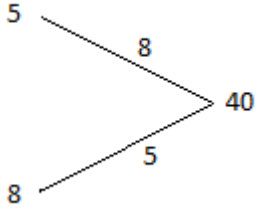
Let D be the desired distance.
D = $\frac{60 \times 45}{60-45} \times \frac{9}{60}$ = 27 km

Sol 33. (b)
Average speed = $\frac{15+15}{7+5}$ = 2.5

Sol 34. (c)
Total distance = 80 × $\frac{31.5}{60}$ + 75 × $\frac{16}{60}$ = 62 km

Sol 35. (b)
Speed of train = $\frac{500+100}{25}$ = 24m/s
Required time = $\frac{380+100}{24}$ = 20 seconds

Sol 36. (a)



According to the question
8 unit = 24

Pinnacle

1 unit = 3
5 unit = 15 min

Sol 37. (d) Average speed = $\frac{500+500}{5+7} = \frac{250}{3}\ m/min\ or\ \frac{250}{3} \times \frac{3}{50}$ = $5km/h$

Sol 38. (d) Average speed = $\frac{210+198}{\frac{210}{60}+\frac{198}{66}} = \frac{408}{6.5} = 62.8\ km/h$ (approx)

Sol 39. (d) Required time = $\frac{230+750}{72\times\frac{5}{18}} = 49\ s$

Sol 40. (a)
Total time taken = $\frac{15}{30} + \frac{25}{10}$
Required speed = $\frac{15+25}{\frac{15}{30}+\frac{25}{10}} = \frac{40}{3}$ km/h

Sol 41. (c)
Time taken by the man to cover the distance from P to Q = 8 hours
Time taken by the man to cover the distance from Q to P = 7 hours

	Man 1	:	Man 2
Time	8	:	7
Speed	7	:	8
	x		
Distance	56	:	56

Distance covered by the first man in 2 hours = 7 x 2 = 14 unit
Remaining distance = 56-14 = 42 unit
Relative speed = 8+7 = 15 unit
Time taken to cover this distance = $\frac{42}{15}$ = 2 hours and 48 minutes
⇒ Both will meet at = 8:00 AM + 2 hours and 48 minutes = 10:48 AM

Sol 42. (b)
Speed of the car = $\frac{300}{6}$ = 50 m/m
Required speed = 50 x $\frac{6}{100}$ = 3 km/h

Sol 43. (b)
Let the length of the train = k
According to the question
$\frac{k+600}{50} = \frac{k+900}{60}$
6k + 3600 = 5k + 4500
⇒ k = 900 metres
Speed of the train = $\frac{900+600}{50}$ = $\frac{900+900}{60}$ = 30 m/s
Required speed = 30 x $\frac{18}{5}$ = 108 km/h
Alternate :
Distance covered in 60-50 seconds = 900-600
Speed of train = $\frac{300}{10}$ = 30 m/s or 30 x $\frac{18}{5}$ km/h = 108 km/h
Length of the train = (30x50)-600 or (30x60)-900 = 900 metres

Sol 44. (b)
Distance covered in till 11 a.m. (2 hours) = 30 x 2 = 60 km
Relative speed = (30+45) = 75 km/h
Both will meet after $\frac{240}{75} = \frac{16}{5}$ hours
Distance covered by the other train = $\frac{16}{5}$ x 45 = 144 km
Distance covered by the first train = 300-144 = 156 km
Desired ratio = 156 : 144
= 13 : 12

Sol 45. (b)
Time taken by Raman to reach Q = $\frac{15}{9} = \frac{5}{3}$ hours
Distance covered by Alok in this time = 6 x $\frac{5}{3}$ = 10 km
Relative speed of Raman and Alok = 6+9 = 15 km/h
Distance to be covered with this speed = 15-10 = 5 km
Time taken to cover this distance = $\frac{5}{6+9} = \frac{1}{3}$ hours
Distance covered by Alok in this period = 6 x $\frac{1}{3}$ = 2 km
Distance covered by Raman in this period = 9 x $\frac{1}{3}$ = 3 km
Required distance (PR) = 10+2 or 15-3 = 12 km

Sol 46. (b)
Total distance covered = 900 + 600 = 1500 meters
Time taken = 300 seconds
Speed of the train = $\frac{1500}{300}$ = 5 m/s
Required time = $\frac{600}{5}$ = 120 seconds or 2 minutes

Sol 47. (d)
Total time taken = $\frac{3}{9} + \frac{6}{15} + \frac{9}{18} = \frac{37}{30}$ hours
Total distance = 3+6+9 = 18 km
Required speed = $\frac{18}{37/30} = \frac{540}{37}$ km/h

Sol 48. (d)
Let the length of the train = t meters
Time taken to cover this length = 1 minute or 60 seconds
Length of the new train = 2t
Total distance to be covered = t + 2t = 3t
Required time = 3 x 60 = 180 seconds

Sol 49. (d)
Average speed of the car = 600 meters/minute or 10 m/s
Speed of the runner = $\frac{100}{9.6} = \frac{125}{12}$
Desired difference = $\frac{125}{12}$ -10 = $\frac{5}{12}$ m/s

Sol 50. (b)
Speed of the car = $\frac{18}{24/60}$ = 45 km/h
Speed of the bus = 2 x 45 = 90 km/h
Time taken by bus = $\frac{135}{90} = 1\frac{1}{2}$ hours or 30 minutes

Sol 51. (b)
Distance of 600 meters is covered in 5-3 = 2 minutes
Speed of the train = $\frac{600}{2\times60}$ = 5 m/s or 5 x $\frac{18}{5}$ = 18 km/h
Length of the train = 5 x (3 x 60) = 900 meters

Pinnacle

Sol 52. (b)
Average speed of the man = $\frac{2\times30\times20}{30+20}$ = 24 km/h

Sol 53. (b)
Speed of the car = 36 km/h
Speed of the bus = 36 x $\frac{1}{5}$ = 7.2 km/h or 2 m/s
Required time = $\frac{900}{2}$ = 450 seconds or 7 $\frac{1}{2}$ minutes

Sol 54. (c)
Length of the train = 700 meters
Time taken = 35 seconds
Speed of the train = $\frac{700}{35}$ = 20 m/s
Required Time = $\frac{700+740}{20}$ = 72 seconds or 1 minute and 12 seconds

Sol 55. (d)
Total time taken = 4+6 = 10 hours
Desired average = $\frac{200+600}{10}$ = 80 km/h

Sol 56. (b)

	A : B
Speed	3 : 4
Time	4 : 3

According to the question
(4-3) unit = 10 minutes
3 unit = 3 x 10 = 30 minutes

Sol 57. (d)
Speed of the train = 80 km/h
Time taken = 0.75 minutes or $\frac{1}{80}$ hours
Distance covered = 80 x $\frac{1}{80}$ = 1 km or 1000 meters
Length of the platform = $\frac{1000}{2}$ = 500 meters

Sol 58. (c)
Distance covered by bus = 1.8 km or 1800 meters
Time taken = 3 minutes or 180 seconds
Speed of the bus = $\frac{1800}{180}$ = 10 m/s
Speed of the athlete = $\frac{200}{25}$ = 8 m/s
Required difference = 10-8 = 2 m/s

Sol 59. (d)
Speed of the train = 72 km/h or 72 x $\frac{5}{18}$ = 20 m/s
Length of the train = 20 x 35 = 700 meters
Required time = $\frac{1100+700}{20}$ = 90 seconds or 1.5 minutes

Sol 60. (d)
Required average speed = $\frac{2\times90\times60}{90+60}$ = 72 km/h

Sol 61. (a)
Time taken by first train = 5 hours
Time taken by other train = 7 hours

	First train : Second Train
Time	5 : 7
Speed	7 : 5
	x _____
Distance	35 : 35

Distance covered by first train in 2 hours = 7 x 2 = 14 unit
Relative speed of two trains = 7+5 = 12 km/h
Time by both trains to meet = $\frac{21}{12}$ = $\frac{7}{4}$ hours or 1 hours and 45 minutes
⇒ Both trains will meet at 8 : 00 AM + 1 hours and 45 minutes = 9 : 45 AM

Sol 62. (b)
According to the question
$60 = \frac{2\times40\times x}{40+x}$
$240 + 6x = 8x$
⇒ x = 120 km/h

Sol 63. (a)
Distance covered after repairing = 72 x 6 = 432 km
Required time = $\frac{5\times432}{54}$ = 40 km/h

Sol 64. (c)
Speed of the train = 108 km/h
Time taken = 15 minutes or $\frac{1}{4}$ hours
Total distance = 108 x $\frac{1}{4}$ = 27 km
Increased speed = $\frac{27\times60}{9}$ = 180 km/h
Desired increase = 180 - 108 = 72 km/h

Sol 65. (a)

	A : B
Distance	100 : 90
	B : C
Distance	100 : 90

Balancing the ratio for B

	A : B : C
Distance	1000 : 900 : 810

⇒ In a race of 1000 meters A beats C by 190 meters
So, in race of 100 meters A beats C by 19 meters.

Sol 66. (d)
Speed of fighter plan = 1440 km/h or 1440 x $\frac{5}{18}$ = 400 m/s
Distance covered in one seconds = 400 x 1 = 400 meters

Sol 67. (a)
Time taken to cover 1 km = $\frac{1}{12}$ = 300 seconds or 5 minutes
Time taken to cover 8 km = $\frac{8}{12}$ = 2400 seconds or 40 minutes
⇒ the person will stop 7 times after every 5 minutes.
Total time of stoppage = 7 x 4 = 28 minutes
Total time of journey = 40+28 = 68 minutes

Sol 68. (a)

	Original : New
Speed	10 : 13
Time	13 : 10

According to the question
(13-10) unit = 12 minutes

Pinnacle

1 unit = 4 minutes
13 unit = 52 minutes or 0.52 hours

Sol 69. (b)
Circumference of the wheel = πd
$= \frac{22}{7} \times 56 = 176$
Distance covered in one second = 7 x 176 = 1232 cm
Speed of the bus = 1232 cm/sec

Sol 70. (b)
Total distance covered along with platform by the train = 200+160 = 360 meters
Time taken = 18 seconds
Speed of the train = $\frac{360}{18}$ = 20 m/s
Let the speed of other train = x m/s
According to the question
$\frac{160+160}{20+x} = 9$
$\Rightarrow 320 = 180 + 9x$
$\Rightarrow 140 = 9x$
$\Rightarrow x = \frac{140}{9}$
Desired ratio = $20 : \frac{140}{9}$
$= 9 : 7$

Sol 71. (c)
Let the speed of car on return journey = x km/h
According the question
$64 = \frac{2 \times 160 \times x}{160 + x}$
$\Rightarrow x = 40$ km/h

Sol 72. (d)
Speed of the first plane = $\frac{1650}{3}$ = 550 km/h
11 unit = 550 km/h
1 unit = 50 km/h
18 unit = 900 km/h
Required speed = 900 x $\frac{5}{18}$ = 250 m/s

Sol 73. (b)
Total distance = 420 km
Time = 7 hours
Speed of the car = $\frac{420}{7}$ = 60 km/h
To cover the distance in 6 hours speed of the car = $\frac{420}{6}$ = 70 km/h
Required difference = 70-60 = 10 km/h

Sol 74. (a)
Tricky approach :
t = $\frac{f-s}{f}$ hours
Here, t = time of stoppage
f = speed without stoppage
s = speed with stoppage
t = $\frac{72-60}{72}$
= $\frac{1}{6}$ hours = 10 minutes

Sol 75. (b)
30% = $\frac{3}{10}$
Original : New
Speed 10 : 13
Time 13 : 10
According to the question
3 unit = 15 minutes
1 unit = 5 minutes
13 unit = 65 minutes

Sol 76. (a)
Total distance = 360 + 160 + 200 = 720 km
Total Time = $\frac{360}{72} + \frac{160}{12.8} + \frac{200}{16}$ = 30
Required average speed = $\frac{720}{30}$ = 24 km/h or 24 x $\frac{5}{18}$ = 6.67 m/s

Sol 77. (d)
Plane 1 : Plane 2
Speed 7 : 15
Speed of plane 1 = $\frac{1050}{3}$ = 350 km/h
According to the question
7 unit = 350 km/h
1 unit = 50 km/h
15 unit = 750 km/h

Sol 78. (b)
Let the person travelled for t hours at the speed of 40 km/h.
According to the question
40 x t = 60 x (16-t)
40t = 960 - 60t
t = 9.6
Total Distance = 40 x 9.6 + 60 x 6.4 = 768 km

Sol 79. (a)
According to the question
$2 \times 60 + 2 \times 50 + 2 \times x = 6$ x 52
$220 + 2x = 312$
$\Rightarrow x = 46$

Sol 80. (c)
Distance = 225 meters
Speed of the man = 45 km/h or 45 x $\frac{5}{18}$ = 12.5 m/s
Desired time = $\frac{225}{12.5}$ = 18 seconds

Sol 81. (a)
Total distance covered = 600+1200 = 1800 meters
Time = 36 seconds
Speed of the train = $\frac{1800}{36}$ = 50 m/s
Desired time = $\frac{600+2200}{50}$ = 56 seconds

Sol 82. (b)
Speed of car = 20 m/s = 20 x $\frac{18}{5}$ = 72 km/h
Time = 2.5 hours
Distance covered = 72 x 2.5 = 180 km

Sol 83. (a)
Average speed of the journey = $\frac{2 \times 18 \times 12}{18+12} = \frac{72}{5}$ km/h
Time = 2 hours and 55 minutes or $\frac{35}{12}$ hours
Total distance covered = $\frac{72}{5}$ x $\frac{35}{12}$ = 42 km
$\Rightarrow$ One way journey = $\frac{42}{2}$ = 21 km

Sol 84. (c)
Relative speed of the trains = 72 + 63 = 135 km/h or 135 x $\frac{5}{18}$ = 37.5 m/s
Time = 18 seconds
Total distance covered = 37.5 x 18 = 675
Let the length of train X = 3 unit
$\Rightarrow$ And train Y = 2 unit
According to the question
(3+2) unit = 675

Pinnacle

1 unit = 135
3 unit = 3 x 135 = 405 meters

Sol 85. (c)
Relative speed of A and B = 10+20 = 30 km/h or 30 x $\frac{5}{18}$ m/s
Distance covered in 5 minutes = 30 x $\frac{5}{18}$ x 5 x 60 = 2500 meters
Clearly they are 2500 meters apart.

Sol 86. (b)
According to the question
2 x A = 3 x B

	A : B
Speed	3 : 2
Time	2 : 3

Now,
(3-2) unit = 42 minutes
Time taken by B (3 unit) = 126 minutes

Sol 87. (c)
Let the speed of one train = x km/h and other train y km/h
According to the question
(x-y) x 60 = (x+y) x 12
60x - 60y = 12x + 12y
48x = 72y
$\Rightarrow$ x:y = 3:2
Going through the options only option C satisfy this condition.

Sol 88. (a)
Let the required speed = k km/h
According to the question
54 x 200 = 90 x k
$\Rightarrow$ k = $\frac{54\times200}{90}$ = 120 km/h

Sol 89. (b)
Speed of shivan = 19 km/h or 19 x $\frac{5}{18}$ = $\frac{95}{18}$ m/s
Required time = $\frac{665}{95}$ x 18 = 126 seconds or 2 minutes $\frac{1}{10}$ seconds

Sol 90. (d)
Relative speed = (20-10) = 10 m/s
Required time = $\frac{180}{10}$ = 18 seconds

Sol 91. (b)
Total Distance = 75+60+90 = 225 km
Total time taken = $\frac{75}{25}+\frac{60}{20}+\frac{90}{15}$ = 12 hours
Required speed = $\frac{225}{12}$ = 18.75 km/h

Sol 92. (d)
Distance = 10 km
Time = 12 minutes or $\frac{1}{5}$ hours
$\Rightarrow$ speed of the bus = $\frac{10}{1/5}$ = 50 km/h
New speed = 50-25 = 25 km/h
Required time = $\frac{10}{25}$ hours or 24 minutes

Sol 93. (a)
Speed of the person = $\frac{390}{3.25}$ = 120 km/h
= 120 x $\frac{5}{18}$ = 33 $\frac{1}{3}$ m/s

Sol 94. (b)
Perimeter of the wheel = πd
= $\frac{22}{7}$ x 70 = 220 cms
Total distance covered = 600 x 220 cms = 1320 meters
Time = 1 minutes or 60 seconds
Speed of the vehicle = $\frac{1320}{60}$ = 22 m/s
= 22 x $\frac{18}{5}$ = 79.2 km/h

Sol 95. (d)
According to the question

	Train	:	Steamer	:	Car
Speed	3	:	2	:	1

Now,
1 unit = 40 km/h
$\Rightarrow$ 2 unit = 80 km/h
$\Rightarrow$ 3 unit = 120 km/h
So,
$\frac{3.75x}{120}+\frac{x}{80}+\frac{x}{2\times40}=\frac{9}{2}$
$\frac{3.75x}{60}+\frac{x}{40}+\frac{x}{40}=9$
$7.5x+3x+3x=9\times120$
$13.5x=1080$
$x=80$
Total Distance = $3.75x+x+\frac{x}{2}$ = $5.25x$
Required distance = 5.25 x 80 = 420 km

Sol 96. (a)
We know that, if time taken to cover same distance at speed S_1 is T_1 and time taken at speed S_2 is T_2 then,
$\frac{S_1}{S_2}=\sqrt{\frac{T_2}{T_1}}$
Here S_2 = 48 km/h, T_1 = 2.7 h and T_2 = 1.2 h
$\Rightarrow \frac{S_1}{48}=\sqrt{\frac{1.2}{2.7}}$
$\Rightarrow S_1=\frac{2}{3}\times48=32$ km/h

Sol 97. (c)
Let the length of train A = 5L and length of train B = 3L
Let Speed of train A = 2 unit and train B = 3 unit
According to the question
$\frac{5L+3L}{2+3}=\frac{5}{2}$
L = $\frac{25}{16}$ unit
Length of train A = 5 x $\frac{25}{16}$ = $\frac{125}{16}$ unit
Required time = $\frac{125}{16\times2}$ = $\frac{125}{32}$ minute

Sol 98. (a)
Distance to be covered = 12 km or 12000 m
Relative speed = 35+45 = 80 m/s
Required time = $\frac{12000}{80}$ = 150 seconds or 2 minute 30 seconds

Sol 99. (a)
Speed of the train = 108 km/h or 108 x $\frac{5}{18}$ m/s = 30 m/s
Time = 32 seconds
Length of the train = 32 x 30 = 960 meters

Sol 100. (c)
Let the speed of train A = a and speed of Train B = b
According to the question

$\frac{612}{a} - \frac{612}{b} = 9$ .....(1)

$\frac{612}{b} - \frac{612}{2a} = 3$ .....(2)

Add eq (1) and (2)

$\frac{1024-612}{2a} = 12$

$\Rightarrow$ a = 25.5 km/h

Put this value in eq (1)

$\frac{612}{25.5} - \frac{612}{b} = 9$

$\Rightarrow 24 - 9 = \frac{612}{b}$

$\Rightarrow$ b = 40.8 km/h

Sol 101. (a)

Time = 25 s

Speed = 25 m/s

Length of the train = 25 x 25 = 625 meters

Sol 102. (b)

Distance covered in (80-60) seconds = (1000-600) meters

$\Rightarrow$ Speed of the trains = $\frac{400}{20} = 20$ m/s

Length of the train = [(80 x 20) - 1000] or [(60 x 20) - 600] = 600 meters

Sol 103. (c)

Let the length of the train x = 3 unit

And the length of the train y = 2 unit

Relative speed of trains = (84+52) km/h = $136 \times \frac{5}{12} = \frac{170}{3}$ m/s

Distance covered in 12 minutes = $\frac{170}{3}$ x 12 = 680 meters

According to the question

5 unit = 680

1 unit = 136

Length of train y = 2 unit = 2 x 136 = 272 meters

Sol 104. (b)

Let the speed of first train = 5unit and the speed of second train = 7 unit

Now,

Speed of first train = $\frac{300}{3} = 100$ km/h

According to the question

5 unit = 100

1 unit = 20

7 unit = 7 x 20 = 140 km/h

Sol 105. (c)

Distance covered = 300 km

Time taken =3 hours

Speed of first train = $\frac{300}{3} = 100$ km/h

Sol 106. (a)

Distance covered in 1 litre petrol = $\frac{60.48}{5.4} = 11.2$ km

Required distance = $11.2 \times 22 = 246.4$ km

Sol107. (d)

Total distance covered = 210+198 = 408 km

Total time taken to cover the distance = $\frac{210}{60} + \frac{198}{66}$ hours

Average speed = $\frac{408}{\frac{210}{60}+\frac{198}{66}} = \frac{408}{6.5}$

$= 62.8\ km/h$ (approx)

Sol108. (d)

Total distance to be covered = 230+750 = 980 m

Speed of the train = 72 km/h = 72 x $\frac{5}{18} = 20$ m/s

Required time = $\frac{980}{20} = 49\ s$

Sol 109. (b)

Distance covered in one revolution = $\pi d = \frac{22}{7} \times 56 = 176$ meters

Distance covered in 7 revolutions = 7 x 176 = 1232 meters

Required speed = $\frac{1232}{1} = 1232$ m/s

Sol 110.

50% = $\frac{1}{2}$

	Car : Train
Speed	2 : 3
Time	3 : 2

According to the question

(3-2) unit = 2 hours

2 unit = 2x2 = 4 hours

$\Rightarrow$ Speed of train = $\frac{360}{4} = 90$ km/h

SSC CGL TIER I

Sol 1. (c) Train crosses a pole in 12 sec Means;

length of train is= 12 × speed of train =12 × S

Train crosses a bridge of length 170 m in 36 sec

Means;

Length of train+ 170 m = 36 × speed of train = 36 × S

Thus,

12 × S + 170 = 36 × S

170 = 24 × S

S= $\frac{170}{24}$ m/s

= $\frac{170}{24} \times \frac{18}{5}$

= 25.5 km/hour

Alternate :

Trick approach, Distance covered in 24 (36-12) sec = 170m

speed of train = $\frac{170}{24}$ m/s

= $\frac{170}{24} \times \frac{18}{5}$

= 25.5 km/hour

Sol 2. (a) The ratio of speed of A and B = 6:5

After meeting, time taken by A and B are inversely proportional to square of their speed

Hence, $\frac{S_a^2}{S_b^2} = \frac{t_b}{t_a}$

$\Rightarrow \frac{36}{25} = \frac{2x}{5}$

$\Rightarrow$ x = $\frac{18}{5} = 3\frac{3}{5}$ hours.

Sol 3. (b) Speed of A and B are 100m/min and 120m/min respectively.

Distance = LCM(100,120)= 600units.

Time taken by A to cover 600 unit = $\frac{600}{100}$ = 6min

Time taken by B to cover 600 unit = $\frac{600}{120}$ = 5 min

Time difference is 1 min which is given as 10 min

Thus, 600 unit distance= 6000 m = 6 km

Pinnacle

Sol 4. (a) Distance between A and B = 144 km
Let speed of A = a km/h
Speed of B = b km/h
For same direction, meeting time = 12 hour
$\Rightarrow 12 \times (a-b) = 144$ …(i)
For opposite direction, meeting time = $\frac{9}{8} hour$
$\Rightarrow \frac{9}{8} \times (a+b) = 144$ …(ii)
We get: $12 \times (a-b) = \frac{9}{8} \times (a+b)$
a:b = 35:29
a = 35x
b = 29x
Put values in (i): $12 \times (6x) = 144$
x = 2
a = 70 km/h

Sol 5. (a) For such question, we directly put values in given formula:
Distance = $\frac{Speed \times (Speed \pm increase\ in\ speed)}{increase\ in\ speed} \times time\ difference$
Let usual speed of train = S km/h
$\Rightarrow 300 = \frac{S \times (S+20)}{20} \times \frac{5}{2}$
$\Rightarrow$ S = 40 km/h
$\Rightarrow 192 = 40 \times$ time
$\Rightarrow$ Time = 4.8 hours

Sol 6. (a) Distance between station A and B = 428 km
Speed of trains from station A and B is 48km/h and 55 km/h respectively.
Distance travelled by train from station A in 20 min. = 16 km
Remaining distance = 412 km
Meeting time = $\frac{412}{48+55} = \frac{412}{103} = 4$ hour
At 10:20 a.m. both the trains meet.

Sol 7. (d) Distance between home and school = $1.25 \times 4 = 5$ km
Speed $\propto \frac{1}{time}$
Decrease by 25%, i.e. t → 4 : 3
Thus, speed change from 3 : 4
% increase = $33\frac{1}{3}\%$

Sol 8. (a) Speed of A = 6 km/h
Speed of B = 8 km/h
Let 'D' be distance between A and B
Time taken by B to cover D distance is 25 minutes less than time taken by A to cover the same distance.
Therefore, $\frac{D}{6} = \frac{D}{8} + \frac{25}{60}$
$\Rightarrow$ D = 10 km

Sol 9. (c) Let the length of the train = L m
Speed of train = 72 km/h = 20m/s
L + 180 = 20 × 60 = 1200
L = 1020 m
Time taken by train to cross the pole = $\frac{1020}{20} sec$ = 51 sec

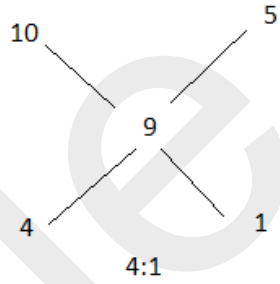
Sol 10. (c) Speed of car A = 40km/h
Speed of car B = 50km/h
Distance travelled by car A in 30 minutes = 20 km
Meeting time = $\frac{20}{50-40}$ = 2 hour
Distance travelled by car B in 2 3hours = 100km

Sol 11. (d) Distance travelled by first train in 30 min = 55 km
Relative speed of two trains = 30 km/h
Meeting time = $\frac{55}{30}$ h
Meeting distance = $140 \times \frac{55}{30} = 256\frac{2}{3}$ km

Sol 12. (c) Distance travelled by first train in 2 hours = 60 × 2= 120 km
Remaining distance to be travelled = 280-120 = 160
Relative speed of trains after two hours = 60+20 = 80km/h
Meeting time = $\frac{160}{80}$ = 2 hours
Total time taken by first train to meet the second train = 4 hours

Sol 13. (b) Let Amit travelled x km on bicycle and (50-x) km on foot.
$\frac{x}{10} + \frac{50-x}{5} = 9$
X = 10 km

Alternate :
Had he travelled all the distance on foot, time taken = $\frac{50}{5}$ = 10 hours
Had he travelled all the distance by bicycle, time taken = $\frac{50}{10}$ = 5 hours
Now,



According to question, (4+1) unit = 50 km
1 unit = 10 km
$\Rightarrow$ Distance travelled by bicycle = 10 km ans

Sol 14. (a) Distance between station A and B = 575 km
Distance travelled by train from station A in 30 minutes = 25 km
Remaining distance = 550 km
Relative speed of two trains = 50+60 = 110 km/h
Meeting time = $\frac{550}{110}$ = 5 hours
Meeting distance from station A = $50 \times 5\frac{1}{2}$ = 275 km

SSC CHSL 2019
1.Sol: (d)
Let the AB = BC = CD = 60 km
Total distance = 180 km
Time taken from A to B = 60/15 = 4 hours
Time taken from B to C = 60/20 = 3 hours
Time taken from C to D = 60/30 = 2 hours
Total time = 4+3+2 = 9 hours
so, average speed = $\frac{180}{9}$ = 20 km/h

2.Sol (c)

Pinnacle

Average Speed = (Total distance)/(Total Time)
Average Speed = (18+20+27)/($\frac{18}{6}+\frac{20}{5}+\frac{27}{9}$)
Average Speed = 65/10
Average Speed = 6.5 km/h

3.Sol (c)
Decrease in speed = 10 km/h
Percentage decrease in speed = $\frac{10}{40}\times 100 = 25\%$

4.Sol(c)
Speed = $\frac{distance}{time}$
= $\frac{350+250}{20}$ m/s
= 30m/s
Speed of the train (in km/h) = 30 × $\frac{18}{5}$ = 108 km/h

5.Sol: (d)
Let the speed of faster train = x km/h, speed of passenger train = x-70 km/h
$\frac{1176}{x-70}-\frac{1176}{x}=5$
$\frac{1176x-1176x+1176\times 70}{x(x-70)}=5$
$1176\times 14 = x^2-70x$
$x^2-70x-16464=0$
$x^2-168x+98x-16464=0$
x(x-168)+98(x-168)=0
(x-168) (x+98)=0
So x=168
Now speed of passenger train=168-70=98 Km/hr
Time taken by train to travel 1176 km distance= $\frac{1176}{98}$ =12 hours

6.Sol:(b)
Let distance=300km
Time= $\frac{300}{60}$ =5h
Time= $\frac{300}{75}$ =4h
Time difference=5-4=1h or 60 min
60 minute=64 min
300 km=320 km
Sum=320+64=384

7.Sol:(d)
Using formula Distance=Speed × Time
length of train=$72\times\frac{5}{18}\times 36=720$ m

8.Sol. (a)
Average speed = $\frac{2xy}{x+y}=\frac{2\times 126\times 90}{216}=$ 105 km/h
The time taken by the second train to travel 525 km = $\frac{525}{105}=5$ hours

9.Sol: (a)
Speed = $\frac{900}{10\times 60}\times\frac{18}{5}=5.4$ km/h

10.Sol: (b)
time= $\frac{Distance}{speed}$
Time = $\frac{2.5}{30}\times 60=5$ min

11.Sol: (a)
Distance = $64\times\frac{40}{60}=42.67$ km
Speed = $\frac{42.67}{30}\times 60=85.33$ km/h

12.Sol: (a)
Length of the train = $8\times\frac{30}{60}=4$ km

13.Sol: (b)
90 km/h = 25 m/s
Time = $\frac{150+300}{25}=18$

14.Sol: (c)
Distance = 1800 km
Relative speed = 44+46 = 90 km/h
Time = $\frac{1800}{90}=20$ km/h
Distance travelled by first train = $20\times 44=880$ km from A
So, option (C) is the correct answer.

15.Sol: (d)
Let the distance = x km
$\Rightarrow \frac{x}{15}+\frac{x}{30}=3$
$\Rightarrow \frac{3x}{30}=3$
$\Rightarrow$ x = 30 km

16.Sol: (b)
Speed = $\frac{(x^3+1)}{(x+1)}=\frac{(x+1)(x^2-x+1)}{(x+1)}=$ (x^2-x+1) km/h

17.Sol: (d)
Average speed = $\frac{1200}{16}=75$
Now, go through allegation
40 80
75

---

5 : 35 or 1 : 7
Time ratio = 1 : 7
8 unit = 16 hours
1 unit = 2 hours
Distance travel by Car = 2 × 40 = 80 km

18.Sol: (b)
Let the total distance = 3x
$\frac{x}{12}+\frac{x}{18}+\frac{x}{24}=13$
$\frac{6x+4x+3x}{72}=13$
x = 72 km
Total distance = 3x = 3 × 72 = 216

19.Sol: (c)
Perimeter of Square = 4 × 75 = 300 meter
Speed = 6 km/h
Time = $\frac{300}{6\times\frac{5}{18}}=180$ sec or 3 min

20.Sol: (a)
Distance = 30 km
Let their speed = a km/h and b km/h
a+b = 70 km/h
Time = 2 hours 6 min
$\frac{30}{a}+\frac{30}{b}=2\frac{6}{60}$
$\frac{30(a+b)}{ab}=\frac{126}{60}$
$\frac{30\times 70}{ab}=\frac{126}{60}$
ab = 1,000
$(a-b)^2=(a+b)^2-4ab$
$(a-b)^2$ = 4900-4000
a-b = 30
so, difference in their speed = 30 km/h

21.Sol: (a)
Average speed = $\frac{35}{5}=7$ km/h

Pinnacle

Now, go through the allegations.
4 km/h 9 km/h

7 km/h

2 : 3

5 unit = 5 hour
2 unit = 2 hour
Distance travelled on foot = 2 × 4 = 8 km

22.Sol: (d)
30 km/h = 30 × $\frac{5}{18}$ = $\frac{25}{3}$ m/s
Time = $\frac{500}{25}$ × 3 = 60 second or 1 minute

23.Sol.(a) :
Speed of the train = 12/12 × 60 = 60 km/h.
the time taken by it to cover the distance of 22 km, when its speed is decreased by 5 km/h
= 22/55 = ⅖ hours = 24 min

24.Sol (d)
Time taken by man to cover a distance of 6 km = 6/12 = 30min
After every km, he takes rest for 3 minutes, so in distance of 6km he rests for 5 times = 3 × 5 = 15 *min*
Total time taken by man = 30+15 = 45 min

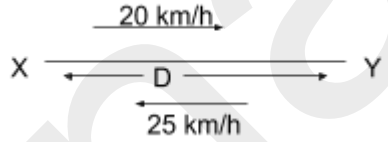
25.Sol (d)
Time taken by man to cover a distance of 6 km = 6/12 = 30min
After every km, he takes rest for 3 minutes, so in distance of 6km he rests for 5 times = 3 × 5 = 15 *min*
Total time taken by man = 30+15 = 45 min

26.Sol: (c)
Distance covered by train at a speed of 80 km/h in 45 min = 60 km
If speed is increased by 125%, then speed of train = 180 km/h
Time taken by train to cover 8/5 of the same distance =
$\frac{60}{180} \times \frac{8}{5} \times 60 = 32\ min$

27.Sol . (c)
Time = $\frac{Distance}{Speed}$
Total time = 9 hrs, Total distance = D
$9 = \frac{D}{2 \times 40} + \frac{D}{2 \times 50} = \frac{5D + 4D}{2 \times 200} = \frac{9D}{2 \times 200}$
⇒ D = 400 km

28.Sol . (d)
Distance = 600 km
Let speed = S
Time, t = $\frac{2}{3}$ × S
D = S × t
600 = $\frac{3}{2}$ × t × t
t^2=400 so t=20 hours

29.Sol (a)

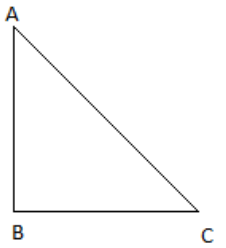


Average Speed = $\frac{Total\ Distance}{Total\ Time}$ = $\frac{2D}{\frac{D}{20} + \frac{D}{25}} = \frac{2}{\frac{1}{20} + \frac{1}{25}} = \frac{200}{5+4} = \frac{200}{9}$ = 22 $\frac{2}{9}$ km/h

30.Sol . (d)
Side of square field = 175 m
Perimeter of square field = 4 × 175 = 700 m = 0.7 km
Speed of horse = 15 km/h
Time = $\frac{0.7}{15}$ hr = $\frac{0.7}{15}$ × 3600 sec = 168 cm

31.Sol . (d)
Speed of car = $\frac{105}{3}$ = 35 km/h
Speed of train = $\frac{252}{4}$ = 63 km/h
Required ratio ⇒ 35 : 63 ⇒ 5 : 9

32.Sol. (d)



AB = 54 × $\frac{5}{18}$ × 20 = 300 m
BC = 72 × $\frac{5}{18}$ × 20 = 400 m
AC = $\sqrt{300^2 + 400^2}$ = 500 m

33.Sol . (c)
Let the distance between school and house = D km and the school starts after t-minutes if he runs at his usual speed, S.
D = S × t
Condition 1:- He runs cycle at 10 km/h; he reaches school 8 minutes late;
D = 10 (t + $\frac{8}{60}$) …. (i)
Condition 2:- He runs cycle at 16 km /h; he reaches school 10 minutes early;
D = 16 (t - $\frac{10}{60}$) …. (ii)
(i) = (ii) :---
10 (t + $\frac{8}{60}$) = 16 (t - $\frac{10}{60}$)
⇒ 5 (t + $\frac{8}{60}$) = 8 (t - $\frac{10}{60}$)
⇒ 5t + $\frac{40}{60}$ = 8t - $\frac{80}{60}$
⇒ 8t - 5t = $\frac{80}{60}$ + $\frac{40}{60}$ = $\frac{120}{60}$ = 2
⇒ 3t = 2
⇒ t = $\frac{2}{3}$ × 60 = 40 minutes
Therefore, School starts at = 8:20 + 40 min = 9:00 am

34.Sol. (d)
Speed = $\frac{Distance}{time}$ = $\frac{700\ m}{6\ min}$ = $\frac{700\ m \times 60}{6\ min \times 1000}$ = 7 km/h

35.Sol. (b)
Speed ∝ $\frac{1}{time}$
Ratio of time when it changes from - 30 → 20 = 3 : 2
Therefore, ratio of speed should be 2 : 3
2 → 54 km/h

Pinnacle

Then, 3 → 81 km/h

36.Sol . (b)

Speed of car, S = $\frac{150}{5}$ = 30 km/h

S' = $\frac{S}{3}$ = 10 km/h

Time to cover 150 km = $\frac{150}{10}$ = 15 hr

Required time difference = 15 - 5 = 10 hour

37.Sol: (c)

Let the distance = 2D

$\frac{D}{30} + \frac{D}{20} = 5$

$\frac{2D+3D}{60} = 5$

D = 60 km

Therefore, Distance = 2 × 60 = 120 km

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38.Sol: (b)

Total speed = 117km/h

Speed in (m/s) = $117 \times \frac{5}{18}$

Time =18 sec

Distance covered = speed × time

=585m

Length of second train = 585-287 = 298m

39.Sol:(a)

Speed of A and B = 6 : 5

Speed and time ratio after meeting

$\frac{T_1^2}{T_2^2} = \frac{S_2}{S_1}$

$S_1 = \frac{25}{36} \times \frac{36}{5} = 5$

40.Sol:(a)

Speed of B = x

Time taken by B = $\frac{40}{x}$

Time taken by A = $\frac{40}{x} + 2$

Speed of A = $\frac{40}{\frac{40}{x}+2}$

Double speed of A = $\frac{80}{\frac{40}{x}+2} = \frac{80x}{40+2x}$

Time taken by A = $\frac{80}{\frac{80x}{40+2x}}$

According to que

$\frac{80}{\frac{80x}{40+2x}} = \frac{80}{x} + 1.5$

$\frac{3200+160x}{80x} = \frac{80+1.5x}{x}$

On solving the above eq we get x = 80

Time taken to travel 90 km= $\frac{90}{80} = 1\frac{1}{8}$

41.Sol:(c)

$\frac{4}{5}$ of the distance = 128km

$\frac{2}{3}$ of the time = 10 hours

Remaining distance = 32km

Remaining time = 5 km

Speed required = $\frac{32}{5}$ = 6.4

42.Sol:(d)

Speed of train in (m/s)= $36 \times \frac{5}{18} = 10$

Length of train = 25 × 10 = 250 m

Total distance to cover 350m long bridge = 250m + 350m = 600m

To cover 600m = $\frac{600}{10} = 60sec$

43.Sol:(d)

Ratio of both speed = 7 : 9

Ratio of Time required to travel equal distance in both case = 9 : 7

Difference in time =9x-7x=2x= 16min

x= 8

Actual time at 3.5 km/hr speed = 9 × 8 =72 min = $\frac{72}{60} hr$

Total distance = $\frac{72}{60} \times 3.5 = 4.2km$

44.Sol:(b)

time of A and B = $\frac{49}{9}$: 9

Speed and time ratio after meeting

$\frac{T_1^2}{T_2^2} = \frac{S_2}{S_1}$

$T_2^2 = \frac{7}{3} \times \frac{33}{3} = \frac{77}{3} = 25\frac{2}{3}$

45.Sol:(a)

Average speed of boy= $\frac{2\times32\times24}{(32+24)} = \frac{2\times32\times24}{56} = \frac{8\times24}{7}$

Total time taken by boy=1 hours 25 minutes

Net time = 1 hours 10 minutes= $\frac{7}{6}$

Total distance = $\frac{8\times24}{7} \times \frac{7}{6}$ =32km

46.Sol:(d)

Speed = $\frac{800}{96} \times \frac{18}{5}$ = 30km/h

47.Sol:(b)

Let time by foot = x

Time by bicycle = 5-x

According to the question

6x + 10(5 - x) = 42

x=2

Distance travelled by foot = 6 × 2 = 12

48.Sol:(b)

To walk 6 km he will stop 5 times = 20min

To travel 6km time = $\frac{6}{8} \times 60 = 45$

Total time = 65min

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49.Sol:(b)

Speed of train of X=74km/h

Speed of train of Y= 52km/h

Relative speed= 74+52=126km/h=126 × (5 ÷ 18)=35m/sec

Time=12s

Total distance travelled= 35 × 12=420metres

Let length of x be 3a

Then length of y= 2a

Total length = 5a

I.e 5a=420metres

So a=84metre

Then length of x= 3a i.e 252 metres

Sol:50.(d)

For the same distance

Ratio of speed is opposite to the ratio of time taken

Ratio of time taken = 75 min : 45 min = 5 : 3

Then,

Ratio of speed = 3 : 5

51.Sol:.(a)

Let speed for going = x

Time for going = $\frac{300}{x}$

Speed for coming = x + 10

Time for coming = $\frac{300}{x}$ - 5

According to question

(x + 10) × ($\frac{300}{x}$ - 5) = 300

$300 - 5x + \frac{3000}{x} - 50 = 300$

$3000 = 5x^2 + 50$

$X^2 + 10x - 600 = 0$

$(x + 30)(x - 20) = 0$

x = 20, as speed cannot be negative

Speed for coming = 30

Average speed = $\frac{2ab}{a+b} = \frac{2\times20\times30}{50}$

= 24

52.Sol:.(a)

Let speed for going = x

Time for going = $\frac{300}{x}$

Speed for coming = x + 10

Time for coming = $\frac{300}{x} - 5$

According to question

$(x + 10) \times (\frac{300}{x} - 5) = 300$

$300 - 5x + \frac{3000}{x} - 50 = 300$

$3000 = 5x^2 + 50$

$X^2 + 10x - 600 = 0$

$(x + 30)(x - 20) = 0$

x = 20, as speed cannot be negative

53.Sol:(d)

Let the length of the train be L metres

According to the question $30 \times X \times \frac{5}{18} = 300 + L$

In second case both train and man is travelling in the same direction so relative speed = X-6 Km/hr

So $(X-6) \times \frac{5}{18} \times 20 = L$ (distance= Speed × Time)

Solving the above two equations we get X=96km/hr

54.Sol:(a)

Speed of train A=74Km/hr

Speed of train B=52Km/hr

Relative speed of A and B = 126 Km/hr= $126 \times \frac{5}{18}$ = 35 m/sec

Total time taken= 12 secs

Total distance travelled= 35 × 12= 420 metres.

Let length of X = 3t

Length of Y= 2t

Total length= 5t=420

t=84 metres

So length of Y = 168 metres

55.Sol:(d)

Let the speed of a be A km/hr

And speed of B is B km/hr

From the question $\frac{40}{A} - \frac{40}{B} = 2.5$

And $\frac{40}{2A} + 1 = \frac{40}{B}$

Solving both the above equations we get A= $\frac{40}{7}$ km/hr

B= $\frac{80}{9}$ km/hr

Average time taken by A and B to cover a distance of 40kms is $\frac{distance}{Average\ speed}$

Since distance is constant in both the cases to we can directly apply the formula Avg speed= $\frac{2ab}{a+b}$

Average speed = $\frac{160}{23}$ . .

= $\frac{23}{4}$

= $5\frac{3}{4}$

= 5 hours 45 minutes.

Sol: 56.(a)

Let the speed of train = x

Time taken = $\frac{400}{x}$

When speed increases

Speed = x + 10

Time = $\frac{400}{x} - 2$

$400 = (x + 10)(\frac{400}{x} - 2)$

$400 = 400 - 2x + \frac{4000}{x} - 20$

$2x^2 + 20x = 4000$

$2x^2 + 20x - 4000 = 0$

$x^2 + 10x - 2000 = 0$

x = 40 or -50

Speed cant be negative

So , x = 40km/hr

Time = $\frac{400}{40}$ = 10 h

Pinnacle

BOAT & STREAM / नाव और धारा

Important Terms/ महत्पूर्ण बातें:

1). Still Water Speed: Speed of a thing in water which is not flowing. / रुके हुए पानी में किसी वस्तु के चलने की गति|

2). Speed of Current: The speed at which water is flowing./ पानी के बहाव की गति|

3). Downstream speed: Speed of a thing, moving in the same direction as that of the current./ बहाव के साथ चलने में किसी वस्तु की गति

Downstream speed

= Still water speed + Speed of current

4). Upstream Speed: Speed of a thing, moving in opposite direction as that of the current. / बहाव के विरुद्ध किसी चीज़ के चलने की गति|

Upstream speed

= Still water speed – Speed of current

Let's take an example:

A man can swim at 20 km/h in still water. He is swimming in a river flowing at 10 km/h.

एक व्यक्ति रुके हुए पानी में 20 km/h की गति से तैर सकता है| वह की गति से बहने वाली एक नदी में तैर रहा है|

Here, Speed of current is = 10 km/h

If the man swims downstream i.e. with the flow of the river (बहाव के साथ), his speed = 20 + 10 = 30 km/h

If the man swims upstream i.e. against the flow of the river (बहाव के विरुद्ध), his speed = 20 – 10 = 10 km/h

Remember/याद रखें:

1). *Still water speed*

$= \frac{Downstream\ speed + Upstream\ Speed}{2}$

2). Speed of the current

$= \frac{Downstream\ speed - Upstream\ Speed}{2}$

Let's verify in the given example:

Still water speed of the man = $\frac{30+10}{2} = \frac{40}{2} = 20\ km/h$

Speed of the current $= \frac{30-10}{2} = \frac{20}{2} = 10\ km/h$

Note: Changing km/h to m/s

$\frac{km}{h} = \frac{1000\ m}{3600\ s} = \frac{5}{18}\ \frac{m}{s}$

$\therefore$ To change km/h to m/s, multiply it by $\frac{5}{18}$.

To change m/s to km/hr, multiply it by $\frac{18}{5}$.

Q1. A boat can cover a distance of 7.2 km downstream and 3.2 km upstream in 2 hours. It can also cover 1.5 km downstream and 0.6 km upstream in 24 minutes. What is the speed of the boat when going downstream (in km/h) ? / एक नाव धारा के अनुकूल 7.2 किमी और धारा के विपरीत 3.2 किमी की दूरी 2 घंटे में तय कर सकती है | यह धारा के अनुकूल 1.5 किमी और धारा के विपरीत 0.6 किमी की दूरी भी 24 मिनट में तय कर सकती है | धारा के अनुकूल नाव की चाल कितनी (किमी/घंटा में) है ?

SSC CGL 7 June 2019 (Morning)

(a) 6
(b) 4.5
(c) 5
(d) 7.5

Q2. A person can row a distance of 4 km upstream in 1 hour 20 minutes and can row back to the starting point in just 24 minutes. How much time (in hours) will he take to row 13 km in still water? / एक व्यक्ति धारा के विपरीत 4 किमी की दूरी 1 घंटा 20 मिनट में तय कर सकता है और अपने आरंभिक बिंदु तक केवल 24 मिनट में वापस पहुँच सकता है | स्थिर जल में 13 किमी की दूरी तय करने में उसे कितना वक्त (घंटे में) लगेगा ?

SSC CGL 7 June 2019 (Afternoon)

(a) 2
(b) 3.5
(c) 3
(d) 2.5

Q3. A boat can go 30 km downstream and 24 km upstream in 2 hours 27 minutes. Also, it can go 10 km downstream and 4 km upstream in 37 minutes. What is the speed of the boat upstream (in km/h)?

एक नाव 2 घंटे 27 मिनट में धारा के अनुकूल 30 किमी तथा धारा के प्रतिकूल 24 किमी जा सकती है| साथ ही, यह 37 मिनट में 10 किमी धारा के अनुकूल तथा 4 किमी धारा के प्रतिकूल जा सकती है| धारा के प्रतिकूल नाव की चाल (किमी/घंटा में) क्या है ?

SSC CPO 12 March 2019 (Evening)

[a] 24
(b) 18
(c) 22
(d) 20

Q4. A boat can go 10 km downstream and 8 km upstream in 49 minutes. Also it can go 12 km downstream and 4 km upstream in 42 minutes. What is the speed of stream in km/h?

एक नाव 49 मिनट में 10 किमी धारा के अनुकूल और 8 किमी धारा के प्रतिकूल जा सकती है | साथ ही, यह 42 मिनट में 12 किमी धारा के अनुकूल और 4 किमी धारा के प्रतिकूल जा सकती है | धारा की चाल (किमी/घंटा में) ज्ञात करें |

SSC CPO 13 March 2019 (Evening)

(a)1.5
(b)1
(c)2
(d)2.5

Q5. A boat can go 30 km downstream and 24 km upstream in 2 hours 27 minutes.Also, it can go 20km downstream and 8 km upstream in 74 minutes. What is

the speed of the boat in still water in km/h?
एक नाव 2 घंटे 27 मिनट में 30 किमी धारा के अनुकूल और 24 किमी धारा के प्रतिकूल जा सकती है | साथ ही, यह 74 मिनट में 20 किमी धारा के अनुकूल और 8 किमी धारा के प्रतिकूल जा सकती है | स्थिर जल में नाव की चाल (किमी/घंटा में) ज्ञात करें |
SSC CPO 12 March 2019 (Morning)
(a)18
(b)20
(c)24
(d)22

Q6.A boat can go 20 km downstream and 30 km upstream in 2 hours 20 minutes. Also, it can go 10 km downstream and 8 km upstream in 49 minutes. What is the speed of boat downstream in km/h?
एक नाव 2 घंटे 20 मिनट में 20 किमी धारा के अनुकूल और 30 किमी धारा के प्रतिकूल जा सकती है | साथ ही, यह 49 मिनट में 10 किमी धारा के अनुकूल और 8 किमी धारा के प्रतिकूल जा सकती है | धारा के अनुकूल नाव की चाल (किमी/घंटा में) ज्ञात करें |
SSC CPO 13 March 2019 (Morning)
(a)18
(b)20
(c)16
(d)24

Q7. The speed of a boat in still water is 6 km/h. If it takes four times more time to go against the current than to go in the direction of the current, what will be the speed of the current ? / शांत जल में एक नाव की गति 6 km /h है | यदि इसे धारा की दिशा में जाने की तुलना में धारा के विपरीत जाने में चार गुना अधिक समय लगता है तो धारा की गति क्या होगी ?
SSC CPO 14 March 2019 (Evening)
(a) 2.5 km/h
(b) 5 km/h
(c) 4.2 km/h
(d) 3.6 km/h

SSC MTS

Q8. The speed of a boat in still water is 8 km/h. If the speed of current is 2 km/h, then what distance this boat will cover in 2 hours going upstream ?
शांत जल में एक नाव की गति 8 km/h है | यदि धारा की गति 2 km/h है, तो धारा के प्रतिकूल जाते हुए 2 घंटे में नाव कितनी दूरी तय करेगी ?
SSC MTS 2 August 2019 (Afternoon)
(a) 16 km
(b) 14 km
(c) 20 km
(d) 12 km

Q9. A boat can travel 60 km in 3 hours while going downstream. It can travel 90 km in 5 hours while going upstream. What is the ratio of the speed of boat in still water to the speed of the stream?
एक नाव धारा के अनुकूल 3 घंटे में 60 किमी जा सकती है | यह धारा के प्रतिकूल 5 घंटों में 90 किमी की दूरी तय कर सकती है | स्थिर जल में नाव की चाल तथा धारा की चाल में क्या अनुपात है ?
SSC MTS 2 August 2019 (Evening)
(a) 6 : 1
(b) 4 : 1
(c) 19 : 1
(d) 10 : 9

Q10. The downstream speed of a boat is 14 km/h. The upstream speed of this boat is 10 km/h. In what time it can cover a distance of 72 km in still water ? / नाव की अनुप्रवाह (डाउनस्ट्रीम) गति 14 km/h है | नाव की ऊध्वप्रवाह (अपस्ट्रीम) गति 10km/h है वह नाव शांत जल में 72 km की दूरी कितने समय में तय कर सकती है ? **SSC MTS 6 August 2019 (Morning)**
(a) 8 Hours / घंटे
(b) 6 Hours / घंटे
(c) 4 Hours / घंटे
(d) 12 Hours / घंटे

Q11. A boat covers 64 km upstream in 8 hours and 120 km downstream in 12 hours. What is the speed (in m/s) of the boat in still water?
एक नाव धारा के प्रतिकूल 8 घंटे में 64 किमी तथा धारा के अनुकूल 12 घंटे में 120 किमी की दूरी तय कर सकती है | स्थिर जल में नाव की चाल (मीटर/सेकंड में) क्या होगी ?
SSC MTS 7 August 2019 (Morning)
(a) 2.5
(b) 2
(c) 3.5
(d) 3

Q12. The speed of a boat in still water is 30 km/hr. If the boat covers 60 km downstream in 1 hour 30 minutes, then what is the time taken by the boat to cover 60 km upstream?
स्थिर जल में किसी नाव की चाल 30 किमी/घंटा है | यदि यह नाव धारा के अनुकूल 60 किमी की दूरी 1 घंटे 30 मिनट में तय करती है, तो धारा के विपरीत 60 किमी की दूरी तय करने में इसे कितना समय लगेगा ?
SSC MTS 7 August 2019 (Evening)
(a)3 hours
(b)5 hours
(c)4 hours
(d)1 hour

Q13. The speed of a boat in still water is 6 km/h. Time taken by the boat to cover a certain distance upstream is 3 hours more than the time taken to cover the same distance downstream. If the

speed of the stream is 2 km/h, then what is the total distance, upstream and downstream, covered by the boat?
स्थिर जल में किसी नाव की चाल 6 किमी/घंटा है | धारा के विपरीत किसी निश्चित दूरी को तय करने में नाव को लगने वाला समय धारा के अनुकूल इसी दूरी को तय करने में लगने वाले समय से 3 घंटा अधिक है | यदि धारा की चाल 2 किमी/घंटा है, तो नाव के द्वारा धारा के विपरीत तथा धारा के अनुकूल तय की गयी कुल दूरी ज्ञात करें |
SSC MTS 8 August 2019 (Morning)
(a) 72 km
(b) 24 km
(c) 48 km
(d) 36 km

Q14. If the speed of the stream is 20% of the speed of boat in still water and it covers 120 km upstream in 150 minutes, then what is the downstream speed of the boat?
यदि धारा की चाल स्थिर जल में नाव की चाल का 20% है और यह धारा के प्रतिकूल 120 किमी की दूरी 150 मिनट में तय करती है, तो नाव की धारा के अनुकूल चाल ज्ञात करें |
SSC MTS 9 August 2019 (Afternoon)
(a)75 km/hr
(b)72 km/hr
(c)80 km/hr
(d)64 km/hr

Q15. A boat takes 80 minutes to 12 km upstream and 60 minutes to row 15 km downstream. How long will it take to row a distance of 36 km in still water?
किसी नाव को धारा के प्रतिकूल 12 किमी जाने में 80 मिनट लगते हैं तथा धारा के अनुकूल 15 किमी जाने में 60 मिनट लगते हैं | स्थिर जल में इसे 36 किमी की दूरी तय करने में कितना समय लगेगा ?
SSC MTS 13 August 2019 (Afternoon)
(a) 2 hours
(b) 3 hours
(c) 4 hours
(d) 2.5 hours

Q16. In one hour, a man rows his canoe against the stream at 11 km/h and along the stream at 23 km/h. What is the speed (in km/h) of stream?
एक घंटे में, कोई व्यक्ति अपनी डोंगी धारा के प्रतिकूल 11 किमी/घंटा की चाल से तथा धारा के अनुकूल 23 किमी/घंटा की चाल से चलाता है | धारा की चाल (किमी/घंटा में) कितनी है ?
SSC MTS 14 August 2019 (Evening)
(a) 6
(b) 5
(c) 17
(d) 16

Q17. A man can row a boat in still water at a speed of 5 m/s. He covers a stretch of 200 m in a river downstream during high and low tides in 10 s and 25 s respectively. What is the ratio of the speed (in m/s) of the water flowing in the river during high and low tides?
एक व्यक्ति अपनी नाव स्थिर जल में 5 मी/सेकंड की चाल से चलाता है | वह धारा के अनुकूल उच्च और निम्न ज्वार में नदी में 200 मी का एक पड़ाव क्रमशः 10 सेकंड और 25 सेकंड में पार करता है | उच्च तथा निम्न ज्वार के दौरान नदी में बहने वाले पानी की चाल (मीटर/सेकंड) में अनुपात ज्ञात करें |
SSC MTS 16 August 2019 (Morning)
(a) 5 : 3
(b) 5 : 1
(c) 3 : 2
(d) 4 : 3

Q18. A boat goes at 20 km/h up stream and at 30 km/h down the stream. What is the speed of this boat in still water ?
कोई नाव 20 km/h की गति से उध्वप्रवाह (अपस्ट्रीम) और 30 km/h की गति से अनुप्रवाह (डाउनस्ट्रीम) चलती है | स्थिर जल (स्टिल वाटर) में नाव की गति कितनी है ?
SSC MTS 16 August 2019 (Evening)
(a) 26 km/h
(b) 24 km/h
(c) 25 km/h
(d) 22.50 km/h

Q19. A boat can go 10 km upstream and 20 km downstream in 7 hours. It can go 20 km upstream and 10 km downstream in 11 hours. What is the speed of this boat in still water ?
एक नाव 7 घंटे में 10 km. उध्वप्रवाह (अपस्ट्रीम) तथा 20 km. अनुप्रवाह (डाउनस्ट्रीम) चल सकती है | वह 11 घंटे में 20 km. उध्वप्रवाह (अपस्ट्रीम) तथा 10 km. अनुप्रवाह (डाउनस्ट्रीम) चल सकती है | स्थिर जल में नाव की गति कितनी है ?
SSC MTS 19 August 2019 (Afternoon)
(a) 2 km/h
(b) 8 km/h
(c) 6 km/h
(d) 4 km/h

Q20. A boat takes 45 minutes to go 3 km upstream and $4\frac{1}{2}$ km downstream while it covers a distance of 3.6 km upstream and 2.4 km downstream in 39 minutes. The speed (km/h) of this boat in downstream is :
एक नाव को 3 km उध्वप्रवाह (upstream) और $4\frac{1}{2}$ अनुप्रवाह (downstream) दूरी तय करने में 45 मिनट लगते हैं, जबकि वह 3.6 km

उध्वप्रवाह (upstream) और 2.4 km अनुप्रवाह (downstream) दूरी 39 मिनट में तय कर लेती है | नाव की अनुप्रवाह (downstream) चलने की गति (km/h में) है:

SSC MTS 20 August 2019 (Morning)

(a) 12
(b) 16
(c) 9
(d) 10

Q21. The speed of a boat in still water is 15 km/h. The speed of the current is 3 km/h. In how much time (in hours) will the boat travel a distance of 54 km upstream and the same distance downstream?
स्थिर जल में किसी नाव की चाल 15 किमी/घंटा है | धारा की चाल 3 किमी/घंटा है | यह नाव धारा के प्रतिकूल 54 किमी तथा धारा के अनुकूल इतनी ही दूरी कितने समय (घंटे में) में तय करेगी ?

SSC MTS 22 August 2019 (Afternoon)

(a) $7\frac{1}{2}$
(b) 7
(c) 6
(d) $6\frac{1}{2}$

Q22. A boat goes a distance of 4 km upstream in 2 hours and the same distance downstream in 20 minutes. How long will it take to go $10\frac{1}{2}$ km in still water?
एक नाव 2 घंटे में 4 किमी धारा के प्रतिकूल जाती है और धारा के अनुकूल इतनी ही दूरी 20 मिनट में तय करती है | स्थिर जल में $10\frac{1}{2}$ किमी तक जाने में इसे कितना समय लगेगा ?

SSC MTS 22 August 2019 (Evening)

(a) $1\frac{1}{2}$ hours
(b) 48 minutes
(c) $1\frac{1}{4}$ hours
(d) 1 hour

SSC CGL TIER II

Q1. Abhi rows upstream a distance of 28 km in 4 hours and rows downstream a distance of 50 km in 2 hours. To row a distance of 44.8 km in still water, he will take : / अभि धारा के प्रतिकूल 28 किमी 4 घंटे में जाता है तथा धारा के अनुकूल 50 किमी 2 घंटे में तय करता है | स्थिर जल में 44.8 किमी की दूरी तय करने में, उसे कितना समय लगेगा ?

SSC CGL TIER II (11 September 2019)

(a) 2.8 hours
(b) 3.2 hours
(c) 2.4 hours
(d) 2.2 hours

Q2. The speed of boat in still water is 18 km/h and the speed of the current is 6 km/h. In how much time (in hours) will the boat travel a distance of 90 km upstream and the same distance downstream ? / स्थिर जल में एक नाव की चाल 18 किमी/घंटा है तथा धारा की चाल 6 किमी/घंटा है | यह नाव धारा के प्रतिकूल 90 किमी तथा इतनी ही दूरी धारा के अनुकूल कितने समय (घंटा में) में तय करेगी ?

SSC CGL TIER II (12 September 2019)

(a) $9\frac{1}{2}$
(b) $11\frac{1}{4}$
(c) 12
(d) 10

Q 3. A man can row a distance of 900 meters against the stream in 12 minutes and returns to the starting point in 9 minutes. What is the speed (in km/h) of the man in still water ? / एक व्यक्ति धारा के विपरीत 900 मीटर की दूरी नाव से 12 मिनट में तय करता है तथा आरंभिक बिंदु पर 9 मिनट में पहुँचता है | स्थिर जल में व्यक्ति की चाल (किमी/घंटा में) कितनी होगी ?

SSC CGL TIER II (13 September 2019)

(a) $4\frac{1}{2}$
(b) 6
(c) $5\frac{1}{4}$
(d) 5

SSC CGL 2019 TIER I

Q1. A boat can go 3 km upstream and 5 km downstream in 55 minutes. It can also go 4 km upstream and 9 km downstream in 1 hour 25 minutes. In how much time (in hours) will it go 43.2 km downstream? / एक नाव 55 मिनट में 3 किमी धारा के प्रतिकूल तथा 5 किमी धारा के अनुकूल जा सकती है | यह 1 घंटे 25 मिनट में 4 किमी धारा के प्रतिकूल तथा 9 किमी धारा के अनुकूल जा सकती है | धारा के अनुकूल 43.2 किमी जाने में इसे कितना समय (घंटे में) लगेगा ? **SSC CGL 4 March 2020 (Morning)**

(a) 4.8
(b) 5.4
(c) 3.6
(d) 4.4

Q2. The time taken by a boat to travel 13 km downstream is the same as time taken by it to travel 7km upstream. If the speed of the stream is 3km/h, then how much time(in hours) will it take to travel a distance of 44.8 km in still water? / धारा के अनुकूल 13 किमी की दूरी तय करने में एक नाव को लगने वाला समय धारा के प्रतिकूल 7 किमी की दूरी तय करने में इसे लगने वाले समय के बराबर है | यदि धारा की चाल 3 किमी/घंटा है, तो स्थिर जल में इसे 44.8 किमी की दूरी तय करने में कितना समय (घंटे में) लगेगा ?

SSC CGL 4 March 2020 (Afternoon)

(a) $4\frac{12}{25}$

(b) $5\frac{3}{5}$
(c) $5\frac{2}{5}$
(d) $4\frac{13}{25}$

Q3. A boat can go 3.6 km upstream and 5.4 km downstream in 54 minutes, while it can go 5.4 km upstream and 3.6 km downstream in 58.5 minutes. The time (in minutes) taken by the boat in going 10 km downstream is:
एक नाव 54 मिनट में धारा के प्रतिकूल 3.6 किमी तथा धारा के अनुकूल 5.4 किमी जा सकती है | जबकि यह 58.5 मिनट में धारा के प्रतिकूल 5.4 किमी तथा धारा के अनुकूल 3.6 किमी जा सकती है | धारा के अनुकूल 10 किमी जाने में नाव को कितना समय लगेगा ?
SSC CGL 5 March 2020 (Afternoon)

(a) 48
(b) 54
(c) 50
(d) 45

Q4. In a stream running at 3 km/h, a motorboat goes 12 km upstream and back to the starting point in 60 min. Find the speed of the motorboat in still water. (in km/h) / एक मोटरबोट 12 किमी धारा की दिशा में जाती है और 60 मिनट में शुरुआती बिंदु पर वापस आती है। यदि धारा की गति 3 किमी / घंटा है, शांत जल में मोटरबोट की गति का पता लगाएं। (किमी / घंटा में)
SSC CGL 7 March 2020 (Evening)

(a) $2(2+\sqrt{17})$
(b) $3(4+\sqrt{17})$
(c) $2(4+\sqrt{15})$
(d) $3(2+\sqrt{17})$

SSC CHSL 2019

Q1. A boat covered a distance of 15 km upstream in 5 hours and a distance of 42 km downstream in 6 hours. The speed of the stream in km/h is:
एक नाव धारा के विपरीत 15 किमी की दूरी 5 घंटे में और धारा के साथ 42 किमी, 6 घंटे में दुरी तय किया। किमी / घंटा में धारा की गति है:
CHSL 14-10-2020 (Morning shift)
(a) 3
(b) 2
(c) 2.5
(d) 1.5

Q.2. A motorboat goes 24 km in 2 hour along the stream and 10 km in 1 hour against the stream. The speed of the motorboat in Kilometers per hour, is:
एक मोटरबोट धारा के साथ 2 घंटे में 24 किमी और धारा के खिलाफ 1 घंटे में 10 किमी जाती है। प्रति घंटे किलोमीटर में मोटरबोट की गति है:
CHSL 19-03-2020 (Morning shift)
(a) 14
(b) 10
(c) 11
(d) 12

SSC CGL 2019 TIER-II

Q3. A boat can go 5km upstream and $7\frac{1}{2}$ km downstream in 45 minutes. It can also go 5km downstream and 2.5km upstream in 25minutes. How much time (in minutes) will it take to go 6 km upstream ?
एक नाव 5 किमी ऊर्ध्वप्रवाह और $7\frac{1}{2}$ किमी अनुप्रवाह 45 मिनट में जा सकती है। वह 25 मिनट में 5 किमी अनुप्रवाह और 2.5 किमी ऊर्ध्वप्रवाह पर भी जा सकती है। 6 किमी ऊर्ध्वप्रवाह जाने में कितना समय (मिनटों में) लगेगा ?
CGL 2019 Tier-II (18-11-2020)
(a) 30
(b) 24
(c) 36
(d) 32

SSC CPO 2019

Q4. The speed of a boat in still water is 15 km/h, and the speed of the current is 5 km/h, in how much time (in hours) will the boat travel a distance of 60 km upstream and the same distance downstream?
स्थिर नदी में एक नाव की चाल 15 km/h और धारा की चाल 5 km/h है। नाव 60 किलोमीटर की दुरी धारा के साथ और उतनी ही दुरी धारा के विपरीत कितने समय (घंटे में) में तय करेगी
CPO 25-11-2020 (Evening shift)
(a) 12
(b) 9
(c) 10
(d) 20

Sol 1. (a)
Upstream speed = u km/h
Downstream speed = d km/h
According to the question
$\frac{7.2}{d}+\frac{3.2}{u}=2$ ……..(1)
And
$\frac{1.5}{d}+\frac{0.6}{u}=\frac{24}{60}=\frac{2}{5}$ ……..(2)
Multiply equation (1) by 5 and eq (2) by 2.4 and subtract eq (2) from (1)
$\left(\frac{36}{d}+\frac{16}{u}\right)-\left(\frac{36}{d}+\frac{14.4}{u}\right)=10-\frac{48}{5}$
$\Rightarrow \frac{1.6}{u}=\frac{2}{5}$
$\Rightarrow u = 4$ km/h
Put this value in either of the example
For example
$\frac{7.2}{d}+\frac{3.2}{u}=2 \Rightarrow \frac{7.2}{d}+\frac{3.2}{4}=2$
$\Rightarrow d = 6$ km/h

Sol 2. (a)
Let the speed of boat = b km/h
And speed of stream = s km/h
Upstream speed (b-s) = $\frac{4}{4/3}=3$ km/h ……(1)

Downstream speed (b+s) = $\frac{4}{24/60}$ = 10 km/h .....(2)
Add (1) and (2)
(b-s)+(b+s) = 3+10
2b = 13
⇒ b = 6.5 km/h
Time taken to travel the distance = $\frac{13}{6.5}$ = 2 h

Sol 3. (d) Let the speed of boat upstream be a and downstream be b.
Therefore,
ATQ:
$\frac{30}{b} + \frac{24}{a} = 2\frac{27}{60} = \frac{49}{20}$ .....(1)
And, $\frac{10}{b} + \frac{4}{a} = \frac{37}{60}$ .....(2)
Multiply eq. (ii) by 3 and subtract from eq. (i)
We get, $\frac{12}{a} = \frac{12}{20}$
Therefore, a = 20 km/h (speed of the boat upstream)

Sol 4.(c) Let the speed of boat upstream be a and downstream be b.
Therefore, ATQ: $\frac{10}{a} + \frac{8}{b} = \frac{49}{60}$ ---- (i) $\frac{12}{a} + \frac{4}{b} = \frac{42}{60}$ ---- (ii)
Subtract (i) from (ii)x2, we get
a=24 and b=20
Therefore, Speed of stream = $\frac{24-20}{2} = 2km/h$

Sol 5. (d) Let the speed of boat upstream be u and downstream be d.
ATQ: $\frac{30}{d} + \frac{24}{u} = \frac{49}{20}$ ----- (i)
$\frac{20}{d} + \frac{8}{u} = \frac{37}{30}$ ----- (ii)
Now, Subtract (i) from {3 x (ii)} , we get, d=24
Again, putting the value of d in eq. (ii), we get, u = 20
Therefore, Speed of boat in still water = $\frac{20+24}{2} = 22km/h$

Sol 6.(d) Let the speed of the boat upstream and downstream be u and d respectively.
ATQ: $\frac{20}{d} + \frac{30}{u} = \frac{140}{60}$ ---- (i)
$\frac{10}{d} + \frac{8}{u} = \frac{49}{60}$ ---- (ii)
Now, Subtract (i) from 2x(ii), we get u=20
Putting the value of u=20 in eq. (ii), we get d=24 km/h

Sol 7. (d) Let the speed of stream be a.
Given, Upstream : Downstream
Time= 4 : 1
Speed= 1 : 4
So, $\frac{6-a}{6+a} = \frac{1}{4}$
⇒ $a = 3.6\ km/h$

Sol 8. (d)
Speed of the boat = 8 km/h
Speed of the current = 2 km/h
Speed of the boat against the current = 8-2 = 6 km/h
Required distance = 6 x 2 = 12 km

Sol 9. (c)
Downstream speed of the boat = $\frac{60}{3}$ = 20 km/h
Upstream speed of the boat = $\frac{90}{5}$ = 18 km/h
Speed of the boat in still water = $\frac{20+18}{2}$ = 19 km/h
Speed of the current = $\frac{20-18}{2}$ = 1 km/h
Desired ratio = 19 : 1

Sol 10. (b)
Downstream speed of the boat= 14 km/h
Upstream speed of the boat = 10 km/h
Speed of the boat in still water = $\frac{14+10}{2}$ = 12 km/h
Required time = $\frac{72}{12}$ = 6 hours

Sol 11. (a)
Downstream speed of the boat = $\frac{120}{12}$ = 10 km/h
Upstream speed of the boat = $\frac{64}{8}$ = 8 km/h
Speed of the boat in still water = $\frac{10+8}{2}$ = 9 km/h = 9 x $\frac{5}{18}$ = 2.5 m/s

Sol 12. (a)
Distance covered = 60 km
Time = 1 $\frac{1}{2}$ hours
Downstream speed = $\frac{60}{3/2}$ = 40 km/h
Speed of the current = 40-30 = 10 km/h
Upstream speed = 30-10 = 20 km/h
Required time = $\frac{60}{20}$ = 3 hours

Sol 13. (c)
The speed of a boat in still water = 6 km/h
the speed of the stream = 2 km/h
Downstream speed = 6+2 = 8 km/h
Upstream speed = 6-2 = 4 km/h
Let the time taken to cover the distance downstream = t hours.
According to the question
8 x t = 4 (t+3)
⇒ 4t = 12
⇒ t = 3 hours
One side distance = 8 x 3 = 4 x (3+3) = 24 km
Total distance covered = 24+24 = 48 km

Sol 14. (b)
20% = $\frac{1}{5}$
Let the speed of boat in still water = 5 unit
Speed of stream = 1 unit
Downstream speed = 5+1 = 6 unit
Upstream speed = 5-1 = 4 unit
Distance covered = 120 km
Time taken = 150 minutes or 2 $\frac{1}{2}$ hours
Upstream Speed = $\frac{120}{5/2}$ = 48 km/h
According to the question
4 unit = 48
1 unit = 12
6 unit = 12 x 6 = 72 km/h

Sol 15. (b)
Distance = 12 km
Time = 80 minutes or 1 $\frac{1}{3}$ hours

Pinnacle

Upstream speed = $\frac{12}{4/3}$ = 9 km/h

Downstream speed = $\frac{15}{1}$ = 15 km/h

Speed of boat in still water = $\frac{15+9}{2}$ = 12 km/h

Required time = $\frac{36}{12}$ = 3 hours

Sol 16. (a)

Upstream speed = 11 km/h

Downstream speed = 23 km/h

Speed of stream = $\frac{23-11}{2}$ = 6 km/h

Sol 17. (b)

Speed of boat in still water = 5 m/s

Distance = 200 m

Upstream speed in high tide = $\frac{200}{10}$ = 20 m/s

Downstream speed in low tide = $\frac{200}{25}$ = 8 m/s

Stream speed in high tide = 20-5 = 15 m/s

Stream speed in low tide = 8-5 = 3 m/s

Required ratio = 15 : 3

= 5 : 1

Sol 18. (c)

Upstream speed = 20 km/h

Downstream speed = 30 km/h

Speed of boat in still water = $\frac{30+20}{2}$ = 25 km/h

Sol 19. (c)

Let the upstream speed = u and downstream speed = d

According to the question

$\frac{10}{u} + \frac{20}{d} = 7$ .....(1)

$\frac{10}{d} + \frac{20}{u} = 11$ .....(2)

Let $\frac{1}{u}$ = x and $\frac{1}{d}$ = y

10x + 20y = 7 .....(3)

10y + 20x = 11 .....(4)

Multiply eq (3) by 2 and subtract eq (4) from it

20x + 40y = 14

10y + 20x = 11

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30y = 3

$\Rightarrow y = \frac{1}{10}$

Put the value y in eq (3)

$\Rightarrow x = \frac{1}{2}$

So, u = 2 and d = 10

Speed of the boat in still water = $\frac{10+2}{2}$ = 6 km/h

Sol 20. (a)

Let the upstream speed = u and downstream speed = d

According to the question

$\frac{3}{u} + \frac{4.5}{d} = \frac{45}{60}$ .....(1)

$\frac{2.4}{d} + \frac{3.6}{u} = \frac{39}{60}$ .....(2)

Let $\frac{1}{u}$ = x and $\frac{1}{d}$ = y

3x + 4.5y = $\frac{45}{60}$

2x + 3y = 0.5 .....(3)

2.4y + 3.6x = $\frac{39}{60}$

8y + 12x = 13/6 .....(4)

Multiply eq (3) by 6 and subtract eq (4) from it

12x + 18y = 3

8y + 12x = 13/6

\- _____

10y = 5/6

$\Rightarrow y = \frac{1}{12}$

Put the value y in eq (3)

$\Rightarrow x = \frac{1}{8}$

So, u = 8 km/h and d = 12 km/h

Sol 21. (a)

Downstream speed of boat = (15+3) = 18 km/h

Upstream speed of boat = (15-3) = 12 km/h

Required time = $\frac{54}{18} + \frac{54}{12}$ = $7\frac{1}{2}$ km/h

Sol 22. (a)

Upstream speed = $\frac{4}{2}$ = 2 km/h

Downstream speed = $\frac{4}{1/3}$ = 12 km/h

Speed of boat in still water = $\frac{12+2}{2}$ = 7 km/h

Required time = $\frac{21}{2\times7}$ = $1\frac{1}{2}$ hours

SSC CGL TIER II

Sol 1. (a)

Upstream speed of boat = $\frac{28}{4}$ = 7 km/h

Downstream speed of boat = $\frac{50}{2}$ = 25 km/h

Speed of boat in still water = $\frac{25+7}{2}$ = 16 km/h

Required time = $\frac{44.8}{16}$ = 2.8 hours

Sol 2. (b)

Upstream speed of boat = 18-6 = 12 km/h

Downstream speed of boat = 18+6 = 24 km/h

Required time = $\frac{90}{12} + \frac{90}{24}$ = $11\frac{1}{4}$ hours

Sol 3. (c)

Downstream speed = $\frac{900}{9\times60}$ = $\frac{5}{3}$ m/s

Upstream speed = $\frac{900}{12\times60}$ = $\frac{5}{4}$ m/s

Speed of man in still water = $\frac{\frac{5}{3}+\frac{5}{4}}{2}$

= $\frac{35}{24}$ m/s

= $\frac{35}{24} \times \frac{18}{5} = 5\frac{1}{4}$ km/h

SSC CGL 2019 TIER I

Sol 1. (c) Let speed of boat = x km/h and speed of stream = y km/h

$\frac{distance}{speed}$ = time

According to question:

$\frac{3}{x-y} + \frac{5}{x+y} = \frac{55}{60}$

$\frac{4}{x-y} + \frac{9}{x+y} = \frac{85}{60}$

x+y = 12 km/h

Time taken to 43.2 km downstream = $\frac{43.2}{12}$ = 3.6 hour

Sol 2. (a) distance = speed * time

Let speed of boat = a km/h

7 km = (a-3)* t

13 km = (a+3)* t

7*(a+3) = 13*(a-3)

6a = 60

a = 10 km/h

Time to travel 44.8 km in still water = 4.48 hour = $4\frac{48}{100} = 4\frac{12}{25}$ hours

Pinnacle

Sol 3. (c) Let speed of boat = x km/min
Speed of stream = y km/min
Speed upstream = (x-y) km/min
Speed downstream = (x+y) km/min
Time = $\frac{Distance}{speed}$
$54 = \frac{3.6}{x-y} + \frac{5.4}{x+y}$ … (i)
$58.5 = \frac{5.4}{x-y} + \frac{3.6}{x+y}$ … (ii)
Multiply (i) by 3 and (ii) by 2, and solve the equations.
We get:
$x = \frac{5}{30}$ km/min and $y = \frac{1}{30}$ km/min
For 10 km downstream; time taken = $\frac{10\times30}{6}$ = 50 min

Sol 4. (b) Speed of stream = 3 km/h
Let speed of boat = x km/h
$\frac{12}{x-3} + \frac{12}{x+3} = 1$
$\frac{12(x-3+x+3)}{x^2-9} = 1$
x^2-24x-9 = 0
$x = \frac{24\pm\sqrt{576+36}}{2} = \frac{24\pm\sqrt{612}}{2}$
$= \frac{24\pm\sqrt{36\times17}}{2} = \frac{24\pm6\sqrt{17}}{2} =$
$12 \pm 3\sqrt{17} = 3(4 \pm \sqrt{17})$

SSC CHSL 2019
1.Sol:(b)
x-y = $\frac{15}{5}$ = 3 km/h
x+y = $\frac{42}{6}$ = 7 km/h
on solving,
y = 2 km/h

2.Sol. (c)
Let the speed of motorboat = x km/h
Let the speed of stream = y km/h
When boat goes along the stream,
x + y = $\frac{24}{2}$ = 12 …. (i)
When boat goes against the stream, x - y = $\frac{10}{1}$ = 10 …. (ii)
Add (i) and (ii), we get :-
2x = 22
x = 11 km/h

SSC CGL 2019 TIER-II
3.Sol:(c)
$\frac{5}{a} + \frac{15}{2b} = \frac{3}{4}$
$\frac{5}{2a} + \frac{5}{b} = \frac{5}{12}$
Multiplying eq 2 by $\frac{3}{2}$ and then
Subtracting eq 1 from eq 2
a =10
Time for 6 km = $\frac{6}{10} \times 60 = 36$ minutes

SSC CPO 2019
Sol: 4.(b)
speed of a boat in still water = 15 km/h
speed of the current = 5 km/h
Downstream speed = 15 + 5 = 20km/h
Upstream speed = 15 - 5 = 10 km/h
Time for downstream = $\frac{60}{20}$ = 3hr
Time for upstream = $\frac{60}{10}$ = 6hr
Total time = 3 + 6 = 9hr

Pinnacle

MENSURATION / क्षेत्रमिति

2- D: Under 2 dimensions we will study/ द्वि-आयामी आकृतियों के अंतर्गत हम अध्ययन करेंगे :

- Triangles/ त्रिभुज
- Quadrilateral/ चतुर्भुज
- Polygons/ बहुभुज
- Circle/ वृत्त

3 - D: Under 3 dimensions we will study/ त्रि-आयामी आकृतियों के अंतर्गत हम अध्ययन करेंगे :

- Cube/घन
- Cuboids/ घनाभ
- Box/ बॉक्स
- Cylinder/ बेलन
- Prism/प्रिज्म
- Cone/ शंकु
- pyramid/ पिरामिड
- Frustum/ छिन्नक
- Sphere/गोला
- Hemisphere/ अर्धगोला
- Tetrahedral/ चतुष्फलक

Note: For 2D figures, area and perimeter are calculated and for 3D figures, volume and surface area are calculated.
2D आकृति के लिए, क्षेत्रफल और परिमाप की गणना की जाती है और 3D आकृति के लिए, आयतन और पृष्ठीय क्षेत्रफल की गणना की जाती है।

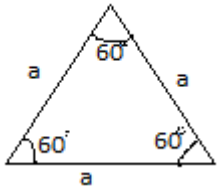
TWO DIMENSIONAL FIGURES/ द्वि-आयामी आकृतियाँ

TRIANGLE/ त्रिभुज :

For a triangle with height, h, and base, b/ किसी त्रिभुज जिसकी ऊंचाई, h है और आधार, b है;
Area / क्षेत्रफल = $\frac{1}{2}\times b\times h$ and Perimeter / परिमाप = Sum of all sides / सभी पक्षों का योग

Special cases:

1) Equilateral Triangle / समभुज त्रिभुज - All sides are equal and each angle is 60°. / सभी भुजा बराबर होगी और सभी कोण 60° के होंगे |

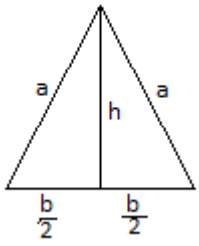


- Area / क्षेत्रफल = $\frac{\sqrt{3}}{4}a^2$
- Height / ऊंचाई = $\frac{\sqrt{3}}{2}a$
- Perimeter / परिमाप = $3a$

2) Scalene Triangle / विषमबाहु त्रिभुज – Sides are of unequal lengths. / सभी भुजाओं की लम्बाई असमान होंगी |

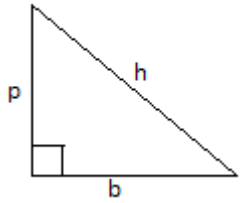
- Area / क्षेत्रफल = $\sqrt{s(s-a)(s-b)(s-c)}$,
  This formula is called Hero's formula.
  Where, Semi-perimeter, $s = \frac{a+b+c}{2}$
- Perimeter / परिमाप = $a+b+c$

3) Isosceles Triangle / समद्विबाहु त्रिभुज : Any two sides and two angles are equal. Altitude bisects the base. / कोई दो भुजा और दो कोण सामान होंगे | शीर्ष-लम्ब,आधार को समान भागो में बांटता है |



- Area / क्षेत्रफल = $\frac{b}{4}\sqrt{4a^2-b^2}$
- Height / ऊंचाई = $\sqrt{a^2-\left(\frac{b}{2}\right)^2}$
  $= \frac{1}{2}\sqrt{4a^2-b^2}$
- Perimeter / परिमाप = $a+a+b$
  $= 2a+b$

4) Right angled Triangle/समकोण त्रिभुज :- One of the angles is 90°.



Here, p = perpendicular/ लम्ब , b = base/ आधार and h = hypotenuse/ कर्ण

- Area / क्षेत्रफल= $\frac{1}{2}\times b\times p$
- Perimeter / परिमाप = $p+b+h$
- Pythagoras Theorem/ पाइथागोरस प्रमेय : $h^2 = p^2 + b^2$

Note: Common Pythagoras triplets:

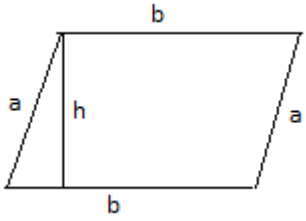
(1, 1, $\sqrt{2}$); (1, 2, $\sqrt{5}$); (3, 4, 5); (6, 8, 10); (9, 12, 15); (12, 16, 20); (5, 12, 13); (7, 24, 25); (7, 40, 41); (8, 15, 17) .
Try remembering them.

QUADRILATERAL/ चतुर्भुज

A figure enclosed by four sides is called a quadrilateral. A quadrilateral has four angles and sum of these angles is equal to 360°.
चार भुजाओं से बनी एक आकृति को चतुर्भुज कहा जाता है। एक चतुर्भुज में चार कोण होते हैं और इन कोणों का योग 360 डिग्री के बराबर होता है|

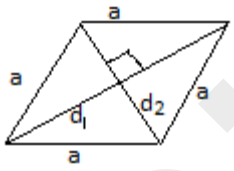
Special Cases:

1) Parallelogram/ समान्तर चतुर्भुज - It is a quadrilateral with opposite sides parallel and equal.
एक चतुर्भुज जिसकी विपरीत भुजाएं समानांतर और बराबर हो|



- Area / क्षेत्रफल = base x height = b x h
- Perimeter / परिमाप = 2 (a+ b)
- Opposite angles are equal in parallelogram but they are not right angles. / समांतर चतर्भुज में आमने सामने की भुजाये बराबर होती है परन्तु उनके बीच का कोण समकोण नहीं होता |

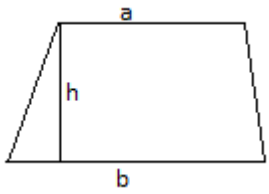
2) Rhombus / समचतुर्भुज - It is a parallelogram with all four sides equal. The opposite angles in a rhombus are equal./ यह एक समान्तर चतुर्भुज जिसकी चारो भुजाएं बराबर होती है | एक समचतुर्भुज में विपरीत कोण बराबर होते हैं।



Here, a = side; d_1 and d_2 are diagonals.

- Area / क्षेत्रफल= $\frac{1}{2} \times d_1 \times d_2$
- Side / भुजा (a) = $\frac{1}{2}\sqrt{{d_1}^2 + {d_2}^2}$
- Perimeter / परिमाप = 4a
- $4a^2 = {d_1}^2 + {d_2}^2$
- *Diagonals bisect each other at right angles and divide into two equal parts.* विकर्ण एक दूसरे को समकोण पर काटते है और दो समान भागो में बांटते है |

3) Trapezium/ समलम्ब चतुर्भुज – It is a quadrilateral with any one pair of opposite sides parallel. एक चतुर्भुज जिसकी विपरीत भुजाओं की एक जोड़ी सामानांतर हो|



Here, a and b are parallel sides and h is the height or perpendicular distance between a and b.

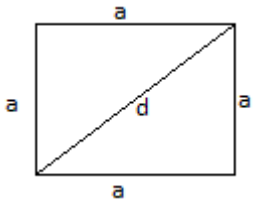
- Area = $\frac{1}{2} \times height \times (sum\ of\ parallel\ sides)$

  $= \frac{1}{2} \times (a+b) \times h$

4) Rectangle/ आयत – It is a parallelogram with equal opposite sides and each angle is 90°. एक समांतर चतुर्भुज जिसकी विपरीत भुजाएं बराबर हो और सभी कोण 90° हो.

- Area = Length × Breadth = L × B
- Perimeter = 2 (L + B)
- Diagonal (d) = $\sqrt{L^2 + B^2}$
- Area of the walls of a rectangular room = $2 \times (L+B) \times H$

5) Square/ वर्ग – It is a parallelogram with all four sides equal and each angle is equal to 90°. एक समांतर चतुर्भुज जिसकी भुजाएं बराबर हो और सभी कोण 90° हो.



- Area = $(side)^2 = a^2 = \frac{1}{2}d^2$
- Perimeter = 4 × side = 4a
- Diagonal (d) = a $\sqrt{2}$

NOTE: Important points about Quadrilaterals/चतुर्भुज के बारे में महत्वपूर्ण बिंदु

1. The diagonals of a parallelogram bisect each other. एक समान्तर चतुर्भुज के विकर्ण एक दूसरे को द्विविभाजित करते हैं|

2. Diagonal of a parallelogram divides it into two triangles of equal area. एक समान्तर चतुर्भुज का विकर्ण उसे बराबर छेत्रफल के दो त्रिभुज में विभाजित करता है|

3. The diagonals of a rectangle are of equal lengths and bisect each other. आयत के विकर्ण बराबर होते है और एक दूसरे को द्विविभाजित करते हैं|

4. The diagonals of a square are equal and bisect each other at right angles. वर्ग के विकर्ण बराबर होते है और एक दूसरे को 90° पे द्विविभाजित करते हैं|

5. A rhombus has equal diagonals and they bisect each other at right angles. समचतुर्भुज के विकर्ण बराबर होते है और एक दूसरे को 90° पे द्विविभाजित करते हैं|

6. A parallelogram and a rectangle have equal areas if they are on the same base and between the same parallel lines. एक समान्तर चतुर्भुज और आयत बराबर छेत्रफल के होंगे यदि वो एक ही आधार और सामानांतर रेखाओं के बीच बने हो|

REGULAR POLYGON / समबहुभुज

In a regular polygon all sides and all interior angles are equal. A polygon is called a pentagon, hexagon, octagon, nonagon and a decagon as they have 5, 6, 8, 9, 10 sides, respectively.

एक समबहुभुज में सभी पक्ष और सभी आंतरिक कोण बराबर होते है| एक बहुभुज को पंचभुज, षट्भुज, अष्टभुज, नौभुज तथा दसभुज कहा जा सकता है क्योंकि उनमें क्रमशः 5, 6, 8, 9, 10 भुजाएँ होती हैं ।

If each side of a regular polygon of 'n' sides is equal to 'a' then:

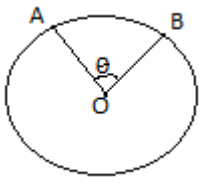
यदि n भुजाओं वाले एक सम बहुभुज की प्रत्येक भुजा a के बराबर है, तो :

- Area of regular pentagon/ सम पंचभुज का क्षेत्रफल = $5a^2\frac{\sqrt{3}}{4}$
- Area of regular hexagon/ सम षट्भुज का क्षेत्रफल = $6a^2\frac{\sqrt{3}}{4}$
- Each exterior angle/ प्रत्येक बाहरी कोण = $\frac{360°}{n}$
- Each interior angle/ प्रत्येक आंतरिक कोण = $180° -$ Exterior angle / बाहरी कोण
- Number of diagonals/ विकर्ण की संख्या = $\left\{\frac{n(n-1)}{2} - n\right\}$

CIRCLE/ वृत्त

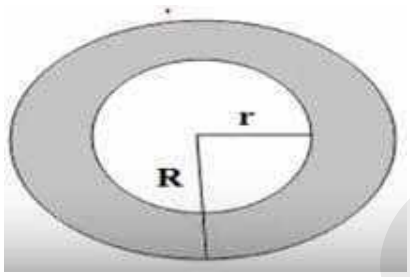
It is a plane figure enclosed by a line on which every point is equally distant from a fixed point (centre) inside the circle.

यह उस रेखा से घिरी सपाट आकृति होती है, जिसके प्रत्येक बिंदु की दूरी वृत्त के भीतर एक स्थिर बिंदु (केंद्र) से बराबर होती है ।



- Area / क्षेत्रफल = πr^2
- Circumference/ परिधि (perimeter/ परिमाप) = $2\pi r$
- Diameter/ व्यास = 2r
- Length of Arc/ चाप की लंबाई (AB) = $2\pi r \times \frac{\theta}{360°}$
- Area of sector AOB/ वृत्त खंड AOB का क्षेत्रफल = $\pi r^2 \times \frac{\theta}{360°}$

CIRCULAR RING / सर्कुलर रिंग



Here, R = radius of bigger ring/ बड़े वलय की त्रिज्या , r = radius of smaller ring/ छोटे वलय की त्रिज्या

- Area / क्षेत्रफल = $\pi(R^2 - r^2)$
- Difference in circumference of both the rings/ दोनों वलयों की परिधि में अंतर = $2\pi R - 2\pi r$

Short Cut methods/Tricks

1. If the length and breadth of a rectangle are increased by a% and b%, the area of the rectangle will be increased by $\left(a + b + \frac{ab}{100}\right)\%$
   If any of the two sides of rectangle is decreased then use '–ve' values for a. / यदि किसी आयत की लंबाई और चौड़ाई a% तथा b% बढ़ा दी जाती है, तो इस आयत का क्षेत्रफल $\left(a + b + \frac{ab}{100}\right)\%$ से बढ़ जाएगा ।

2. All the sides of any two dimensional figure changed by a%, then its area will change by $\left(2a + \frac{a^2}{100}\right)\%$
   Whenever there is a decrease, use negative value for 'a'./ यदि किसी द्वि-आयामी आकृति की सभी भुजाओं में a% का परिवर्तन हो, तो क्षेत्रफल में $\left(2a + \frac{a^2}{100}\right)\%$ का परिवर्तन होगा ।

3. If all the sides of any two dimensional figure has changed (increased or decreased) by a% then its perimeter also changes by a%. In case of circle such changes takes place because of the change in radius (or diameter)./ यदि एक द्वि-आयामी आकृति की सभी भुजाओं में a % का परिवर्तन (वृद्धि या कमी) हुआ है, तो परिमाप भी a% से बदल जाएगा । वृत्त के मामले में, ऐसे परिवर्तन त्रिज्या (या व्यास) में परिवर्तन के कारण होते हैं ।

4. If area of a square is 'a' square units. Then the area of the circle formed with the same perimeter is given by square units./ यदि एक वर्ग का क्षेत्रफल a वर्ग इकाई है, तो इसी परिमाप के साथ निर्मित वृत्त के क्षेत्रफल की गणना वर्ग इकाइयों से की जाती है ।

5. Area of a square inscribed in a circle of radius 'r' is equal to $2r^2$. / त्रिज्या 'r' वाले एक वृत्त के भीतर स्थित वर्ग का क्षेत्रफल $2r^2$ होता है ।

6. The area of the largest triangle inscribed in a semi-circle of radius r is equal to r^2 . / त्रिज्या r वाले अर्धवृत्त के भीतर सबसे बड़े त्रिभुज का क्षेत्रफल r^2 होगा ।

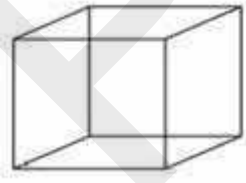
Pinnacle

7. If a pathway of width x is made inside or outside a rectangular plot of length L and breath B, then area of the pathway is/ यदि लंबाई L तथा चौड़ाई B वाले आयताकार भू-खंड के भीतर या बाहर चौड़ाई x वाला एक मार्ग बनाया जाता है, तो इस मार्ग की लंबाई होगी :
(i) $2x(L+B+2x)$, if path is made outside the plot./ यदि मार्ग को भूखंड के बाहर बनाया गया है ।
(ii) $2x(L+B-2x)$, if path is made inside the plot./ यदि मार्ग को भूखंड के भीतर बनाया गया है ।

8. If two paths, each of width x are made parallel to length (L) and breadth (B) of the rectangular plot in the middle of the plot crossing each other, then/ किसी आयताकार भूखंड के बीच में, यदि उसकी लंबाई L तथा चौड़ाई B के समानांतर दो मार्ग बनाए गए हैं, जो एक-दूसरे को प्रतिच्छेद करते हैं, तो
Area of the path/ मार्ग का क्षेत्रफल $= x(L+B-x)$

THREE DIMENSIONAL FIGURES/ त्रि-आयामी आकृतियाँ

CUBE/ घन



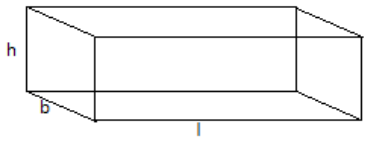
All sides are equal. It has six faces. / सभी भुजाएं बराबर होती है| इसकी छे सतह होती है|

- Volume/ आयतन $= a^3$
- Total surface area/ कुल पृष्ठ क्षेत्रफल $= 6a^2$
- Diagonal/ विकर्ण $= a\sqrt{3}$

Here, a = length of the side/ भुजा की लम्बाई ।

CUBOID/ घनाभ

A rectangular body having 3D rectangular shape, is called a cuboid./ एक आयताकार ठोस, जो त्रि-आयामी होता है, घनाभ कहलाता है ।



- Volume/ आयतन $= l\times b\times h$
- Total surface area/ कुल पृष्ठ क्षेत्रफल $= 2(lb+bh+lh)$
- Diagonal/ विकर्ण $= \sqrt{l^2+b^2+h^2}$

BOX/ बाक्स

A box has its shape like a cube or cuboid. The amount that a box can hold or contain is called the capacity of the box. Capacity means internal volume.
एक बाक्स का आकार घन या घनाभ जैसा होता है| बाक्स का आंतरिक आयतन उसकी क्षमता दर्शाता है|



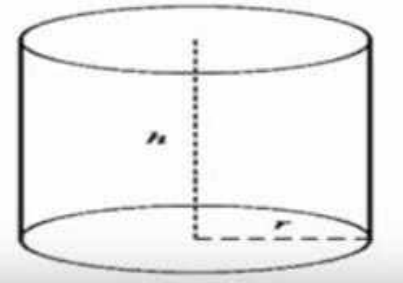
- Surface area of an open box/ खुले बॉक्स का पृष्ठ क्षेत्रफल = 2 (length/ लंबाई + breadth/ चौड़ाई) × height/ ऊंचाई + length/ लंबाई × breadth/ चौड़ाई $= 2(l+b)\times h + l\times b$
- Capacity of box/ बॉक्स की धारिता/ क्षमता $= (l-2t)(b-2t)(h-2t)$; where, t = thickness of box/ बॉक्स की मोटाई
- Volume of the material of the box = External volume – Internal volume(or capacity) /
- बॉक्स में लगी सामग्री का आयतन = बाह्य आयतन - आतंरिक आयतन (या धारिता) $= lbh-(l-2t)(b-2t)(h-2t)$

ROOM/ रूम

A rectangular room has four walls (surfaces) and opposite walls have equal area.
एक आयताकार रूम की चार दीवारें होती है|

- Total Area of walls/ दीवारों का कुल क्षेत्रफल $= 2(l\times b)\times h$
- Total volume of the room/ कमरे का कुल आयतन $= l\times b\times h$
- Area of floor or roof/ छत की फर्श का क्षेत्रफल $= l\times b$

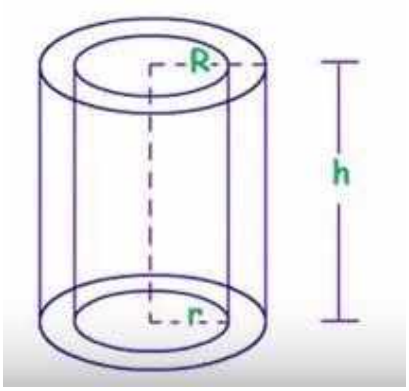
CYLINDER/ बेलन



- Volume of cylinder = area of base × height / बेलन का आयतन = आधार का क्षेत्रफल x ऊंचाई $= \pi r^2 h$
- Curved surface area/ वक्र पृष्ठ क्षेत्रफल = Perimeter of base/ आधार का परिमाप × height/ ऊंचाई $= 2\pi rh$
- Total surface Area / कुल पृष्ठ क्षेत्रफल = curved surface area/ वक्र पृष्ठ क्षेत्रफल + area of both the circles/ दोनों वृत्तों का क्षेत्रफल $= 2\pi rh + 2\pi r^2 = 2\pi(r+h)r$

Pinnacle

HOLLOW CYLINDER / खोखला बेलन



- Volume of hollow cylinder/ खोखले बेलन का आयतन $= \pi(R^2 - r^2)h$
- Curved surface area/ वक्र पृष्ठ क्षेत्रफल $= 2\pi(R + r)h$
- Total surface area/ कुल पृष्ठ क्षेत्रफल $= 2\pi(R + r)h + 2\pi(R^2 - r^2)$

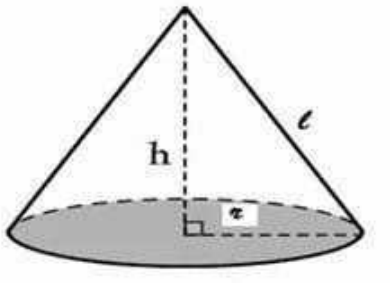
Where, R = External radius of box, r = internal radius box, h = height/ जहाँ, R = बॉक्स की बाहरी त्रिज्या, r = बॉक्स की आतंरिक त्रिज्या, h = ऊंचाई

PRISM/ प्रिज्म

- Volume of prism/ प्रिज्म का आयतन = area of base/ आधार का क्षेत्रफल × height/ ऊंचाई
- Lateral surface area/ पार्श्व पृष्ठ क्षेत्रफल = Perimeter of base/ आधार का परिमाप × height / ऊंचाई
- Total surface Area = Lateral surface area + area of base and top surfaces/ कुल पृष्ठ क्षेत्रफल = पार्श्व पृष्ठ क्षेत्रफल + आधार का क्षेत्रफल तथा शीर्ष का क्षेत्रफल

CONE / शंकु

A solid and round body with a round base and pointed beek./ एक आकृति जिसका आधार गोलाकार है और ऊंचाई नुकीली|



- Volume/ आयतन $= \frac{1}{3} \times base\ area \times height$ / $\frac{1}{3}$ × आधार का क्षेत्रफल × ऊंचाई $= \frac{1}{3}\pi r^2 h$
- Slant height/ तिर्यक ऊंचाई (l) $= \sqrt{r^2 + h^2}$
- Curved surface area/ वक्र पृष्ठ क्षेत्रफल $= \pi r l = \pi r\sqrt{r^2 + h^2}$
- Total surface area / कुल पृष्ठ क्षेत्रफल $= \pi r l + \pi r^2 = \pi r(l + r)$

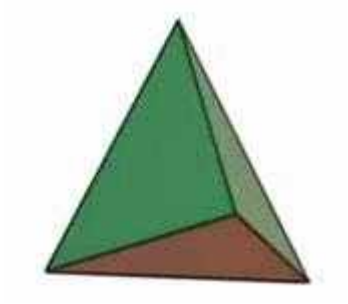
Note: If the base is not round, it will be called a pyramid. A pyramid can have various shapes of the base example: square, rectangular, triangular etc. / यदि आधार गोल नहीं हो, तो इसे पिरामिड कहा जाएगा । एक पिरामिड में आधार के कई आकार हो सकते हैं जैसे : वर्ग, आयत, त्रिभुज आदि

PYRAMID/ पिरामिड

- Volume/ आयतन $= \frac{1}{3} \times base\ area \times height$ या $\frac{1}{3}$ × आधार का क्षेत्रफल × ऊंचाई
- Slant height / तिर्यक ऊंचाई (l) $= \sqrt{r^2 + h^2}$
- Lateral surface area/ पार्श्व पृष्ठ क्षेत्रफल $= \frac{Perimeter \times slant\ height}{2}$
- कुल पृष्ठ क्षेत्रफल = पार्श्व पृष्ठ क्षेत्रफल + आधार का क्षेत्रफल

TETRAHEDRON/ चतुष्फलक

It is a 3-D figure made by joining four equilateral triangles./ यह एक त्रि-आयामी आकृति है, जिसका निर्माण चार समबाहु त्रिभुजों को मिलाकर किया जाता है ।



- Volume/ आयतन (V) $= \frac{1}{3} \times base\ area \times height$ या $\frac{1}{3}$ × आधार का क्षेत्रफल × ऊंचाई

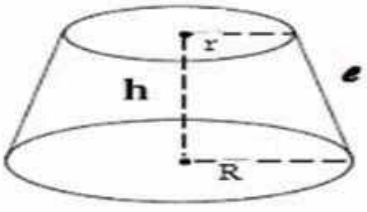
$\Rightarrow V = \frac{1}{3} \times \frac{\sqrt{3}}{4}a^2 \times \left(\frac{\sqrt{6}}{12}a + \frac{\sqrt{6}}{4}a\right)$

$\Rightarrow$ **V** $= \frac{\sqrt{2}}{12}a^3$ **!! Remember this formula/ सूत्र याद करें !!**

- Total surface area/ कुल पृष्ठ क्षेत्रफल $= 3 \times \frac{\sqrt{3}}{4}a^2 + \frac{\sqrt{3}}{4}a^2$
- Lateral surface area/ पार्श्व पृष्ठ क्षेत्रफल $= 3 \times \frac{\sqrt{3}}{4}a^2$

FRUSTUM OF CONE / शंकु का छिन्नक

If a cone is cut by a plane parallel to its base, so as to divide the cone into two parts: upper part and lower part, then the lower part is called frustum./ यदि एक शंकु को दो हिस्सों में विभाजित करने के लिए, उसके आधार के समानांतर काटा जाए, तो निचले हिस्से को छिन्नक कहते हैं ।



- Slant height/ तिर्यक ऊंचाई (l) $= \sqrt{h^2 + (R - r)^2}$
- Curved Surface Area/ वक्र पृष्ठ क्षेत्रफल $= \pi(R + r)l$

- Total surface area/ कुल पृष्ठ क्षेत्रफल = $\pi(R+r)l + \pi R^2 + \pi r^2$
  $= \pi\{(R+r)l + R^2 + r^2\}$
- Volume/ आयतन = $\frac{\pi h}{3}(r^2 + R^2 + rR)$

SPHERE/ गोला

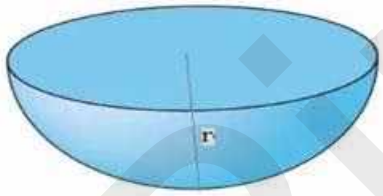
- Volume of sphere/ गोला का आयतन = $\frac{4}{3}\pi r^3$
- Total surface area/ कुल पृष्ठ क्षेत्रफल = $4\pi r^2$

HOLLOW SPHERE OR SPHERICAL SHELL/ खोखला गोला :

- Volume of hollow sphere/ खोखले गोले का आयतन = $\frac{4}{3}\pi(R^3 - r^3)$
- Internal surface area/ आतंरिक पृष्ठ क्षेत्रफल = $4\pi r^2$
- External surface area/ बाह्य पृष्ठ क्षेत्रफल = $4\pi R^2$

Here R = external radius/ बाहरी त्रिज्या and r = internal radius/ आतंरिक त्रिज्या

HEMISPHERE/ अर्धगोल



- Volume of the hemisphere/ अर्धगोले का आयतन = $\frac{2}{3}\pi r^3$
- Total surface area/ कुल पृष्ठ क्षेत्रफल = $3\pi r^2$
- Curved surface area/ वक्र पृष्ठ क्षेत्रफल = $2\pi r^2$

Where, r = radius/ त्रिज्या

Variety Questions

Q1. A solid cube of volume 13824 cm^3 is cut into 8 cubes of equal volumes. The ratio of the surface area of the original cube to the sum of the surface areas of three of the smaller cubes is :
13824 घन सेमी आयतन वाले एक ठोस घन को बराबर आयतन वाले आठ घनों में काटा जाता है| आरंभिक घन के पृष्ठ क्षेत्रफल तथा तीन छोटे घनों के पृष्ठ क्षेत्रफलों के योग का अनुपात क्या है ?
SSC CGL 4 June 2019(Morning)
(a) 2 : 3
(b) 4 : 3
(c) 8 : 3
(d) 2 : 1

Q2. How much iron sheet (in m^2) will be needed to construct a rectangular tank measuring $10\,m \times 8\,m \times 6\,m$, if a circular opening of radius one metre is to be left at the top of the tank? (correct to one decimal place)
10 मीटर 8 मीटर 6 मीटर विमाओं वाले आयताकार टैंक के निर्माण के लिए लोहे की कितनी शीट (वर्ग मीटर में) की आवश्यकता होगी, अगर एक मीटर त्रिज्या वाला वृताकार मुख टैंक के शीर्ष पर छोड़ा जाना है?
SSC CGL 4 June 2019 (Afternoon)
(a) 371.6
(b) 370.4
(c) 372.9
(d) 370.8

Q3. The areas of the three adjacent faces of a cuboid are 32 cm^2, 24 cm^2 and 48 cm^2. What is the volume of the cuboid?
एक घनाभ के तीन आसन्न फलकों का क्षेत्रफल 32 cm^2, 24 cm^2 और 48 cm^2 हैं। घनाभ का आयतन ज्ञात कीजिये?
SSC CGL 4 June 2019(Evening)
(a) 192 cm^3
(b) 256 cm^3
(c) 288 cm^3
(d) 128 cm^3

Q4. The area of a triangle is 15 sq cm and the radius of its incircle is 3 cm. Its perimeter is equal to:
एक त्रिभुज का क्षेत्रफल 15 वर्ग सेमी है और इसके वृत्त की त्रिज्या 3 सेमी है। इसकी परिधि कितनी है?
SSC CGL 4 June 2019(Evening)
(a) 12 cm
(b) 20 cm
(c) 5 cm
(d) 10 cm

Q5. The volume of a metallic cylindrical pipe is 7480 cm^3. If its length is 1.4 m and its external radius is 9 cm, then its thickness (given $\pi = \frac{22}{7}$) is:
एक धातु के बेलनाकार पाइप का आयतन 7480 घन सेंटीमीटर है। यदि इसकी लंबाई 1.4 मीटर है और इसकी बाहरी त्रिज्या 9 सेंटीमीटर है, तो इसकी मोटाई ज्ञात कीजिये?
SSC CGL 6 June 2019 (Morning)
(a)1 cm
(b)0.8 cm
(c)0.9 cm
(d)1.2 cm

Q6. The length of the metallic pipe is 7.56 m. Its external and internal radii are 2.5 cm and 1.5 cm respectively. If 1 cubic cm of the metal weigh 7.5 g, then the weight of the pipe is : (Take π = 22/7)
धातु के पाइप की लंबाई 7.56 मीटर है। इसकी बाहरी और आंतरिक त्रिज्या क्रमशः 2.5 सेमी और 1.5 सेमी है। यदि धातु के 1 घन सेमी का वजन 7.5 ग्राम है, तो पाइप का भार ज्ञात कीजिये ?
SSC CGL 6 June 2019 (Afternoon)
(a) 72.82 kg
(b) 70.14 kg

(c) 71.28 kg
(d) 69.68 kg

Q7. A sector is cut out from a circle of diameter 42 cm. If the angle of the sector is 150°, then its area (in square cm) is : (Take $\pi = 22/7$)
42 cm व्यास के एक वृत में से एक भाग काटा जाता है,यदि इस भाग का कोण 150° तो इसका क्षेत्रफल कितना होगा ?
SSC CGL 7 June 2019(Morning)
(a) 564
(b) 574
(c) 580.6
(d) 577.5

Q8. The area of a field in the shape of a triangle with each side x metre is equal to the area of another triangular field having sides 50m , 70m and 80m. The value of x is closest to : प्रत्येक भुजा x मीटर वाले एक त्रिभुज का क्षेत्रफल एवं विमाओं 50m , 70m और 80m वाले त्रिभुज का क्षेत्रफल समान है, x का मान ज्ञात कीजिये ?
SSC CGL 7 June 2019(Afternoon)
(a) 65.5
(b) 63.2
(c) 62.4
(d) 61.8

Q9. The curved surface area and volume of a cylinder are 264 square cm and 924 cubic cm, respectively. What is the ratio of its radius to height? (Take $\pi = 22/7$)
एक बेलन का पृष्ठीय क्षेत्रफल और आयतन क्रमशः 264 वर्ग सेमी और 924 घन सेमी है। इसकी त्रिज्या और ऊँचाई का अनुपात क्या है?
SSC CGL 10 June 2019 (Morning)
(a) 4 : 3
(b) 5 : 4
(c) 7 : 6
(d) 3 : 2

Q10. The radius of a sphere is reduced by 40%. By what percent, will its volume decrease?
एक गोले की त्रिज्या को 40% कम कर दिया जाता है, इसका आयतन कितने प्रतिशत घटेगा?
SSC CGL 10 June 2019 (Afternoon)
(a) 60%
(b) 64%
(c) 72.5%
(d) 78.4%

Q11. The radii of two circular faces of the frustum of a cone of height 21 cm are 3 cm and 2 cm respectively. What is the volume of the frustum of the cone in cubic cm? (Take $\pi = 22/7$)
21 सेमी ऊंचाई वाले शंकु के छिन्नक के दो वृताकार फलकों की त्रिज्या क्रमशः 3 सेमी और 2 सेमी है। घन सेमी में शंकु के छिन्नक का आयतन कितना होगा ?
SSC CGL 11 June 2019(Morning)
(a) 154
(b) 286
(c) 345
(d) 418

Q12. A sphere of radius 4 cm is melted and recast into smaller spheres of radii 2 cm each. How many such spheres can be made?
4 सेमी त्रिज्या वाले एक गोले को पिघलाया जाता है और प्रत्येक 2 सेमी त्रिज्या के छोटे गोले में बदल दिया जाता है। ऐसे कितने गोले बनाए जा सकते हैं?
SSC CGL 12 June 2019(Evening)
(a) 4
(b) 8
(c) 32
(d) 16

Q13. Six cubes, each of edge 2 cm, are joined end to end. What is the total surface area of the resulting cuboid in cm^2 ?
6 घन, जिनका प्रत्येक का फलक 2 सेमी है,सभी को फलकों के अनुरूप जोड़े जाते है, परिणामी घनाभ का क्षेत्रफल ज्ञात कीजिये ?
SSC CGL 13 June 2019(Morning)
(a)96
(b)144
(c)104
(d)128

Q14. The area of a field in the shape of a hexagon is $2400\sqrt{3}$ square metre. What will be the cost of fencing it at Rs. 18.50 per metre?
एक षट्भुज का क्षेत्रफल 2400 वर्ग मीटर है। 18.50 प्रति मीटर रुपये के हिसाब से इस पर बाड़ लगाने की लागत क्या होगी ?
SSC CHSL 1 July 2019(Evening)
(a) Rs. 4440
(b) Rs. 5920
(c) Rs. 5550
(d) Rs. 5180

Q15. The volume of a right circular cone is 924 cubic cm. If it's height is 18 cm, then the area of it's base (In square cm) is:
एक लम्ब वृतीय शंकु का आयतन 924 घन सेमी है। यदि इसकी ऊंचाई 18 सेमी है, तो इसके आधार का क्षेत्रफल (वर्ग सेमी में) है:
SSC CHSL 2 July 2019(Morning)
(a) 154
(b) 132
(c) 176
(d) 198

Q16. The curved surface area and volume of a cylindrical pole are 132 square metres and 528 cubic metres, respectively. What is the height (In m) of the pole? (Take π = 22/7)
एक बेलनाकार स्तम्भ का वक्र पृष्ठीय क्षेत्रफल और आयतन क्रमशः 132 वर्ग मीटर और 528 घन मीटर है। स्तम्भ की ऊंचाई (मीटर में) क्या है?
SSC CHSL 2 July 2019(Afternoon)
(a) $2\frac{1}{2}$
(b) $3\frac{5}{8}$
(c) $3\frac{1}{2}$
(d) $2\frac{5}{8}$

Q17. The radius of the base of a cylinder is 7 cm and its curved surface area is 440 square cm. Its volume (In cubic cm) will be:(Take π = 22/7)
एक बेलन के आधार की त्रिज्या 7 सेमी है और इसका वक्र पृष्ठीय क्षेत्रफल 440 वर्ग सेमी है। इसका आयतन कितना होगा?
SSC CHSL 2 July 2019(Evening)
(a) 1760
(b) 1430
(c) 1540
(d) 1650

Q18. A circle circumscribes a rectangle whose sides are in the ratio 4 : 3. If the perimeter of the rectangle is 56 cm, then what is the area (In square cm) of the circle?
एक वृत्त एक आयत को घेरे हुए है जिसकी भुजाएँ 4: 3 में हैं। यदि आयत की परिधि 56 सेमी है, तो वृत्त का क्षेत्रफल (वर्ग सेमी) क्या है?
SSC CHSL 3 July 2019(Morning)
(a) 70π
(b) 96π
(c) 90π
(d) 100π

Q19. A wire is in the shape of a rectangle whose sides are in the ratio 7 : 4. It was initially in the shape of a circle of radius , very nearly equal to 31.5 cm. The length of smaller side of the rectangle is : (Take π = 22/7)
एक तार एक आयत के भीतर है जिसकी भुजाएं 7: 4 के अनुपात में हैं।आरम्भ में यह वृत की त्रिज्या के बराबर था, लगभग 31.5 सेमी। आयत की छोटी भुजा की लंबाई कितनी है:
SSC CHSL 3 July 2019(Afternoon)
(a) 44 cm
(b) 36 cm
(c) 40 cm
(d) 32 cm

Q20. The length of a rectangular park is 20m more than its breadth. If the cost of fencing the park at Rs. 53 per metre is Rs. 21,200, then what is the area (In square metres) of the park?
एक आयताकार पार्क की लंबाई इसकी चौड़ाई से 20 मीटर अधिक है। यदि 53 रु प्रति मीटर की दर से पार्क में बाड़ लगाने की लागत 21,200 है। तो पार्क का क्षेत्रफल (वर्ग मीटर में) क्या है?
SSC CHSL 3 July 2019(Evening)
(a) 9504
(b) 8925
(c) 9240
(d) 9900

Q21. The radii of three concentric circles are in the ratio of 4:5:7. What is the ratio of the area between the two inner circles to that between the two outer circles ?
तीन संकेंद्रित वृत्तों की त्रिज्या 4: 5: 7 के अनुपात में है। दो बाहरी वृत्तों के बीच के दो वृत्तों के बीच के क्षेत्रफल का अनुपात क्या है?
SSC CGL 6 June 2019(Evening)
(a) 4:7
(b) 5:9
(c) 4:5
(d) 3:8

Q22. The parallel sides of a trapezium are 20 cm and 10 cm and its non-parallel sides are equal to each other. If its area is 180 cm^2, then what is the length (in cm) of each non parallel side? / एक समलंब चतुर्भुज की समानांतर भुजाएं 20 सेमी तथा 10 सेमी की हैं तथा इसकी गैर-समानांतर भुजाएं एक दूसरे के बराबर हैं | यदि इसका क्षेत्रफल 180 वर्ग सेमी है, तो प्रत्येक गैर-समानांतर भुजा की लंबाई ज्ञात करें |
SSC CHSL 04 July 2019(Morning)
(a) 11
(b) 13
(c) 12
(d) 15

Q23. Diagonals of a rhombus are respectively 4 cm and 12 cm. Its area (in cm^2) is equal to :
एक समचतुर्भुज के विकर्ण क्रमश 4 सेमी और 12 सेमी हैं | इसका क्षेत्रफल (वर्ग सेमी में) ज्ञात करें |
SSC CHSL 09 July 2019(Evening)
(a) 12
(b) 24
(c) 36
(d) 8

Q24. In triangle ABC, the length of BC is less than twice the length of AB by 2 cm. The length of AC exceeds the length of AB by 10 cm. The perimeter is 32cm. The length (in cm) of the smallest side of the triangle is :

त्रिभुज ABC में, BC की लंबाई AB की लंबाई के दोगुने से 2 कम है | AC की लंबाई AB की लंबाई से 10 सेमी अधिक है | परिमाप 32 सेमी है | त्रिभुज की सबसे छोटी भुजा की लंबाई (सेमी में) ज्ञात करें | **SSC CHSL 05 July 2019 (Afternoon)**

(a) 4
(b) 10
(c) 8
(d) 6

Q25. If each side of a rectangle is increased by 22%, then its area will increase by :
यदि एक आयत की प्रत्येक भुजा को 22% से बढ़ा दिया जाए, तो इसका क्षेत्रफल कितना बढ़ जाएगा ?
SSC CHSL 08 July 2019(Morning)

(a) 44%
(b) 50%
(c) 46.65%
(d) 48.84%

Q26. If each side of a rectangle is decreased by 11%, then its area will decrease by :
यदि किसी आयत की प्रत्येक भुजा को 11% से कम कर दिया जाए, तो इसका क्षेत्रफल कितना कम हो जाएगा ?
SSC CHSL 09 July 2019 (Morning)

(a) 21.69%
(b) 20.79%
(c) 13.13%
(d) 26.78%

Q27. If the length of a rectangle is decreased by 11% and the breadth is increased by 11%, its area will undergo :
यदि किसी आयत की लंबाई को 11% से कम कर दिया जाए और इसकी चौड़ाई 11% से बढ़ा दी जाए, तो इसका क्षेत्रफल :
SSC CHSL 09 July 2019 (Afternoon)

(a) 13.13% increase/ बढ़ जाएगा
(b) 1.21% increase/ बढ़ जाएगा
(c) 1.21% decrease/ कम हो जाएगा
(d) 13.13% decrease/ कम हो जाएगा

Q28. What is the area of a rhombus (in cm^2) whose side is 10 cm and the smallest diagonal is 12 cm?
उस समचतुर्भुज का क्षेत्रफल (वर्ग सेमी में) ज्ञात करें जिसकी भुजा 10 सेमी है तथा सबसे छोटा विकर्ण 12 सेमी का है |
SSC CHSL 04 July 2019 (Afternoon)

(a) 120
(b) 192
(c) 96
(d) 50

Q29. Twelve sticks, each of length one unit, are used to form an equilateral triangle. The area of the triangle is :
12 छड़ियाँ, जिनमें से प्रत्येक की लंबाई एक इकाई है, का इस्तेमाल किसी समबाहु त्रिभुज को बनाने के लिए किया जाता है | इस त्रिभुज का क्षेत्रफल होगा :
SSC CHSL 10 July 2019 (Morning)

(a) $3\sqrt{3}$ *sq units*
(b) $2\sqrt{3}$ *sq units*
(c) $4\sqrt{3}$ *sq units*
(d) $8\sqrt{3}$ *sq units*

Q30. Equilateral triangles are drawn on the hypotenuse and one of the perpendicular sides of a right-angled isosceles triangle. Their areas are H and A respectively. $\frac{A}{H}$ is equal to : /
किसी समकोण समद्विबाहु त्रिभुज के कर्ण तथा एक लम्ब भुजा पर समबाहु त्रिभुज खींचे जाते हैं | उनके क्षेत्रफल क्रमश H और A हैं | $\frac{A}{H}$ का मान किसके बराबर होगा ?
SSC CHSL 10 July 2019(Afternoon)

(a) $\frac{1}{4}$
(b) $\frac{1}{2}$
(c) $\frac{1}{\sqrt{2}}$
(d) $\frac{1}{\sqrt[3]{2}}$

Q31. The area of a sector of a circle with central angle 60° is A. The circumference of the circle is C. Then A is equal to :
किसी वृत्त के खंड का क्षेत्रफल A है जिसका केंद्रीय कोण 60° है | इस वृत्त की परिधि C है | तो A किसके बराबर है ?
SSC CHSL 10 July 2019 (Evening)

(a) $\frac{c^2}{6\pi}$
(b) $\frac{c^2}{18\pi}$
(c) $\frac{c^2}{24\pi}$
(d) $\frac{c^2}{4\pi}$

Q32. The two diagonals of a rhombus are respectively, 14 cm and 48 cm. The perimeter of the rhombus is equal to :
एक समचतुर्भुज के दो विकर्ण क्रमशः 14 सेमी और 28 सेमी के हैं | समचतुर्भुज का परिमाप ज्ञात करें |
SSC CHSL 11 July 2019 (Morning)

(a) 120 cm
(b) 160 cm
(c) 80 cm
(d) 100 cm

Q33. The volume of a right circular cone is equal to that of a sphere, whose radius is half the radius of the base of the cone. What is the ratio of the radius of the base to the height of the cone ?
एक लम्ब वृत्तीय शंकु का आयतन उस गोले के आयतन के बराबर है, जिसकी त्रिज्या शंकु के आधार की त्रिज्या से आधी है | शंकु के आधार

Pinnacle

की त्रिज्या और शंकु की ऊंचाई में क्या अनुपात है ?

SSC CHSL 11 July 2019 (Afternoon)

(a) 1:4
(b) 1:2
(c) 4:1
(d) 2:1

Q34. ABCD is a rhombus with each side being equal to 8 cm. If BD = 10 cm, AC = $2\sqrt{x}$ cm, what is the value of $\sqrt{x+10}$?

ABCD एक समचतुर्भुज है जिसकी प्रत्येक बराबर भुजा 8 सेमी की है | यदि BD = 10 सेमी, AC = $2\sqrt{x}$ सेमी है, तो $\sqrt{x+10}$ का मान क्या होगा ?

SSC CHSL 11 July 2019 (Afternoon)

(a) $2\sqrt{3}$
(b) $3\sqrt{2}$
(c) 7
(d) 5

Q35. The area of parallelogram is 338 m^2. If its altitude is twice the corresponding base, its base is:

समांतर चतुर्भुज का क्षेत्रफल 338 m^2 है। यदि इसकी ऊंचाई इसके आधार से दोगुनी है, तो इसका आधार कितना है?

SSC CPO 16 March 2019 (Morning)

(a) 13
(b) 14
(c) 26
(d) 28

Q36. The base of an isosceles triangle is 6 cm and its perimeter is 16 cm. Its area is

एक समद्विबाहु त्रिभुज का आधार 6 सेमी और इसका परिमाप 16 सेमी है | इसका क्षेत्रफल ज्ञात करें |

SSC CPO 16 March 2019 (Morning)

(a) 9 cm^2
(b) 11 cm^2
(c) 10 cm^2
(d) 12 cm^2

Q37. Find the inner surface area of all walls of a rectangular room with length 7 m breadth 5 m and height 3.5 m

एक आयताकार कमरे की सभी दीवारों का आतंरिक पृष्ठ क्षेत्रफल ज्ञात करें जिसकी लंबाई 7 मी. चौड़ाई 5 मी और ऊंचाई 3.5 मी है |

SSC CPO 16 March 2019 (Morning)

(a) 84 m^2
(b) 168 m^2
(c) 126 m^2
(d) 42 m^2

Q38. A square cardboard with side 3 m is folded through one of its diagonal to make a triangle, the height of the triangle is:

3 मी भुजा वाले एक मोटे कागज़ को इसके एक विकर्ण पर से मोड़कर त्रिभुज बनाया जाता है | इस त्रिभुज की ऊंचाई क्या होगी

SSC CPO 16 March 2019 (Morning)

(a) $\frac{3}{\sqrt{2}}$ m
(b) $2\sqrt{3}$ m
(c) $3\sqrt{2}$ m
(d) $\frac{2}{\sqrt{3}}$ m

Q39. The surface area of a cube is 1176 cm^2 Its volume is:

एक घन का पृष्ठीय क्षेत्रफल 1176 cm^2 है,इसका आयतन क्या होगा ?

SSC CPO 16 March 2019 (Morning)

(a) 3486 cm^3
(b) 3964 cm^3
(c) 3206 cm^3
(d) 2744 cm^3

Q40. The liquid in a container is sufficient to paint an area of 11.28 m^2. How many boxes of dimension $30cm \times 25cm \times 12cm$ can be painted with the liquid in this container.

एक बर्तन में 11.28 m^2 क्षेत्रफल को रंगने के लिए पर्याप्त तरल है। विमाओं $30cm \times 25cm \times 12cm$ के कितने बक्से इस बर्तन के तरल द्वारा रंगे जा सकते है?

SSC CPO 16 March 2019 (Morning)

(a) 40
(b) 24
(c) 32
(d) 12

Q41. The radius of a cylinder is increased by 120% and its height is decreased by 40%. What is the percentage increase in is volume? / एक बेलन की त्रिज्या 120% बढ़ा दी जाती है तथा इसकी ऊंचाई 40% कम कर दी जाती है | इसके आयतन में कितने प्रतिशत की वृद्धि होगी ?

SSC CPO 12 March 2019(Evening)

(a) 180.6%
(b) 212.8%
(c) 190.4%
(d) 175.4%

Q42. The sides of a triangle are 8 cm, 15 cm, and 17 cm respectively. At each of its vertices, a circle of radius 3.5 cm is drawn. What is the area of the triangle excluding the portion covered by the sectors of the circle ? $\pi = \frac{22}{7}$ एक त्रिभुज की भुजाएं क्रमशः 8 सेमी, 15 सेमी और 17 सेमी की हैं | इसके प्रत्येक शीर्ष पर 3.5 सेमी त्रिज्या वाला एक वृत्त खींचा जाता है | वृत्त के खंडो द्वारा घेरे गए भाग को छोड़ते हुए इस त्रिभुज का क्षेत्रफल ज्ञात करें |

SSC CPO 12 March 2019 (Evening)

(a) 23.5 cm^2
(b) 21.5 cm^2
(c) 47 cm^2

(d) 40.75 cm^2

Q43. The sides of a triangle are 24cm,45cm and 51cm. At each of its vertices, circles of radius 10.5cm are drawn. What is the area of the triangle, excluding the portion covered by sectors of the circles? ($\pi = \frac{22}{7}$)
एक त्रिभुज की भुजाएं 24 सेमी, 45 सेमी तथा 51 सेमी की हैं | इसके प्रत्येक शीर्ष पर 10.5 सेमी त्रिज्या वाले वृत्त खींचे जाते हैं | वृत्त के खंडो द्वारा घेरे गए भाग को छोड़ कर इस त्रिभुज का क्षेत्रफल क्या होगा ?
SSC CPO 13 March 2019(Evening)
(a)244.75 cm^2
(b)366.75 cm^2
(c)464.75 cm^2
(d)327.75 cm^2

Q44.The radius of a cylinder is increased by 150 % and its height is decreased by 20 %. What is the percentage increase in its volume? एक बेलन की त्रिज्या 150 % बढ़ा दी जाती है तथा इसकी ऊंचाई 20 % कम कर दी जाती है | इसके आयतन में कितने प्रतिशत की वृद्धि होगी ?
SSC CPO 12 March 2019 (Morning)
(a) 400%
(b) 600%
(c) 500%
(d) 80%

Q45. The area of each square of a chessboard having 64 squares is 4 cm^2. If there is a border on all the sides of the chessboard of 2 cm, then the perimeter of the chessboard is: 64 वर्गों वाले एक शतरंज की बिसात के प्रत्येक वर्ग का क्षेत्रफल 4 वर्ग सेमी है | यदि इस बिसात की सभी भुजाओं पर 2 सेमी का किनारा है , तो इस शतरंज की बिसात का परिमाप ज्ञात करें |
SSC CPO 14 March 2019 (Morning)
(a)128 cm
(b)80 cm
(c)70 cm
(d)256 cm

Q46. The length of diagonal of a square whose area is 64 m^2 is:
उस वर्ग के विकर्ण की लंबाई ज्ञात करें जिसका क्षेत्रफल 64 वर्ग मीटर है |
SSC CPO 14 March 2019 (Morning)
(a)4 $\sqrt{2}$ m
(b)8 $\sqrt{2}$ m
(c)4 m
(d)8 m

Q47. The unequal side of an isosceles triangle is 2cm. The medians drawn to the equal sides are perpendicular. The area of the triangle is :
एक समद्विबाहु त्रिभुज की असमान भुजा 2 सेमी की है | बराबर भुजाओं पर खींची गयी मध्यिकाएं लम्ब हैं | इस त्रिभुज का क्षेत्रफल ज्ञात करें |
SSC CPO 16 March 2019 (Evening)
(a) 2 cm^2
(b) 3 cm^2
(c) 5 cm^2
(d) 1 cm^2

Q48. What will be total cost of polishing curved surface of a wooden cylinder at rate of Rs 20 per m^2, if its diameter is 40 cm and height is 7m?
लकड़ी की बेलन की वक्र सतह को 20 रुपये प्रति वर्ग मीटर की दर से पॉलिश करने की कुल लागत क्या होगी, यदि इसका व्यास 40 सेमी तथा ऊंचाई 7 मीटर है |
SSC CPO 16 March 2019 (Evening)
(a)176 rs
(b)184 rs
(c)175 rs
(d)186 rs

Q49. A steel vessel has a base of length 60 cm and breadth 30 cm. Water is poured in the vessel. A cubical steel box having edge of 30 cm is immersed completely in the vessel. By how much will the water rise?
इस्पात के एक बर्तन के आधार की लंबाई 60 सेमी तथा चौड़ाई 30 सेमी है | इस बर्तन में पानी डाला जाता है | 30 सेमी किनारा वाले इस्पात के एक घनीय डिब्बे को इस बर्तन में पूर्णतः डूबा दिया जाता है | पानी कितना बढ़ेगा ?
SSC CPO 16 March 2019 (Evening)
(a)12 cm
(b)15 cm
(c)10 cm
(d)9 cm

Q50. The perimeter of a square is equal to the perimeter of a rectangle of length 16cm and breadth 14 cm. Find the circumference of a semicircle whose diameter is equal to the side of the square.
एक वर्ग का परिमाप किसी आयत के परिमाप के बराबर है जिसकी लंबाई 16 सेमी और चौड़ाई 14 सेमी है | उस अर्धवृत्त की परिधि ज्ञात करें जिसका व्यास वर्ग की भुजा के बराबर है ?
SSC CPO 16 March 2019 (Evening)
(a)38.57 cm
(b)21.57 cm
(c)23.57 cm
(d)25.57 cm

Q51. Original breadth of a rectangular box is 20cm. The box was then remade in such a way that its length increased by 30% but the breadth decreased by 20% and the area increased by 100

cm^2. What is the new area of the box?
एक आयताकार डिब्बे की वास्तविक चौड़ाई 20 सेमी है | इस डिब्बे का पुनर्निर्माण इस प्रकार किया गया कि इसकी लंबाई 30% बढ़ा दी गयी लेकिन चौड़ाई में 20% की कमी कर दी गयी तथा क्षेत्रफल 100 वर्ग सेमी से बढ़ गया | इस डिब्बे का नया क्षेत्रफल क्या है ?
SSC CPO 16 March 2019(Evening)
(a)2500 cm^2
(b)2200 cm^2 +
(c)2600 cm^2 +
(d)2400 cm^2

Q52. 12 buckets of water fill a tank when the capacity of each bucket is 13.5 litres. How many buckets will be needed to fill the same tank, if the capacity of each bucket in 9 litres? किसी टंकी को भरने में 12 बाल्टी पानी लगता है जब प्रत्येक बाल्टी की धारिता 13.5 लीटर है | यदि प्रत्येक बाल्टी की धारिता 9 लीटर हो, तो इसी टंकी को भरने के लिए कितनी बाल्टियों की आवश्यकता होगी ?
SSC CPO 16 March 2019 (Evening)
(a)15
(b)16
(c)18
(d)17

Q53. If the height of an equilateral triangle is $10\sqrt{3}$ cm, the area is:
यदि किसी समबाहु त्रिभुज की ऊंचाई $10\sqrt{3}$ सेमी है, तो क्षेत्रफल ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a) $124\sqrt{3}$ cm^2
(b) $75\sqrt{3}$ cm^2
(c) $80\sqrt{3}$ cm^2
(d) $100\sqrt{3}$ cm^2

Q54.A tall rectangular vessel is half filled with water. The base dimension of the vessel is 62 cm ×45 cm. A heavy metal cube of edge 15 cm is dropped into the vessel. The rise in level of the vessel is:
एक लंबा आयताकार बर्तन पानी से आधा भरा हुआ है। इस पात्र की मूल लंबाई-चौड़ाई 62 सेमी x 45 सेमी है। 15 सेमी किनारा वाले एक भारी धात्विक घन को को बर्तन में गिरा दिया जाता है। बर्तन के जलस्तर में वृद्धि ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a)1.21 cm
(b)1.15 cm
(c) 1.07 cm
(d)1 cm

Q55.The dimensions of a swimming pool are 66m × 35m × 3m. How many hours will it take to fill the pool by a pipe of diameter 35 cm with water flowing at speed 8m/s ? एक तरणताल के आयाम 66मी × 35 मी × 3 मी हैं | 35 सेमी व्यास वाले पाइप से इस ताल को भरने में कितना समय लगेगा यदि जल प्रवाह की दर 8 मी/सेकंड है |
SSC CPO 15 March 2019 (Morning)
(a) 2.75
(b) 3.5
(c) 2.5
(d) 3.2

Q56. Find the cost of carpeting a room which is 11m long and 6m broad by a carpet which is 60cm broad at the rate of rs 112.50 per meter.
11 मीटर लंबाई तथा 6 मीटर चौड़ाई वाले किसी कमरे में 112.50 रुपये प्रति मीटर की दर से कालीन बिछाने की लागत ज्ञात करें यदि कालीन 60 सेमी चौड़ी है |
SSC CPO 16 March 2019 (Afternoon)
(a)12,375
(b)13,280
(c)11,695
(d)12,040

Q57. A field is 119m ×18 m in dimension. A tank 17m ×6m × 3m is dug out in the middle and the soil removed is evenly spread over the remaining part of the field. The increase in the level on the remaining part of the field is:
एक मैदान की लंबाई-चौड़ाई 119मी ×18मी है | बीच में 17मी x 6 मी x 3 मी आकार वाला एक तालाब खोदा जाता है तथा इससे निकली मिट्टी को मैदान के शेष भाग में फैला दिया जाता है | मैदान के शेष भाग के स्तर में हुई वृद्धि ज्ञात करें | **SSC CPO 16 March 2019 (Afternoon)**
(a)14cm
(b)13cm
(c)15cm
(d)12cm

Q58. A swimming pool is 40 m in length, 30 m in breadth and 2.2 m in depth. The cost of cementing its floor and the four sides at Rs. 25/m^2 is:
एक तरणताल की लंबाई 40 मी, चौड़ाई 30 मी तथा गहराई 2.2 मीटर है | 25 रुपये प्रति वर्ग मीटर की दर से इसके तल तथा इसकी चारों भुजाओं पर सीमेंट चढ़ाने की लागत ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)Rs.43,980
(b)Rs.37540
(c) Rs.34260
(d)Rs.37700

Q59. If the area of a regular hexagon is $108\sqrt{3}$ cm^2, its perimeter is:

यदि किसी सम षट्भुज (regular hexagon) का क्षेत्रफल $108\sqrt{3}$ है तो इसका परिमाप (perimeter) है :

SSC CPO 15 March 2019 (Evening)

(a)$36\sqrt{2}$ cm
(b)$42\sqrt{3}$ cm
(c)$28\sqrt{3}$ cm
(d)24 cm

Q60. A square piece of cardboard with side 12 cm has a small square of 2 cm cut out from each of the corners. The resulting flaps are turned up to make a box 2 cm deep. The volume of the box is:

12 cm सतह वाले एक वर्गाकार गत्ते के टुकड़े के प्रत्येक कोने से 2 cm छोटे वर्ग काटे जाते हैं | 2 cm गहरा डिब्बा तैयार करने के लिए परिणामों पट्टियाँ (resulting flaps) को मोड़ा जाता है| डिब्बे के घनफल का मान क्या है :

SSC CPO 15 March 2019 (Evening)

(a) 128 cm^3
(b) 94 cm^3
(c) 102 cm^3
(d) 112 cm^3

Q61. The area of a right angled triangle having base 24 cm and hypotenuse 25 cm is:

उस समकोण त्रिभुज का क्षेत्रफल क्या होगा जिसका आधार 24 cm और कर्ण (hypotenuse) 25 cm है:

SSC CPO 15 March 2019 (Evening)

(a)72 cm^2
(b)108 cm^2
(c)92 cm^2
(d)84 cm^2

Q62. The length of the longest pole that can be placed in a room 16 m long, 8 m wide and 11 m high is:

16 m लम्बे, 8 m चौड़े और 11 m ऊंचे कमरे में कितना सबसे अधिक लम्बा खम्बा रखा जा सकता है?

SSC CPO 15 March 2019 (Evening)

(a)21 m
(b)20 m
(c)18 m
(d)19 m

Practice Questions

Q1. A cylindrical road roller made of metal is 1 m long. Its inner radius is 27 cm and the thickness of the metal sheet rolled into it is 9 cm. What is the weight of the roller if 1 cubic cm of metal weighs 8 g?

धातु से बना एक बेलनाकार रोड रोलर 1 मीटर लंबा है। इसकी आंतरिक त्रिज्या 27 सेमी है और धातु की शीट की मोटाई 9 सेमी है। यदि 1 घन सेमी धातु का वजन 8 ग्राम हो तो रोलर का वजन कितना होगा?

SSC CGL 7 June 2019 (Evening)

(a) 441 π kg
(b) 442.4 π kg
(c) 449 π kg
(d) 453.6 π kg

Q2. The radius of a sphere is increased by 140%. By what percent is the volume increased?

एक गोले की त्रिज्या 140% बढ़ा दी जाती है। आयतन कितने प्रतिशत बढ़ेगा ?

SSC CGL 10 June 2019 (Evening)

(a) 174.4%
(b) 1382.4%
(c) 274.4%
(d) 1282.4%

Q3. The radii of two circular faces of frustum of a cone are 5 cm and 4 cm. If the height of the frustum is 21 cm, what is its volume in cubic cm? (Take π = 22/7)

एक शंकु के छिन्नक के दो वृत्ताकर फलकों की त्रिज्या 5 सेमी और 4 सेमी है। यदि छिन्नक की ऊंचाई 21 सेमी है, तो घन सेमी में इसका आयतन कितना होगा ?

SSC CGL 11 June 2019 (Afternoon)

(a) 902
(b) 1056
(c) 1342
(d) 638

Q4. The radii of two circular faces of the frustum of a cone of height 14 cm are 5 cm and 2 cm. What is its volume in cubic cm? (Take π= 22/7)

14 सेमी ऊंचाई के शंकु के छिन्नक के दो वृताकार फलकों की त्रिज्या 5 सेमी और 2 सेमी है। घन सेमी में इसका आयतन कितना होगा ?

SSC CGL 11 June 2019 (Evening)

(a) 572
(b) 560
(c) 520
(d) 540

Q5. The radii of the two circular face of the frustum of a cone of height 21 cm are 5 cm and 3 cm. What is its volume in cm^3 ? ($\Pi = \frac{22}{7}$)

21 सेमी ऊंचाई के शंकु के छिन्नक के दो वृताकार फलकों की त्रिज्या 5 सेमी और 3 सेमी है। घन सेंटीमीटर में इसका आयतन कितना होगा ?

SSC CGL 12 June 2019 (Morning)

(a) 1078
(b) 1020
(c) 1058
(d) 1025

Q6. The radii of two circular faces of the frustum of a cone of height 10.5 cm are 5 cm and 3 cm

respectively. What is its volume in cm^3 ($\pi = \frac{22}{7}$) ?
10.5 सेमी ऊंचाई वाले शंकु के छिन्नक के दो वृताकार फलकों की त्रिज्या क्रमशः 5 सेमी और 3 सेमी है। घन सेंटीमीटर में इसका आयतन कितना होगा ?
SSC CGL 12 June 2019 (Afternoon)
(a) 552
(b) 539
(c) 545
(d) 564

Q7. Five cubes, each of edge 3 cm are joined end to end. What is the total surface area of the resulting cuboid, in cm^2 ?
पांच घन, जिनमे प्रत्येक का फलक 3 सेमी है , फलकों के अनुरूप जोड़े जाते है, वर्ग सेंटीमीटर में परिणामी घनाभ का कुल क्षेत्रफल कितना है?
SSC CGL 13 June 2019 (Afternoon)
(a)244
(b)280
(c)270
(d)198

Q8. A sphere of radius 6 cm is melted and recast into spheres of radius 2 cm each. How many such spheres can be made?
6 सेमी त्रिज्या के एक गोले को पिघलाया जाता है और प्रत्येक 2 सेमी त्रिज्या के गोले में फिर से ढाला जाता है। ऐसे कितने गोले बनाए जा सकते हैं?
SSC CGL 13 June 2019 (Evening)
(a)27
(b)25
(c)36
(d)24

Q9. What is the area of a rhombus (in cm^2) whose side is 13 cm and the smallest diagonal is 10 cm?
उस समचतुर्भुज का क्षेत्रफल (वर्ग सेमी में) ज्ञात करें जिसकी भुजा 13 सेमी है तथा सबसे छोटा विकर्ण 10 सेमी का है |
SSC CHSL 04 July 2019 (Evening)
(a) 192
(b) 96
(c) 120
(d) 50

Q10. What is the area of a rhombus (in cm^2) whose side is 20 cm and one of the diagonal is 24 cm?
उस समचतुर्भुज का क्षेत्रफल (वर्ग सेमी में) ज्ञात करें जिसकी भुजा 20 सेमी है और उसका एक विकर्ण 24 सेमी है |
SSC CHSL 05 July 2019 (Morning)
(a) 384
(b) 350
(c) 396
(d) 392

Q11. In triangle ABC, the length BC is less than twice the length of AB by 3 cm. The length of AC exceeds the length of AB by 9 cm. The perimeter of the triangle is 34 cm. The length (in cm) of the smallest side of the triangle is
त्रिभुज ABC में, BC की लंबाई AB की लंबाई के दोगुने से 3 सेमी कम है | AC की लंबाई AB की लंबाई से 9 सेमी अधिक है | त्रिभुज का परिमाप 34 सेमी है | त्रिभुज की सबसे छोटी भुजा की लंबाई है -
SSC CHSL 05 July 2019 (Evening)
(a) 10
(b) 9
(c) 7
(d) 8

Q12. In triangle ABC, the length of BC is less than twice the length of AB by 3 cm. The length of the AC exceeds the length of AB by 1 cm. The perimeter of the triangle is 34 cm. The length (in cm) of the smaller side of the triangle is :
त्रिभुज ABC में, BC की लंबाई AB की लंबाई के दोगुने से 3 सेमी कम है | AC की लंबाई AB की लंबाई से 1 सेमी अधिक है | त्रिभुज का परिमाप 34 सेमी है | त्रिभुज की छोटी भुजा की लंबाई (सेमी में) ज्ञात करें |
SSC CHSL 08 July 2019(Morning)
(a) 10
(b) 8
(c) 7
(d) 9

Q13. If each side of a rectangle is increased by 13%, then its area will increase by :
यदि किसी आयत की प्रत्येक भुजा को 13% से बढ़ा दिया जाए, तो इसका क्षेत्रफल कितना बढ़ जाएगा ?
SSC CHSL 08 July 2019 (Afternoon)
(a) 21.69%
(b) 13%
(c) 27.69%
(d) 26%

Q14. If each side of a rectangle is decreased by 13%, then its area will decrease by :
यदि किसी आयत की प्रत्येक भुजा को 13% कम कर दिया जाए, तो इसका क्षेत्रफल कितना कम हो जाएगा ?
SSC CHSL 08 July 2019 (Evening)
(a) 26%
(b) 21.69%
(c) 13%
(d) 24.31%

Q15. Twelve sticks, each of length one unit, are used to form an right-angled triangle. The area of the triangle is :

बारह छड़ियाँ, जिनमें से प्रत्येक की लंबाई एक इकाई है, का इस्तेमाल एक समकोण त्रिभुज बनाने के लिए किया जाता है | इस त्रिभुज का क्षेत्रफल ज्ञात करें |

SSC CHSL 10 July 2019 (Afternoon)

(a) 4 *sq units*
(b) 6 *sq units*
(c) 8 *sq units*
(d) 10 *sq units*

Q16. Four cubes, each of edge 5 cm are joined end to end. What is the total surface area of the resulting cuboid ?

चार घन जिनमें से प्रत्येक का किनारा 5 सेमी है, उन्हें शुरू से अंत तक जोड़ा जाता है | इस प्रकार बनने वाले घनाभ का कुल पृष्ठ क्षेत्रफल ज्ञात करें |

SSC CHSL 11 July 2019(Evening)

(a) 475
(b) 450
(c) 600
(d) 500

Q17. Find the weight of solid cylinder of height 35 cm and radius 14 cm. If the material of the cylinder weighs 8 gm / cm^3 .

ऊंचाई 35 सेमी और त्रिज्या 14 cm के ठोस सिलेंडर का भार ज्ञात करें। यदि सिलेंडर की सामग्री का वजन 8 gm / cm^3 है।

SSC CPO 16 March 2019 (Morning)

(a) 160 Kg
(b) 172.48 Kg
(c) 166 Kg
(d) 177.44 Kg

Q18. A sphere of radius 5 cm is melted and recast into spheres of radius 2 cm each. How many such spheres can be made?

5 सेमी त्रिज्या वाले एक गोले को पिघलाया जाता है और 2 सेमी त्रिज्या वाले गोले बनाए जाते हैं | ऐसे कितने गोले बनाए जा सकते हैं ?

SSC CPO 12 March 2019 (Evening)

(a) 17
(b) 18
(c) 16
(d) 15

Q19. One side of a rhombus is 13 cm and one of its diagonal is 24 cm. What is the area of rhombus?

किसी समचतुर्भुज की एक भुजा 13 सेमी तथा इसका एक विकर्ण 24 सेमी का है | इस समचतुर्भुज का क्षेत्रफल क्या है ?

SSC CPO 12 March 2019 (Evening)

(a) 312 cm^2
(b) 156 cm^2
(c) 120 cm^2
(d) 130 cm^2

Q20. 6 cubes, each of edge 4 cm, are joined end to end. What is the total surface area of the resulting cuboid?

6 घन, जिनमें से प्रत्येक का किनारा 4 सेमी है, शुरू से अंत तक जुड़े हुए हैं | इस प्रकार बनने वाले घनाभ का कुल पृष्ठ क्षेत्रफल ज्ञात करें |

SSC CPO 12 March 2019(Evening)

(a) 416 cm^2
(b) 496 cm^2
(c) 576 cm^2
(d) 208 cm^2

Q21. A cuboid of edges 32cm, 4cm and 4cm is cut to form cubes of edge 4cm each. What is the sum of total surface areas of all cubes formed?

32 सेमी, 4 सेमी तथा 4 सेमी किनारों वाले एक घनाभ को 4 सेमी किनारा वाले घनों का निर्माण करने के लिए काटा जाता है | इस प्रकार बने सभी घनों के कुल पृष्ठ क्षेत्रफल का योग क्या होगा ?

SSC CPO 13 March 2019(Evening)

(a)576 cm^2
(b)768 cm^2
(c)640 cm^2
(d)544 cm^2

Q22. One side of a rhombus is 6.5 cm and one of it's diagonal is 12 cm. What is the area of the rhombus?

किसी समचतुर्भुज की एक भुजा 6.5 सेमी की है तथा इसका एक विकर्ण 12 सेमी का है | इस समचतुर्भुज का क्षेत्रफल ज्ञात करें |

SSC CPO 13 March 2019 (Evening)

(a) 78cm^2
(b) 15cm^2
(c) 30cm^2
(d) 60cm^2

Q23. A sphere of radius 9 cm is melted and recast into small spheres of radius 2 cm each. How many such sphere can be made?

9 सेमी त्रिज्या वाले एक गोले को पिघलाया जाता है और 2 सेमी त्रिज्या वाले गोले बनाए जाते हैं | ऐसे कितने गोले का निर्माण किया जा सकता है ?

SSC CPO 13 March 2019 (Evening)

(a) 90
(b) 92
(c) 93
(d) 91

Q24. The radius of a cylinder is increased by 60% and height is decreased by 20%, what is percentage increase in it's volume?

एक बेलन की त्रिज्या 60% बढ़ा दी जाती है और ऊंचाई 20% कम कर दी जाती है | इसके आयतन में कितने प्रतिशत की वृद्धि होगी ?

SSC CPO 13 March 2019 (Evening)

(a) 105.2%
(b) 104.8%

(c) 105.8%
(d) 105.6%

Q25. 5 cubes, each of edge 4cm, are joined end to end. What is the total surface area of resulting cuboid?
5 घन, जिनमें से प्रत्येक का किनारा 4 सेमी का है, को एक के बाद एक जोड़ा जाता है | इस प्रकार बनने वाले घनाभ का कुल पृष्ठ क्षेत्रफल क्या होगा ?
SSC CPO 12 March 2019 (Morning)
(a) 352 cm^2
(b) 486 cm^2
(c) 720 cm^2
(d) 526 cm^2

Q26. The sides of a triangle are 10cm, 24cm and 26 cm. At each of its vertices, circles of radius 3.5 cm are drawn. What is the area of the triangle excluding the portion covered by the sectors of the circle?
एक त्रिभुज की भुजाएं 10 सेमी, 24 सेमी तथा 26 सेमी की हैं | इसके प्रत्येक शीर्ष पर 3.5 सेमी त्रिज्या वाले वृत्त खींचे जाते हैं | वृत्त खंड द्वारा घेरे गए भाग को छोड़ कर इस त्रिभुज का क्षेत्रफल ज्ञात करें |
SSC CPO 12 March 2019 (Morning)
(a) 81.5 cm^2
(b) 100.75 cm^2
(c) 75.75 cm^2
(d) 78.25 cm^2

Q27. A sphere of radius 6 cm is melted and recast into sphere of radius 2 cm each. How many such spheres can be made?
6 सेमी त्रिज्या वाले एक गोले को पिघलाकर 2 सेमी त्रिज्या वाले गोले बनाए जाते हैं | ऐसे कितने गोले का निर्माण किया जा सकता है ?
SSC CPO 12 March 2019 (Morning)
(a) 36
(b) 25
(c) 27
(d) 24

Q28. The side of a rhombus is 5 cm and one of its diagonal is 8 cm. What is the area of the rhombus?
एक समचतुर्भुज की भुजा 5 सेमी तथा इसका एक विकर्ण 8 सेमी का है | इस समचतुर्भुज का क्षेत्रफल ज्ञात करें |
SSC CPO 12 March 2019 (Morning)
(a) 30 cm^2
(b) 20 cm^2
(c) 40 cm^2
(d) 24 cm^2

Q29. One side of a rhombus is 26 cm and one of the diagonal is 48 cm. What is the area of the rhombus?
किसी समचतुर्भुज की एक भुजा 26 सेमी की तथा इसका एक विकर्ण 48 सेमी का है | इस समचतुर्भुज का क्षेत्रफल ज्ञात करें | **SSC CPO 13 March 2019 (Morning)**
(a) 624 cm^2
(b) 580 cm^2
(c) 520 cm^2
(d) 480 cm^2

Q30. The sides of a triangle are 16 cm, 30 cm and 34 cm respectively. At each vertices, circles of radius 7 cm are drawn. What is the area of the triangle, excluding the portion covered by the sectors of the triangle? ($\pi = \frac{22}{7}$)
एक त्रिभुज की भुजाएं क्रमशः 16 सेमी, 30 सेमी तथा 34 सेमी की हैं | प्रत्येक शीर्ष पर 7 सेमी त्रिज्या वाले वृत्त खींचे जाते हैं | वृत्त के खंडो द्वारा घेरे गए भाग को छोड़ कर त्रिभुज का क्षेत्रफल ज्ञात करें |
SSC CPO 13 March 2019 (Morning)
(a) 172 cm^2
(b) 163 cm^2
(c) 196 cm^2
(d) 86 cm^2

Q31. The radius of a cylinder is increased by 150% and its height is increased by 50%. What is the percentage increase in its volume?
एक बेलन की त्रिज्या 150% बढ़ा दी जाती है और इसकी ऊंचाई में 50% की वृद्धि कर दी जाती है | इसके आयतन में कितने प्रतिशत की वृद्धि होगी ?
SSC CPO 13 March 2019 (Morning)
(a) 375%
(b) 625.5%
(c) 775.75%
(d) 837.5%

Q32. 8 cubes, each of edge 5 cm, are joined end to end. What is the total surface area of the resulting cuboid?
8 घनों को एक-एक करके जोड़ दिया जाता है जिनमें से प्रत्येक का किनारा 5 सेमी का है | इस प्रकार बनने वाले घनाभ का कुल पृष्ठ क्षेत्रफल ज्ञात करें |
SSC CPO 13 March 2019 (Morning)
(a) 850 cm^2
(b) 825 cm^2
(c) 1200 cm^2
(d) 800 cm^2

Q33. A sphere of radius 7 cm is melted and recast into small spheres of radius 2 cm each. How many such spheres can be made?
7 सेमी त्रिज्या वाले एक गोले को पिघलाकर 2 सेमी त्रिज्या वाले छोटे-छोटे गोले बनाए जाते हैं | ऐसे कितने गोले बनाए जा सकते हैं ?
SSC CPO 13 March 2019 (Morning)
(a) 40

(b) 42
(c) 41
(d) 43

Q34. The volume of a conical tent is 924 m^3 and its area is 154 m^2. The height of the tent is:
एक शंक्वाकार तंबू का आयतन 924 घन मीटर है तथा इसका क्षेत्रफल 154 घन मीटर है | इस तंबू की ऊंचाई ज्ञात करें | **SSC CPO 14 March 2019 (Morning)**
(a)24 m
(b)6 m
(c)18 m
(d)12 m

Q35. Three cubes with edges 6 cm each are joined end to end to form a cuboid. The total surface area of the cuboid is:
6 सेमी भुजा वाले तीन घनों को एक-एक करके जोड़ा जाता है और घनाभ बनाया जाता है | इस घनाभ का कुल पृष्ठ क्षेत्रफल ज्ञात करें |
SSC CPO 14 March 2019 (Morning)
(a)432 cm^2
(b)504 cm^2
(c)648 cm^2
(d)720 cm^2

Q36. The volume of a solid cylinder with height 6 cm is 231 cm^3. The radius of cylinder is :
6 सेमी ऊंचाई वाले एक ठोस बेलन का आयतन 231 घन सेमी है | इस बेलन की त्रिज्या ज्ञात करें |
SSC CPO 14 March 2019 (Morning)
(a)21 cm
(b)2.1 cm
(c)35 cm
(d)3.5 cm

Q37. A cube of side 1 m length is cut into small cubes of side 10 cm each. How many such small cubes can be obtained?
1 मी लंबी भुजा वाले किसी घन को 10 सेमी भुजा वाले प्रत्येक छोटे-छोटे घनों में काटा जाता है | ऐसे कितने छोटे घन प्राप्त किये जा सकते हैं ?
SSC CPO 16 March 2019(Evening)
(a)1000
(b)10000
(c)10
(d)100

Q38. The sides of a triangle are in the ratio 3 : 4 : 5. If the perimeter of the triangle is 24 cm, its area is:
एक त्रिभुज की भुजाएं 3 : 4 : 5 के अनुपात में हैं | यदि इस त्रिभुज का परिमाप 24 सेमी है, तो इसका क्षेत्रफल ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a) 18cm^2
(b) 24cm^2
(c) 20cm^2
(d) 22.89cm^2

Q39. How many soap cakes of size 8 cm × 4.5 cm × 2 cm can be kept in a carton of size 11 m × 0.82 m × 0.63 m?
8 सेमी × 4.5 सेमी × 2 सेमी आकार वाली साबुन की कितनी टिकिया को 11 मी x 0.82 मी x 0.63 मी आकार वाले एक डिब्बे में रखा जा सकता है ?
SSC CPO 15 March 2019 (Morning)
(a) 81052
(b) 75626
(c) 73498
(d) 78925

Q40. If a cuboid has l=24cm, b=16cm, h=7.5 cm, its lateral surface area is:
यदि किसी घनाभ में l = 24 सेमी, b = 16 सेमी, h = 7.5 सेमी है, तो इसका पार्श्व पृष्ठ क्षेत्रफल ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a)720 cm^2
(b)2880 cm^2
(c)600 cm^2
(d)1440 cm^2

Q41.The sides of a triangle are in the ratio 3 : 2 : 4 and the perimeter is 72 cm, The sides are:
एक त्रिभुज की भुजाएं 3 : 2 : 4 के अनुपात में हैं तथा इसका परिमाप 72 सेमी है | भुजाएं ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)24, 16, 32
(b)48, 24, 12
(c) 36, 24, 12
(d)36, 18, 9

Q42. A river is 3 m deep and 36 m wide flows at the rate of 5km/h in to sea. The volume of water that runs into the sea per minute is:
3 मीटर गहरी तथा 36 मीटर चौड़ी नदी समुद्र में 5 किमी/घंटा की चाल से बहती है | प्रति मीटर समुद्र में जाने वाले पानी का परिमाण ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)8300 m^3
(b)9000 m^3
(c)7600 m^3
(d)6400 m^3

Q43. A rectangular solid is 20 cm long and 12 cm wide. If its volume is 2160 cm^3, the height is:
एक आयताकार ठोस 20 सेमी लंबा तथा 12 सेमी चौड़ा है | यदि इसका आयतन 2160 घन सेमी है, तो इसकी ऊंचाई ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)11 cm
(b)10 cm
(c) 12 cm

(d) 9 cm

Q44. A diagonal of a quadrilateral is 40 cm. The length of the perpendicular to the opposite ends is 7.5 cm and 8.6 cm. What is the area of quadrilateral ?
किसी चतुर्भुज का एक विकर्ण 40 cm है | विपरीत सिरों से लम्ब की लम्बाई 7.5 cm और 8 .6 cm है | चतुर्भुज का क्षेत्रफल क्या है ?
SSC CPO 14 March 2019 (Evening)
(a) 434 cm^2
(b) 322 cm^2
(c) 368 cm^2
(d) 288 cm^2

Q45. The floor of the square room has a perimeter of 230 m and the height of the room is 5m. At the rate of 7.50 / m^2, what amount will be spent on dyeing the walls of the room?
वर्गाकार कमरे के फर्श की परिमिति 230 m और कमरे की ऊंचाई 5 m है | 7.50 / m^2 की दर से कमरे की दीवारों पर रंगाई करवाने पर कितनी राशि खर्च होगी ?
SSC CPO 14 March 2019 (Evening)
(a) Rs 3,450
(b) Rs 17,250
(c) Rs 8,625
(d) Rs 4,312.50

Q46. If the total surface area of a cube is 1944 m^2, then find the volume of the cube :
यदि एक घन का पृष्ठ क्षेत्रफल 1944 m^2 है , तो इसका आयतन है :
SSC CPO 14 March 2019(Evening)
(a) 1648 m^3
(b) 4912 m^3
(c) 2744 m^3
(d) 5832 m^3

Q47. Which of the following has the maximum number of vertex?
निम्नलिखित में से किस ठोस में सबसे अधिक शीर्ष होते है
SSC CPO 14 March 2019(Evening)
(a) Cuboid
(b) Triangular Prism
(c) Hexagonal pyramid
(d) Tetrahedron

Q48. How much volume will the wood need to make a closed box of 2.5cm thickness with outer measurements 90 cm × 75 cm × 50 cm ?
बाहरी माप 90cm × 75cm × 50cm के साथ 2.5cm मोटाई के एक बंद बॉक्स बनाने के लिए कितने आयतन की लकड़ी की आवश्यकता होगी ?
SSC CPO 14 March 2019 (Evening)
(a) 46720 cm^3
(b) 69750 cm^3
(c) 49050 cm^3
(d) 36170 cm^3

Q49. To make two triangles, a rectangular paper is cut slant. If the diagonal is $4\sqrt{5}$ and the length is twice the width, then the area of the rectangle is:
दो त्रिभुज बनाने के लिए एक आयताकार कागज को तिरछा काटा जाता हैं | यदि विकर्ण $4\sqrt{5}$ हैं और चौड़ाई तुलना में लम्बाई दोगुनी है, तो आयत का क्षेत्रफल है :
SSC CPO 15 March 2019 (Evening)
(a)54 cm^2
(b)72 cm^2
(c)32 cm^2
(d)80 cm^2

Q50. An 18 m deep well with diameter 7 m is dug and the earth from digging is spread evenly to form a platform 18 m × 14 m .The height of the platform is:
7 m व्यास वाला 18 m गहरा एक कुआं खोदा गया है | खुदाई से निकली मिट्टी को 18 m × 14 m का समतल प्लेटफॉर्म तैयार करने के लिए समान रूप से फैलाया जाता है | प्लेटफॉर्म की ऊंचाई कितनी होगी ?
SSC CPO 15 March 2019 (Evening)
(a)2.6 m
(b)3.2 m
(c)2.75m
(d)3.05 m

SSC CGL TIER II 2018

Q1. A right circular cylinder of maximum volume is cut out from a solid wooden cube. The material left is what percent of the volume (nearest to an integer) of the original cube ?
एक ठोस लकड़ी के घन से अधिकतम आयतन वाला एक लम्ब वृत्तीय बेलन काटा जाता है | बची हुई सामग्री आरंभिक घन के आयतन (एक पूर्णांक के निकटतम) का कितना प्रतिशत है ?
SSC CGL TIER II (11 September 2019)
(a) 19
(b) 28
(c) 23
(d) 21

Q2. The ratio of the volumes of two cylinders is x:y and the ratio of their diameters is a:b. What is the ratio of their heights?
दो बेलनों के आयतन का अनुपात x : y है और उनके व्यास का अनुपात a: b है | उनकी ऊंचाई का अनुपात ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) xb:ya
(b) xa:yb
(c) x b^2 :y a^2
(d) x a^2 :y b^2

Q3. If the radius of a right circular cylinder is decreased by 20% while its height is increased by 40%, then the percentage change in its volume will be :
यदि किसी लम्ब वृत्तीय बेलन की त्रिज्या 20% कम कर दी जाए और इसकी ऊंचाई 40% बढ़ा दी जाए, तो इसके आयतन में आने वाला प्रतिशत परिवर्तन होगा :
SSC CGL TIER II (11 September 2019)
(a) 1.04% increase
(b) 10.4% decrease
(c) No increase
(d) 10.4% increase

Q4. If the radius of the base of a cone is doubled, and the volume of the new cone is three times the volume of the original cone, then what will be the ratio of the height of the original cone to that of the new cone ?
यदि किसी शंकु के आधार की त्रिज्या दोगुनी कर दी गयी है , और नए शंकु का आयतन आरंभिक शंकु के आयतन का तिगुना है, तो आरंभिक शंकु और नए शंकु की ऊँचाइयों के बीच क्या अनुपात होगा ?
SSC CGL TIER II (11 September 2019)
(a) 1:3
(b) 4:3
(c) 2:9
(d) 9:4

Q5. If the diameter of the base of a cone is 42 cm and its curved surface area is 2310 cm^2, then what will be its volume (in cm^3) ?
यदि किसी शंकु के आधार का व्यास 42 सेमी है और इसका वक्र पृष्ठ क्षेत्रफल 2310 वर्ग सेमी है, तो इसका आयतन (घन सेमी में) क्या होगा ?
SSC CGL TIER II (11 September 2019)
(a) 25872
(b) 19404
(c) 12936
(d) 38808

Q6. If a cuboid of dimensions 32cm × 12cm × 9cm is cut into two cubes of same size, what will be the ratio of the surface area of the cuboid to the total surface area of the two cubes ?
यदि 32 सेमी x 12 सेमी x 9 सेमी विमाओं वाले एक घनाभ को बराबर आकार के दो घनों में काटा जाए, तो घनाभ के पृष्ठ क्षेत्रफल और दोनों घनों के कुल पृष्ठ क्षेत्रफल में क्या अनुपात होगा ?
SSC CGL TIER II (11 September 2019)
(a) 65:72
(b) 37:48
(c) 24:35
(d) 32:39

Q7. The base of right prism is a trapezium whose parallel sides are 11cm and 15cm and the distance between them is 9 cm. If the volume of the prism is 1731.6 cm^3, then the height (in cm) of the prism will be : एक लम्ब प्रिज्म का आधार समलंब है जिसकी समानांतर भुजाएं 11 सेमी और 15 सेमी हैं तथा उनके बीच की दूरी 9 सेमी है | यदि प्रिज्म का आयतन 1731.6 घन सेमी है, तो प्रिज्म की ऊंचाई होगी :
SSC CGL TIER II (11 September 2019)
(a) 15.6
(b) 15.2
(c) 14.8
(d) 14.2

Q8. The lateral surface area of a cylinder is 352 cm^2. If its height is 7 cm, then its volume (in cm^3) is : (Take $\pi = \frac{22}{7}$)
एक बेलन का पार्श्व पृष्ठ क्षेत्रफल 352 वर्ग सेमी है | यदि इसकी ऊंचाई 7 सेमी है, तो इसका आयतन (घन सेमी में) ज्ञात करें | ($\pi = \frac{22}{7}$)
SSC CGL TIER II (11 September 2019)
(a) 1408
(b) 1078
(c) 1243
(d) 891

Q9. The internal and external radii of a hollow hemispherical vessel are 6 cm and 7 cm respectively. What is the total surface are (in cm^2) of the vessel ?
एक खोखले अर्धगोलीय बर्तन की आतंरिक और बाह्य त्रिज्या क्रमश 6 सेमी और 7 सेमी है | इस बर्तन का कुल पृष्ठ क्षेत्रफल (वर्ग सेमी में) ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 183 π
(b) 189 π
(c) 177 π
(d) 174 π

Q10. Three solid metallic spheres whose radii are 1cm, x cm and 8 cm, are melted and recast into a single solid sphere of diameter 18 cm. The surface area (in cm^2) of the sphere with radius x cm is :
तीन ठोस धात्विक गोले जिनकी त्रिज्याएँ 1 सेमी, x सेमी और 8 सेमी हैं, उन्हें पिघलाया जाता है और फिर 18 सेमी व्यास वाला एक ठोस गोला बनाया जाता है | उस गोले का पृष्ठ क्षेत्रफल (वर्ग सेमी में) ज्ञात करें जिसकी त्रिज्या x सेमी थी |
SSC CGL TIER II (11 September 2019)
(a) 144 π
(b) 72 π
(c) 64 π
(d) 100 π

Q11. If the radius of a sphere is increased by 4 cm, its surface area is increased by 464π cm^2. What is the volume (in cm^3) of the original sphere ?
यदि किसी गोले की त्रिज्या 4 सेमी से बढ़ा दी जाए, तो इसका पृष्ठ क्षेत्रफल 464π वर्ग सेमी से बढ़ जाता है | आरंभिक गोले का आयतन (घन सेमी में) क्या था ?
SSC CGL TIER II (11 September 2019)
(a) $\frac{15625}{6}\pi$
(b) $\frac{35937}{8}\pi$
(c) $\frac{11979}{2}\pi$
(d) $\frac{15625}{8}\pi$

Q12. The volume of a right pyramid is $45\sqrt{3}$ cm^3 and its base is an equilateral triangle with side 6 cm. What is the height (in cm) of the pyramid ?
एक लम्ब पिरामिड का आयतन $45\sqrt{3}$ घन सेमी है और इसका आधार एक समबाहु त्रिभुज है जिसकी भुजा 6 सेमी है | इस पिरामिड की ऊंचाई (सेमी में) ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 15
(b) 18
(c) 12
(d) 20

Q13. The area of the base of a right circular cone is 400π and its height is 15 cm. The curved surface area of the cone (in cm^2) is :
एक लम्ब वृत्तीय शंकु के आधार का क्षेत्रफल 400π है और इसकी ऊंचाई 15 सेमी है | इस शंकु का वक्र पृष्ठ क्षेत्रफल (वर्ग सेमी में) है :
SSC CGL TIER II (12 September 2019)
(a) 480π
(b) 500π
(c) 450π
(d) 560π

Q14. The base of a right prism is a triangle with sides 20 cm, 21 cm and 29 cm. If its volume is 7560 cm^3, then its lateral surface area (in cm^2) is : एक लम्ब प्रिज्म का आधार एक त्रिभुज है जिसकी भुजाएं 20 सेमी, 21 सेमी और 29 सेमी की हैं | यदि इसका आयतन 7560 घन सेमी है, तो इसका पार्श्व पृष्ठ क्षेत्रफल (वर्ग सेमी में) ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 2484
(b) 2556
(c) 2520
(d) 2448

Q15. A cylindrical vessel of radius 3.5 m is full of water. If 15400 litres of water is taken out from it, then the drop in the water level in the vessel will be :
3.5 मी त्रिज्या वाला एक बेलनाकार बर्तन पानी से भरा हुआ है | यदि इस से 15400 लीटर पानी निकाल लिया जाए, तो इस बर्तन के जल स्तर में कितनी गिरावट आएगी ?
SSC CGL TIER II (12 September 2019)
(a) 72 cm
(b) 40 cm
(c) 35 cm
(d) 60 cm

Q16. A solid metallic sphere of radius 8 cm is melted and drawn into a wire of uniform cross-section. If the length of the wire is 24 m, then its radius (in mm) is :
8 सेमी त्रिज्या वाले एक ठोस धात्विक गोले को पिघलाया जाता है और एक समान अनुप्रस्थ काट वाला एक तार बनाया जाता है | यदि तार की लंबाई 24 मी है, तो इसकी त्रिज्या होगी :
SSC CGL TIER II (12 September 2019)
(a) 6
(b) 5
(c) $5\frac{1}{3}$
(d) $6\frac{2}{3}$

Q17. The sides of a triangle are 56 cm, 90 cm and 106 cm. The circumference of its circumcircle is : एक त्रिभुज की भुजाएं 56 सेमी, 90 सेमी और 106 सेमी हैं | इसके परिवृत्त की परिधि ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 106π
(b) 109π
(c) 108π
(d) 112π

Q18. The base of a right pyramid is an equilateral triangle with side 8 cm, and the height of pyramid is $24\sqrt{3}$ cm. The volume (in cm^3) of the pyramid is :
एक लम्ब पिरामिड का आधार एक समबाहु त्रिभुज है जिसकी भुजा 8 सेमी की है | पिरामिड की ऊंचाई $24\sqrt{3}$ सेमी है | इस पिरामिड का आयतन (घन सेमी में) ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 1152
(b) 480
(c) 576
(d) 384

Q19. If the diameter of the base of a right circular cylinder is reduced by $33\frac{1}{3}$% and its height is doubled, then the volume of the cylinder will :
यदि किसी लम्ब वृत्तीय बेलन के आधार का व्यास $33\frac{1}{3}$% कम कर दिया जाए और इसकी ऊंचाई दोगुनी कर दी जाए, तो इस बेलन का आयतन :
SSC CGL TIER II (12 September 2019)

(a) increase by $1\frac{1}{9}\%$ / $1\frac{1}{9}\%$ बढ़ जाएगा
(b) remain unchanged/ अपरिवर्तित रहेगा
(c) increase by $11\frac{1}{9}\%$/ $11\frac{1}{9}\%$ बढ़ जाएगा
(d) decrease by $11\frac{1}{9}\%$ / $11\frac{1}{9}\%$ कम हो जाएगा

Q20. A right circular solid cone of radius 3.2 cm and height 7.2 cm is melted and recast into a right circular cylinder of height 9.6 cm. What is the diameter of the base of the cylinder ?
3.2 सेमी त्रिज्या और 7.2 सेमी ऊंचाई वाले एक लम्ब वृत्तीय ठोस शंकु को पिघलाया जाता है तथा 9.6 सेमी ऊँचाई वाला एक लम्ब वृत्तीय बेलन बनाया जाता है | बेलन के आधार का व्यास कितना है ?
SSC CGL TIER II (12 September 2019)
(a) 4.2 cm
(b) 4.5 cm
(c) 3.5 cm
(d) 3.2 cm

Q21. A hemispherical bowl of internal diameter 36 cm is full of a liquid. This liquid is to be filled into cylindrical bottles each of radius 3 cm and height 12 cm. How many such bottles are required to empty the bowl ?
36 सेमी आतंरिक व्यास वाला अर्धगोलीय कटोरा किसी तरल पदार्थ से भरा हुआ है | इस तरल पदार्थ को बेलनाकार बोतलों में डाला जाता है जिनमें से प्रत्येक की त्रिज्या 3 सेमी और ऊंचाई 12 सेमी है | कटोरे को खाली करने के लिए ऐसी कितनी बोतलों की आवश्यकता है ?
SSC CGL TIER II (12 September 2019)
(a) 72
(b) 54
(c) 36
(d) 27

Q22. A solid cube is cut into three cuboids of same volumes. What is the ratio of the surface area of the cube to the sum of the surface areas of any two of the cuboids so formed ?
एक ठोस घन को समान आयतन वाले तीन घनाभों में काटा जाता है | घन के पृष्ठ क्षेत्रफल तथा किसी भी दो घनाभ के पृष्ठ क्षेत्रफलों के जोड़ के बीच अनुपात ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 9:10
(b) 27:16
(c) 27:10
(d) 9:8

Q23. If the curved surface area of a solid cylinder is one-third of its total surface area, then what is the ratio of its diameter to its height ?
/ यदि किसी ठोस बेलन का वक्र पृष्ठ क्षेत्रफल इसके कुल पृष्ठ क्षेत्रफल का एक-तिहाई है, तो इसके व्यास और इसकी ऊंचाई में अनुपात ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 5:2
(b) 1:1
(c) 2:1
(d) 4:1

Q24. A field roller, in the shape of a cylinder, has a diameter of 1 m and length of $1\frac{1}{4}$ m. If the speed at which the roller rolls is 14 revolutions per minute, then the maximum are (in m^2) that it can roll in 1 hour is : (Take $\pi = \frac{22}{7}$)
एक मैदानी रोलर, जो बेलन के आकार का है, उसका व्यास 1 मी और लंबाई $1\frac{1}{4}$ मी है| यदि इस रोलर के घूमने की चाल 14 चक्कर प्रति मिनट है, तो 1 घंटे में यह अधिकतम कितने क्षेत्रफल (वर्ग मीटर में) पर घूम सकता है ? ($\pi = \frac{22}{7}$) **SSC CGL TIER II (12 September 2019)**
(a) 3960
(b) 3600
(c) 3300
(d) 3560

Q25. If the volume of a sphere is 4851 cm^3, then its surface area (in cm^2) is : (Take $\pi = \frac{22}{7}$)
यदि एक गोले का आयतन 4851 घन सेमी है, तो इसका पृष्ठ क्षेत्रफल (वर्ग सेमी में) होगा : ($\pi = \frac{22}{7}$)
SSC CGL TIER II (12 September 2019)
(a) 1386
(b) 2772
(c) 1323
(d) 1337

Q26. N solid metallic spherical balls are melted and recast into a cylindrical rod whose radius is 3 times that of a spherical ball and height is 4 times the radius of a spherical ball. The value of N is :
N ठोस धात्विक गोलाकार गेंदों को पिघलाकर एक बेलनाकार छड़ बनाया जाता है जिसकी त्रिज्या एक गोलाकार गेंद की त्रिज्या से तिगुनी है और ऊंचाई एक गोलाकार गेंद की त्रिज्या से चौगुनी है | N का मान है :
SSC CGL TIER II (13 September 2019)

(a) 30
(b) 27
(c) 24
(d) 36

Q27. The radius of the base of a right circular cylinder is increased by 20%. By what per cent should its height be reduced so that its volume remains the same as before ?
एक लम्ब वृत्तीय बेलन के आधार की त्रिज्या 20% बढ़ा दी जाती है | इसकी ऊंचाई को कितने प्रतिशत से कम

किया जाना चाहिए ताकि इसका आयतन पहले जितना ही बना रहे?
SSC CGL TIER II (13 September 2019)
(a) 25
(b) $30\frac{2}{9}$
(c) $30\frac{5}{9}$
(d) 28

Q28. The radius and the height of a right circular cone are in the ratio 5:12. Its curved surface area is 816.4 cm^2. What is the volume (in cm^3) of the cone ? (Take $\pi = 3.14$)
एक लम्ब वृत्तीय शंकु की त्रिज्या तथा ऊंचाई 5 : 12 के अनुपात में है | इसका वक्र पृष्ठ क्षेत्रफल 816.4 वर्ग सेमी है | इस शंकु का आयतन (घन सेमी में) ज्ञात करें | ($\pi = 3.14$)
SSC CGL TIER II (13 September 2019)
(a) 2512
(b) 1256
(c) 3140
(d) 628

Q29. The sides of a triangle are 12 cm, 35 cm and 37 cm. What is the circumradius of the triangle ?
एक त्रिभुज की भुजाएं 12 सेमी, 35 सेमी और 37 सेमी की हैं | इस त्रिभुज की परित्रिज्या ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 19 cm
(b) 17.5 cm
(c) 17 cm
(d) 18.5 cm

Q30. The base of a right pyramid is an equilateral triangle with area $16\sqrt{3}$ cm^2. If the area of one of its lateral faces is 30 cm^2, then its height (in cm) is:
एक लम्ब पिरामिड का आधार एक समबाहु त्रिभुज है जिसका क्षेत्रफल $16\sqrt{3}$ वर्ग सेमी है | यदि इसके एक पार्श्व फलक का क्षेत्रफल 30 वर्ग सेमी है, तो इसकी ऊंचाई ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) $\sqrt{\frac{739}{12}}$
(b) $\sqrt{\frac{209}{12}}$
(c) $\sqrt{\frac{611}{12}}$
(d) $\sqrt{\frac{643}{12}}$

Q31. A sphere of maximum volume is cut out from a solid hemisphere. What is the ratio of the volume of the sphere to that of the remaining solid ?
किसी ठोस अर्धगोले से अधिकतम आयतन वाला एक गोला काटा जाता है | गोले के आयतन एवं शेष बचे ठोस के आयतन के बीच अनुपात ज्ञात करें | **SSC CGL TIER II (13 September 2019)**
(a) 1:4
(b) 1:2
(c) 1:3
(d) 1:1

Q32. A right prism has height 18cm and its base is a triangle with sides 5cm, 8cm and 12cm. What is the lateral surface area (in cm^2) ?
एक लम्ब प्रिज्म की ऊंचाई 18 सेमी है तथा इसका आधार एक त्रिभुज है जिसकी भुजाएं 5 सेमी, 8 सेमी और 12 सेमी की हैं | पार्श्व पृष्ठ क्षेत्रफल (वर्ग सेमी में) ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 450
(b) 468
(c) 432
(d) 486

Q33. A 15m deep well with radius 2.8 m is dug and the earth taken out from it is spread evenly to form a platform of breadth 8m and height 1.5m. What will be the length of the platform ? (Take $\pi = \frac{22}{7}$)
2.8 मी त्रिज्या वाला 15 मी गहरा एक कुआँ खोदा जाता है तथा इससे निकली मिट्टी को समान रूप से फैलाकर 8 मी चौड़ाई तथा 1.5 मी ऊंचाई वाला एक चबूतरा बनाया जाता है | इस चबूतरे की लंबाई क्या होगी ? ($\pi = \frac{22}{7}$)
SSC CGL TIER II (13 September 2019)
(a) 28.4 m
(b) 28.8 m
(c) 30.2 m
(d) 30.8 m

Q34. A tank is in the form of a cuboid with length 12m. If 18 kilolitre of water is removed from it, the water level goes down by 30 cm. What is the width (in m) of the tank ?
एक टंकी घनाभ के आकार की है जिसकी लंबाई 12 मी है | यदि इससे 18 किलोलीटर पानी निकाल दिया जाए, तो जल स्तर 30 सेमी नीचे चला जाता है | टंकी की चौड़ाई (मीटर में) कितनी है ?
SSC CGL TIER II (13 September 2019)
(a) 4
(b) 5
(c) 5.5
(d) 4.5

Q35. The radius of the base of a right circular cylinder is 3 cm and its curved surface area is 60π cm^2. The volume of the cylinder (in cm^3) is : एक लम्ब वृत्तीय बेलन के आधार की त्रिज्या 3 सेमी है तथा इसका वक्र पृष्ठ क्षेत्रफल 60π वर्ग सेमी है | इस बेलन का आयतन होगा :
SSC CGL TIER II (13 September 2019)
(a) 90π
(b) 72π
(c) 60π

(d) 81 π

Q36. A solid cylinder of base radius 12cm and height 15 cm is melted and recast into n toys each in the shape of a right circular cone of height 9 cm mounted on a hemisphere of radius 3 cm. The value of n is : आधार त्रिज्या 12 सेमी तथा ऊंचाई 15 सेमी वाले एक ठोस बेलन को पिघलाकर n खिलौने बनाए जाते हैं जिनमें से प्रत्येक 3 सेमी त्रिज्या वाले अर्धगोले के शीर्ष पर स्थित एक लम्ब वृत्तीय शंकु के आकार में हैं जिसकी ऊंचाई 9 सेमी है | n का मान ज्ञात करें |

SSC CGL TIER II (13 September 2019)

(a) 27
(b) 64
(c) 48
(d) 54

Q37. The internal diameter of a hollow hemispherical vessel is 24 cm. It is made of a steel sheet which is 0.5 cm thick. What is the total surface area (in cm^2) of the vessel ? एक खोखले अर्धगोलीय बर्तन का आतंरिक व्यास 24 सेमी है | यह इस्पात की चादर से बना हुआ है जिसकी मोटाई 0.5 सेमी है | इस बर्तन का कुल पृष्ठ क्षेत्रफल (वर्ग सेमी में) ज्ञात करें |

SSC CGL TIER II (13 September 2019)

(a) 612.75 π
(b) 468.75 π
(c) 600.2 π
(d) 600.5 π

Q38. A sector of radius 10.5 cm with the central angle 120° is folded to form a cone by joining the two bounding radii of the sector. What is the volume (in cm^3) of the cone so formed ?
10.5 सेमी त्रिज्या वाला एक वृत्त खंड है जिसका केंद्रीय कोण 120° है | इसे मोड़कर वृत्त खंड की दो सीमांकन त्रिज्याओं को जोड़ कर एक शंकु का निर्माण किया जाता है | इस प्रकार निर्मित शंकु का आयतन (घन सेमी में) क्या होगा ?

SSC CGL TIER II (13 September 2019)

(a) $\frac{343\sqrt{2}}{6}$ π
(b) $\frac{343\sqrt{3}}{6}$ π
(c) $\frac{343\sqrt{3}}{12}$ π
(d) $\frac{343\sqrt{2}}{12}$ π

SSC MTS

Q1. 0.1 percent of 1.728 x 10^6 spherical droplets of water, each of diameter 2 mm, coalesce to form a spherical bubble. What is the diameter (in cm) of the bubble ?/ 1.728 x 10^6
पानी की 1.728 x 10^6 गोलाकार बून्दें , जिनमें से प्रत्येक का व्यास 2 मिमी है, उन का 0.1 प्रतिशत, एक साथ मिलकर एक गोलाकार बुलबुला बनाते हैं। इस बुलबुले का व्यास (सेमी में) क्या है? 1.728 x 10^6

SSC MTS 2 August 2019 (Morning)

(a) 1.2
(b) 1.6
(c) 1.8
(d) 2.4

Q2. If the volumes of two cubes are in the ratio 64:125, then what is the ratio of their total surface areas?
यदि दो घनों के आयतन 64 : 125 के अनुपात में हैं, तो उनके कुल पृष्ठ क्षेत्रफलों का अनुपात क्या होगा ?

SSC MTS 2 August 2019 (Morning)

(a) 9:16
(b) 4:5
(c) 16:25
(d) 64:125

Q3. Radius of the base of a right circular cone and a sphere is each equal to r. If the sphere and the cone have the same volume, then what is the height of the cone?
एक लम्ब वृत्तीय शंकु के आधार एवं एक गोले की त्रिज्या दोनों r के बराबर है | यदि गोले और शंकु का आयतन समान है, तो शंकु की ऊंचाई कितनी है ?

SSC MTS 2 August 2019 (Morning)

(a) 7r
(b) 4r
(c) 2r
(d) 3r

Q 4. The perimeter of a rhombus is 20 cm. The length of its one of the diagonals is 6 cm Find the length of the other diagonal .
किसी समचतुर्भुज की परिमाप 20 cm है | इसके एक विकर्ण की लम्बाई 6 cm है | दूसरे विकर्ण की लम्बाई कितनी है?

SSC MTS 2 August 2019 (Afternoon)

(a) 10 cm
(b) 8 cm
(c) 9 cm
(d) 6 cm

Q5. The side of a square is 6 cm. Find the area of the largest circle that can be drawn inside the square. ($\pi = \frac{22}{7}$)
एक वर्ग की भुजा 6 cm है | वर्ग के अंदर बनने वाले सबसे बड़े वृत्त का क्षेत्रफल कितना है? ($\pi = \frac{22}{7}$)

SSC MTS 2 August 2019 (Afternoon)

(a) $\frac{198}{7}$ cm^2
(b) $\frac{318}{7}$ cm^2
(c) $\frac{252}{7}$ cm^2
(d) $\frac{156}{7}$ cm^2

Q6. The length, breadth and height of a cuboid is 15 cm, 12 cm and 11 cm respectively.

Length is reduced by $6\frac{2}{3}$% and breadth is increased by $8\frac{1}{3}$% while the height remains the same. What is the change in the total area of four side faces of the cuboid ? (considering the rectangle formed by the length and breadth as base)

किसी घनाभ की लम्बाई, चौड़ाई और ऊंचाई क्रमशः 15 cm, 12 cm तथा 11 cm है | लम्बाई को $6\frac{2}{3}$% घटा दिया जाता है और चौड़ाई $8\frac{1}{3}$% को बढ़ा दिया जाता है जबकि ऊंचाई को अपरिवर्तित रखा जाता है | घनाभ के (लम्बाई और चौड़ाई से बने आयत को आधार मानते हुए) चार पार्श्व-फलकों के कुल क्षेत्रफल में कितना परिवर्तन है?

SSC MTS 2 August 2019 (Afternoon)

(a) 22 sq. cm decrease
(b) 22 sq. cm increase
(c) No change
(d) 33 sq. cm increase

Q7. The side of a cube is 15cm. What is the base area of a cuboid whose volume is 175 cm^3 less than that of the cube and whose height is 32 cm?

एक घन की भुजा 15 सेमी है | उस घनाभ के आधार का क्षेत्रफल ज्ञात करें जिसका आयतन घन के आयतन से 175 घन सेमी कम है तथा जिसकी ऊंचाई 32 सेमी है |

SSC MTS 2 August 2019 (Evening)

(a) 200 cm^2
(b) 100 cm^2
(c) 160 cm^2
(d) 325 cm^2

Q8. The height of a right circular cone is 5 cm and its base radius is 12 cm. What is the curved surface area of the cone?

एक लम्ब वृत्तीय शंकु की ऊंचाई 5 सेमी है तथा इसके आधार की त्रिज्या 12 सेमी है | इस शंकु का वक्र पृष्ठ क्षेत्रफल ज्ञात करें |

SSC MTS 2 August 2019 (Evening)

(a) 132 πcm^2
(b) 143 πcm^2
(c) 156 πcm^2
(d) 168 πcm^2

Q9. The length, breadth and height of a cuboid are 5 cm, 2 cm and 4 cm respectively. What is the total surface area of the cuboid?

किसी घनाभ की लंबाई, चौड़ाई और ऊंचाई क्रमशः 5 सेमी, 2 सेमी और 4 सेमी है | इस घनाभ का कुल पृष्ठीय क्षेत्रफल ज्ञात करें |

SSC MTS 5 August 2019 (Morning)

(a) 84 cm^2
(b) 152 cm^2
(c) 38 cm^2
(d) 76 cm^2

Q10. 70 sticks each of unit length are combined to form a right angle triangle without breaking any stick. What is the area (in square units) of the triangle? / 70 तीलियाँ, जिनमें से प्रत्येक इकाई लंबाई की हैं, उन्हें संयुक्त करके बिना एक भी तीली तोड़े एक समकोण त्रिभुज बनाया जाता है | इस त्रिभुज का क्षेत्रफल (वर्ग इकाई में) क्या होगा ?

SSC MTS 5 August 2019 (Morning)

(a) 210
(b) 180
(c) 240
(d) 350

Q11. The radius of a sphere is equal to the base radius and height of a right circular cylinder. What is the ratio between the surface area of the sphere and curved surface area of the cylinder ?

किसी गोले की त्रिज्या, एक लंबवत बेलन (सिलिंडर) के आधार की त्रिज्या तथा ऊंचाई के बराबर है | गोले की पृष्ठभूमि क्षेत्रफल (सरफेस एरिया) तथा बेलन (सिलिंडर) के वक्र पृष्ठ के क्षेत्रफल का अनुपात कितना है ?

SSC MTS 5 August 2019 (Afternoon)

(a) 2:1
(b) 1:2
(c) 1:1
(d) 2:3

Q12. The length of a cuboid is double of its breadth and its height is half of its breadth. If the height of the cuboid is 2 cm, then what will be the edge of a cube whose volume is the same as that of the cuboid mentioned above ?

किसी घनाभ की लम्बाई अपनी चौड़ाई की दोगुनी है तथा उसकी ऊंचाई, उसकी चौड़ाई की आधी है | यदि घनाभ की ऊंचाई 2 cm है, तब किसी घण का कोर (एज) कितना होगा जिसका आयतन उक्त घनाभ के समान है ?

SSC MTS 5 August 2019 (Afternoon)

(a) 4 cm
(b) 6.4 cm
(c) 8 cm
(d) 7.2 cm

Q13. The diameter of a solid hemisphere is 35 cm. What is its total surface ? ($\pi = \frac{22}{7}$)

किसी ठोस अर्ध-गोले का व्यास 35 cm है| उसका कुल तल कितना है| ($\pi = \frac{22}{7}$)

SSC MTS 5 August 2019 (Afternoon)

(a) 2981 cm^2
(b) 2887.5 cm^2
(c) 3163 cm^2
(d) 2198.5 cm^2

Pinnacle

Q14. The side of an equilateral triangle is 4 cm. What is its area ?
एक समबाहु त्रिभुज की भुजा 4 cm है | उसका क्षेत्रफल कितना है?
SSC MTS 5 August 2019 (Evening)
(a) $8\sqrt{3}$ cm^2
(b) $6\sqrt{3}$ cm^2
(c) $9\sqrt{3}$ cm^2
(d) $4\sqrt{3}$ cm^2

Q15. A ribbon of equal width and length l is wrapped around the curved surface of a right circular cylinder to cover it completely. If the base circumference of this cylinder is c, then how many times the ribbon was wrapped around the cylinder ?
एक समान चौड़ाई वाले किसी रिबन, जिसकी लम्बाई l है, को एक लम्ब वृत्तीय बेलन (सिलिंडर) के वक्र पृष्ठ (कवर्ड सरफेस) पर पूर्ण रूप से कवर करने के लिए लपेटा जाता है | यदि बेलन (सिलिंडर) के आधार की परिधि c है, तो बेलन (सिलिंडर) पर रिबन से कितनी बार लपेटा गया :
SSC MTS 5 August 2019 (Evening)
(a) $\frac{l}{4c}$
(b) $\frac{l}{c}$
(c) $\frac{l}{2c}$
(d) $\frac{2l}{c}$

Q16. The volume of a right circular cone is 1232 cm^3 and its height is 24 cm. Find its curved surface area. ($\pi = \frac{22}{7}$)
एक लम्ब वृत्तीय शंकु का आयतन 1232 cm^3 है तथा उसकी ऊंचाई 24 cm है | उसका वक्र पृष्ठ क्षेत्रफल कितना है? ($\pi = \frac{22}{7}$)
SSC MTS 5 August 2019 (Evening)
(a) 354 cm^2
(b) 550 cm^2
(c) 430 cm^2
(d) 604 cm^2

Q17. What is the ratio between the inradius and the circumradius of a square ?
किसी वर्ग की अन्तः त्रिज्या (इन रेडियस) तथा परित्रिज्या (सिरकम-रेडियस) का अनुपात कितना है ?
SSC MTS 6 August 2019 (Morning)
(a) 1:2
(b) $\sqrt{2}$:3
(c) 1:3
(d) 1: $\sqrt{2}$

Q18. The curved surface area of a cylinder is 25344 cm^2 and its height is 32 cm. Find the volume of cylinder whose capacity is $\frac{\pi}{792}$ times the capacity of the cylinder given.
किसी बेलन (सिलिंडर) का वक्र पृष्ठ क्षेत्रफल 25344 cm^2 है तथा उसकी ऊंचाई 32 cm है | उस बेलन (सिलिंडर) का आयतन कितना है जिसकी धारिता दिए गए बेलन (सिलिंडर) के आयतन की $\frac{\pi}{792}$ गुनी है?
SSC MTS 6 August 2019 (Morning)
(a) 3168 cm^3
(b) 6336 cm^3
(c) 1584 cm^3
(d) 9504 cm^3

Q19. The diagonal of a square is 24 cm. Find its perimeter.
एक वर्ग का विकर्ण 24 cm है | उसका परिमाप कितना है?
SSC MTS 6 August 2019 (Morning)
(a) 28 cm
(b) 48 $\sqrt{2}$ cm
(c) 36 $\sqrt{2}$ cm
(d) 46 $\sqrt{2}$ cm

Q20. What is the total surface area and the curved surface area of a solid hemisphere with a radius of 14 cm.
14 cm की त्रिज्या वाले किसी ठोस अर्धगोले का संपूर्ण पृष्ठ क्षेत्रफल तथा वक्र पृष्ठ क्षेत्रफल कितना है?
SSC MTS 6 August 2019 (Afternoon)
(a) 5544 cm^2 , 1848 cm^2
(b) 1848 cm^2 , 1232 cm^2
(c) 924 cm^2 , 616 cm^2
(d) 2772 cm^2 , 1848 cm^2

Q21. The radius of a right circular cylinder is 7 cm. Its height is double of its radius. What is the curved surface area of the cylinder ? ($\pi = \frac{22}{7}$)
किसी लंब वृत्तीय बेलन (सिलिंडर) की त्रिज्या 7 cm है | उसकी ऊंचाई उसकी त्रिज्या की दोगुनी है | बेलन (सिलिंडर) का वक्र पृष्ठ क्षेत्रफल कितना है? ($\pi = \frac{22}{7}$)
SSC MTS 6 August 2019 (Afternoon)
(a) 476 cm^2
(b) 1232 cm^2
(c) 616 cm^2
(d) 896 cm^2

Q22. The side of a hexagon is 4 cm. The side of a square is $4\sqrt{2}$ cm. Find the ratio of their areas.
किसी षट्भुज की भुजा 4 cm है | किसी वर्ग की भुजा $4\sqrt{2}$ cm है | उनके क्षेत्रफल का अनुपात कितना है?
SSC MTS 6 August 2019 (Afternoon)
(a) 3 $\sqrt{3}$:2
(b) 2 $\sqrt{3}$:1
(c) 3 $\sqrt{3}$:4
(d) $\sqrt{3}/2$:1

Q23. The radii of a right circular cone and a right circular cylinder are in the ratio 2:3. If the ratio of

heights of the cone and the cylinder is 3:4, then what is the ratio of the volumes of the cone and the cylinder?
एक लम्ब वृत्तीय शंकु तथा लम्ब वृत्तीय बेलन की त्रिज्याएँ 2 : 3 के अनुपात में हैं | यदि शंकु तथा बेलन की ऊंचाई में 3 : 4 का अनुपात है, तो शंकु तथा बेलन के आयतन में क्या अनुपात होगा ?
SSC MTS 6 August 2019 (Evening)
(a) 1:6
(b) 1:3
(c) 1:9
(d) 2:3

Q24. The area of rhombus is 300 cm^2. If the length of one of the diagonals of the rhombus is 30 cm, then what is the length (in cm) of the second diagonal?
किसी समचतुर्भुज का क्षेत्रफल 300 वर्ग सेमी है | यदि समचतुर्भुज के एक विकर्ण की लंबाई 30 सेमी है, तो दूसरे विकर्ण की लंबाई कितनी होगी ? (सेमी में)
SSC MTS 6 August 2019 (Evening)
(a) 25
(b) 10
(c) 20
(d) 30

Q25. If the height of an equilateral triangle is $20\sqrt{2}$ cm, then what is its area (in cm^2)?
यदि किसी समबाहु त्रिभुज की ऊंचाई $20\sqrt{2}$ cm है, तो इसका क्षेत्रफल (वर्ग सेमी में) ज्ञात करें |
SSC MTS 6 August 2019 (Evening)
(a) $\frac{800}{3}$
(b) $\frac{1}{3}400\sqrt{3}$
(c) $\frac{1}{3}800\sqrt{3}$
(d) $\frac{400}{3}$

Q26. What is the area of a triangle whose sides are 7cm, 24cm and 25 cm?
उस त्रिभुज का क्षेत्रफल ज्ञात करें जिसकी भुजाएँ 7 सेमी, 24 सेमी और 25 सेमी की हैं |
SSC MTS 7 August 2019 (Morning)
(a) 72 cm^2
(b) 108 cm^2
(c) 84 cm^2
(d) 42 cm^2

Q27. What is the area of the largest square which can be inscribed in a circle of radius 14 cm? ($\pi = \frac{22}{7}$)
उस सबसे बड़े वर्ग का क्षेत्रफल ज्ञात करें जिसे 14 सेमी त्रिज्या वाले वृत्त के भीतर खींचा जा सकता है | ($\pi = \frac{22}{7}$)
SSC MTS 7 August 2019 (Morning)
(a) 392 cm^2
(b) 484 cm^2
(c) 196 cm^2
(d) 784 cm^2

Q28. The height of a right circular cone is 24 cm and the radius of its base is 7 cm. What is the cost of painting the curved surface area of the cone at the rate of Rs. 6 per cm^2 ? ($\pi = \frac{22}{7}$)
एक लम्ब वृत्तीय शंकु की ऊंचाई 24 सेमी है तथा इसके आधार की त्रिज्या 7 सेमी है | 6 रुपये प्रति वर्ग सेमी की दर से शंकु के वक्र पृष्ठ क्षेत्रफल को रंगने की लागत कितनी आएगी ?
SSC MTS 7 August 2019 (Morning)
(a) Rs. 3600
(b) Rs. 3300
(c) Rs. 880
(d) Rs. 4200

Q29. If the lengths of the diagonals of a rhombus are 24 cm and 18 cm, then what is the area of the rhombus?
यदि किसी समचतुर्भुज के विकर्णों की लंबाई 24 सेमी और 18 सेमी है, तो इस समचतुर्भुज का क्षेत्रफल ज्ञात करें |
SSC MTS 7 August 2019 (Afternoon)
(a) 196 cm^2
(b) 188 cm^2
(c) 204 cm^2
(d) 216 cm^2

Q30. The base and hypotenuse of a right angle triangle is 9 cm and 41 cm respectively. What is the ratio of triangle ?
किसी समकोण त्रिभुज का आधार तथा कर्ण क्रमशः 9 सेमी एवं 41 सेमी का है | त्रिभुज का क्षेत्रफल क्या होगा ?
SSC MTS 7 August 2019 (Afternoon)
(a) 180 cm^2
(b) 170 cm^2
(c) 190 cm^2
(d) 210 cm^2

Q31. What is the area of the largest square which can be inscribed in a circle of radius 28 cm?
उस सबसे बड़े वर्ग का क्षेत्रफल ज्ञात करें जिसे 28 सेमी त्रिज्या वाले वृत्त के भीतर खींचा जा सकता है |
SSC MTS 7 August 2019 (Afternoon)
(a) 3136 cm^2
(b) 1568 cm^2
(c) 784 cm^2
(d) 196 cm^2

Q32. A room is in the shape of a cuboid, with dimensions 12m x 10m x 3m. What is the cost of painting the four walls of the room at the rate of Rs. 50 per sq.m?
एक कमरा घनाभ के आकार में है जिसकी लंबाई, चौड़ाई और ऊंचाई 12 मी x 10 मी x 3 मी है | 50 रुपये

प्रति वर्ग मीटर की दर से इस कमरे की चार दीवारों को रंगने की लागत ज्ञात करें |

SSC MTS 7 August 2019 (Evening)

(a) Rs. 15000
(b) Rs. 15600
(c) Rs. 6600
(d) Rs. 7500

Q33. The radius of a solid right circular cylinder is 21 cm and its height is 40 cm. What is the cost of painting the curved surface area of the cylinder at the rate of Rs. 20 per sq.cm? (Take $\pi = \frac{22}{7}$)

एक ठोस लम्ब वृत्तीय बेलन की त्रिज्या 21 सेमी है तथा इसकी ऊंचाई 40 सेमी है | 20 रुपये प्रति वर्ग मीटर की दर से इस बेलन के वक्र पृष्ठ क्षेत्र को रंगने की लागत ज्ञात करें |

SSC MTS 7 August 2019 (Evening)

(a) Rs. 108600
(b) Rs. 105600
(c) Rs. 26400
(d) Rs. 5280

Q34. The area of a rectangle is 180 cm^2. If the ratio of length and breadth of the rectangle is 5:4, then what is the length (in cm) of diagonal of the rectangle?

एक आयत का क्षेत्रफल 180 वर्ग सेमी है | यदि आयत की लंबाई और चौड़ाई का अनुपात 5 : 4 है, तो इस आयत के विकर्ण की लंबाई (सेमी में) कितनी होगी ?

SSC MTS 7 August 2019 (Evening)

(a) $\sqrt{423}$
(b) $\sqrt{317}$
(c) $\sqrt{369}$
(d) $\sqrt{371}$

Q35. The sides of an isosceles triangle are 10 cm, 10 cm and 12 cm. What is the area of the triangle?

एक समद्विबाहु त्रिभुज की भुजाएँ 10 सेमी, 10 सेमी और 12 सेमी की हैं | इस त्रिभुज का क्षेत्रफल ज्ञात करें |

SSC MTS 8 August 2019 (Morning)

(a) 60 cm^2
(b) 48 cm^2
(c) 40 cm^2
(d) 44 cm^2

Q36. The area of a square is 144 cm^2. What is the perimeter of the square formed by the diagonal of the original square as its side?

एक वर्ग का क्षेत्रफल 144 वर्ग सेमी है | आरंभिक वर्ग के विकर्ण को भुजा मानकर बनाए गए वर्ग का परिमाप क्या होगा ?

SSC MTS 8 August 2019 (Morning)

(a) $48\sqrt{2}$ cm
(b) 48 cm
(c) $24\sqrt{2}$ cm
(d) 24 cm

Q37. The radius of hemisphere is 14cm. What is the cost of painting the outer curved surface of the hemisphere at the rate of Rs. 45 per sq.cm? (Take $\pi = \frac{22}{7}$)

एक अर्धगोले की त्रिज्या 14 सेमी है | इस अर्धगोले के बाहरी वक्र पृष्ठ को 45 रुपये प्रति वर्ग सेमी की दर से रंगने की लागत ज्ञात करें | ($\pi = \frac{22}{7}$)

SSC MTS 8 August 2019 (Morning)

(a) Rs 53160
(b) Rs 55440
(c) Rs 56820
(d) Rs 58280

Q38. The length and breadth of a rectangle are 15 cm and 12 cm respectively. If the rectangle is given one full rotation about its breadth as the axis, what is the volume (in cm^3) through which the rectangle moves?

एक आयत की लंबाई और चौड़ाई क्रमशः 15 सेमी और 12 सेमी है | यदि आयत की चौड़ाई को धुरी मानकर इसे एक बार पूरा घुमाया जाता है, तो उसका आयतन (घन सेमी में) ज्ञात करें जिससे होकर आयत घूमता है ?

SSC MTS 8 August 2019 (Afternoon)

(a) 2160π
(b) 1440π
(c) 1800π
(d) 2700π

Q39. The volume of a cube is 216 cm^3. What is the area of one face of the cube?

किसी घन का आयतन 216 cm^3 है | इस घन के एक फलक का क्षेत्रफल ज्ञात करें |

SSC MTS 8 August 2019 (Afternoon)

(a) 36 cm^2
(b) 12 cm^2
(c) 24 cm^2
(d) 30 cm^2

Q40. What is the area of the largest circle that can be inscribed in a square of side 28 cm? (Take $\pi = \frac{22}{7}$)

उस सबसे बड़े वृत्त का क्षेत्रफल ज्ञात करें जिसे 28 सेमी भुजा वाले एक वर्ग के भीतर खींचा जा सकता है | ($\pi = \frac{22}{7}$)

SSC MTS 8 August 2019 (Afternoon)

(a) 308 cm^2
(b) 616 cm^2
(c) 476 cm^2
(d) 512 cm^2

Q41. What is the circumference of the largest circle that can be inscribed in a square of side 14 cm? (Take $\pi = \frac{22}{7}$)

Pinnacle

उस सबसे बड़े वृत्त की परिधि कितनी होगी जिसे 14 सेमी भुजा वाले वर्ग में समाहित किया जा सकता है |($\pi = \frac{22}{7}$)

SSC MTS 8 August 2019 (Evening)

(a) 66 cm
(b) 88 cm
(c) 22 cm
(d) 44 cm

Q42. Edge of a cube is 8cm. What is the total surface area of the cube?

किसी घन का किनारा 8 सेमी का है | इस घन का कुल पृष्ठीय क्षेत्रफल ज्ञात करें |

SSC MTS 8 August 2019 (Evening)

(a) 128 cm^2
(b) 256 cm^2
(c) 384 cm^2
(d) 484 cm^2

Q43. The length of one of the diagonals of a rhombus is 48 cm, If side of the rhombus is 26 cm, then what is the area of the rhombus?

किसी समचतुर्भुज के एक विकर्ण की लंबाई 48 सेमी है | यदि समचतुर्भुज की भुजा 26 सेमी की है, तो समचतुर्भुज का क्षेत्रफल क्या होगा ?

SSC MTS 8 August 2019 (Evening)

(a) 540 cm^2
(b) 420 cm^2
(c) 360 cm^2
(d) 480 cm^2

Q44. The length of the diagonal of a rectangle is 26 cm and one side is 10 cm. The area of the rectangle is:

एक आयत के विकर्ण की लंबाई 26 सेमी है तथा इसकी एक भुजा 10 सेमी की है | इस आयत का क्षेत्रफल है :

SSC MTS 9 August 2019 (morning)

(a) 240 cm^2
(b) 260 cm^2
(c) 65 cm^2
(d) 130 cm^2

Q45. How many balls of radius 45 cm can be made by melting a bigger ball of diameter 360 cm?

360 सेमी व्यास वाली एक बड़ी गेंद को पिघलाकर 45 सेमी त्रिज्या वाली कितनी गेंदों का निर्माण किया जा सकता है ?

SSC MTS 9 August 2019 (morning)

(a) 64
(b) 128
(c) 32
(d) 48

Q46. A cuboid of size 100 cm x 80 cm x 60 cm cut into eight identical parts by three cuts. Where is the total surface area (in square cm.) of all the eight parts?

100 सेमी x 80 सेमी x 60 सेमी आकार वाले एक घनाभ को तीन बार काट कर आठ समरूप हिस्सों में काटा जाता है | सभी आठ हिस्सों का कुल पृष्ठीय क्षेत्रफल (वर्ग सेमी में) कितना होगा ?

SSC MTS 9 August 2019 (morning)

(a) 22500
(b) 84100
(c) 50750
(d) 75200

Q47. If in a triangle angles are in the ratio 1:1:2 and the length of its longest side is $6\sqrt{2}$ cm, then what is the area (in cm^2) of the triangle?

यदि किसी त्रिभुज में, कोण 1 : 1 : 2 के अनुपात में हैं तथा इसकी सबसे लंबी भुजा $6\sqrt{2}$ सेमी की है, तो इस त्रिभुज का क्षेत्रफल ज्ञात करें |

SSC MTS 9 August 2019 (Afternoon)

(a) $18\sqrt{2}$
(b) 18
(c) 36
(d) $36\sqrt{2}$

Q48. A room is in the shape of a cube and the length of the longest rod placed in it is $21\sqrt{3}$ cm. The area of the floor is:

कोई कमरा घन के आकार में है तथा इसमें रखी गयी सबसे लंबी छड़ की लंबाई $21\sqrt{3}$ सेमी है | तल का क्षेत्रफल है :

SSC MTS 9 August 2019 (Afternoon)

(a) 441 cm^2
(b) 144 cm^2
(c) 169 cm^2
(d) 961 cm^2

Q49. If the height of a circular cone is decreased by 10% and its radius is increased by 10%, then what will be the change in its volume?

यदि किसी वृत्ताकार शंकु की ऊंचाई 10% कम कर दी जाती है और इसकी त्रिज्या को 10% बढ़ा दिया जाता है, तो इसके आयतन में क्या परिवर्तन आएगा ?

SSC MTS 9 August 2019 (Afternoon)

(a) Decreases by 8.9%
(b) Decreases by 3.2%
(c) Increases by 8.9%
(d) Increases by 3.2%

Q50. The hypotenuse of a right-angled triangle is 39 cm and the difference between the other two sides is 21 cm. The area of this triangle is :

किसी समकोण त्रिभुज का कर्ण 39 cm है और अन्य दो भुजाओं का अंतर 21 cm है, तो त्रिभुज का क्षेत्रफल है?

SSC MTS 9 August 2019 (Evening)
(a) 360 cm^2
(b) 270 cm^2
(c) 280 cm^2
(d) 540 cm^2

Q51. There is a path of equal width of 3.5 m along with a building measuring 25 m in length and 15 m in breadth. Find the flooring cost of this path at the rate of Rs. 25.50 per sq. m.
एक 25 मीटर लम्बा तथा 15 मीटर चौड़ा माप के भवन के साथ 3.5 मीटर एक समान चौड़ाई का मार्ग है | Rs. 25.50 प्रति वर्ग मीटर की दर से मार्ग की फ्लोरिंग लागत है:
SSC MTS 9 August 2019 (Evening)
(a) Rs. 8389.50
(b) Rs. 4186.50
(c) Rs. 8146.50
(d) Rs. 9149.50

Q52. If the length of a side of a square is equal to the diameter of a circle, then the ratio between the areas of square and circle is $(\pi = \frac{22}{7})$
यदि किसी वर्ग की भुजा की लम्बाई किसी वृत्त के व्यास के बराबर है, तब वर्ग तथा वृत्त के क्षेत्रफल का अनुपात है: $(\pi = \frac{22}{7})$
SSC MTS 9 August 2019 (Evening)
(a) 14:11
(b) 28:11
(c) 11:14
(d) 11:7

Q53. The radius and height of a cone are 20 cm and 21 cm respectively. The total surface area (cm^2) of the cone is :
किसी शंकु की त्रिज्या 20 cm तथा ऊंचाई 21 cm है, शंकु का कुल पृष्ठ क्षेत्रफल (cm^2 में) है: $(\pi = \frac{22}{7})$
SSC MTS 13 August 2019 (Morning)
(a) 3080
(b) 3160
(c) 2920
(d) 3240

Q54. The volume of a prism is 288 cm^3 and height is 24 cm. The base area (in cm^2) of the prism is :
प्रिज्म का आयतन 288 cm^3 और ऊंचाई 24 cm है | प्रिज्म के आधार का क्षेत्रफल (cm^2 में) है:
SSC MTS 13 August 2019 (Morning)
(a) 10
(b) 12
(c) 15
(d) 14

Q55. The length, breadth and height of a cuboid are 18 cm, 24 cm, and 4 cm respectively. The volume of a cube is equal to that of the given cuboid. The side of the cube is :
एक घनाभ की लम्बाई, चौड़ाई और ऊंचाई क्रमसः 18 cm, 24 cm और 4 cm है | घन का आयतन दिए गए घनाभ के आयतन के बराबर है | घन की भुजा है:
SSC MTS 13 August 2019 (Morning)
(a) 9 cm
(b) 16 cm
(c) 12 cm
(d) 8 cm

Q56. The area of the sheet metal needed to make a box of size 7cm x 8cm x 9cm is:
7 सेमी x 8 सेमी x 9 सेमी आकार के एक डिब्बे को बनाने के लिए आवश्यक धात्विक चादर का क्षेत्रफल होगा :
SSC MTS 13 August 2019 (Afternoon)
(a) 382 cm^2
(b) 156 cm^2
(c) 412 cm^2
(d) 139 cm^2

Q57. The volume of prism is 308 cm^3 and height is 11 cm. The base area of prism is:
प्रिज्म का आयतन 308 cm^3 है तथा ऊंचाई 11 सेमी है | इस प्रिज्म के आधार का क्षेत्रफल है :
SSC MTS 13 August 2019 (Afternoon)
(a) 21 cm^2
(b) 14 cm^2
(c) 28 cm^2
(d) 22 cm^2

Q58. The diagonal of a square measures $6\sqrt{2}$ cm. The measure of the diagonal of a square whose area is twice that of the first square is:
किसी वर्ग का विकर्ण $6\sqrt{2}$ सेमी का है | उस वर्ग के विकर्ण का माप ज्ञात करें जिसका क्षेत्रफल पहले वर्ग के क्षेत्रफल से दोगुना है ?
SSC MTS 13 August 2019 (Afternoon)
(a) 12 cm
(b) $12\sqrt{2}$ cm
(c) 6 cm
(d) $6\sqrt{2}$ cm

Q59. How many cubes with a side 10 cm can be cut out of a cube having a side of 10 metre ?
10 मीटर भुजा वाले एक घन से 10 सेमी भुजा वाले कितने घन काटे जा सकते हैं ?
(a) 10,000
(b) 1,00,00,000
(c) 1,00,000
(d) 10,00,000

Q60. Find the curved surface area of a right circular cylinder whose height and diameter are 10 cm and 8 cm respectively.

एक लम्ब वृत्तीय बेलन, जिसकी ऊंचाई और व्यास क्रमशः 10 cm और 8 cm है, के वक्र पृष्ठ का क्षेत्रफल (cm^2 में) कितना है?

SSC MTS 14 August 2019 (Morning)

(a) 20π

(b) 80π

(c) 160π

(d) 40π

Q61. If two cubes, each having the side 10 mm, are put in a box containing 200 c.c water, then what will be the volume of the material (in ml) in the box ?

यदि लोहे से निर्मित प्रत्येक 10 mm की भुजावाले 2 क्यूब को 1 ऐसे डिब्बे में डाला जाता है, जिसमे 200 c.c. पानी है, तो डिब्बे की सामग्री का आयतन (ml में) क्या होगा?

SSC MTS 14 August 2019 (Morning)

(a) 201

(b) 202

(c) 200002

(d) 200001

Q62. A solid cube, in which the diagonal of each face is $128\sqrt{2}$ cm, has been molded to make a cuboid. The length and breadth of this cuboid are 512 cm and 160 cm respectively. What is the height of this cuboid ?

एक ठोस घन, जिसका प्रत्येक सतह (फेस) विकर्ण $128\sqrt{2}$ cm है, को घनाभ बनाने के लिए मोल्ड किया गया | घनाभ की लम्बाई और चौड़ाई क्रमसः 512 cm और 160 cm है | घनाभ की ऊंचाई कितनी है?

SSC MTS 14 August 2019 (Morning)

(a) 25.6 cm

(b) 16 cm

(c) 20.8 cm

(d) 16.4 cm

Q63. The total surface area of a hemisphere is 462 cm^2. What is the diameter?

एक अर्धगोले का कुल पृष्ठ क्षेत्रफल 462 वर्ग सेमी है | व्यास ज्ञात करें | ($\pi = \frac{22}{7}$)

SSC MTS 14 August 2019 (Afternoon)

(a) 14 cm

(b) 7 cm

(c) 17.5 cm

(d) 10.5 cm

Q64. A hemisphere of radius 30 cm is moulded to form a cylinder of height 180 cm. The diameter of the cylinder is:

30 सेमी त्रिज्या वाले एक अर्धगोले को पिघलाकर 180 सेमी ऊंचाई वाला एक बेलन बनाया जाता है | इस बेलन का व्यास है :

SSC MTS 14 August 2019 (Afternoon)

(a) 15 cm

(b) 10 cm

(c) 5 cm

(d) 20 cm

Q65. What is the total surface area of a cone which has a radius of 21 cm and a height of 28 cm? ($\pi = \frac{22}{7}$)

उस शंकु का कुल पृष्ठ क्षेत्रफल ज्ञात करें जिसकी त्रिज्या 21 सेमी और ऊंचाई 28 सेमी है|

SSC MTS 14 August 2019 (Afternoon)

(a) 3696 cm^2

(b) 1848 cm^2

(c) 5544 cm^2

(d) 7392 cm^2

Q66. A rectangular paper of width 7 cm is rolled along its width and a cylinder of radius 9 cm is formed. The volume of the cylinder is:

7 सेमी चौड़ाई वाले एक आयताकार कागज़ को इसकी चौड़ाई से लपेटा जाता है और 9 सेमी त्रिज्या वाले बेलन का निर्माण किया जाता है | इस बेलन का आयतन है :

SSC MTS 14 August 2019 (Evening)

(a) 1525 cm^3

(b) 900 cm^3

(c) 1750 cm^3

(d) 1782 cm^3

Q67. The radii of two cylinders A and B are in the ratio 5:6 and the heights are in the ratio 7:4 respectively. The ratio of curved surface area of cylinder B to that of A is:

दो बेलन A और B की त्रिज्याएँ 5 : 6 के अनुपात में हैं तथा ऊंचाई 7 : 4 के अनुपात में है | बेलन B तथा बेलन A के वक्र पृष्ठ क्षेत्रफल में अनुपात ज्ञात करें |

SSC MTS 14 August 2019 (Evening)

(a) 35:24

(b) 24:35

(c) 49:35

(d) 35:49

Q68. The diagonal of a square is equal to the side of an equilateral triangle. If the area of the square is $18\sqrt{3}$ sq.cm. What is the area (in cm^2) of the equilateral triangle?

किसी वर्ग का विकर्ण एक समबाहु त्रिभुज की भुजा के बराबर है | यदि वर्ग का क्षेत्रफल $18\sqrt{3}$ वर्ग सेमी है, तो समबाहु त्रिभुज का क्षेत्रफल (वर्ग सेमी में) ज्ञात करें |

SSC MTS 14 August 2019 (Evening)

(a) $54\sqrt{2}$

(b) $27\sqrt{2}$

(c) 54

(d) 27

Q69. What is the volume of the sphere whose diameter is 42 cm?

उस गोले का आयतन ज्ञात करें जिसका व्यास 42 सेमी है |
($\pi = \frac{22}{7}$)
SSC MTS 16 August 2019 (Morning)
(a) 9702 cm^3
(b) 38808 cm^3
(c) 19404 cm^3
(d) 58212 cm^3

Q70. A spherical ball of diameter 35 cm rolls 20 times. How much is the distance (in m) covered by it? ($\pi = \frac{22}{7}$)
35 सेमी व्यास वाली एक गोलीय गेंद 20 बार घूमती है | इसके द्वारा तय की गयी दूरी (मीटर में) ज्ञात करें | ($\pi = \frac{22}{7}$)
SSC MTS 16 August 2019 (Morning)
(a) 22
(b) 20
(c) 35
(d) 44

Q71. A rectangular park was redesigned and as a result of which its length increased by 50%. If the area of the park, remained unchanged, then by how much percentage had the breadth been reduced?
एक आयताकार उद्यान को फिर से बनाया गया तथा इसके परिणामस्वरूप लंबाई 50% से बढ़ गयी | यदि उद्यान का क्षेत्रफल अपरिवर्तित रहा, तो चौड़ाई को कितने प्रतिशत से कम किया गया ?
SSC MTS 16 August 2019 (Morning)
(a) 25
(b) 50
(c) 33.33
(d) 40.33

Q72. The length and breadth of a cuboid are increased 10% each, whereas the height is reduced by 10%. By how much did the volume change?
एक घनाभ की लंबाई और चौड़ाई (प्रत्येक को) 10% बढ़ा दिया जाता है जबकि ऊंचाई को 10% कम कर दिया जाता है | आयतन में कितना परिवर्तन आया ?
SSC MTS 16 August 2019 (Morning)
(a) 10% decrease
(b) 8.9% increase
(c) 8.9% decrease
(d) 10% increase

Q73. If the radius of a cylinder is doubled and the height is reduced by 50%, then the volume increases/decreases by what percent ?
यदि किसी बेलन (सिलिंडर) की त्रिज्या को दोगुना किया जाता है और ऊंचाई को 50% काम किया जाता है, तो आयतन में कितने प्रतिशत वृद्धि/गिरावट होती है?
SSC MTS 16 August 2019 (Afternoon)
(a) 100% increase/ वृद्धि
(b) 66.67% decrease/ कमी
(c) 75% increase/ वृद्धि
(d) 50% decrease/ कमी

Q74. Find the volume of a cube whose side is 7.5 cm.
एक घन, जिसकी भुजा 7.5 cm है, का आयतन कितना है?
SSC MTS 16 August 2019 (Afternoon)
(a) 421.875 cm^3
(b) 759.375 cm^3
(c) 631.81 cm^3
(d) 210.94 cm^3

Q75. The ratio between the volume (in cm^3) and curved surface area (in cm^2) of a cylinder is numerically 14 : 1. If the height of the cylinder is 50 cm, then find its volume. ($\pi = \frac{22}{7}$)
किसी बेलन (सिलिंडर) के आयतन (cm^3 में) तथा वक्र पृष्ठ क्षेत्रफल (cm^2 में) के बीच अनुपात संख्यात्मक रूप से 14:1 है I यदि बेलन (सिलिंडर) की ऊंचाई 50 cm है, तो बेलन का आयतन कितना है? ($\pi = \frac{22}{7}$)
SSC MTS 16 August 2019 (Afternoon)
(a) 61600 cm^3
(b) 92400 cm^3
(c) 123200 cm^3
(d) 184800 cm^3

Q76. If the height of a right circular cylinder is 10 cm, and its curved surface area is 440 cm^2, then what is its radius ?
यदि किसी लम्ब वृत्तीय बेलन (सिलिंडर) की ऊंचाई 10 cm है, और उसका वक्र पृष्ठ क्षेत्रफल 440 cm^2 है, तो उसकी त्रिज्या कितनी है?
SSC MTS 16 August 2019 (Evening)
(a) 17.5 cm
(b) 10.5 cm
(c) 14 cm
(d) 7 cm

Q77. The volumes of a sphere and a right circular cylinder is equal. The radii of the sphere and the cylinder are 21 cm and 14 cm respectively. The height of the cylinder is :
किसी गोले और किसी लम्ब्वृत्तीय बेलन (सिलिंडर) का आयतन सामान है | गोला और बेलन की त्रिज्या क्रमसः 21 cm और 14 cm है | बेलन की ऊंचाई कितनी है?
SSC MTS 16 August 2019 (Evening)
(a) 63 cm
(b) 56 cm
(c) 42 cm
(d) 49 cm

Q78. The total surface area of a cube is 864 cm^2. What is its volume (in cm^3) ?
किसी घन का कुल पृष्ठ क्षेत्रफल 864 cm^2 है | उसका आयतन (cm^3 में) कितना है?
SSC MTS 16 August 2019 (Evening)
(a) 216
(b) 1728
(c) 729
(d) 512

Q79. The volume of a right circular cylinder is 3 times the volume of a right circular cone. The radius of the cone and the cylinder are 3cm and 6cm respectively. If the height of the cylinder is 1cm, then what is the slant height of the cone?
किसी लम्ब वृत्तीय बेलन का आयतन एक लम्ब वृत्तीय शंकु के आयतन से तीन गुना है | शंकु तथा बेलन की त्रिज्या क्रमशः 3 सेमी और 6 सेमी है | यदि बेलन की ऊंचाई 1 सेमी है, तो शंकु की तिर्यक ऊंचाई ज्ञात करें |
SSC MTS 19 August 2019 (Morning)
(a) $\sqrt{13}$ cm
(b) 4 cm
(c) 5 cm
(d) $\sqrt{15}$ cm

Q80. The volume of a sphere is 36π cm^3. What is the radius of the sphere?
एक गोले का आयतन 36π घन सेमी है | इस गोले की त्रिज्या ज्ञात करें |
SSC MTS 19 August 2019 (Morning)
(a) 4 cm
(b) 2 cm
(c) 5 cm
(d) 3 cm

Q81. What are respectively the curved surface area and volume of a hemisphere of radius 21cm? ($\pi = \frac{22}{7}$)
त्रिज्या 21 सेमी वाले अर्धगोले का वक्र पृष्ठ क्षेत्रफल एवं आयतन (क्रमशः) ज्ञात करें |
SSC MTS 19 August 2019 (Morning)
(a) 2772 cm^2 , 19404 cm^3
(b) 4158 cm^2 , 19404 cm^3
(c) 2772 cm^2 , 4158 cm^3
(d) 2772 cm^2 , 9702 cm^3

Q82. What is the area of a triangle with sides 35 cm, 84 cm and 91 cm ?
35 cm, 84 cm तथा 91 cm भुजाओं वाले किसी त्रिभुज का क्षेत्रफल कितना है? **SSC MTS 19 August 2019 (Afternoon)**
(a) 2160 cm^2
(b) 1530 cm^2
(c) 1470 cm^2
(d) 1880 cm^2

Q83. If the lateral surface area of a cube is 144 cm^2 , then find the length of its side.
यदि किसी घन का पार्श्व (lateral) पृष्ठ क्षेत्रफल 144 cm^2 है, तो उसकी भुजा की लम्बाई कितनी है?
SSC MTS 19 August 2019 (Afternoon)
(a) 4 cm
(b) 8 cm
(c) 5 cm
(d) 6 cm

Q84. The height and the radius of a right circular cone are 4 cm and 3 cm respectively. What is the total surface area of this cone ?
किसी लंब वृत्तीय शंकु की ऊंचाई तथा त्रिज्या क्रमश: 4 cm तथा 3 cm है. शंकु का कुल पृष्ठ क्षेत्रफल कितना है?
SSC MTS 19 August 2019 (Afternoon)
(a) 12π cm^2
(b) 24π cm^2
(c) 7π cm^2
(d) 16π cm^2

Q85. A sphere is inscribed in a cube. What is the ratio of the volume of the cube to the volume of the sphere?
एक गोले को किसी घन में डाला गया है | घन के आयतन तथा गोले के आयतन में अनुपात ज्ञात करें |
SSC MTS 19 August 2019 (Evening)
(a) 6: π
(b) 8: π
(c) 11:2 π
(d) 9:2 π

Q86. The radius of a solid right circular cylinder is $66\frac{2}{3}$% of its height. If height is h centimeters then its total surface area (in cm^2) is:
ठोस लम्ब वृत्तीय बेलन की त्रिज्या इसकी ऊंचाई का $66\frac{2}{3}$% है | यदि ऊंचाई h सेमी है, तो इसका कुल पृष्ठ क्षेत्रफल (वर्ग सेमी में) ज्ञात करें |
SSC MTS 19 August 2019 (Evening)
(a) $\frac{20}{9}\pi h^2$
(b) $\frac{40}{9}\pi h^2$
(c) $\frac{44}{9}\pi h^2$
(d) $4\pi h^2$

Q87. What is the area (in m^2) of a triangle field whose sides measure 25 m, 39 m and 56 m?
एक त्रिभुजाकार मैदान का क्षेत्रफल (वर्ग मीटर में) ज्ञात करें जिसकी भुजाओं का माप 25 मी, 39 मी और 56 मी है |
SSC MTS 19 August 2019 (Evening)
(a) 210
(b) 240
(c) 420
(d) 480

Pinnacle

Q88. If the radius of a right circular cone is reduced by 10% and its height is increased by 40%, then find the percentage increase or decrease in its volume.
यदि एक लंब वृत्तीय शंकु की त्रिज्या को 10 % कम किया जाता है और उसकी ऊंचाई को 40 % बढ़ाया जाता है, तब उसके आयतन में कितने प्रतिशत की वृद्धि या गिरावट होती है?
SSC MTS 20 August 2019 (Morning)
(a) 13.4 % of decrease
(b) 1.34 % of decrease
(c) 1.34 % of increase
(d) 13.4 % of increase

Q89. The area of a circular park is approximately equal to the seven-fifteenth of the area of a triangular park with sides 110 m, 600 m, and 610 m. Find the diameter of the park.
एक वृत्ताकार पार्क का क्षेत्रफल एक ऐसे त्रिभुजाकार मैदान जिसकी भुजाएं 110 m, 600 m और 610 m हैं , के क्षेत्रफल के 7/15 (seven-fifteenth) के लगभग बराबर है | पार्क का व्यास कितना है?
SSC MTS 20 August 2019 (Morning)
(a) 160 m
(b) 120 m
(c) 150 m
(d) 140 m

Q90. A solid metallic cylinder, whose base radius is 4 cm and height is $5\frac{1}{3}$ cm, is melted and converted into a sphere. What is the surface area of the sphere. (in cm^2)
एक ठोस धातु के बेलन (सिलिंडर), जिसकी आधार त्रिज्या 4 cm है और ऊंचाई $5\frac{1}{3}$ cm है, को पिघलाकर एक गोले के रूप में परिवर्तित किया जाता है | गोले का पृष्ठ क्षेत्रफल, cm^2 में, कितना है?
SSC MTS 20 August 2019 (Morning)
(a) 64π
(b) 96π
(c) 80π
(d) 40π

Q91. The length of a rectangle is 6 cm more than its breadth. And its perimeter is 100 cm. If the area of this rectangle is nearest equal to the area of a circle, then what will be the circumference of this circle ?
एक आयत की लम्बाई, उसकी चौड़ाई से 6 cm अधिक है और उसका परिमाप 100 cm है | यदि इस आयत का क्षेत्रफल एक वृत्त के क्षेत्रफल के निकटतम बराबर है, तो उस वृत्त की परिधि कितनी है?
SSC MTS 20 August 2019 (Afternoon)
(a) 88 cm
(b) 110 cm
(c) 132 cm
(d) 66 cm

Q92. The total surface area of a solid cylinder is 1155 cm^2. Its curved surface area is equal to two-fifths of its total surface area. What is the height of the cylinder ?
एक ठोस बेलन (सिलिंडर) का कुल पृष्ठ क्षेत्रफल 1155 cm^2 है | उसका वक्र पृष्ठ क्षेत्रफल, उसके कुल पृष्ठ क्षेत्रफल के $\frac{2}{5}$ के बराबर है | बेलन (सिलिंडर) की ऊंचाई (cm में) कितनी है? ($\pi = \frac{22}{7}$)
SSC MTS 20 August 2019 (Afternoon)
(a) 7
(b) 5
(c) 6
(d) 10.5

Q93. From a solid made of wood with radius 6 cm, a cube of maximum possible volume is cut. The side of the cube is :
लकड़ी के बने 6 cm त्रिज्या के एक ठोस से, अधिकतम संभावित परिमाण (वॉल्यूम) के एक घन को हटाया जाता है | घन की भुजा ज्ञात कीजिये|
SSC MTS 20 August 2019 (Afternoon)
(a) $4\sqrt{3}$ cm
(b) $3\sqrt{3}$ cm
(c) $6\sqrt{3}$ cm
(d) $2\sqrt{3}$ cm

Q94. The volumes of two spheres are in the ratio of 64:125. The ratio between their surface areas is :
दो गोलों का आयतन 64:125 के अनुपात में है तो उनके पृष्ठ क्षेत्रफल का अनुपात है:
SSC MTS 20 August 2019 (Evening)
(a) 4:25
(b) 4:5
(c) 16:25
(d) 25:16

Q95. What is the volume (in cm^3) of a sphere with diameter 18 cm. (correct to two decimal places)
18 cm व्यास वाले किसी गोले का (दो दशमबलव स्थानों तक) आयतन (cm^3 में) क्या है? ($\pi = \frac{22}{7}$)
SSC MTS 20 August 2019 (Evening)
(a) 3504.58
(b) 4503.86
(c) 4530.58
(d) 3054.86

Q96. The central angle of a sector of a circle with a radius of 30 cm measures 210°. What is the area (cm^2) of the sector given ?
30 cm त्रिज्या वाले किसी वृत्त के वृत्तखंड के केंद्रीय कोण की माप

210° है | दिए गये वृत्तखंड का क्षेत्रफल (cm^2 में) क्या है? ($\pi = \frac{22}{7}$)

SSC MTS 20 August 2019 (Evening)

(a) 1650
(b) 1645
(c) 1649
(d) 1647

Q97. If the wheel of a bicycle takes 160 rounds to cover a distance of 1.8 km, then find its radius (in m).

यदि किसी साइकिल का पहिया 1.8 km की दूरी तय करने में 160 चक्कर लगता है, तो उसकी त्रिज्या (m में) क्या है?

SSC MTS 20 August 2019 (Evening)

(a) $\frac{45}{8\pi}$
(b) $\frac{45}{4\pi}$
(c) $\frac{15}{8\pi}$
(d) $\frac{45}{4\pi}$

Q98. If the area of a circle is 154 sq. cm, then find the ratio between the circumferences of this circle and another circle with a radius 21 cm.

यदि किसी वृत्त का क्षेत्रफल 154 वर्ग cm है, तो उस वृत्त की परिधि और 21 cm त्रिज्या वाले किसी दूसरे वृत्त की परिधियों का अनुपात है:

SSC MTS 21 August 2019 (Morning)

(a) 1:3
(b) 2:3
(c) 2:1
(d) 1:2

Q99. The side of a square is a cm. The ratio between its diagonal and its side is :

किसी वर्ग की भुजा a cm है, इसके विकर्ण और इसकी भुजा का अनुपात है:

SSC MTS 21 August 2019 (Morning)

(a) $\sqrt{2}:1$
(b) 1:2
(c) $1:\sqrt{2}$
(d) 2:1

Q100. A solid sphere of brass with a radius 15 cm is drawn into a wire of diameter 6 mm. The length of the wire (in cm) is :

15 cm त्रिज्या वाले पीतल के एक ठोस गोले को 6 mm व्यास के तार में खिंचा जाता है | तार की लम्बाई (cm में) है:

SSC MTS 21 August 2019 (Morning)

(a) 50000
(b) 60000
(c) 55000
(d) 45000

Q101. A solid metallic cuboid measuring 343 cm x 49 cm x 7 cm is melted and converted into cubes with side 7 cm. The sum of the total surface areas (cm^2) of all the cubes is :

343 cm x 49 cm x 7 cm के किसी ठोस धात्विक घनाभ को पिघलाकर 7 cm भुजा वाले घन निर्मित किये जाते है | सभी निर्मित घणो के कुल पृष्ठ क्षेत्रफलों (cm^2 में) का योग है:

SSC MTS 21 August 2019 (Afternoon)

(a) 16807
(b) 10842
(c) 120506
(d) 100842

Q102. The length, breadth and height of a cuboid are 6 cm, 8 cm and 10 cm respectively. Its volume (in cm^3) is :

किसी घनाभ की लम्बाई, चौड़ाई और ऊंचाई क्रमशः 6 cm, 8 cm और 10 cm है | इसका आयतन (cm^3 में) है:

SSC MTS 21 August 2019 (Afternoon)

(a) 128
(b) 256
(c) 960
(d) 480

Q103. The radius of a circle is equal to the length of a rectangle. The circumference of the circle and the breadth of the rectangle are 132 cm and 20 cm respectively. The diagonal of the rectangle is :

($\pi = \frac{22}{7}$)

किसी वृत्त की त्रिज्या किसी आयत की लम्बाई के बराबर है | वृत्त की परिधि और आयत की चौड़ाई क्रमशः 132 cm और 20 cm है | आयत का विकर्ण है: ($\pi = \frac{22}{7}$)

SSC MTS 21 August 2019 (Afternoon)

(a) 28 cm
(b) 29 cm
(c) 25 cm
(d) 27 cm

Q104. 2541 metallic sphere balls, each with a radius of 1 cm, are melted to form a cube. The total surface area of the cube (in cm^2) in the nearest form will be :

2541 गोलाकार धातुमय गेंदों, जिनकी प्रत्येक की त्रिज्या 1 cm है, को पिघलाकर एक घन बनाया जाता है | घन का सम्पूर्ण पृष्ठ क्षेत्रफल (वर्ग cm^2 में) निकटतम रूप में होगा:

SSC MTS 21 August 2019 (Evening)

(a) 1936
(b) 2904
(c) 2992
(d) 3168

Q105. A cylindrical bucket, whose height is 27 cm and base radius is 48 cm, is filled with sand. When the bucket is emptied on the ground, a conical heap of radius 54 cm is formed. What is the height (in cm) of the heap ?

एक बेलनाकार (सिलिंड्रिकल) बाल्टी, जिसकी ऊंचाई 27 cm और आधार त्रिज्या 48 cm है, को रेत (सैंड) से

भरा जाता है | जब बाल्टी को जमीन पर खाली किया जाता है और 54 cm त्रिज्या का एक शंकुकार ढेर बन जाता है | ढेर की ऊंचाई (cm में) कितनी है?

SSC MTS 21 August 2019 (Evening)

(a) 32
(b) 56
(c) 54
(d) 64

Q106. The area of a circular ground is approximately equal to $73\frac{1}{3}$ % of the area of a triangular ground with sides 400 m, 420 m and 580 m. What is the circumference (in m) of the circular ground ? ($\pi = \frac{22}{7}$)

किसी वृताकार मैदान का क्षेत्रफल, किसी ऐसे त्रिभुजाकार मैदान, जिसकी भुजाएं 400 m, 420 m और 580 m है, के क्षेत्रफल के $73\frac{1}{3}$ % के लगभग बराबर है | वृताकार मैदान की परिधि (m में) कितनी है? ($\pi = \frac{22}{7}$)

SSC MTS 21 August 2019 (Evening)

(a) 880 m
(b) 440 m
(c) 1056 m
(d) 528 m

Q107. The sides of a triangular park are 200 m, 210 m and 290 m. The area of the park (in hectares) is:

किसी त्रिभुजाकार उद्यान की भुजाएँ 200 मी, 210 मी और 290 मी की हैं | इस उद्यान का क्षेत्रफल (हेक्टेयर में) है :

SSC MTS 22 August 2019 (Morning)

(a) 2.4
(c) 2.1
(d) 2.9

Q108. A reservoir is in the shape of a

(b) 1.8frustum of a right circular cone. The radii of its circular ends are 4 m and 8 m and its depth is 7 m. How many kilolitre of water (correct up to one decimal place) can it hold? ($\pi = \frac{22}{7}$)

एक जलाशय किसी लम्ब वृत्तीय शंकु के छिन्नक के आकार का है | इसके वृत्ताकार सिरों की त्रिज्याएँ 4 मी और 8 मी की हैं तथा इसकी गहराई 7 मी है | यह कितने किलोलीटर पानी (दशमलव के दो स्थान तक) को धारण कर सकता है ?

SSC MTS 22 August 2019 (Morning)

(a) 821.3
(b) 815.7
(c) 792.3
(d) 775.7

Q109. 1000 solid spherical balls each of radius 0.6 cm are melted and recast into a single ball. What is the surface area (in cm^2) of ball so formed?

प्रत्येक 0.6 सेमी त्रिज्या वाली 1000 ठोस गोलीय गेंदों को पिघलाकर एक गेंद बनाई जाती है | इस प्रकार बनी गेंद का पृष्ठ क्षेत्रफल (वर्ग सेमी में) क्या होगा ?

SSC MTS 22 August 2019 (Morning)

(a) 144π
(b) 128π
(c) 124π
(d) 108π

Q110. The height of a cone is equal to its base radius and its volume is 72π cm^3. What is its curved surface area in cm^2 ?

एक शंकु की ऊंचाई इसके आधार की त्रिज्या के बराबर है तथा इसका आयतन 72π घन सेमी है | इसका वक्र पृष्ठ क्षेत्रफल (घन सेमी में) ज्ञात करें |

SSC MTS 22 August 2019 (Afternoon)

(a) $72\sqrt{2}\pi$
(b) $36\sqrt{2}\pi$
(c) $48\sqrt{2}\pi$
(d) $54\sqrt{2}\pi$

Q111. A wire, is in the form of a circle, encloses an area 3118.5 cm^2. It is now bent to form a rectangle whose length and breadth are very nearly in the ratio 7:4. The length of the rectangle, in cm, is:

एक तार, जो वृत्त के रूप में है, 3118.5 वर्ग सेमी क्षेत्र को घेरता है | अब इसे मोड़कर एक आयत बनाया जाता है जिसकी लंबाई और चौड़ाई लगभग 7 : 4 के अनुपात में है | इस आयत की लंबाई (सेमी में) है :

(Take $\pi = \frac{22}{7}$)

SSC MTS 22 August 2019 (Afternoon)

(a) 56
(b) 49
(c) 7
(d) 63

Q112. A copper wire of radius 0.5 mm and length $42\frac{2}{3}$ m is melted and converted into a sphere of radius R cm. What is the value of R?

त्रिज्या 0.5 mm और लंबाई $42\frac{2}{3}$ मी वाले एक ताम्बे के तार को पिघलाकर त्रिज्या R सेमी वाले एक गोले का रूप दिया जाता है | R का मान क्या है ?

SSC MTS 22 August 2019 (Afternoon)

(a) 3
(b) 2
(c) 1.5
(d) 1.8

Q113. The diameter of the base of a right circular cone is 10 cm and its height is 12 cm. What is the total surface area (in cm^2) of the cone?

एक लम्ब वृत्तीय शंकु के आधार का व्यास 10 सेमी है तथा इसकी ऊंचाई

12 सेमी है | इस शंकु का कुल पृष्ठ क्षेत्रफल (वर्ग सेमी में) कितना है ?
SSC MTS 22 August 2019 (Evening)
(a) 90π
(b) 70π
(c) 84π
(d) 65π

Q114. The areas of three adjacent faces of a cuboid are 18 cm^2, 20 cm^2 and 40 cm^2. What is the volume (in cm^3) of the cuboid?
एक घनाभ के तीन सन्निकट फलकों के क्षेत्रफल 18 cm^2, 20 cm^2 और 40 cm^2 हैं | इस घनाभ का आयतन (घन सेमी में) ज्ञात करें |
SSC MTS 22 August 2019 (Evening)
(a) 144
(b) 100
(c) 120
(d) 125

Q115. A wire encloses an area of 616 cm^2 when it is bent in the form of a circle. If the wire is bent in the form of a square. Then its area (in cm^2) is very nearly equal to: (Take $\pi = \frac{22}{7}$)
एक तार 616 वर्ग सेमी का क्षेत्र घेरता है जब इसे वृत्त के आकार में मोड़ दिया जाता है | यदि इस तार को वर्ग के आकार में मोड़ा जाए, तो इसका क्षेत्रफल (वर्ग सेमी में) निकटतम रूप में कितना होगा ? (Take $\pi = \frac{22}{7}$)
SSC MTS 22 August 2019 (Evening)
(a) 400
(b) 576
(c) 441
(d) 484

Q116. The total surface area of a hollow cuboid is 340 cm^2. If the length and the breadth of the cuboid are 10 cm and 8 cm respectively, then what is the length of the longest stick that can be fitted inside the cuboid ?
एक खोखले घनाभ का कुल पृष्ठ क्षेत्रफल 340 वर्ग सेमी है | यदि घनाभ की लंबाई और चौड़ाई 10 सेमी तथा 8 सेमी है, तो उस सबसे लंबी छड़ी की लंबाई ज्ञात करें जिसे इस घनाभ में रखा जा सकता है ?
SSC MTS 2 August 2019 (Evening)
(a) 10 cm
(b) $4\sqrt{41}$ cm
(c) $3\sqrt{21}$ cm
(d) 21 cm

Q117. The diameter of a right circular cylinder is decreased to one third of its initial value. If the volume of the cylinder remains the same, then the height becomes how many times of the initial height ?
एक लम्ब वृत्तीय बेलन के व्यास को इसके आरंभिक मान से एक तिहाई कम कर दिया जाता है | यदि बेलन का आयतन समान बना रहता है, तो इसकी ऊंचाई अपने आरंभिक मान से कितना गुना हो जाएगी ?
SSC MTS 5 August 2019 (Morning)
(a) 1
(b) 9
(c) 6
(d) 3

Q118. How many cubes with a side 10 cm can be cut out of a cube having a side of 10 metre ?
10 मीटर भुजा वाले एक घन में से 10 सेमी भुजा वाले कितने घन काटे जा सकते हैं ?
SSC MTS 13 August 2019 (Evening)
(a) 10,000
(b) 1,00,00,000
(c) 1,00,000
(d) 10,00,000

SSC CGL 2019 TIER I

Q1. The radius of a circular garden is 42 m. The distance (in m) covered by running 8 rounds around it, is: (Take $\Pi = \frac{22}{7}$)
एक वृत्ताकार उद्यान की त्रिज्या 42 मीटर है | इसके 8 चक्कर लगाने पर कितनी दूरी तय की जाएगी ? ($\Pi = \frac{22}{7}$)
SSC CGL 3 March 2020 (Morning)
(a) 1124
(b) 4262
(c) 2112
(d) 3248

Q2. If the base radius of 2 cylinders are in the ratio 3:4 and their heights are in the ratio of 4:9, then the ratio of their volumes is:
यदि दो बेलनों के आधार की त्रिज्या का अनुपात 3 : 4 है तथा उनकी ऊंचाई का अनुपात 4 : 9 है, तो उनके आयतन का अनुपात क्या होगा ?
SSC CGL 3 March 2020 (Morning)
(a) 2:1
(b) 1:4
(c) 1:2
(d) 4:1

Q3. If the length of a rectangle is increased by 40% and the breadth is decreased by 20%, then the area of the rectangle is increased by x%. The value of x is:
यदि किसी आयत की लंबाई 40% बढ़ा दी जाती है तथा चौड़ाई 20% कम कर दी जाती है, तो इस आयत का क्षेत्रफल x % बढ़ जाता है | x का मान है :
SSC CGL 3 March 2020 (Morning)
(a) 20
(b) 12
(c) 16
(d) 8

Q4. A race track is in the shape of a ring whose inner and outer circumferences are 440m and 506m, respectively. What is the cost of levelling the track at ₹6/m^2?(Take $\Pi = \frac{22}{7}$)
एक धावन पथ छल्ले के आकार में है जिसकी आतंरिक और बाहरी परिधि क्रमशः 440 मीटर तथा 506 मीटर है | इस पथ को 6 रुपये प्रति वर्ग मीटर की दर से समतल करने की लागत कितनी आएगी ?
SSC CGL 3 March 2020 (Afternoon)
(a) ₹18,966
(b) ₹24,832
(c) ₹19,866
(d) ₹29,799

Q5. The curved surface area of a hemisphere with radius 7cm is:
7 सेमी त्रिज्या वाले एक अर्धगोले का वक्र पृष्ठ क्षेत्रफल कितना होगा ?
SSC CGL 3 March 2020 (Evening)
(a) 308 cm^2
(b) 616 cm^2
(c) 462 cm^2
(d) 385 cm^2

Q6. The circumference of the base of a conical tent is 66 m. If the height of the tent is 36 m, what is the area (in m^2) of the canvas used in making the tent? (Take $\Pi = \frac{22}{7}$) /
एक शंकाकार तंबू के आधार की परिधि 66 मीटर है | यदि तंबू की ऊंचाई 36 मीटर है, तो उस तिरपाल का क्षेत्रफल ज्ञात करें, जिसका प्रयोग तंबू के निर्माण में किया गया है | ($\Pi = \frac{22}{7}$)
SSC CGL 4 March 2020 (Morning)
(a) 1155
(b) 1237.5
(c) 1171.5
(d) 1254

Q7. A cylindrical vessel of radius 30cm and height 42 cm is full of water. Its contents are emptied into a rectangular tub of length 75cm and breadth 44cm. The height(in cm) to which the water rises in the tub is: (take $\Pi = \frac{22}{7}$)
त्रिज्या 30 सेमी तथा ऊंचाई 42 सेमी वाला एक बेलनाकार बर्तन पानी से पूर्णतः भरा हुआ है | इसकी सामग्री को एक आयताकार टब में उड़ेल दिया जाता है जिसकी लंबाई 75 सेमी तथा चौड़ाई 44 सेमी है | टब में पानी का स्तर कितनी ऊंचाई (सेमी में) तक बढ़ेगा ?
SSC CGL 4 March 2020 (Afternoon)
(a) 36
(b) 30
(c) 40
(d) 45

Q8. The area of field in shape of a regular hexagon is $2400\sqrt{3}$ m^2. The cost of fencing the field at ₹16.80 metre is:
सम षट्भुज के आकार वाले एक मैदान का क्षेत्रफल $2400\sqrt{3}$ वर्ग मीटर है | 16.80 रुपये प्रति मीटर की दर से इस मैदान पर बाड़ लगाने की लागत ज्ञात कीजिए |
SSC CGL 4 March 2020 (Evening)
(a) ₹4,536
(b) ₹3,024
(c) ₹4,032
(d) ₹3,528

Q9. The diagonal of a square A is (a+b) units. What is the area (in square units) of the square drawn on the diagonal of square B whose area is twice the area of square A?
एक वर्ग A का विकर्ण (a+b) इकाई है | वर्ग B, जिसका क्षेत्रफल वर्ग A के क्षेत्रफल से दोगुना है, उसके विकर्ण पर खींचे गए वर्ग का क्षेत्रफल (वर्ग इकाई में) कितना होगा ?
SSC CGL 5 March 2020 (Morning)
(a) $(a+b)^2$
(b) $2(a+b)^2$
(c) $4(a+b)^2$
(d) $8(a+b)^2$

Q10. If the radius of a right circular cylinder is decreased by 10% and height is increased by 20%, then the percentage increase/ decrease in its volume is:
यदि एक लम्ब वृत्तीय बेलन की त्रिज्या 10% कम कर दी जाए तथा ऊंचाई 20% बढ़ा दी जाए, तो इसके आयतन में कितने प्रतिशत की वृद्धि या कमी होगी ?
SSC CGL 5 March 2020 (Afternoon)
(a) decrease by 1.8%/ 1.8% कमी
(b) increase by 2.8%/ 2.8% वृद्धि
(c) increase by 1.8%/ 1.8% वृद्धि
(d) decrease by 2.8%/ 2.8% कमी

Q11. The perimeter of a square is 64 cm. Its area will be:
एक वर्ग का परिमाप 64 सेमी है | इसका क्षेत्रफल कितना होगा ?
SSC CGL 5 March 2020 (Evening)
(a) 32 cm^2
(b) 128 cm^2
(c) 8 cm^2
(d) 256 cm^2

Q12. A metallic sphere of diameter 40 cm is melted into a smaller sphere of radius 0.5 cm. How many such small balls can be made?
40 सेमी व्यास वाले धातु के एक गोले को 0.5 सेमी त्रिज्या वाले एक छोटे गोले के रूप में पिघलाया जाता है | ऐसी कितनी छोटी गेंदें बनाई जा सकती हैं ?
SSC CGL 6 March 2020 (Morning)
(a) 64,000
(b) 32,000

(c) 3200
(d) 6400

Q13. A circular disc of area 0.64 Π m^2 rolls down a length of 1.408 km. The number of revolutions it make is:
एक वृत्ताकार डिस्क, जिसका क्षेत्रफल 0.64 Π वर्ग मीटर है, 1.408 किमी की लंबाई तक घूमती है | इसके द्वारा लगाए गए चक्करों की संख्या है :
(Take $\Pi = \frac{22}{7}$)
SSC CGL 6 March 2020 (Morning)
(a) 280
(b) 360
(c) 140
(d) 180

Q14. The length of the diagonals of a rhombus are 16 cm and 12 cm. Its area is:
एक समचतुर्भुज के विकर्णों की लंबाई 16 सेमी और 12 सेमी है | इसका क्षेत्रफल होगा :
SSC CGL 6 March 2020 (Afternoon)
(a) 28 cm^2
(b) 96 cm^2
(c) 69 cm^2
(d) 48 cm^2

Q15. The inner and outer radius of a circular track are, respectively, 29 m and 23 m. The cost of levelling the track at ₹7/m^2 is:
एक वृत्ताकार पथ की आतंरिक तथा बाहरी त्रिज्या क्रमशः 29 मीटर तथा 23 मीटर है | 7 रुपये प्रति वर्ग मीटर की दर से इस पथ को समतल करवाने की लागत कितनी होगी ?
SSC CGL 6 March 2020 (Evening)
(a) ₹ 7,215
(b) ₹ 5,300
(c) ₹ 6,864
(d) ₹ 3,284

Q16. The area of four walls of a room having length 6 m, breadth 4 m and height 4 m, is:
6 मीटर लंबाई, 4 मीटर चौड़ाई तथा 4 मीटर ऊंचाई वाले कमरे की चार दीवारों का क्षेत्रफल कितना होगा ?
SSC CGL 7 March 2020 (Morning)
(a) 50 m^2
(b) 60 m^2
(c) 80 m^2
(d) 40 m^2

Q17. The perimeter of an isosceles triangle is 50 cm. If the base is 18 cm, then find the length of the equal sides.
एक समद्विबाहु त्रिभुज का परिमाप 50 सेमी है | यदि इसका आधार 18 सेमी है, तो बराबर भुजाओं की लंबाई ज्ञात करें |
SSC CGL 7 March 2020 (Afternoon)
(a) 18 cm
(b) 25 cm
(c) 16 cm
(d) 32 cm

Q18. If radius of a circle is decreased by 11%, then the total decrease in the area of the circle is given as:
यदि किसी वृत्त की त्रिज्या 11% कम कर दी जाए, तो वृत्त के क्षेत्रफल में कितने प्रतिशत की कमी होगी ?
SSC CGL 7 March 2020 (Afternoon)
(a) 19.50%
(b) 20.79%
(c) 20.50%
(d) 21%

Q19. If the perimeter of a certain rectangle is 50 units and its area is 150 sq. units, then how many units is the length of its shorter side?/
यदि किसी आयत का परिमाप 50 इकाई है तथा इसका क्षेत्रफल 150 वर्ग इकाई है, तो इसकी छोटी भुजा की लंबाई कितनी इकाई है ?
SSC CGL 7 March 2020 (Afternoon)
(a) 9
(b) 12
(c) 10
(d) 15

Q20. What is the area of a triangle whose sides are 3 cm, 4 cm and 5 cm?
उस त्रिभुज का क्षेत्रफल ज्ञात करें जिसकी भुजाएँ 3 सेमी, 4 सेमी तथा 5 सेमी की हैं |
SSC CGL 7 March 2020 (Evening)
(a) $2\sqrt{6}$ cm^2
(b) $2\sqrt{3}$ cm^2
(c) 3 cm^2
(d) 6 cm^2

Q21. Find the area and circumference of a circle if the radius is 14 cm. (Take $\Pi = \frac{22}{7}$)
एक वृत्त का क्षेत्रफल तथा परिधि ज्ञात करें यदि त्रिज्या 14 सेमी है | ($\Pi = \frac{22}{7}$)
SSC CGL 7 March 2020 (Evening)
(a) Area/ क्षेत्रफल = 616 cm^2, Circumference/ परिधि = 88 cm
(b) Area / क्षेत्रफल = 308 cm^2, Circumference/परिधि = 44 cm
(c) Area/ क्षेत्रफल = 44 cm^2, Circumference/परिधि = 308 cm
(d) Area/ क्षेत्रफल = 88 cm^2, Circumference/परिधि = 616 cm

Q22. Triangle PDC is drawn inside the square ABCD of side 24 cm where P lies on AB. What is the area of the triangle?
त्रिभुज PDC को एक वर्ग ABCD के भीतर खींचा गया है जिसकी भुजा 24 सेमी है तथा P, AB पर स्थित है | इस त्रिभुज का क्षेत्रफल कितना है ?

Pinnacle

SSC CGL 9 March 2020 (Morning)
(a) 298 cm^2
(b) 200 cm^2
(c) 288 cm^2
(d) 280 cm^2

Q23. What is the area of a sector of a circle of radius 14 cm and the central angle 45°? (Take $\Pi = \frac{22}{7}$)
एक वृत्त के खंड का क्षेत्रफल ज्ञात कीजिए जिसकी त्रिज्या 14 सेमी तथा केंद्रीय कोण 45° है | ($\Pi = \frac{22}{7}$)
SSC CGL 9 March 2020 (Morning)
(a) 11cm^2
(b) 77cm^2
(c) 67cm^2
(d) 70cm^2

Q24. The length, breadth and height of a cuboidal box are in the 7:5:3 and its whole surface area is 27832 cm^2. Its volume is:
एक घनाभाकार बक्से की लंबाई, चौड़ाई तथा ऊंचाई 7 : 5 : 3 के अनुपात में है तथा इसका पूर्ण पृष्ठ क्षेत्रफल 27832 वर्ग सेमी है | इसका आयतन है :
SSC CGL 9 March 2020 (Morning)
(a) 280120 cm^3
(b) 288120 cm^3
(c) 208120 cm^3
(d) 288100 cm^3

Q25. The volumes of sphere A and B are in the ratio 125:64. If the sum of radii A and B is 36 cm, then the surface area (in cm^2) of A is:
A और B गोले का आयतन 125 : 64 के अनुपात में है | यदि A और B की त्रिज्याओं का जोड़ 36 सेमी है, तो A का पृष्ठ क्षेत्रफल (वर्ग सेमी में) कितना है ?
SSC CGL 9 March 2020 (Afternoon)
(a) 512 Π
(b) 1600 Π
(c) 800 Π
(d) 1024 Π

Q26. Find the height of a cuboid whose volume is 330 cm^3 and base area is 15 cm^2.
एक घनाभ की ऊंचाई ज्ञात करें जिसका आयतन 300 घन सेमी तथा आधार का क्षेत्रफल 15 वर्ग सेमी है |
SSC CGL 9 March 2020 (Afternoon)
(a) 19 cm
(b) 24 cm
(c) 22 cm
(d) 21 cm

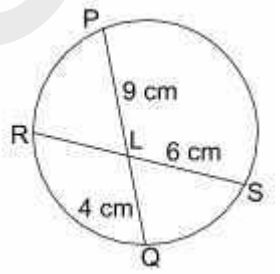
Q27. A wheel covers a distance of 1,100 cm in one round. The diameter of the wheel is:
एक पहिया एक चक्कर में 1,100 सेमी की दूरी तय करता है | इस पहिये का व्यास कितना है ?
SSC CGL 9 March 2020 (Afternoon)
(a) 175 cm
(b) 100 cm
(c) 125 cm
(d) 150 cm

Q28. The perimeter of a square plot is the same as that of a rectangular plot with sides 35 m and 15 m. The side of the square plot is/ एक वर्गाकार भूखंड का परिमाप उतना ही है जितना परिमाप एक आयताकार भूखंड का है जिसकी भुजाएँ 35 मीटर तथा 15 मीटर हैं | वर्गाकार भूखंड की भुजा है :
SSC CGL 9 March 2020 (Evening)
(a) 25 m
(b) 20 m
(c) 100 m
(d) 50 m

SSC CHSL 2019

Q1. The diagonal of the rectangle is 15 cm and length is 12 cm. Find the area of the rectangle.
एक आयत का विकर्ण 15 सेमी तथा लंबाई 12 सेमी है। आयत का क्षेत्रफल ज्ञात कीजिए।
CHSL 12-10-2020 (Morning shift)
(a) 114 cm^2
(b) 108 cm^2
(c) 112 cm^2
(d) 116 cm^2

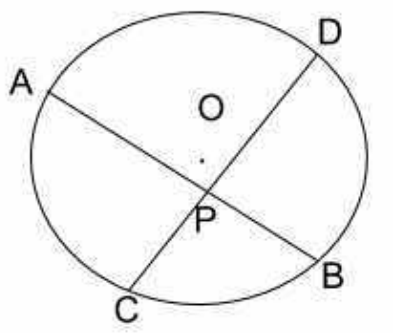
Q2.In the given figure, chords PQ and RS intersect each other at point L. Find the length of RL.
दी गयी आकृति में, जीवाएँ PQ और RS एक-दूसरे को बिंदु L पर प्रतिच्छेद करती हैं। RL की लंबाई ज्ञात कीजिए।



CHSL 12-10-2020 (Morning shift)
(a) 6 cm
(b) 8 cm
(c) 3 cm
(d) 2 cm

Q3. In the given figure, O is the centre of the circle. Its two chords AB and CD intersect each other at the point P within the circle. If AB = 15 cm, PB = 9 cm, CP = 3 cm, then find the length of PD.
दी गयी आकृति में, O वृत्त का केंद्र है। इसकी दो जीवाएँ AB और CD एक-दूसरे को वृत्त के भीतर बिंदु P पर प्रतिच्छेद करती हैं। यदि AB = 15 सेमी, PB = 9 सेमी, CP = 3 सेमी है, तो PD की लंबाई ज्ञात कीजिए।

Pinnacle



CHSL 12-10-2020 (Afternoon shift)

(a) 16 cm
(b) 18 cm
(c) 20 cm
(d) 22 cm

Q4. Length and breadth of rectangular field are in the ratio 5 : 2. If the perimeter of the field is 238 m. Find the length of the field.

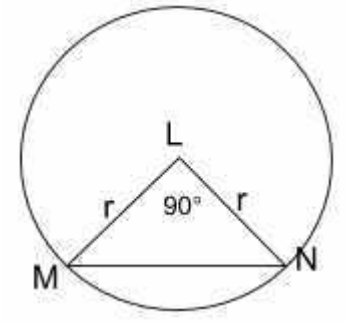
एक आयताकार मैदान की लंबाई और चौड़ाई 5 : 2 के अनुपात में है। यदि मैदान का परिमाप 238 मीटर है, तो मैदान की लंबाई ज्ञात कीजिए।

CHSL 12-10-2020 (Afternoon shift)

(a) 85 m
(b) 83 m
(c) 82 m
(d) 84 m

Q5. In the figure, L is the centre of the circle, and ML is the perpendicular to LN. If the area of the triangle MLN is 36, then the area of the circle is:

इस आकृति में, L वृत्त का केंद्र है तथा ML, LN पर लम्ब है। यदि त्रिभुज MLN का क्षेत्रफल 36 है, तो इस वृत्त का क्षेत्रफल ज्ञात कीजिए।



CHSL 12-10-2020 (Afternoon shift)

(a) 70 π
(b) 72 π
(c) 66 π
(d) 68 π

Q6. What is the radius of the circle whose area is equal to the sum of the areas of two circles whose radii are 15 cm and 8 cm?

उस वृत्त की त्रिज्या कितनी है, जिसका क्षेत्रफल दो वृत्तों के क्षेत्रफलों के योग के बराबर है, जिनकी त्रिज्याएँ 15 सेमी तथा 8 सेमी हैं?

CHSL 12-10-2020 (Evening shift)

(a) 14 cm
(b) 15 cm
(c) 13 cm
(d) 17 cm

Q7. What is the distance between two parallel tangents of a circle of radius 8 cm?

8 सेमी त्रिज्या वाले वृत्त की दो समानांतर स्पर्श रेखाओं के बीच की दूरी कितनी है?

CHSL 12-10-2020 (Evening shift)

(a) 8 cm
(b) 4 cm
(c) 16 cm
(d) 12 cm

Q8. Two concentric circles are of radii 13 cm and 5 cm. The length of the chord of the larger circle which touches the smaller circle is:

दो संकेंद्री वृत्तों की त्रिज्या 13 सेमी तथा 5 सेमी है। बड़े वृत्त की जीवा की लंबाई ज्ञात कीजिए, जो छोटे वृत्त को स्पर्श करती है।

CHSL 12-10-2020 (Evening shift)

(a) 24 cm
(b) 15 cm
(c) 13 cm
(d) 10 cm

Q9. If the three sides of a triangle are 11 cm, 12 cm and 13 cm, then what is the area of the given triangle (in cm^2)?

यदि एक त्रिभुज की तीन भुजाएँ 11 सेमी, 12 सेमी तथा 13 सेमी हैं, तो दिए गए त्रिभुज का क्षेत्रफल (वर्ग सेमी में) कितना है?

CHSL 12-10-2020 (Evening shift)

(a) $15\sqrt{13}$
(b) $13\sqrt{26}$
(c) $6\sqrt{105}$
(d) $17\sqrt{42}$

Q10. A cylindrical vessel with radius 6 cm and height 5 cm is to be made by melting a number of spherical metal balls of diameter 2 cm. The minimum number of balls needed is:

एक बेलनाकार बर्तन, जिसकी त्रिज्या 6 सेमी और ऊंचाई 5 सेमी है, उसका निर्माण कई गोलीय धातु की गेंदों से किया जाना है, जिसका व्यास 2 सेमी है। न्यूनतम कितनी गेंदों की आवश्यकता होगी?

CHSL 13-10-2020 (Morning Shift)

(a)125
(b)135
(c)115
(d)105

Q11. A triangle has sides 25, 39 and 34 units. If the area of a

square exceeds the area of this triangle by 21 units, then the side of the square is:
एक त्रिभुज की भुजाएँ 25, 39 और 34 इकाई हैं। यदि एक वर्ग का क्षेत्रफल इस त्रिभुज के क्षेत्रफल से 21 इकाई अधिक है, तो वर्ग की भुजा ज्ञात कीजिए।
CHSL 13-10-2020 (Afternoon Shift)
(a) 22 units
(b) 21 units
(c) 18 units
(d) 25 units'

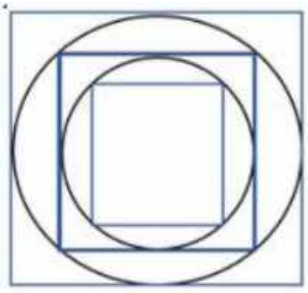
Q12. In a circle two equal and parallel chords are 6 cm apart and lie on the opposite sides of the centre of the circle.If the length of each chord is 8 cm, than the radius of the circle is:
एक वृत्त में दो बराबर और समान्तर जीवाएँ 6 cm के दुरी पर हैं और वृत्त के केंद्र के विपरीत भाग पर स्थित हैं। यदि प्रत्येक जीवाएँ की लंबाई 8 सेमी है, तो वृत्त की त्रिज्या है:
CHSL 13-10-2020 (Evening Shift)
(a)5 cm
(b)7 cm
(c)3 cm
(d)2 cm

Q13. The length and breadth of a cuboid are increased by 10% and 20%, respectively, and its height is decreased by 20%. The percentage increase in the volume of the cuboid is:
एक घनाभ की लंबाई और चौड़ाई क्रमशः 10% और 20% बढ़ जाती है, और इसकी ऊंचाई 20% तक कम हो जाती है। घनाभ के आयतन में प्रतिशत वृद्धि है:
CHSL 14-10-2020 (Morning shift)
(a) $5\frac{4}{5}$ %
(b) $5\frac{1}{5}$ %
(c) $5\frac{2}{5}$ %
(d) $5\frac{3}{5}$ %

Q14. The radius of a circular cylinder is 5 cm and its height is 14 cm. Then the volume of cylinder in cm^3 is: (Take $\pi = \frac{22}{7}$)
एक गोलाकार बेलन की त्रिज्या 5 सेमी है और इसकी ऊंचाई 14 सेमी है। फिर बेलन का आयतन (cm^3 में) है:
CHSL 14-10-2020 (Morning shift)
(a) 1504
(b) 1120
(c) 1100
(d) 1254

Q15. The areas of two similar triangles are 324 cm^2 and 225 cm^2 . If the altitude of the smaller triangle is 10 cm, then the altitude of the bigger triangle in centimetres, is:
दो समान त्रिभुजों के क्षेत्र 324 cm^2 और 225 cm^2 हैं। यदि छोटे त्रिभुज की ऊंचाई 10 सेमी है, तो सेंटीमीटर में बड़े त्रिभुज की ऊंचाई है:
CHSL 14-10-2020 (Morning shift)
(a) 12
(b) 16
(c) 14
(d) 18

Q16. In the given figure, the ratio of the area of the largest square to that of the smallest square is:
दी गयी आकृति में, सबसे बड़े वर्ग के क्षेत्रफल और सबसे छोटा वर्ग के क्षेत्रफल का अनुपात है



CHSL 14-10-2020 (Afternoon shift)
(a) 4 : 1
(b) $\sqrt{2}$: 1
(c) 3 : 1
(d) 2 : 1

Q17. Water flows into a tank 180 m × 140 m through a rectangular pipe of 1.2m × 0.75m at a rate of 15 km/h. In what time will the water rise by 4 m?
15 किमी / घंटा की दर से 1.2 मीटर 0.75 मीटर के आयताकार पाइप के माध्यम से एक टैंक 180 मीटर 140 मीटर में पानी बहता है। किस समय में पानी 4 मीटर बढ़ जाएगा?
CHSL 14-10-2020 (Afternoon shift)
(a) 6 hours 42 minutes
(b) 7 hours 28 minutes
(c) 5 hours 46 minutes
(d) 8 hours 12 minutes

Q18. The perimeter and length of a rectangle are in the ratio of 8:1, and the area of the rectangle is 1323 cm^2. Find the length of the rectangle.
एक आयत का परिमाप और उसकी लंबाई 8:1 के अनुपात में है। आयत का क्षेत्रफल 1323 वर्ग सेमी है। आयत की लंबाई ज्ञात कीजिए।
CHSL 14-10-2020 (Evening shift)
(a) 22 cm
(b) 23 cm
(c) 25 cm
(d) 21 cm

Q19. Find the area of an equilateral triangle whose sides are 12 cm.
उस समबाहु त्रिभुज का क्षेत्रफल ज्ञात कीजिए जिसकी भुजाएँ 12 सेमी की हैं।
CHSL 14-10-2020 (Evening shift)
(a) 38

(b) $29\sqrt{5}$
(c) $45\sqrt{2}$
(d) $36\sqrt{3}$

Q20. Two parallel chords are drawn in a circle of diameter 20 cm. The length of one chord is 16 cm and the distance between the two chords is 12 cm. The length of the other chord is :
एक वृत्त में दो समानांतर जीवाओं को खींचा जाता है, जिसका व्यास 20 सेमी है। एक जीवा की लंबाई 16 सेमी है तथा दोनों जीवाओं के बीच की दूरी 12 सेमी है। दूसरी जीवा की लंबाई कितनी है?
CHSL 14-10-2020 (Evening shift)
(a) 20
(b) 18
(c) 16
(d) 12

Q21. In a circle, PQ and RS are two diameters that are perpendicular to each other. Find the length of chord PR.
एक वृत्त में, PQ तथा RS दो व्यास हैं जो एक-दूसरे पर लम्ब हैं। जीवा PR की लंबाई ज्ञात कीजिए।
CHSL 14-10-2020 (Evening shift)
(a) $\frac{PQ}{2}$
(b) $\sqrt{2}$ PQ
(c) 2PQ
(d) $\frac{PQ}{\sqrt{2}}$

Q22.The area of a rectangle is $a^2 - b^2$ and its length is a + b, what will be its breadth?
एक आयत का क्षेत्रफल $a^2 - b^2$ है और इसकी लंबाई a + b है, इसकी चौड़ाई क्या होगी?
CHSL 15-10-2020 (Morning shift)
(a)2ab
(b)a + b
(c)ab
(d)a - b

Q23.The radius of a circular cone is 6 cm and its height is 7 cm. Then the volume of cone in cm^3 is: (take $\pi = \frac{22}{7}$)
एक गोलाकार शंकु की त्रिज्या 6 cm है और इसकी ऊंचाई 7 सेमी है। फिर शंकु का आयतन cm^3 में क्या होगा ? ($\pi = \frac{22}{7}$)
CHSL 15-10-2020 (Morning shift)
(a)264
(b)188
(c)216
(d)154

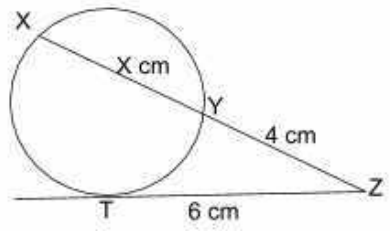
Q24.In a circle, two equal and parallel chords are 6 cm apart and they lie on the opposite sides of the centre of the circle, whose radius is 5 cm. The length of each chord (in cm), is
एक वृत्त में, दो समान और समानान्तर जीवा 6 सेमी के दुरी पर हैं और वे वृत्त के केंद्र के विपरीत किनारों पर स्थित हैं, जिसकी त्रिज्या 5 सेमी है। प्रत्येक जीवा की लंबाई (सेमी में) है:
CHSL 15-10-2020 (Afternoon shift)
(a)12
(b)6
(c)8
(d)10

Q25. The breadth of a rectangle is four times of its length. If the area of the rectangle is 1764, then what is the breadth of the rectangle?
एक आयत की चौड़ाई इसकी लंबाई का चार गुना है। यदि आयत का क्षेत्रफल 1764 है, तो आयत की चौड़ाई क्या है?
CHSL 15-10-2020 (Afternoon shift)
(a) 44
(b) 56
(c) 84
(d) 21

Q26. The ratio of the areas of two squares is 16 : 1. Find the ratio between their perimeters.
दो वर्गों के क्षेत्रफल का अनुपात 16: 1 है. उनके परिधि के बीच का अनुपात ज्ञात करें।
CHSL 15-10-2020 (Evening shift)
(a) 8 : 1
(b) 3 : 1
(c) 4 : 1
(d) 12 : 1

Q27. The area of the largest triangle that can be inscribed in a semicircle of radius 4 cm in square centimeters is
सबसे बड़ा त्रिभुज का क्षेत्रफल ज्ञात कीजिए जिसे 4 सेमी के त्रिज्या वाले अर्धवृत्त में अंकित किया गया है ।
CHSL 15-10-2020 (Evening shift)
(a) 16 cm^2
(b) 14 cm^2
(c) 12 cm^2
(d) 18 cm^2

Q28. In the given figure XYZ is a secant and ZT is a tangent. What is the value of x.
दिए गए आकृति में XYZ एक छेदक रेखा है और ZT एक स्पर्शरेखा है। x का मान ज्ञात कीजिए।



CHSL 15-10-2020 (Evening shift)
(a) 9
(b) 5
(c) 8
(d) 7

Q29. The area of a square field is 7200 m^2. What is the length of its diagonal?
एक वर्ग क्षेत्र का क्षेत्रफल 7200m^2 है। इसके विकर्ण की लंबाई क्या है?
CHSL 16-10-2020 (Morning shift)
(a) 60 m
(b) 1800 m
(c) 180 m
(d) 120 m

Q30. The volume of a tank is 72 cubic meters. Water is poured into it at the rate of 60 litres per minute. How much time will it take to fill the tank?
एक टैंक की आयतन 72 घन मीटर है। इसमें 60 लीटर प्रति मिनट की दर से पानी डाला जाता है। टैंक को भरने में कितना समय लगेगा?
CHSL 16-10-2020 (Afternoon shift)
(a) 6 hours
(b) 20 hours
(c) 12 hours
(d) 10 hours

Q31. In a circle of radius 10 cm, PQ and RS are two parallel chords of length 16 cm and 12 cm respectively. What is the distance between the chords if they are on opposite sides of the centre?
त्रिज्या 10 सेमी के एक वृत्त में, PQ और RS क्रमशः 16 सेमी और 12 सेमी लंबाई के दो समानांतर जीवा हैं। यदि वे केंद्र के विपरीत किनारों पर हैं, तो जीवा के बीच की दूरी क्या है?
CHSL 16-10-2020 (Afternoon shift)
(a) 6 cm
(b) 8 cm
(c) 14 cm
(d) 2 cm

Q32. The area of a square park is $16x^2 + 8x + 1$. What is the length of the park?
एक वर्ग पार्क का क्षेत्रफल $16x^2 + 8x + 1$. पार्क की लंबाई कितनी है?
CHSL 16-10-2020 (Afternoon shift)
(a) (4x - 1) units
(b) (4x + 1) units
(c) $(4x + 1)^2$ units
(d) 4x units

Q33. What is the area of an equilateral triangle of side $4\sqrt{3}$ cm?
43 सेमी के समबाहु त्रिभुज का क्षेत्रफल कितना है?
CHSL 16-10-2020 (Evening shift)
(a) $15\sqrt{3}\ cm^2$
(b) $16\sqrt{3}cm^2$
(c) $20\sqrt{3}cm^2$
(d) $12\sqrt{3}cm^2$

Q34. If two concentric circles are of radii 13 cm and 12 cm, respectively, then the length of the chord of the larger circle which touches the smaller circle is:
यदि दो संकेंद्रित वृत्त क्रमशः त्रिज्या 13 सेमी और 12 सेमी के हैं, तो बड़े वृत्त के जीवा की लंबाई जो छोटे वृत्त को स्पर्श करती है वह है:
CHSL 16-10-2020 (Evening shift)
(a) 35 cm
(b) 10 cm
(c) 15 cm
(d) 25 cm

Q35. The radius of a circle is 15 cm and the length of one chord of the circle is 20 cm. What is the distance of the chord from the centre of the circle?
एक वृत्त की त्रिज्या 15 सेमी है और वृत्त के जीवा की लंबाई 20 सेमी है। वृत्त के केंद्र से कॉर्ड की दूरी क्या है?
CHSL 16-10-2020 (Evening shift)
(a) $5\sqrt{5}$ cm
(b) $5\sqrt{3}$ cm
(c) $5\sqrt{2}$ cm
(d) $3\sqrt{3}$ cm

Q36. What will be the area of a circle whose radius is $\sqrt{5}$ cm?
एक वृत्त का क्षेत्रफल क्या होगा जिसकी त्रिज्या $\sqrt{5}$ सेमी है ?
CHSL 16-10-2020 (Evening shift)
(a) $3\pi\ cm^2$
(b) $\pi\ cm^2$
(c) $2\pi\ cm^2$
(d) $5\pi\ cm^2$

Q.37.If the area of the triangle DGC is 20cm^2, then the area of triangle AGF + the area of triangle BGF is equal to:
त्रिभुज ABC में, AD, BE और CF मध्यरेखा हैं और G त्रिभुज का केन्द्रक है। यदि त्रिभुज DGC का क्षेत्रफल 20cm^2 है, तो त्रिभुज AGF का क्षेत्रफल+ त्रिभुज BGF का क्षेत्रफल किसके बराबर है:
CHSL 19-10-2020 (Morning shift)
(a) 30 cm^2
(b) 20 cm^2
(c) 25 cm^2
(d) 40 cm^2

Q38. A wire in the shape of a circle of radius 28 cm is bent in the form of a square. What is the difference of their areas? (Take $\Pi = \frac{22}{7}$)
28 सेमी त्रिज्या के वृत्त के आकार का एक तार एक वर्ग के रूप में मुड़ा हुआ है। उनके क्षेत्रों में क्या अंतर है? ($\Pi = \frac{22}{7}$)
CHSL 19-10-2020 (Morning shift)
(a) 530 cm^2
(b) 532 cm^2
(c) 538 cm^2
(d) 528 cm^2

Q39. The radii of two circles are 20 cm and 13 cm, respectively. Find the radius of the circle which has a circumference equal to the sum of the circumference of two circles.
दो वृत्त की त्रिज्या क्रमशः 20 सेमी और 13 सेमी है। उस वृत्त की त्रिज्या ज्ञात कीजिए जिसमें दो वृत्त की परिधि के योग के बराबर एक परिधि है।
CHSL 19-10-2020 (Morning shift)
(a) 33 cm
(b) 32 cm
(c) 30 cm
(d) 28 cm

Q40. A triangle PQR is a right angled triangle at Q. E and F are the mid points of QR and PR respectively. What will be the ratio of the area of quadrilateral PQEF to the area of triangle PQR.
एक समकोण त्रिभुज PQR, E पर समकोण है E और F क्रमशः QR और PR के मध्य बिंदु हैं। चतुर्भुज PQEF के क्षेत्रफल और त्रिभुज PQR के क्षेत्रफल का अनुपात क्या होगा
CHSL 19-10-2020 (Morning shift)
(a) 2/3
(b) 3/4
(c) $\frac{3}{2}$
(d) $\frac{4}{3}$

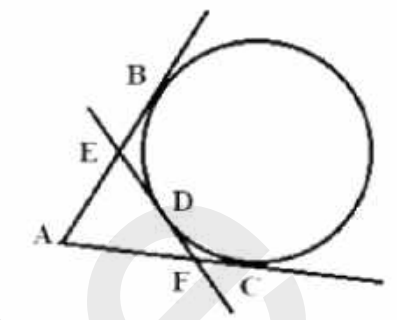
Q41. The breadth of a rectangular field is two-third of its length. If its area is 864 m^2, then find the cost of fencing it all around at ₹ 15/m.
एक आयताकार क्षेत्र की चौड़ाई इसकी लंबाई का दो-तिहाई है। यदि इसका क्षेत्रफल 864 m^2 है,तो ₹ 15/m के दर से चारों ओर बाड़ लगाने की लागत का पता लगाएं
CHSL 19-10-2020 (Morning shift)
(a) ₹ 2000
(b) ₹ 1800
(c) ₹ 1600
(d) ₹ 2400

Q42. The diameter of a wheel is 49 cm. The number of revolutions in which it will have to cover a distance of 770 m, is:
एक पहिया का व्यास 49 सेमी है। चक्कर की संख्या जिसमें इसे 770 मीटर की दूरी तय करनी होगी, वह है:
CHSL 19-10-2020 (Afternoon shift)
(a) 400
(b) 600
(c) 700
(d) 500

Q43. The centroid of an equilateral ΔXYZ is L. If XY = 12 cm, then the length of XL (in cm), is:
एक समबाहु XYZ का केन्द्रक L है। यदि XY = 12 सेमी है, तो XL की लंबाई (सेमी में) है,
CHSL 19-10-2020 (Afternoon shift)
(a) $5\sqrt{3}$
(b) $4\sqrt{3}$
(c) $2\sqrt{3}$
(d) $3\sqrt{3}$

Q44. The sum of the squares of the sides of a rhombus is 900 m^2. What is the side of the rhombus?
एक समभुज की भुजाओं के वर्गों का योग 900 m^2 है। समभुज का भुजा क्या है?
CHSL 19-10-2020 (Afternoon shift)
(a) 17 m
(b) 15 m
(c) 14 m
(d) 16 m

Q45. In the given figure, AB, AC and EF are tangents to a circle. If AC = 15 cm and DE = 3 cm, then the length of AE is:
दिए गए आकृति में, AB, AC और EF एक वृत्त के स्पर्शरेखा हैं। यदि AC = 15 सेमी और DE = 3 सेमी है, तो AE की लंबाई है:



CHSL 19-10-2020 (Evening shift)
(a) 24 cm
(b) 9 cm
(c) 18 cm
(d) 12 cm

Q46. A circle is drawn circumscribing a rectangle of sides 24 cm and 7 cm. Find the area of the circle. (Take $\pi = 3.14$)
एक वृत्त 24 cm और 7 cm भुजा वाले आयत के परिगत है। वृत्त का क्षेत्रफल ज्ञात कीजिए।($\pi = 3.14$)
CHSL 19-10-2020 (Evening shift)
(a) 490.625 cm^2
(b) 420.545 cm^2
(c) 397.982 cm^2
(d) 478.967 cm^2

Q47. Three sides of a triangle measure 6 cm, 10 cm and x cm. The minimum integral value of x is:
त्रिभुज की तीन भुजाएँ 6 सेमी, 10 सेमी और x सेमी मापती हैं। X का न्यूनतम मान है
CHSL 19-10-2020 (Evening shift)
(a) 2
(b) 1
(c) 3

(d) 5

Q48 A is a point at a distance 26 cm from the centre O of a circle of radius 10 cm. AP and AQ are the tangents to the circle at the point of contacts P and Q. If a tangent BC is drawn at a point R lying on the minor are PQ to intersect AP at B and AQ at C, then the perimeter of Δ ABC is:
त्रिज्या 10 सेमी के वृत्त के केंद्र O से 26 सेमी की दूरी पर A एक बिंदु है। AP और AQ बिंदु P और Q पर स्पर्शरेखा हैं। यदि स्पर्शरेखा BC वृत्त के PQ माइनर को R पर कटती है और PA को B पर और PQ को C पर प्रतिछेदित करती है , तो ABC की परिधि है
CHSL 20-10-2020 (Morning shift)
(a) 40 cm
(b) 48 cm
(c) 46 cm
(d) 42 cm

Q49. ABC is a right angled triangle, right angled at A. A circle is inscribed in it. The lengths of two sides containing the right angle are 48 cm and 14 cm. The radius of the inscribed circle is:
ABC एक समकोण त्रिभुज है, A कोण पर समकोण है। समकोण वाले दो भुजाओं की लंबाई 48 सेमी और 14 सेमी है। अन्तर्निहित वृत्त की त्रिज्या है
CHSL 20-10-2020 (Morning shift)
(a) 4 cm
(b) 6 cm
(c) 8 cm
(d) 5 cm

Q50. ABC and BDE are two equilateral triangles such that D is the mid-point of BC. If the area of triangle ABC is 136 cm^2, then the area of triangle BDE is equal to:
ABC और BDE दो समबाहु त्रिभुज हैं जैसे D, BC का मध्य-बिंदु है। यदि त्रिभुज ABC का क्षेत्रफल 136 cm^2, है, तो त्रिभुज BDE का क्षेत्रफल ज्ञात करे
CHSL 20-10-2020 (Morning shift)
(a) 36 cm^2
(b) 34 cm^2
(c) 38 cm^2
(d) 24 cm^2

Q51. In an isosceles triangle ABC with AB = AC and AD is perpendicular to BC, if AD = 6 cm and the perimeter of Δ ABC is 36 cm, then the area of Δ ABC is:
एक समद्विबाहु त्रिभुज ABC में AB = AC और AD, BC पर लंबवत है, यदि AD = 6 सेमी और ABC की परिधि 36 सेमी है, तो ABC का क्षेत्रफल है
CHSL 20-10-2020 (Morning shift)
(a) 45 cm^2
(b) 48 cm^2
(c) 54 cm^2
(d) 64 cm^2

Q52. If 3.96 cubic dm of lead is to be drawn in to a cylindrical wire of diameter 0.6 cm, then the length of the wire (in metres), is:
यदि सीसा 3.96 घन डेसीमीटर है जिससे एक 0.6 सेमी व्यास के बेलनाकार तार को बनाना है, तो तार की लंबाई (मीटर में) है:
CHSL 20-10-2020 (Morning shift)
(a) 130 m
(b) 125 m
(c) 140 m
(d) 120 m

Q.53. Two concentric circles form a ring. The inner and outer circumference of the ring are 22 cm and 44 cm respectively. The width of the ring is:
दो संकेंद्रित वृत्त एक वलय का निर्माण करते हैं। वलय की आंतरिक और बाहरी परिधि क्रमशः 22 सेमी और 44 सेमी है। वलय की चौड़ाई ज्ञात करें।
CHSL 20-10-2020 (afternoon shift)
(a) 3.5 cm
(b) 1.5 cm
(c) 2.5 cm
(d) 3 cm

Q.54. A, B and C are three points on the circle. If AB = AC = $7\sqrt{2}$ cm and ∠BAC = 90°, then the radius is equal to:
वृत्त पर A, B और C तीन बिंदु हैं। यदि AB = AC = 72cm और ∠BAC = 90° है, तो त्रिज्या है
CHSL 20-10-2020 (afternoon shift)
(a) 14
(b) 7
(c) $7\sqrt{2}$
(d) 6

Q.55. The centroid of an equilateral triangle PQR is L. If PQ = 18 cm, then the length of PL is:
एक समबाहु त्रिभुज PQR का केन्द्रक L है। यदि PQ = 18 सेमी है, तो PL की लंबाई ज्ञात करें
CHSL 20-10-2020 (Evening shift)
(a) $3\sqrt{3}$
(b) $5\sqrt{3}$
(c) $6\sqrt{3}$
(d) $4\sqrt{3}$

Q.56. Two circles with centres P and Q of radii 7 cm and 3cm, respectively, touch each other externally at a point A. BC is a direct common tangent to these two circles where B and C are the

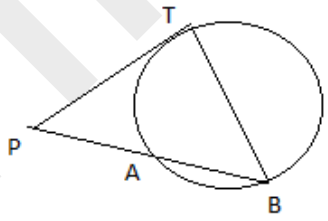
point on the circles respectively. The length of BC is:
केंद्र P और Q के साथ दो दो वृत्त, जिनकी त्रिज्याएँ क्रमशः 7 सेमी और 3 सेमी है , एक दूसरे को बाहरी रूप से स्पर्श करते हैं। BC इन दो वृत्त में एक सीधा स्पर्शरेखा है जहां क्रमशः B और C वृत्त पर बिंदु हैं। BC की लंबाई है
CHSL 20-10-2020 (Evening shift)
(a) $3\sqrt{21}$ cm
(b) $\sqrt{21}$ cm
(c) $2\sqrt{21}$ cm
(d) $4\sqrt{21}$ cm

Q.57. If the breadth and perimeter of a rectangle are in the ratio 1:8 and the area of rectangle is 363 cm^3, then the breadth of the rectangle is:
यदि आयत की चौड़ाई और परिधि 1: 8 के अनुपात में है और आयत का क्षेत्रफल 363 cm^3 है, तो आयत की चौड़ाई है
CHSL 20-10-2020 (Evening shift)
(a) 11 cm
(b) 12 cm
(c) 10 cm
(d) 13 cm

Q.58. The perimeter of a rectangle is 80 cm and its area is 375 cm^2. What is the difference between the length and the breadth of the rectangle?
एक आयत की परिधि 80 सेमी है और इसका क्षेत्रफल 375 cm^2 है। आयत की लंबाई और चौड़ाई में क्या अंतर है?
CHSL 21-10-2020 (Morning shift)
(a) 12 cm
(b) 20 cm
(c) 10 cm
(d) 16 cm

Q.59. AB is the diameter of a circle. C is a point on a tangent drawn on A. If AB = 24cm and AC = 7cm, then what is the length of BC?
AB एक वृत्त का व्यास है। C, A से खींची गई स्पर्शरेखा पर एक बिंदु है,यदि AB = 24 cm और AC = 7 cm तो BC की लंबाई क्या है
CHSL 21-10-2020 (Morning shift)
(a) 50 cm
(b) 15 cm
(c) 25 cm
(d) 26 cm

Q.60. In the given figure, TB is a chord which passes through the centre of the circle. PT is a tangent to the circle at the point. T on the circle. If PT = 10 cm, PA = 5 cm and AB = x cm, then the radius of the circle is:
दिए गए चित्र में, TB एक जीवा है जो वृत्त के केंद्र से होकर गुजरता है। PT, वृत्त के बिंदु T पर वृत्त की स्पर्शरेखा है। यदि PT= 10 सेमी, PA= 5 सेमी और AB = x सेमी, तो वृत्त का त्रिज्या है



CHSL 21-10-2020 (Morning shift)
(a) $5\sqrt{3}$
(b) $6\sqrt{5}$
(c) $3\sqrt{5}$
(d) $10\sqrt{3}$

Q.61. ΔABC is an isosceles triangle with AB = AC=13 cm. AD is the median on BC from A such that AD= 12 cm. The length of BC is equal to:
ΔABC में, AB = AC = 13 सेमी के साथ एक समद्विबाहु त्रिभुज है। AD, A से BC पर माध्यिका इस प्रकार है की AD = 12 सेमी। BC की लंबाई है:
CHSL 21-10-2020 (Morning shift)
(a) 5 cm
(b) 7.5 cm
(c) 10 cm
(d) 6 cm

Q.62. Two concentric circles form a ring. The inner and outer circumference of the ring are 22 cm and 44 cm respectively. The width of the ring is:
दो संकेंद्रित वृत्त एक वलय का निर्माण करते हैं। वलय की आंतरिक और बाहरी परिधि क्रमशः 22 सेमी और 44 सेमी है। वलय की चौड़ाई ज्ञात करे
CHSL 21-10-2020 (Afternoon shift)
(a) 3.5 cm
(b) 1.5 cm
(c) 2.5 cm
(d) 3 cm

Q.63. In ΔABC, E and D are points on sides AB and AC, respectively, such that $\angle$ABC = $\angle$ADE, if AE = 6cm, AD = 4 cm and EB = 4 cm, then the length of DC is:
ΔABC में, E और D क्रमश AB और AC पर एक बिंदु हैं, जैसे कि $\angle$ABC = $\angle$ADE, यदिAE = 6cm, AD = 4 cm और EB = 4 cm है, तो DC की लंबाई है:
CHSL 21-10-2020 (Afternoon shift)
(a) 11 cm
(b) 8 cm
(c) 9.5 cm
(d) 10 cm

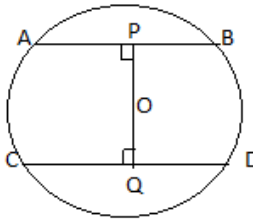
Q.64. A, B and C are three points on the circle. If AB = AC = $7\sqrt{2}$

cm and ∠BAC = 90°, then the radius is equal to:
वृत्त पर A, B और C तीन बिंदु हैं। यदि AB = AC = 72cm और ∠BAC = 90 then है, तो त्रिज्या का मान ज्ञात करे
CHSL 21-10-2020 (Afternoon shift)
(a) 14
(b) 7
(c) $7\sqrt{2}$
(d) 6

Q.65. A chord 10 cm long is drawn in a circle of diameter 26 cm. The perpendicular distance of the chord from the centre is:
एक तार 10 सेमी लंबी, व्यास 26 सेमी के एक वृत्त में खींचा जाता है। केंद्र से जीवा की लंबवत दूरी है
CHSL 21-10-2020 (Evening shift)
(a) 12 cm
(b) 7 cm
(c) 5 cm
(d) 8 cm

Q.66. The ratio of the length and the perimeter of a rectangle is 2:7. What is the ratio of the length and breadth of the rectangle?
एक आयत की लंबाई और परिधि का अनुपात 2: 7 है। आयत की लंबाई और चौड़ाई का अनुपात क्या है
CHSL 21-10-2020 (Evening shift)
(a) 4:3
(b) 4:5
(c) 5:4
(d) 5:3

Q.67. In the figure, O is the centre of the circle of radius 29 cm, OP ⊥ AB, OQ ⊥ CD and AB is parallel to CD. If AB = 40 cm and CD = 42 cm, then the length of PQ is:
दी गयी आकृति में, O वृत्त का केंद्र है जिसकी त्रिज्या 29 सेमी है , OP ⊥ AB, OQ ⊥ CD और AB, CD के समान्तर है। यदि AB= 40 सेमी और CD = 42 सेमी है, तो PQ की लंबाई है

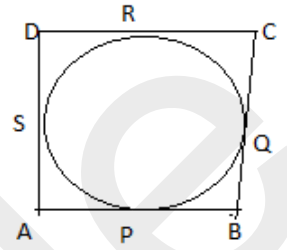


CHSL 21-10-2020 (Evening shift)
(a) 32
(b) 20
(c) 41
(d) 21

Q.68. In a Δ ABC, $2\angle ABC = 9\angle$ ACB and $2\angle$ BAC = $7\angle$ ACB. If AB = 8 cm, AC = 17 cm, then the length of BC is:
Δ ABC में, $2\angle ABC = 9\angle$ ACB और $2\angle$ BAC = $7\angle$ ACB । यदि AB = 8 सेमी, AC = 17 सेमी है, तो BC की लंबाई है:
CHSL 26-10-2020 (Morning shift)
(a) 8
(b) 25
(c) 15
(d) 9

Q.69. The total surface area of a solid cube is $2400\,cm^2$. The volume of the cube is:
एक ठोस घन का कुल क्षेत्रफल 2400 cm^2 है। घन की आयतन है
CHSL 26-10-2020 (Morning shift)
(a) $6000\,cm^3$
(b) $8200\,cm^3$
(c) $8400\,cm^3$
(d) $8000\ cm^3$

Q.70. ABCD is a quadrilateral such that $\angle D = 90°$. A circle with centre O touches the sides AB, BC and CD and DA at P, Q, R and S respectively. If BC = 40 cm, BP = 28 cm and CD = 25 cm, then what is the radius of the circle is:
ABCD एक चतुर्भुज है जैसे कि $\angle D = 90°$। केंद्र O वाला एक वृत्त क्रमशः AB, BC और CD और DA को P, Q, R और S से छूता है। यदि BC = 40 सेमी, BP = 28 सेमी और CD = 25 सेमी है, तो वृत्त का त्रिज्या क्या है



CHSL 26-10-2020 (Morning shift)
(a) 12
(b) 13
(c) 5
(d) 8

Q71 The perimeter of a rectangular field is 32 meters and its sides are in the ratio 5:3, Then the sides of the field are:.
एक आयताकार मैदान की परिमाप 32 मीटर है और इसके भुजा 5: 3 के अनुपात में हैं, फिर मैदान के भुजाएँ हैं
CHSL 26-10-2020 (afternoon shift)
(a) 10 m and 6 m
(b) 9 m and 7 m
(c) 12 m and 10 m
(d) 5 m and 3 m

Q.72. In a circle centred at O, a tangent AP is drawn from an external point A. If OA = 13 cm and OP = 5cm, then the length of tangent AP is:
O केंद्र वाले एक वृत्त में, एक स्पर्श रेखा AP को बाहरी बिंदु A से खींचा जाता है। यदि OA = 13 सेमी और OP = 5 सेमी है, तो स्पर्श रेखा AP की लंबाई ज्ञात करें
CHSL 26-10-2020 (afternoon shift)

Pinnacle

(a) 10 cm
(b) 8 cm
(c) 18 cm
(d) 12 cm

Q.73. If the diagonal of the cube is $\sqrt{27}$ cm, then its volume is:
यदि घन का विकर्ण $\sqrt{27}$ सेमी है, तो इसकी आयतन है:
CHSL 26-10-2020 (Evening shift)
(a) 27
(b) 32
(c) 30
(d) 25

Q.74. A circle inscribed in a triangle ABC touches its sides AB, BC and AC at the points D, E and F, respectively. If AB = 18cm, BC = 15cm and AC = 13 cm then the value of of AD+BE+CF is:
एक त्रिभुज ABC में अन्तर्निहित एक वृत्त क्रमशः AB, BC और AC के भुजाओं D, E और F को स्पर्श करता है। यदि AB = 18 सेमी, BC = 15 सेमी और AC = 13 सेमी है तो AD+ BE+ CF का मान है:
CHSL 26-10-2020 (Evening shift)
(a) 25
(b) 33
(c) 23
(d) 20

Q.75. In an isosceles triangle ABC, AB=AC and AD is perpendicular to BC at D. If AD = 8 cm and perimeter of Δ ABC is 64cm, then the area of Δ ABC
एक समद्विबाहु त्रिभुज ABC में, AB = AC और AD, BC पर लंबवत है। यदि AD = 8 सेमी और ABC की परिधि 64 cm है, तो ABC का क्षेत्रफल है:
CHSL 26-10-2020 (Evening shift)
(a) 130
(b) 124
(c) 120
(d) 125

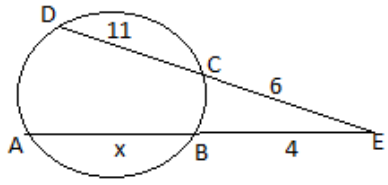
Q.76. Two tangents PA and PB are drawn from an external point P to a circle with centre O at the point A and B respectively on it, such that $\angle$APB = 120°, and AP= 12.5 cm. The length of OP is:
दो स्पर्शरेखाएँ PA और PB एक बाहरी बिंदु P से एक बिंदु पर क्रमशः केंद्र A और B पर O के साथ वृत्त की ओर खींची जाती हैं, जैसे कि$\angle$APB = 120° और AP = 12.5 cm OP की लंबाई है:
CHSL 26-10-2020 (Evening shift)
(a) 24 cm
(b) 25 cm
(c) 26 cm
(d) 20 cm

Q.77. If M is the mid point of the side BC of Δ ABC, and the area of Δ ABM is 18 cm^2, then the area of ΔABC is:
यदि M Δ ABC के भुजा BC के मध्य बिंदु है, और Δ ABM का क्षेत्रफल 18 cm^2 है, तो ΔABC का क्षेत्रफल है :
CHSL 17-03-2020 (Morning shift)
(a) 30 cm^2
(b) 34 cm^2
(c) 36 cm^2
(d) 32 cm^2

Q.78. The perimeter of a rectangle is 50 cm. Its area and length are in the ratio of 5:1. Find the length of the rectangle?
एक आयत की परिधि 50 सेमी है। इसका क्षेत्रफल और लंबाई 5: 1 के अनुपात में है। आयत की लंबाई ज्ञात कीजिये?
CHSL 17-03-2020 (Morning shift)
(a) 15 cm
(b) 20 cm
(c) 18 cm
(d) 22 cm

Q.79. A 5 cm long perpendicular is drawn from the centre of a circle to a 24 cm long chord. Find the diameter of the circle.
एक वृत्त के केंद्र से 5 सेंटीमीटर लम्बी एक लंबवत रेखा 24 सेमी लंबे जीवा तक खींचा जाता है। वृत्त का व्यास ज्ञात कीजिए।
CHSL 17-03-2020 (Morning shift)
(a) 32 cm
(b) 13 cm
(c) 30 cm
(d) 26 cm

Q.80. In the given figure, chords AB and CD are intersecting each other at point L. Find the length of AB
दी गयी आकृति में, जीवा AB और CD बिंदु L पर एक दूसरे को प्रतिच्छेद कर रहे हैं। AB की लंबाई ज्ञात करें



CHSL 17-03-2020 (Morning shift)
(a) 22.5 cm
(b) 21.5 cm
(c) 24.5 cm
(d) 23.5 cm

Q81. Find the circumference of a circle whose diameter is 12 inches.
एक वृत्त की परिधि ज्ञात करें जिसका व्यास 12 इंच है।
CHSL 17-03-2020 (Afternoon shift)
(a) 87.4672 cm
(b) 95.7072 cm

(c) 88.1876 cm
(d) 90.2348 cm

Q82. The length and breadth of a rectangle are in the ratio 5 : 3. If the length is 8 m more than the breadth, what is the area of the rectangle?
एक आयत की लंबाई और चौड़ाई 5: 3 में है। 3. यदि लंबाई चौड़ाई से 8 मीटर अधिक है, तो आयत का क्षेत्रफल क्या है?
CHSL 17-03-2020 (Afternoon shift)
(a) 240 m^2
(b) 380 m^2
(c) 360 m^2
(d) 400 m^2

Q83. Find the volume (in cm^3) of a sphere whose radius is 7.5 cm.
एक गोले का आयतन (in cm^3) ज्ञात करें जिसका त्रिज्या 7.5 सेमी है।
CHSL 17-03-2020 (Afternoon shift)
(a) 1767.85
(b) 1985.23
(c) 1683.25
(d) 1489.12

Q84. The length and breadth of a rectangle are in ratio 3:2. If its perimeter is 730 cm, what is the area of the rectangle?
एक आयत की लंबाई और चौड़ाई 3: 2 के अनुपात में है। यदि इसकी परिधि 730 सेमी है, तो आयत का क्षेत्रफल क्या है?
CHSL 17-03-2020 (Evening shift)
(a) 31,974 cm^2
(b) 24,452 cm^2
(c) 20,567 cm^2
(d) 28,976 cm^2

Q85. If the height of an equilateral triangle is 12 cm, then what is the area of the triangle?
यदि एक समबाहु त्रिभुज की ऊंचाई 12 सेमी है, तो त्रिभुज का क्षेत्रफल कितना है?
CHSL 17-03-2020 (Evening shift)
(a) 89.567 cm^2
(b) 96.897 cm^2
(c) 67.9843 cm^2
(d) 83.1384 cm^2

Q86. What is the area of a triangle whose sides measure 5 cm, 6 cm and 7 cm?
एक त्रिभुज का क्षेत्रफल क्या है जिसकी भुजाएँ 5 सेमी, 6 सेमी और 7 सेमी हैं?
CHSL 17-03-2020 (Evening shift)
(a) 10.9797 cm^2
(b) 12.8484 cm^2
(c) 16.4545 cm^2
(d) 14.6969 cm^2

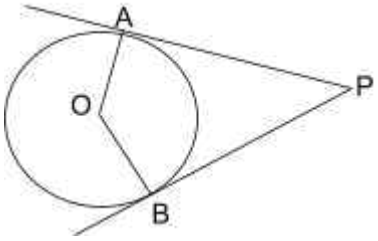
Q87. A chord of length 24 cm is at a distance of 5 cm from the centre of a circle. What is its area?
एक वृत्त के केंद्र से 5 सेमी की दूरी पर 24 सेमी लंबाई का एक जीवा है। इसका क्षेत्रफल क्या है?
CHSL 17-03-2020 (Evening shift)
(a) 120 cm^2
(b) 480.67 cm^2
(c) 531.14 cm^2
(d) 389.28 cm^2

Q88. A secant is drawn from a point P to a circle so that it meets the circle first at A, then goes through the centre, and leaves the circle at B. If the length of the tangent from P to the circle is 12 cm, and the radius of the circle is 5 cm, then the distance from P to A is:
एक प्रतिच्छेद रेखा को एक बिंदु P से एक वृत्त तक खींचा जाता है ताकि वह वृत्त में पहले A से मिल जाए, फिर केंद्र से होकर जाता है, और B पर वृत्त छोड़ता है। यदि P से वृत्त की स्पर्शरेखा की लंबाई है 12 सेमी, और वृत्त की त्रिज्या 5 सेमी है, फिर P से A की दूरी है:
CHSL 17-03-2020 (Morning shift)
(a) 8 cm
(b) 12 cm
(c) 18 cm
(d) 10 cm

Q89. If one side of a triangle is 7 with its perimeter equal to 18, and area equal to $\sqrt{108}$, then the other two sides are:
यदि त्रिभुज की एक भुजा 7 के साथ परिधि 18 है, और क्षेत्रफल 108 के बराबर है, तो अन्य दो भुजाएँ हैं:
CHSL 18-03-2020 (Morning shift)
(a) 6 and 5
(b) 3.5 and 7.5
(c) 7 and 4
(d) 3 and 8

Q90. If he length of a rectangle is increased by 12% and the breadth is decreased by 8%, the net effect on the area is:
यदि आयत की लंबाई 12% बढ़ जाती है और चौड़ाई 8% कम हो जाती है, तो इस क्षेत्र का शुद्ध प्रभाव है:
CHSL 18-03-2020 (Morning shift)
(a) increase by 3.04%
(b) increase by 2.6%
(c) decrease by 3.04%
(d) decrease by 2.6%

Q91.



PA and PB are tangents to the circle and O is the centre of the circle. The radius is 5 cm and PO is 13 cm. If the area of the triangle PAB is M, then the value of $\sqrt{\frac{M}{15}}$ is:

PA और PB वृत्त के स्पर्शरेखा हैं और O वृत्त का केंद्र है। त्रिज्या 5 सेमी और PO 13 सेमी है। यदि त्रिभुज PAB का क्षेत्रफल M है, तो $\sqrt{\frac{M}{15}}$ का मान है:

CHSL 18-03-2020 (Morning shift)

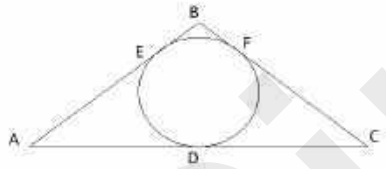
(a) $\sqrt{\frac{24}{13}}$

(b) $\frac{24}{13}$

(c) $\frac{12}{13}$

(d) $\sqrt{\frac{12}{13}}$

Q92.



A circle is inscribed in the triangle ABC whose sides are given as AB = 10, BC = 8, CA = 12 unit as shown in the figure. The value of AD × BF is:

त्रिभुज ABC में एक वृत्त अन्तर्निहित है जिसकी भुजाएं AB = 10, BC = 8, CA = 12 इकाई के रूप में दिए गए हैं जैसा कि चित्र में दिखाया गया है। AD × BF का मान है:

CHSL 18-03-2020 (Morning shift)

(a) 18 units

(b) 21 units

(c) 16 units

(d) 15 units

Q93. Find the perimeter of a right angle triangle whose sides have sizes of 5 cm and 12 cm.

समकोण त्रिभुज की परिधि ज्ञात करें जिसके भुजाओं का आकार 5 सेमी और 12 सेमी हो।

CHSL 18-03-2020 (Afternoon shift)

(a) 30 cm

(b) 25 cm

(c) 17 cm

(d) 18 cm

Q94. Two circles touch each other externally. The distance between their centres is 8 cm. If the radius of one circle is 3 cm, then the radius of the other circle is:

दो वृत्त एक दूसरे को बाह्य रूप से स्पर्श करते हैं। उनके केंद्रों के बीच की दूरी 8 सेमी है। यदि एक वृत्त की त्रिज्या 3 सेमी है, तो दूसरे वृत्त की त्रिज्या है:

CHSL 18-03-2020 (Afternoon shift)

(a) 6 cm

(b) 4 cm

(c) 3 cm

(d) 5 cm

Q95. The wheel of a car has 210 cm diameter. How many revolutions per minute must the wheel make so that the speed of the car is kept at 120 km/h?

एक कार के पहिये का व्यास 210 cm है। पहिया प्रति मिनट कितने चक्कर लगाना चाहिए ताकि कार की गति 120 किमी / घंटा रखी जाए?

CHSL 18-03-2020 (Afternoon shift)

(a) 326.42

(b) 245

(c) 303.03

(d) 289

Q96. If the perimeter and length of a rectangle are in the ratio 6:1 and the area of the rectangle is 288 cm^2 Find the length of the rectangle.

यदि आयत की परिधि और लंबाई 6: 1 के अनुपात में है और आयत का क्षेत्रफल 288 cm^2 है। आयत की लंबाई ज्ञात कीजिए।

CHSL 18-03-2020 (Afternoon shift)

(a) 10 cm

(b) 12 cm

(c) 8 cm

(d) 9 cm

Q97. The perimeter of an isosceles triangle is 125 cm. If the base is 33 cm, find the length of the equal sides.

समद्विबाहु त्रिभुज की परिधि 125 सेमी है। यदि आधार 33 सेमी है, तो समान भुजाओं की लंबाई ज्ञात करे।

CHSL 18-03-2020 (Afternoon shift)

(a) 32 cm

(b) 46 cm

(c) 34 cm

(d) 42 cm

Q98.Two circles with the same centre P have radii 7.5 cm and 4.4 cm. Through a point A of the larger circle, a tangent is drawn to the smaller circle touching it at B. Find AC (Approximate in cm).

एक ही केंद्र P के साथ दो वृत्त बनी है जिसकी त्रिज्या 7.5 सेमी और 4.4 सेमी है। बड़े वृत्त के बिंदु A से एक स्पर्शरेखा छोटे वृत्त से B पर मिलती है ।AC का मान ज्ञात कीजिए (सेमी में अनुमानित)।

CHSL 18-03-2020 (Evening shift)

(a) 14 cm

(b) 12.14 cm

(c) 14.27 cm

(d) 13 cm

Q99. The length of a rectangle plot is five times of its breadth. If

Pinnacle

the area of the rectangular plot is 2000 m^2, then what is the breadth of the rectangular plot?
एक आयताकार भूखंड की लंबाई इसकी चौड़ाई का पांच गुना है। यदि आयताकार भूखंड का क्षेत्रफल 2000 m^2, है, तो आयताकार भूखंड की चौड़ाई क्या है?
CHSL 18-03-2020 (Evening shift)
(a) 40 m
(b) 10 m
(c) 20 m
(d) 30 m

Q100. Two small circular grounds of diameters 42 m and 26 m are to be replaced by a bigger circular ground. What would be the radius of the new ground if the new ground has the same area as the two small grounds?
42 मीटर और 26 मीटर व्यास के दो छोटे गोलाकार मैदानों को एक बड़े गोलाकार मैदान से बदलना है। यदि नए मैदान का क्षेत्रफल, दो छोटे मैदानों के क्षेत्रफल के समान है, तो नई मैदान की त्रिज्या क्या होगी ?
CHSL 18-03-2020 (Evening shift)
(a) 24.69 m
(b) 23 m
(c) 25 m
(d) 25.01 m

Q101. The perimeter of an isosceles triangle is 90 cm. If the base is 26 cm, then find the length of the equal sides.
समद्विबाहु त्रिभुज की परिधि 90 सेमी है। यदि आधार 26 सेमी है, तो समान भुजाओं की लंबाई ज्ञात करे।
CHSL 18-03-2020 (Evening shift)
(a) 30 cm
(b) 40 cm
(c) 42 cm
(d) 32 cm

Q102. In an isosceles right-angled triangle, the perimeter is 30 m. Find its area (Approximate.)
समद्विबाहु समकोण त्रिभुज में, परिधि 30 मीटर है। इसका क्षेत्रफल ज्ञात करें (लगभग)
CHSL 18-03-2020 (Evening shift)
(a) 38.63 m^2
(b) 39.60 m^2
(c) 37.86 m^2
(d) 40 m^2

Q.103. The three medians AX, BY and CZ of Δ ABC intersect at point L. If the area of Δ ABCis 30 cm^2, then the area of the quadrilateral BXLZ is:
एक त्रिभुज ABC के तीन माध्यिकाएँ AX, BY और CZ बिंदु L पर प्रतिछेदित करते है , यदि Δ ABC का क्षेत्रफल 30 cm^2 है, तो चतुर्भुज BXLZ का क्षेत्रफल है:
CHSL 19-03-2020 (afternoon shift)
(a) 12 cm^2
(b) 16 cm^2
(c) 10 cm^2
(d) 14 cm^2

Q.104. The area of an isosceles right angles triangle is 121 cm^2. Find its hypotenuse
समद्विबाहु समकोण त्रिभुज का क्षेत्रफल 121 cm^2 है। इसका कर्ण ज्ञात करें.
CHSL 19-03-2020 (afternoon shift)
(a) 23
(b) 22
(c) 21
(d) 20

Q.105. Two circles of radii 20 cm and 5 cm respectively, touch each other externally at the point P, AB is the direct common tangent of these two circles of centres R and S, respectively. The length of AB is equal to:
दो वृत्त जिनकी त्रिज्याएँ क्रमशः 20 सेमी और 5 सेमी है, बिंदु P पर बाह्य रूप से एक दूसरे को स्पर्श करते हैं, AB क्रमशः केंद्रों R और S वाले दो वृत्तों के प्रत्यक्ष स्पर्शरेखा है। AB की लंबाई के बराबर है:
CHSL 19-03-2020 (afternoon shift)
(a) 15 cm
(b) 5 cm
(c) 10 cm
(d) 20 cm

Q.106. The area of the quadrant of a circle whose circumference is 22 cm, will be:
एक वृत्त का चतुर्थांश का क्षेत्रफल, जिसकी परिधि 22 सेमी है, वह होगा:
CHSL 19-03-2020 (afternoon shift)
(a) 3.5 cm^2
(b) 10 cm^2
(c) 38.5 cm^2
(d) 9.625 cm^2

Q.107. The distance between the centres of two equal circles each of radius 4 cm is 17 cm. The length of a transverse tangent is:
दो समान वृत्तों के केंद्रों के बीच की दूरी, प्रत्येक त्रिज्या 4 सेमी, 17 सेमी है। अनुप्रस्थ स्पर्शरेखा की लंबाई है:
CHSL 19-03-2020 (afternoon shift)
(a) 15 cm
(b) 16 cm
(c) 14 cm
(d) 19 cm

Q.108. The radius a circular cone is R and its height is H. the volume of cone is:
एक गोलाकार शंकु की त्रिज्या R है और इसकी ऊंचाई H है। शंकु का आयतन है
CHSL 19-03-2020 (Morning shift)

(a) $\frac{\pi R^2 H}{3}$
(b) $\frac{2}{3\pi R^2 H}$
(c) $\pi R^2 H$
(d) $\pi R^2 H$

Q.109. The length of tangents drawn from an external point to the circle are:
एक बाहरी बिंदु से वृत्त तक खींची गई स्पर्शरेखा की लंबाई हैं:
CHSL 19-03-2020 (Morning shift)
(a) not equal
(b) perpendicular
(c) parallel
(d) equal

Q.110. A pair of tangents AB and AC are drawn from a point which is at a distance of 10 cm from the centre O of a circle of radius 6 cm, then the area in cm^2 of quadrilateral ABOC, is:
एक जोड़ी स्पर्शरेखा AB और AC एक बिंदु से खींची जाती है, जो 6 सेमी त्रिज्या वाले वृत्त के केंद्र O से 10 सेमी की दूरी पर है, फिर चतुर्भुज ABOC का क्षेत्रफल है
CHSL 19-03-2020 (Morning shift)
(a) 52
(b) 72
(c) 60
(d) 48

Q.111. The volume of a cube is 343 cm^3. The edge of cube is:
एक घन का आयतन 343 cm^3 है। घन का किनारा है:
CHSL 19-03-2020 (Evening shift)
(a) 6 cm
(b) 5 cm
(c) 7 cm
(d) 4 cm

Q.112. Each side of a rectangular field is increased by 10%. Then the percentage increase in the area of the field is:
एक आयताकार मैदान के प्रत्येक भुजा में 10% की वृद्धि हुई है। फिर मैदान के क्षेत्रफल में प्रतिशत वृद्धि है:
CHSL 19-03-2020 (Evening shift)
(a) 10%
(b) 15%
(c) 18%
(d) 21%

Q.113. In a circle centred at O, AB is a chord and C is any point on AB, such that OC is perpendicular to AB. If the length of the chord is 16 cm and OC = 6 cm, the radius of circle is :
O केंद्र वाले एक वृत्त में, AB एक जीवा है और C, AB पर कोई बिंदु है, जैसे OC, AB पर लंबवत है। यदि जीवा की लंबाई 16 सेमी और OC = 6 सेमी है, तो वृत्त की त्रिज्या है:
CHSL 19-03-2020 (Evening shift)
(a) 10 cm
(b) 8 cm
(c) 6 cm
(d) 12 cm

SSC CGL 2019 TIER-II
Q114. The areas of three adjacent faces of a cuboidal tank are $3m^2$, $12m^2$ and $16m^2$. The capacity of the tank in litres is :
घनाकार टैंक के तीन आसन्न भुजाओं के क्षेत्रफल $3m^2$, $12m^2$ और $16m^2$ हैं। टैंक की क्षमता है (लीटर में)
(CGL MAINS 15-10-2020)
(a) 48000
(b) 24000
(c) 72000
(d) 36000

Q115. A solid metallic sphere of radius 15cm melted and recast into spherical balls of radius 3 cm each. What is the ratio of the surface area of the original and the sum of the surface area of the balls?
15 सेमी त्रिज्या का एक ठोस धात्विक क्षेत्र को पिघला कर त्रिज्या 3 सेमी के प्रत्येक गोलाकार गेंद बनाई जाती है। मूल सतह के क्षेत्रफल और गेंदों के सतह क्षेत्र के योग का अनुपात क्या है?
(CGL MAINS 15-10-2020)
(a) 1 : 5
(b) 1 : 10
(c) 5 : 27
(d) 3 : 40

Q116. The radii of two right circular cylinders are in the ratio 3 : 2 and the ratio of their volumes is 27:16. What is the ratio of their heights?
दो गोलाकार सिलेंडरों की त्रिज्या 3: 2 के अनुपात में है और उनके आयतन का अनुपात 27:16 है। उनकी लम्बाई का अनुपात क्या है
(CGL MAINS 15-10-2020)
(a) 3 : 4
(b) 8 : 9
(c) 4 : 3
(d) 9 : 8

Q117. The base of a right pyramid is a square of a side 10cm. If its height is 10 cm, then the area (in cm^2) of its lateral surface is:
एक पिरामिड का आधार 10 सेमी भुजा वाला वर्ग है। यदि इसकी ऊंचाई 10 सेमी है, तो इसकी पार्श्व सतह का क्षेत्रफल (सेमी ^{2} में) है ?
(CGL MAINS 15-10-2020)
(a) 100
(b) $100(\sqrt{5}+1)$
(c) $50\sqrt{5}$
(d) $100\sqrt{5}$

Q118. The height of a cylinder is 30 cm and the diameter of its base is 10 cm. Two identical conical holes each of radius 5 cm and 12 cm are drilled out. what is the

surface area(in cm^2) of the remaining solid?
एक सिलेंडर की ऊंचाई 30 सेमी है और इसके आधार का व्यास 10 सेमी है। दो समान शंकाकार छिद्र प्रत्येक त्रिज्या 5 सेमी और 12 सेमी तक ड्रिल कर बाहर निकाल दिया जाता है शेष ठोस का पृष्ठीय क्षेत्रफल क्या है?
(CGL MAINS 15-10-2020)
(a) 230π
(b) 430π
(c) 330π
(d) 120π

Q119. Given that $\Delta DEF \sim \Delta ABC$, If the area of ΔABC is 9 cm^2 and that of ΔDEF =12 cm^2, BC=2.1 cm, then the length of EF is :
दिया हुआ है की, $\Delta DEF \sim \Delta ABC$, यदि ΔABC का क्षेत्रफल $9\,cm^2$ है और ΔDEF = 12 cm^2,BC = 2.1 सेमी है, तो EF की लंबाई है
(CGL MAINS 15-10-2020)
(a) $\frac{8\sqrt{3}}{5}cm$
(b) $\frac{3\sqrt{7}}{5}cm$
(c) $\frac{4\sqrt{7}}{5}cm$
(d) $\frac{7\sqrt{3}}{5}cm$

Q120. The curved surface area of a right cylinder is $3696\,cm^2$, Its height is three times its radius. What is the capacity(in liters) of the cylinder?(Take $\pi = \frac{22}{7}$)
एक सिलेंडर का घुमावदार सतह का क्षेत्रफल $3696\,cm^2$ है, इसकी ऊंचाई, त्रिज्या से तीन गुना है। सिलेंडर की क्षमता (लीटर में) क्या है? (मानिये $\pi = \frac{22}{7}$)
(CGL MAINS 15-10-2020)
(a) 25.872
(b) 30.87
(c) 19.008
(d) 29.75

Q121. The perimeter of ΔABC and ΔDEF are 43.2 cm and 28.8 cm, respectively, and $\Delta ABC \sim \Delta DEF$. If DE =12cm, then the length of AB is:
ΔABC और ΔDEF की परिधि क्रमशः 43.2 सेमी और 28.8 सेमी है, और $\Delta ABC \sim \Delta DEF$ । यदि DE = 12 सेमी है, तो AB की लंबाई है
(CGL MAINS 15-10-2020)
(a) 20 cm
(b) 18.4 cm
(c) 18 cm
(d) 20.4 cm

Q122. The area of the base of a right circular cone is $81\pi\,cm^2$ and its height is 12cm. What is the curved surface area ($in\ cm^2$) of the cone ?
एक गोलाकार शंकु के आधार का क्षेत्रफल $81\pi\,cm^2$ सेमी है और इसकी ऊंचाई 12 cm है। शंकु का घुमावदार सतह क्षेत्रफल (cm^2 में) क्या है
(CGL MAINS 15-10-2020)
(a) 108π
(b) 135π
(c) 126π
(d) 144π

Q123. The base of a right prism is a regular hexagon of side 5 cm. If its height is $12\sqrt{3}$ cm, then its volume ($in\ cm^3$) is:
एक प्रिज्म का आधार 5 सेमी का एक नियमित षट्भुज है। यदि इसकी ऊंचाई $12\sqrt{3}$ सेमी है, तो इसकी आयतन (सेमी में) है
(CGL MAINS 15-10-2020)
(a) 900
(b) 1800
(c) 1350
(d) 675

Q124. If the radius of the base of a right circular cylinder is increased by 20% and the height is decreased by 30% then what is the percentage increase/decrease in the volume ?
यदि सिलेंडर के आधार की त्रिज्या 20% बढ़ जाती है और लंबाई 30% तक कम हो जाती है तो आयतन में प्रतिशत वृद्धि / कमी क्या है?
(CGL MAINS 15-10-2020)
(a) Increase 2%
(b) Decrease 0.8%
(c) Increase 0.8%
(d) Decrease 2%

Q125.. A spherical metallic shell with 6 cm external radius weighs 6688 g, What is the thickness of the shell if the density of metal is 10.5 g per cm^3 ?(take $\pi = \frac{22}{7}$)
6 सेमी के बाहरी त्रिज्या के साथ एक गोलाकार धात्विक शैल का वजन 6688 ग्राम है, यदि धातु का घनत्व 10.5 ग्राम प्रति सेमी है तो शेल की मोटाई क्या है? (मानिए = $\frac{22}{7}$)
(CGL MAINS 15-10-2020)
(a) 2 cm
(b) 3 cm
(c) $2\frac{1}{2}$ cm
(d) 4 cm

Q126.. The sum of the radii of spheres A and B is 14 cm, the radius of A being larger than that of B. The difference between their surface area is 112π. What is the ratio of volumes of A and B?
गोला A और B के त्रिज्या का योग 14 सेमी है, A की त्रिज्या B की तुलना में बड़ी है। उनके सतह क्षेत्रफल के बीच का अंतर 112π है। A और B के आयतन का अनुपात क्या है?
(CGL MAINS 15-10-2020)
(a) 64 : 27
(b) 8 : 1
(c) 125 : 64
(d) 27 : 8

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Q127. The radius and height of a right circular cone are in ratio 3 : 4. If its curved surface area (in cm^2) is 240π, then its volume (in cm^3) is:
एक गोलाकार शंकु की त्रिज्या और ऊंचाई अनुपात 3: 4 में है। यदि इसकी वक्र सतह का क्षेत्रफल (cm^2 में) 240π है, तो इसकी आयतन (सेमी में) है?
(CGL MAINS 15-10-2020)
(a) 768π
(b) 384π
(c) 2304π
(d) 1536π

Q128. The length of two sides of a parallelogram are 3cm and 10 cm. What is the sum of the squares of diagonals of the parallelogram ?
एक समांतर चतुर्भुज के दो भुजाओं की लंबाई 3 सेमी और 10 सेमी है। समांतर चतुर्भुज के विकर्णों के वर्गों का योग क्या होगा ?
(CGL MAINS 15-10-2020)
(a) 218 cm^2
(b) 169 cm^2
(c) 206 cm^2
(d) 109 cm^2

Q129. If the radius of a sphere is increased by 2.5 decimeter (dm), then its surface area increases by 110 dm^2. What is the volume(in dm^2) of the sphere?(take $\pi = \frac{22}{7}$)
यदि एक गोले का त्रिज्या 2.5 डेसीमीटर (dm) बढ़ जाता है, तो इसका सतह क्षेत्र से 110 dm^2 बढ़ जाता है। गोले का आयतन (dm^2 में) क्या है ?
(CGL MAINS 16-10-2020)
(a) $\frac{3}{7}$
(b) $\frac{11}{21}$
(c) $\frac{13}{21}$
(d) $\frac{4}{7}$

Q130. A cylindrical roller made up of iron is 1.2m long. Its internal radius is 24cm and thickness of the iron sheet used in making the roller is15 cm. What is the(in kg) of the roller, if 1 cm^3 of the iron has 8 g mass?
लोहे से बना एक बेलनाकार रोलर 1.2 मीटर लंबा है। इसकी आंतरिक त्रिज्या 24 सेमी है और रोलर बनाने में उपयोग की जाने वाली लोहे की शीट की मोटाई 15 सेमी है। रोलर का वजन (किलो में) क्या है, यदि 1 cm^3 लोहे का द्रव्यमान 8 ग्राम है ?
(CGL MAINS 16-10-2020)
(a) 892.8 π
(b) 907.2 π
(c) 846.72 π
(d) 845.75 π

Q131. The base of a solid prism of height 10cm is a square and its volume is 160 cm^3, What is its total surface area of the prism (in cm^2)?
ऊंचाई 10 सेमी के एक ठोस प्रिज्म का आधार एक वर्ग है और इसकी आयतन 160 cm^3 है, प्रिज्म की कुल सतह का क्षेत्रफल (cm^2 में) क्या है
(CGL MAINS 16-10-2020)
(a) 200
(b) 192
(c) 180
(d) 176

Q132.. From a solid cylinder wooden block of height 18cm and radius 7.5cm, a conical cavity of same radius and same height is taken out. What is total surface area (in cm^2) of the remaining solid?
ऊंचाई 18 सेमी और त्रिज्या 7.5 सेमी के एक ठोस सिलेंडर लकड़ी के ब्लॉक से, समान त्रिज्या और समान ऊंचाई का एक शंकाकार गुहा बाहर निकाला जाता है। शेष ठोस का कुल क्षेत्रफल (सेमी में) क्या है
(CGL MAINS 16-10-2020)
(a) 326.25π
(b) 416.25π
(c) 472.5π
(d) 270π

Q133. A metallic solid spherical ball of radius 3 cm is melted and recast into three spherical balls. The radii of two of these balls are 2 cm and 1.5cm . What is the surface area (in cm^2) of the third ball?
त्रिज्या 3 सेमी की एक ठोस गोलाकार गेंद को पिघलाया जाता है और तीन गोलाकार गेंदों में बदल दिया जाता है। इन गेंदों में से दो की त्रिज्या 2 सेमी और 1.5 सेमी है। तीसरी गेंद का सतह क्षेत्र (सेमी 2 में) क्या है
(CGL MAINS 16-10-2020)
(a) $\frac{25}{2}\pi$
(b) $\frac{25}{4}\pi$
(c) 50π
(d) 25π

Q134.. The ratio of the radii of two cones is 5 : 6 and their volume is in the ratio 8 : 9. The ratio of their height is :
दो शंकु की त्रिज्या का अनुपात 5: 6 है और उनकी आयतन 8: 9 के अनुपात में है। उनकी ऊंचाई का अनुपात क्या होगा
(CGL MAINS 16-10-2020)
(a) 25 : 27
(b) 27 : 20
(c) 20 : 27
(d) 32 : 25

Q135. The circumference of the base of a cylindrical vessel is 158.4cm and its height is 1 m . How many liters of water can it hold(correct to one decimal place)?
एक बेलनाकार पतीले के आधार की परिधि 158.4 सेमी है और इसकी ऊंचाई 1 मी है। इसके कितने लीटर पानी की क्षमता है (एक दशमलव स्थान तक)

(Take $\pi = \frac{22}{7}$)

(CGL MAINS 16-10-2020)

(a) 199.6
(b) 198.2
(c) 200.8
(d) 186.4

Q136. In ΔABC, D and E are points on the sides AB and AC, respectively, such that $DE \parallel BC$ and DE : BC = 6 : 7, (Area of Δ ADE) : (Area of trapezium BCED) =?

ΔABC में, D और E, क्रमशः AB और AC पर बिंदु हैं, जैसे कि $DE \parallel BC$ और DE : BC = 6 : 7, तो (Δ ADE का क्षेत्रफल): (समलम्ब BCED का क्षेत्रफल) = ?

(CGL MAINS 16-10-2020)

(a) 49 : 13
(b) 36 : 13
(c) 13 : 36
(d) 13 : 49

Q137. A hemispherical tank full of water is emptied by a pipe at the rate of 7.7 liters per seconds. How much time(in hours) will it take to empty $\frac{2}{3}$ part of the tank if the internal radius of the tank is 10.5 m ?

पानी से भरा एक गोलार्ध टैंक 7.7 लीटर प्रति सेकंड की दर से एक पाइप द्वारा खाली किया जाता है। टैंक के $\frac{2}{3}$ हिस्से को खाली करने में कितना समय लगेगा(घंटे में), यदि टैंक की आंतरिक त्रिज्या 10.5 मीटर है ?

(CGL MAINS 16-10-2020)

(a) $\frac{185}{6}$
(b) $\frac{175}{3}$
(c) $\frac{185}{3}$
(d) $\frac{175}{2}$

Q138. The base of a right pyramid is an equilateral triangle with side 8 cm, and its height is $30\sqrt{3}$. The volume($in\ cm^2$) of the pyramid is :

पिरामिड का आधार 8 सेमी के साथ एक समबाहु त्रिभुज है, और इसकी ऊंचाई $30\sqrt{3}$ है। पिरामिड का आयतन (cm^2 में) है:

(CGL MAINS 16-10-2020)

(a) 480
(b) $360\sqrt{3}$
(c) 360
(d) $240\sqrt{3}$

Q139. The circumference of the base of a right circular cone is 44cm and its height is 24cm. The curved surface area ($in\ cm^2$) of the cone is :

एक गोलाकार शंकु के आधार की परिधि 44 cm है और इसकी ऊंचाई 24 cm है। शंकु की घुमावदार सतह क्षेत्र (cm^2 में) है

(CGL MAINS 16-10-2020)

(a) 572
(b) 550
(c) 528
(d) 440

Q140. A solid metallic cuboid of dimensions 18 cm × 36cm × 72cm is melted and recast into 8 cubes of the same volume. What is the ratio of the total surface area of the cuboid to the sum of the lateral surface area of all 8 cubes?

18 सेमी × 36 सेमी × 72 सेमी आयाम वाले एक ठोस धात्विक घनाभ को पिघलाकर समान आयतन वाले 8 घन में पुनर्गठित किया जाता है। घनाभ के कुल सतह क्षेत्रफल से सभी 8 घन के पार्श्व सतह क्षेत्रफल का अनुपात क्या है?

(CGL MAINS 16-10-2020)

(a) 2 : 3
(b) 7 : 8
(c) 4 : 7
(d) 7 : 12

Q141. The base of a pyramid is an equilateral triangle of side is 10m. If the height of the pyramid is $40\sqrt{3}$ m, then the volume of the pyramid is :

एक पिरामिड का आधार 10 m भुजा वाला एक समबाहु त्रिभुज है। यदि पिरामिड की ऊंचाई $40\sqrt{3}$ मीटर है, तो पिरामिड का आयतन क्या है

(CGL MAINS 18-10-2020)

(a) 800 m^3
(b) 900 m^3
(c) 1000 m^3
(d) 1200 m^3

Q142. The curved surface area of a cylinder is five times the area of a base. Find the ratio of radius and height of the cylinder.

एक सिलेंडर का घुमावदार सतह क्षेत्रफल उसके आधार के क्षेत्रफल का पांच गुना है। सिलेंडर के त्रिज्या और ऊंचाई के अनुपात का पता लगाएं।

(CGL MAINS 18-10-2020)

(a) 2 : 5
(b) 2 : 3
(c) 3 : 4
(d) 3 : 5

Q143. The volume of a hemisphere is $2425\frac{1}{2}cm^3$. Find its radius. (take $\pi = \frac{22}{7}$)

एक गोलार्ध का आयतन $2425\frac{1}{2}cm^3$ है तो उसकी त्रिज्या ज्ञात करे ($\pi = \frac{22}{7}$)

(CGL MAINS 18-10-2020)

(a) 10 cm
(b) 9.5 cm
(c) 12 cm
(d) 10.5 cm

Q144. If the radius of a cylinder is decreased by 20% and the height is increased by 20% to

form a new cylinder then the volume will be decreased by:
यदि किसी सिलेंडर की त्रिज्या 20% तक कम हो जाती है और उसकी ऊँचाई 20% तक बढ़ जाती है तो नए सिलिंडर की आयतन में कितनी कमी होगी
(CGL MAINS 18-10-2020)
(a) 23.2%
(b) 32.2%
(c) 22.3%
(d) 20.5%

Q145.The ratio of the height and the diameter of a right circular cone is 6:5 and its volume is $\frac{2200}{7}$ cm^2 .What is its slant height? (Take $\pi = \frac{22}{7}$)
एक गोलाकार शंकु का ऊंचाई और व्यास का अनुपात 6: 5 है और इसकी आयतन $\frac{2200}{7}$ cm^2 है। तो इसकी ऊंचाई कितनी है?($\pi = \frac{22}{7}$)
(CGL MAINS 18-10-2020)
(a) 25cm
(b) 26cm
(c) 13cm
(d) 5cm

Q.146 The radii of two cylinders are in the ratio 3:4 and their heights are in the ratio 8:5. The ratio of their volumes is .
दो सिलेंडरों की त्रिज्या 3: 4 के अनुपात में है और उनकी ऊँचाई 8: 5 के अनुपात में है। उनके आयतन का अनुपात है:
(CGL MAINS 18-10-2020)
(a) 8:9
(b) 9:10
(c) 7:10
(d) 9:11

Q.147. The number of lead balls, each 3cm in diameter, that can be made from a solid lead sphere of diameter 42 cm is :
प्रत्येक 3 cm व्यास वाले लेड गेंदों की संख्या क्या होगी जिसे 42 cm व्यास वाले ठोस लेड गोले से बनाया जा सकता है ?
(CGL MAINS 18-10-2020)
(a) 2742
(b) 2744
(c) 4722
(d) 7244

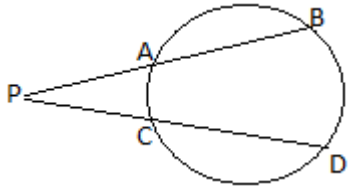
Q.148 The base of a right prism is a square having side of 15 cm. If its height is 8 cm, then find the total surface area.
एक प्रिज्म का आधार एक वर्ग होता है, जो 15 सेमी की भुजा का है। यदि इसकी ऊंचाई 8 सेमी है, तो कुल सतह के क्षेत्र को ज्ञात करे
(CGL MAINS 18-10-2020)
(a) 920 cm^2
(b) 930 cm^2
(c) 900 cm^2
(d) 940 cm^2

Q.149. If the perimeter of an isosceles right triangle is $8(\sqrt{2}+1)$ cm, then the length of the hypotenuse of the triangle is:
यदि समद्विबाहु समकोण त्रिभुज की परिधि $8(\sqrt{2}+1)$ सेमी है, तो त्रिभुज के विकर्ण की लंबाई है
(CGL MAINS 18-10-2020)
(a) 10cm
(b) 8cm
(c) 24cm
(d) 12cm

Q.150. The sum of length, breadth and height of a cuboid is 20 cm. If the length of the diagonal is 12cm, then find the total surface area of the cuboid.
एक घनाभ की लंबाई, चौड़ाई और ऊंचाई का योग 20 सेमी है। यदि विकर्ण की लंबाई 12 सेमी है, तो घनाभ का कुल सतह क्षेत्रफल ज्ञात करें |
(CGL MAINS 18-10-2020)
(a) 264 cm^2
(b) 364 cm^2
(c) 356 cm^2
(d) 256 cm^2

Q.151 If the surface area of a sphere is 1386 cm^2, then its volume is: ($\pi = \frac{22}{7}$)
यदि एक गोले का सतह क्षेत्र 1386 cm^2 है, तो इसका आयतन है: ($\pi = \frac{22}{7}$)
(CGL MAINS 18-10-2020)
(a) 8451 cm^3
(b) 5418 cm^3
(c) 4581 cm^3
(d) 4851 cm^3

Q.152. In the figure, chords AB and CD of a circle intersect externally at P. If AB = 4cm, CD =11cm and PD=15cm, then the length of PB is:
दी गयी आकृति में, जीवा AB और CD एक वृत्त को बाहरी रूप से P पर काटते हैं। यदि AB = 4cm, CD = 11cm और PD = 15cm है, तो PB की लंबाई ज्ञात करे |



(CGL MAINS 18-10-2020)
(a) 14cm
(b) 12cm
(c) 8cm
(d) 10cm

Q153. In a triangle ABC, AB = AC and the perimeter of ΔABC is $8(2+\sqrt{2})$cm . If the length of BC is $\sqrt{2}$ times the length of AB, then find the area of ΔABC.
एक त्रिभुज ABC में AB = AC और ΔABC की परिधि $8(2+\sqrt{2})$ सेमी है। यदि BC की लंबाई AB की लंबाई से $\sqrt{2}$ गुना है, तो ΔABC का क्षेत्रफल ज्ञात कीजिए|
(CGL MAINS 18-10-2020)
(a) 28 cm^2

(b) 36 cm^2
(c) 32 cm^2
(d) 16 cm^2

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Q154. One side of a rhombus is 13cm and one of its diagonal is 10 cm. What is the area of the rhombus (in cm^2) ?
किसी समचतुर्भुज की एक भुजा 13 cm और एक विकर्ण 10 cm है। समचतुर्भुज का क्षेत्रफल ज्ञात करे | (cm^2 में)

CPO-2019 23-11-2020
(Morning shift)
(a) 30
(b) 60
(c) 120
(d) 90

Q155. The perimeter of a square is the same as the perimeter of a rectangle. The perimeter of the square is 40m. If its breadth is two-third of its length, then the area (in m^2) of the rectangle is:
एक वर्ग की परिमाप एक आयत की परिमाप के समान है। वर्ग की परिमाप 40 मी है। यदि इसकी चौड़ाई इसकी लंबाई का दो-तिहाई है, तो आयत का क्षेत्रफल (m^2) ज्ञात करें |

CPO-2019 23-11-2020
(Morning shift)
(a) 96
(b) 84
(c) 100
(d) 121

Q156. If each side of a rectangle is decreased by 11%, then the area will decrease by:
यदि आयत के प्रत्येक भुजा में 11% की कमी होती है, तो क्षेत्रफल में कितनी कमी आएगी ?

CPO-2019 23-11-2020
(Morning shift)
(a) 24.31%
(b) 25%
(c) 21.13%
(d) 20.79%

Q157. The radius of the base of a cylinder is 14cm and its curved surface area is 880 cm^2, Its volume (in cm^3) is: (Take $\pi = \frac{22}{7}$)
एक सिलेंडर के आधार की त्रिज्या 14 सेमी है और इसकी घुमावदार सतह का क्षेत्रफल 880 cm^2 है, सिलिंडर का आयतन(cm^3) ज्ञात करे| (Take $\pi = \frac{22}{7}$)

CPO-2019 23-11-2020
(Morning shift)
(a) 1078
(b) 3080
(c) 9240
(d) 6160

Q158. The sides of a triangle are 24cm, 26cm and 10cm. At each of its vertices, circles of radius 4.2cm are drawn. What is the area (in cm^2) of the triangle, excluding the portion covered by the sectors of the circle?
एक त्रिभुज की भुजाएँ 24 सेमी, 26 सेमी और 10 सेमी हैं। इसके प्रत्येक कोने पर त्रिज्या 4.2 सेमी के वृत्त खींचे गए हैं। वृत्त के क्षेत्रों द्वारा कवर किए गए हिस्से को छोड़कर, त्रिभुज का क्षेत्रफल (cm^2) ज्ञात करे |

CPO-2019 23-11-2020
(Morning shift)
(a) 27.72
(b) 120
(c) 105.86
(d) 92.28

Q159. A 9 cm solid metallic cube and a solid metallic cuboid having dimensions 5 cm, 13cm, 31cm are melted and recast into a single cube. What is the total surface area(in cm^2) of the new cube?
5 सेमी, 13 सेमी, 31 सेमी आयाम वाले घनाभ और 9 सेमी ठोस धातु घन को पिघलाया जाता है और एक ही घन में पुनर्गठित किया जाता है। नए घन का कुल क्षेत्रफल (cm^2 में) क्या है?

CPO-2019 23-11-2020
(Evening shift)
(a) 2744
(b) 1362
(c) 865
(d) 1176

Q160 The two parallel sides of a trapezium are 27cm and 13cm, respectively. If the height of the trapezium is 7cm, then what is the area in m^2 ?
यदि एक समलंब चतुर्भुज के दो समांतर भुजाए क्रमशः 27 सेमी और 13 सेमी हैं। यदि समलम्ब चतुर्भुज की ऊंचाई 7 सेमी है, तो इसका क्षेत्रफल ज्ञात करें (m^2 मे)

CPO-2019 23-11-2020
(Evening shift)
(a) 0.14
(b) 140
(c) 1.4
(d) 0.014

Q161. If a wheel has diameter 42cm, then how far does the wheel go (in meters) in 12 revolutions?(Take $\pi = \frac{22}{7}$)
यदि किसी पहिये का व्यास 42 सेमी है, तो 12 चक्करो में पहिया कितनी दुरी (मीटर में) तय करेगा ? (मानिए $\pi = \frac{22}{7}$)

CPO-2019 23-11-2020
(Evening shift)
(a) 17.64
(b) 15.84
(c) 23.27
(d) 21.45

Q162. A rectangular lawn whose length is twice of its breadth is extended by having four semi-circular portions on its sides. What is the total cost (in Rs.) of levelling the entire lawn at

the rate of Rs.100 per square metre if the smaller side of the rectangle lawn is 12 m?(Take $\pi = 3.14$)
एक आयताकार लॉन जिसकी लंबाई उसकी चौड़ाई से दोगुनी है, उसके भुजाओ पर चार अर्ध-वृत्ताकार हिस्से बनाकर इसे बढ़ाया जाता है। यदि आयताकार लॉन की चौड़ाई 12 मीटर है तो पूरे लॉन को 100 रुपये प्रति वर्ग मीटर की दर से समतल करने में कुल लागत (रु में) क्या है? (मानिए $\pi = 3.14$)
CPO-2019 23-11-2020
(Evening shift)
(a) 85,320
(b) 86,540
(c) 78,650
(d) 97,625

Q163. A rectangular lawn whose length is twice of its breadth is extended by having four semi-circular portions on its sides. What is the total area (in m^2) of the lawn if the smaller side
of the rectangle is 12m? (Take $\pi = 3.14$)
एक आयताकार लॉन जिसकी लंबाई इसकी चौड़ाई से दोगुनी है, उसके किनारों पर चार अर्ध-वृत्ताकार हिस्से होते हैं। यदि आयत की चौड़ाई 12 मीटर है तो लॉन का कुल क्षेत्रफल (m^2) में क्या है? (मानिए $\pi = 3.14$)
CPO-2019 24-11-2020
(Morning shift)
(a) 444
(b) 548.32
(c) 308.64
(d) 853.2

Q164. A 9cm solid metallic cube and a solid metallic cuboid having dimensions 5 cm, 13cm, 31cm are melted and recast into a single cube. How much (in Rs.) is the cost to polish the new cube at the rate of Rs.10 per cm^2
5 सेमी, 13 सेमी, 31 सेमी आयाम वाले घनाभ और 9 सेमी ठोस धातु घन को पिघलाया जाता है और एक ही घन में पुनर्गठित किया जाता है। Rs.10 प्रति cm^2 की दर से नए घन को पॉलिश करने की लागत क्या होगी
CPO-2019 24-11-2020
(Morning shift)
(a) 13,620
(b) 11,760
(c) 8,650
(d) 27,440

Q165. The two parallel sides of a trapezium are 17cm and 15cm respectively. If the height of the trapezium is 6 cm, then its area (in m^2) is:
यदि एक समलम चतुर्भुज के दो समानांतर भुजाए क्रमशः 17 सेमी और 15 सेमी हैं। यदि समलम्ब चतुर्भुज की ऊंचाई 6 सेमी है, तो इसका क्षेत्रफल ज्ञात करे (m^2 मे)
CPO-2019 24-11-2020
(Morning shift)
(a) 960
(b) 0.96
(c) 0.0096
(d) 9.6

Q166. The area of a field in the shape of a hexagon is $1944\sqrt{3}m^3$. What will be the cost (in Rs) of fencing it at the rate of Rs.11.50 per metre?
समषट्भुज के आकार वाले एक मैदान का क्षेत्रफल $1944\sqrt{3}m^3$ है। 11.50 रुपये प्रति मीटर की दर से फेंसिंग लगाने की लागत (रु में) क्या होगी?
CPO-2019 24-11-2020
(Morning shift)
(a) 2,256
(b) 2,785
(c) 3,200
(d) 2,484

Q167. A solid lead sphere of radius 11cm is melted and recast into small solid of radius 2 cm each. How many maximum (in integer) of such sphere can be made?
11 सेमी की त्रिज्या का एक ठोस गोले को पिघलाया जाता है और प्रत्येक 2 सेमी त्रिज्या के छोटे गोले में पुनर्गठित किया जाता है। ऐसे कितने गोले (अधिकतम पूर्णांक) बनाए जा सकते हैं
CPO-2019 24-11-2020
(Morning shift)
(a) 100
(b) 30
(c) 166
(d) 125

Q168. The internal measures of a cuboidal room are with length as 12m, breadth as 8m and height as 10m. The total cost (in Rs.) of whitewashing all four walls of the room and also the ceiling of the room, If the cost of whitewashing is Rs.25 per m^2 is:
घनाकार कमरे के आंतरिक माप की लंबाई 12 मीटर, चौड़ाई 8 मीटर और ऊंचाई 10 मीटर है। कमरे की सभी चार दीवारों और कमरे की छत को भी सफेद करने की कुल लागत (रु में) क्या होगी यदि सफेदी की लागत प्रति m^2 रु25 है:
CPO-2019 24-11-2020
(Evening shift)
(a) 12,400
(b) 12,000
(c) 18,000
(d) 13,600

Q169. The base of a triangle is equal to the perimeter of a square whose diagonal is $6\sqrt{2}$ cm , and its height is equal to the side of a square whose area is 144 cm^2. The area of the triangle (in cm^2) is :

एक त्रिभुज का आधार, एक वर्ग की परिधि के बराबर है जिसका विकर्ण 6 $\sqrt{2}$ सेमी है, और इसकी ऊंचाई एक वर्ग के भुजा के बराबर है जिसका क्षेत्रफल 144 cm^2 ..है। त्रिभुज का क्षेत्रफल (cm^2 में):

CPO-2019 24-11-2020
(Evening shift)

(a) 144
(b) 216
(c) 288
(d) 72

Q170. The area of a square and rectangle are equal. The length of the rectangle is greater than the length of a side of the square by 10cm and the breadth is less than 5cm. The perimeter (in cm) of the rectangle is:

एक वर्ग और आयत का क्षेत्रफल बराबर होता है। आयत की लंबाई वर्ग के एक भुजा की लंबाई से 10 सेमी अधिक और चौड़ाई 5 सेमी कम है। आयत की परिमाप (सेमी में) ज्ञात करे :

CPO-2019 24-11-2020
(Evening shift)

(a) 40
(b) 100
(c) 80
(d) 50

Q171. The perimeter of a right triangle is 60 cm and its hypotenuse is 26 cm. What is the area (in cm^2) of the triangle ?

एक समकोण त्रिभुज की परिधि 60 cm है और इसका कर्ण 26 cm है। त्रिभुज का क्षेत्रफल (cm^2) क्या है ?

CPO-2019 24-11-2020
(Evening shift)

(a) 120
(b) 96
(c) 90
(d) 60

Q172. One side of a rhombus is 13 cm and one of its diagonals is 24cm. What is the area (in cm^2) of rhombus?

किसी समचतुर्भुज की एक भुजा 13 cm और एक विकर्ण 24 cm है। समचतुर्भुज का क्षेत्रफल ज्ञात करे | (cm^2 में)

CPO-2019 25-11-2020
(Morning shift)

(a) 30
(b) 120
(c) 60
(d) 90

Q173. The radius of the base of a cylinder is 14cm and its volume is 6160 cm^3 . The curved surface area(in cm^2) of the cylinder is: (Take $\pi = \frac{22}{7}$)

एक सिलेंडर के आधार की त्रिज्या 14 cm है और इसका आयतन 6160 cm^3 है। सिलेंडर का वक्र पृष्ठीय क्षेत्रफल (cm^2 में) क्या है?

CPO-2019 25-11-2020
(Morning shift)

(a) 940
(b) 660
(c) 778
(d) 880

Q174. The perimeter of a square is half the perimeter of a rectangle. The perimeter of the square is 40m. If its breadth is two-thirds of its length, then what is the area of the rectangle ?

एक वर्ग की परिधि एक आयत की परिधि का आधा है। वर्ग की परिधि 40 मीटर है। यदि इसकी चौड़ाई इसकी लंबाई का दो-तिहाई है, तो आयत का क्षेत्रफल क्या है ?

CPO-2019 25-11-2020
(Morning shift)

(a) 321
(b) 196
(c) 400
(d) 384

Q175. If each side of a square is decreased by 17%, then by what percentage does its area decrease?

यदि किसी वर्ग का प्रत्येक भुजा को 17% घटाया जाता है, तो उसके क्षेत्रफल में कितने प्रतिशत की कमी आती है?

CPO-2019 25-11-2020
(Morning shift)

(a) 31.11%
(b) 30.79%
(c) 44.31%
(d) 25%

Q176. Let A and B be two cylinders such that the capacity of A is the same as the capacity of B. the ratio of diameter of A and B is 1 : 4. What is the ratio of heights of A and B?

A और B दो सिलेंडर इस प्रकार है की A की क्षमता B की क्षमता के समान है। A और B के व्यास का अनुपात 1:4 है तो A और B की ऊँचाई का अनुपात ज्ञात करे |

CPO-2019 25-11-2020
(Evening shift)

(a) 16 : 3
(b) 3 : 16
(c) 1 : 16
(d) 16 : 1

Q177. The ratio of the total surface area and volume of a sphere is 2: 7. Its radius is:

एक गोले की कुल सतह के क्षेत्रफल और आयतन का अनुपात 2: 7. इसका त्रिज्या है:

CPO-2019 25-11-2020
(Evening shift)

(a) 10cm
(b) 7.5cm
(c) 7cm
(d) 10.5cm

Q178. If the volume of a sphere is 4851 cm^3, then the surface area (in cm^2) is: (Take $\pi = \frac{22}{7}$)

यदि एक गोले का आयतन 4851 cm^3 है, तो सतह क्षेत्रफल (cm^2 में) ज्ञात करें

CPO-2019 25-11-2020
(Evening shift)

(a) 1268
(b) 1427
(c) 1399
(d) 1386

Q179. The internal length, breadth and height of a cuboidal room are 12m, 8m and 10m, respectively. The total cost (in Rs.) of whitewashing only all four walls of the room at the cost of Rs. 25 per m^2, is :

एक घनाकार कमरे की आंतरिक लंबाई, चौड़ाई और ऊंचाई क्रमश 12 मीटर, 8 मीटर और 10 मीटर है। कमरे की सभी चार दीवारों को सफेद करने की कुल लागत 25/m^2 की दर से क्या है ?

CPO-2019 25-11-2020
(Evening shift)

(a) 18,000
(b) 11,400
(c) 12,600
(d) 10,000

Pinnacle

SOLUTION:

Sol 1. (b)
Let side of bigger cube = R
$R^3 = 13824$
R = $\sqrt[3]{13824} = 24$
Let side of smaller cubes = r
$13824 = 8 \times r^3$
$1728 = r^3$
12 = r
Required ratio = $6 \times 24^2 : 3 \times 6 \times 12^2$
= 4 : 3

Sol 2. (c)
Required area of sheet = $2 \times (80 + 48 + 60) - \pi \times 1^2$
$= 376 - 3.1 = 372.9\ m^2$

Sol 3. (a)
Volume of cuboid = $\sqrt{a \times b \times c}$
Here a,b and c are the area of three faces
$= \sqrt{32 \times 24 \times 48} = 192\ cm^3$

Sol 4. (d)
We know that
Inradius = $\frac{area}{semiperimeter}$
$3 = \frac{15}{semiperimeter}$
Semiperimeter = 5
Perimeter = 2 × 5 = 10 cm

Sol 5. (a)
Volume of a cylinder= $\pi(R^2 - r^2)h$
Where R = external radius
r = internal radius
h = height or length of the cylinder
$\Rightarrow 7480 = \frac{22}{7} \times (9^2 - r^2) \times 140$
$\Rightarrow 17 = 81 - r^2$
$\Rightarrow r^2 = 64$
$\Rightarrow$ r = 8 cm

Sol 6. (c)
Volume of a cylinder= $\pi(R^2 - r^2)h$
Where R = external radius
r = internal radius
h = height or length of the cylinder
Here, volume = $\frac{22}{7} \times (2.5^2 - 1.5^2) \times 756$
$= 22 \times (2.5+1.5)(2.5-1.5) \times 108$
$= 9504\ cm^3$
Total Weight of pipe = Volume of pipe × weight of metal
= 9504 × 7.5
= 71280 g or 71.28 kg

Sol 7. (d)
Area of Sector = $\frac{\theta}{360} \times \pi r^2$
$= \frac{150}{360} \times \frac{22}{7} \times 21^2 = 577.5\ cm^2$

Sol 8. (b)
Area of triangular field with side x m = $\frac{\sqrt{3}}{4} x^2$
Area of other triangular field = $\sqrt{s(s-a)(s-b)(s-c)}$
Where s = $\frac{a+b+c}{2}$
$\Rightarrow \frac{50+70+80}{2} = 100$m
Area of field = $\sqrt{100(100-50)(100-70)(100-80)}$
$= \sqrt{100 \times 50 \times 30 \times 20}$
$= 1000\sqrt{3}\ m^2$
According to question
$\frac{\sqrt{3}}{4} x^2 = 1000\sqrt{3}$
$x^2 = 4000$
$x = 63.25\ m^2$

Sol 9. (c)
Curved Surface area of cylinder = $2\pi rh$
Volume of cylinder = $\pi r^2 h$
According to the question
$2\pi rh = 264$ ……(1)
$\pi r^2 h = 924$ ……(2)
Dividing eq 2 by eq 1
r = 7 cm
Put this value in either of the equations
For example put r=7 in eq (1)
$2\pi rh = 264 \Rightarrow 2 \times \frac{22}{7} \times 7 \times h = 264$
$\Rightarrow$ h=6
Required ratio = 7:6

Sol 10. (d)
40% = $\frac{2}{5}$

	Old	:	New
Radius	5	:	3
Volume($\propto r^3$)	125	:	27

Let the volumes are 125 unit and 27 unit
Required %age = $\frac{125-27}{125} \times 100 = 78.4\%$

Sol 11. (d)
Volume of Frustum = $\frac{1}{3}\pi(R^2 + r^2 + R.r)h$
$= \frac{1}{3} \times \frac{22}{7} \times (3^2 + 2^2 + 3.2) \times 21 = 418$

Sol 12. (b)
Volume of bigger sphere = $\frac{4}{3}\pi R^3$
$\Rightarrow \frac{4}{3} \times \pi \times 4^3 = \frac{256}{3}\pi$
Volume of smaller sphere
$= \frac{4}{3} \times \pi \times 2^3 \Rightarrow \frac{32}{3}\pi$
Let n be the required number of spheres
According to the question
$\frac{256}{3}\pi = n \times \frac{32}{3}\pi$
8=n

Sol 13. (c)
One of the sides of newly formed cuboid = 6 × 2 = 12cm
Other two sides will be 2cm.
Surface area of cuboid = 2(lb+bh+hl)
$= 2(12 \times 2 + 2 \times 2 + 2 \times 12) = 104\ cm^2$

Sol 14. (a)
Area of Hexagon = $6 \times \frac{\sqrt{3}}{4} a^2$
Here,
$6 \times \frac{\sqrt{3}}{4} a^2 = 2400\sqrt{3}$
$a^2 = 1600$

Pinnacle

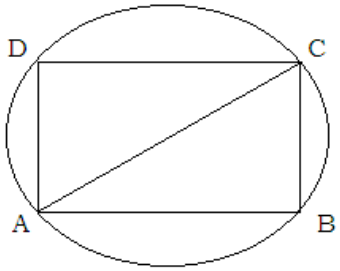
a=40
Perimeter of the hexagonal field = 6a $\Rightarrow 6 \times 40 = 240$ metre
Required cost of fencing = $240 \times 18.5 = 4440$

Sol 15. (a)
Volume of cone = $\frac{1}{3}\pi r^2 h$
Area of its base = πr^2
According to the question
$\frac{1}{3}\pi r^2 h = 924$
$\Rightarrow \frac{1}{3}\pi r^2 \times 6 = 924$
$\Rightarrow \pi r^2 \times 6 = 924$
$\Rightarrow \pi r^2 = 154 \ cm^2$

Sol 16. (d)
Curved Surface area of cylinder = $2\pi rh$
Volume of cylinder = $\pi r^2 h$
According to the question
$2\pi rh = 132$ ……(1)
$\pi r^2 h = 528$ ……(2)
Dividing eq 2 by eq 1
r =8 cm
Put this value in either of the equations
For example put r=2 in eq (1)
$2\pi rh = 132 \Rightarrow 2 \times \frac{22}{7} \times 8 \times h = 132$
$\Rightarrow h = 2\frac{5}{8}$ m

Sol 17. (c)
Curved Surface area of cylinder = $2\pi rh$
$2 \times \frac{22}{7} \times 7 \times h = 440$
h=10 cm
Volume of cylinder = $\pi r^2 h$
$\Rightarrow \frac{22}{7} \times 7^2 \times 10 = 1540 \ cm^3$

Sol 18. (d)



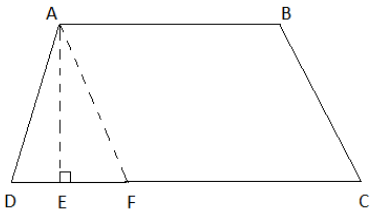
Let the sides be 4 unit and 3 unit.
According to the question
2(4 unit + 3 unit) = 56
1 unit = 4 cm
4 unit = 16 cm
3 unit = 12 cm
Diagonal of Rectangle = Diameter of circle = $\sqrt{AB^2 + BC^2}$
$= \sqrt{16^2 + 12^2} = 20$ cm
Radius of the circle = $\frac{20}{2} = 10$ cm
Area of circle = $\pi r^2 = \pi 10^2 = 100\pi$

Sol 19. (b)
Let the sides of the rectangle are 7x and 4x.
Perimeter of rectangle = 2(7x+4x) = 22x
Perimeter of circle = $2\pi r \Rightarrow 2 \times \frac{22}{7} \times 31.5$
According to the question
$22x = 2 \times \frac{22}{7} \times 31.5$
$\Rightarrow$ x=9
Smaller side of rectangle = $4x = 4 \times 9 = 36$ cm

Sol 20. (d)
Let the breadth of the rectangle = b
Length of the rectangle = b+20
Perimeter of the rectangle = 2(b+b+20)
=4(b+10)
According to the question
$4(b+10) \times 53 = 21200$
$\Rightarrow$ b+10 = 100
$\Rightarrow$ b=90 m
$\Rightarrow$ l = 90+20 = 110 m
Area of the rectangle = $90 \times 110 = 9900 \ m^2$

Sol 21. (d)
Area of circle is $\propto r^2$.
$\Rightarrow$ Area of three circles will be $4^2, 5^2, 7^2$
Desired Ratio = $(5^2 - 4^2) : (7^2 - 5^2)$
= 9 : 24 $\Rightarrow$ 3 : 8

Sol 22. (b)



Let ABCD be the given trapezium. And AE be its height.
Area of trapezium= $\frac{1}{2} \times (a+b)h$
$180 = \frac{1}{2} \times (20+10)AE$
AE = 12 cm
Draw $AF \parallel BC$
$\Rightarrow$ AB=FC = 10 cm and AF = BC
$\Rightarrow$ DF = DC-FC
= 20-10 = 10 cm
In Δ ADF
AF = AD
….(AD =BC, given)
DE=EF = $\frac{DF}{2} = 5$ cm
…..(Perpendicular drawn on the base of an isosceles triangle)
$AF^2 = AE^2 + EF^2$
$AF = \sqrt{AE^2 + EF^2}$
$= \sqrt{12^2 + 5^2}$
= 13

Sol 23. (b)
Area of Rhombus
$= \frac{1}{2} \times d_1 \times d_2$
$= \frac{1}{2} \times 12 \times 4 = 24$

Sol 24.(d)
Let AB = a cm
$\Rightarrow$ AC = a+10
$\Rightarrow$ BC = 2a-2
According to the question
a+a+10+2a-2 = 32
4a = 24
a = AB = 6 cm
AC = 6+10 = 16 cm
BC = 2(6)-2 = 10 cm
Clearly AB is the smallest side.

Pinnacle

Sol 25. (d)
%age increase in area = 22+22+ $\frac{22\times22}{100}$ = 48.84

Sol 26.(b)
%age change in the area = (-11) + (-11) + $\frac{(-11)\times(-11)}{100}$ = -20.79%.
Here, -ve sign indicates that the area is decreasing.

Sol 27.(c)
%age change in the area = (-11)+11+ $\frac{(-11)\times(11)}{100}$ = -1.21%.
Here, -ve sign indicates that the area is decreasing.

Sol 28.(c)
We know that
$a^2 = (\frac{d_1}{2})^2 + (\frac{d_2}{2})^2$
Where a = side of the rhombus and d_1, d_2 be the diagonals of the rhombus.
$\Rightarrow 10^2 = (\frac{12}{2})^2 + (\frac{d_2}{2})^2$
$\Rightarrow \frac{d_2}{2} = \sqrt{10^2 - 6^2} = 8$
$\Rightarrow d_2 = 16$
Area of the rhombus = $\frac{1}{2} \times d_1 \times d_2$
$= \frac{1}{2} \times 12 \times 16 = 96$

Sol 29. (c)
Since it is an equilateral triangle. Each side will be formed of 4 sticks and its length will be 4 units.
Area of the triangle = $\frac{\sqrt{3}}{4} a^2$
$= \frac{\sqrt{3}}{4} \times 4 \times 4 = 4\sqrt{3}$

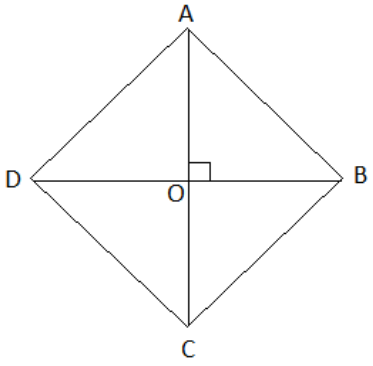
Sol 30. (b)
Let length of the perpendicular and base of the right angle triangle is a cm.
$\Rightarrow$ Hypotenuse of the triangle = $a\sqrt{2}$
Area of Δ formed on hypotenuse(H) = $\frac{\sqrt{3}}{4} \times (a\sqrt{2})^2 = \frac{\sqrt{3}a^2}{2}$
Area of Δ formed on perpendicular(A) = $\frac{\sqrt{3}}{4} \times (a)^2 = \frac{\sqrt{3}a^2}{4}$
$\Rightarrow \frac{A}{H} = \frac{\frac{\sqrt{3}a^2}{4}}{\frac{\sqrt{3}a^2}{2}} = \frac{1}{2}$

Sol 31. (c)
Circumference of the circle(C) = $2\pi r$
$\Rightarrow r = \frac{C}{2\pi}$
Area of the sector = $\frac{60}{360} \times \pi \times r^2$
$\Rightarrow \frac{1}{6} \times \pi \times (\frac{C}{2\pi})^2$
$= \frac{C^2}{24\pi}$

Sol 32. (d)
Perimeter of rhombus
$= 2\sqrt{d_1^2 + d_2^2}$
$= 2\sqrt{14^2 + 48^2} = 100$

Sol 33. (d)
We know that
Volume of cone = $\frac{1}{3} \pi R^2 h$
Volume of sphere = $\frac{4}{3} \pi r^3$
Given, R = 2r
According to the question
$\frac{1}{3} \pi R^2 h = \frac{4}{3} \pi r^3$
$\Rightarrow \frac{1}{3} \pi (2r)^2 h = \frac{4}{3} \pi r^3$
$\Rightarrow$ r=h
$\Rightarrow$ R:h $\Rightarrow$ 2r:r
= 2 : 1

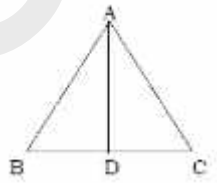
Sol 34. (c)



BO = $\frac{BD}{2} = \frac{10}{2} = 5$
AO = $\frac{AC}{2} = \frac{2\sqrt{x}}{2} = \sqrt{x}$
Now,
$AB^2 = AO^2 + BO^2$
$\Rightarrow 8^2 = (\sqrt{x})^2 + 5^2$
$\Rightarrow$ x=39
$\sqrt{x+10} \Rightarrow \sqrt{39+10} = 7$

Sol 35. (a)
Let the base is b
We know that area of parallelogram = h $\times$ b
According to question h=2b
$\Rightarrow b \times 2b = 338$
$b^2 = 169$
b=13

Sol 36. (d)
Let the given triangle is ΔABC



Here, AD is perpendicular drawn to the side BC
Let other two sides (AB=AC) = S
According to question
6+2S = 16
S=5
BD $\frac{6}{2} = 3$
AD = $\sqrt{5^2 - 3^2} = 4$
Area of ABC = $\frac{1}{2} \times AD \times BC = \frac{1}{2} \times 4 \times 6 = 12$ sq.cm

Sol 37. (a)
inner surface area of all walls = 2(l+b)h
= 2(7+5)3.5 = 84

Sol 38. (a)
Since, the height of the triangle formed will be half of the diagonal of the square.
Therefore, Height = $\frac{3\sqrt{2}}{2} = \frac{3}{\sqrt{2}}$ m

Pinnacle

Sol 39. (d)
Surface area of cube = $6 \times a^2 = 1176 \Rightarrow a = 14$
Volume of cube = $a^3 = 14^3 = 2744\ cm^3$

Sol 40. (a)
No. of boxes that can be painted = $\frac{11.28 \times 10000}{2 \times (30 \times 25 + 25 \times 12 + 12 \times 30)} = 40$

Sol41. (c) For a cylinder:

	Radius	:	Height	=	Volume
Initial	5	:	5	=	125
Final	11	:	3	=	363

Therefore, % Increase in Volume = $\frac{363-125}{125} \times 100$
$= \frac{238}{125} \times 100 = 190.4$

Sol 42. (d) Given triangle is a right angled triangle.
Area of triangle = $\frac{1}{2} \times 8 \times 15 = 60$
Area covered by the circle = $\frac{180}{360} \times \pi r^2 = 19.25$
Therefore, Area excluding the sectors of circles = 60-19.25 = 40.75 sq.cm

Sol 43. (b) Given triangle is a right angled triangle:
Area of triangle = $\frac{1}{2} \times 24 \times 45 = 540$
Area of sectors of the circle covering the triangle = $\frac{180}{360} \times \frac{22}{7} \times 10.5 \times 10.5 = 173.25$
Therefore, Area of triangle excluding the portion covered = 540-173.25 = 366.75 sq.cm

Sol 44. (a)

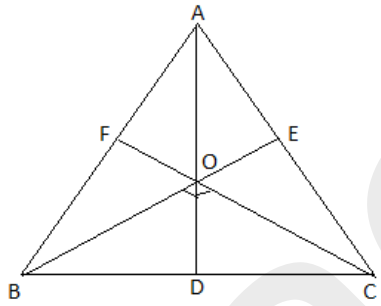
	Old	:	New
Radius	2	:	5
Height	5	:	4
Volume	20	:	100

Required percentage = $\frac{100-20}{20} \times 100 = 400\%$

Sol 45. (b) Since the chessboard is composed of 64 squares of side 2cm and the border is of thickness 2 cm.
Therefore, the length of each side = 2x8+4 = 20
So, the perimeter = 4x20 = 80cm

Sol 46. (b) Side = $\sqrt{64} = 8$
Therefore, Diagonal = $8\sqrt{2}$ m

Sol 47. (b)



ΔOBC
OB=OC=x
BC = 2
$x^2 + x^2 = 2^2$
$x^2 = 2$
$x = \sqrt{2}$
In ΔOBD
BD = 1
$OB = \sqrt{2}$
$OD = \sqrt{(\sqrt{2})^2 - 1^2} = 1$
Now,
$AO = 2 \times OD$
$= 2 \times 1 = 2$
$AD = AO + OD = 3$
Area of $\Delta ABC = \frac{1}{2} \times 3 \times 2 = 3\ cm^2$

Sol 48. (a)
Curved surface area of the cylinder = $2 \times \frac{22}{7} \times 7 \times \frac{20}{100} = \frac{44}{5}\ m^2$
Total cost = $\frac{44}{5} \times 20 = 176$

Sol 49. (b)
Volume of cubical box = $30 \times 30 \times 30 = 27000\ cm^3$
Required rise in water level = $\frac{27000}{60 \times 30} = 15$ cm

Sol 50.(a)
Perimeter of square = Perimeter of rectangle = 2(16+14) = 60 cm
Side of square = $\frac{60}{4} = 15$ cm
Perimeter of semicircle = $\pi r + 2r = \frac{22}{7} \times \frac{15}{2} + 15 = 23.58 + 15 = 38.58$

Sol 51.(c)

	Old	:	New
Length	10	:	13
Breadth	5	:	4
Area	50	:	52

52-50 = 2 unit = 100
1 unit = 50
New area = $52 \times 50 = 2600\ cm^2$

Sol 52. (c)
Required number of buckets = $\frac{12 \times 13.5}{9} = 18$

Sol 53. (d)
$\frac{\sqrt{3}}{2} a = 10\sqrt{3}$
a=20
Area = $\frac{\sqrt{3}}{4} a^2 = \frac{\sqrt{3}}{4} \times 20 \times 20 = 100\sqrt{3}$

Sol 54. (a)
Rise in level = $\frac{15 \times 15 \times 15}{62 \times 45} = 1.21$ cm

Sol 55. (c)
Required time = $\frac{66 \times 35 \times 3}{\frac{22}{7} \times \frac{35}{200} \times \frac{35}{200} \times 8} =$ 9000 sec = 2.5 h

Sol 56. (a)
Required Cost = $\frac{11 \times 6 \times 100}{60} \times 112.50 = 12{,}375$

Sol 57. (c)
Remaining area = $119 \times 18 - 17 \times 6 = 2040$

Pinnacle

Volume of sand = $17 \times 6 \times 3 = 306$
Required height = $\frac{306\times100\times100\times100}{2040\times100\times100}$ = 15 cm

Sol 58. (d)
Tota area to be painted = $40 \times 30 + 2(40 \times 2.2+30 \times 2.2) = 1508$
Total cost = $1508 \times 25 = 37700$

Sol 59. (a) ATQ, $\frac{3\sqrt{3}}{2} \times a^2 = 108\sqrt{3}$
$\Rightarrow a = 6\sqrt{2}$
Therefore, Perimeter = 6x $6\sqrt{2}$ = $36\sqrt{2}$ cm

Sol 60. (a) Volume = (12-4)x(12-4)x2 = 8x8x2 = 128 cu. cm

Sol 61. (d) Given, in a right angle triangle
Hypotenuse = 25, Base = 24
Then, Altitude = 7
Therefore, Area = $\frac{1}{2} \times 24 \times 7 = 84$

Sol 62. (a) Longest stick = $\sqrt{16^2 + 8^2 + 11^2} = 21$

Practice Question

Sol 1. (d)
Inner radius = 27 cm
External radius = 27 + 9 = 36 cm
Volume of the roller = $\pi(R^2 - r^2)h$
$= \pi \times (36^2 - 27^2) \times 100 = 56700\pi$
Weight of the roller = $56700\pi \times 8 = 453600\pi$ gram or 453.6π kg

Sol 2. (d)
140% = $\frac{140}{100} = \frac{7}{5}$
Old : New
Radius 5 : 12
Volume 125 : 1728
Required % = $\frac{1728-125}{125} \times 100$ = 1282.4%

Sol 3. (c)
Volume of Frustum = $\frac{1}{3}\pi(R^2 + r^2 + R.r)h$
$= \frac{1}{3} \times \frac{22}{7} \times (5^2 + 4^2 + 5.4)21 = 1342$

Sol 4. (a)
Volume of Frustum = $\frac{1}{3}\pi(R^2 + r^2 + R.r)h$
$= \frac{1}{3} \times \frac{22}{7} \times (5^2 + 2^2 + 5.2)14 = 572$

Sol 5. (a)
Volume of a frustum = $\frac{1}{3}\pi(R^2 + r^2 + R.r)h$
$= \frac{1}{3} \times \frac{22}{7} \times (5^2 + 3^2 + 5.3)21 = 1078$

Sol 6. (a)
Volume of a frustum = $\frac{1}{3}\pi(R^2 + r^2 + R.r)h$
$= \frac{1}{3} \times \frac{22}{7} \times (5^2 + 3^2 + 5.3)10.5 = 539$

Sol 7. (d) One of the sides of newly formed cuboid = 5×3 = 15cm
Other two sides will be 3cm.
Surface area of cuboid = 2(lb+bh+hl)
$= 2(15 \times 3 + 3 \times 3 + 3 \times 15) = 198\ cm^2$

Sol 8. (a)
Volume of bigger sphere = $\frac{4}{3}\pi r^3$
$= \frac{4}{3} \times \frac{22}{7} \times 6^3$
Volume of smaller sphere =
$= \frac{4}{3} \times \frac{22}{7} \times 2^3$
Let n be the number of smaller spheres, then
$\Rightarrow \frac{4}{3} \times \frac{22}{7} \times 6^3 = n \times \frac{4}{3} \times \frac{22}{7} \times 2^3$
$\Rightarrow$ n=27

Sol 9.(c)
We know that
$a^2 = (\frac{d_1}{2})^2 + (\frac{d_2}{2})^2$
Where a = side of the rhombus and d_1, d_2 be the diagonals of the rhombus.
$\Rightarrow 13^2 = (\frac{10}{2})^2 + (\frac{d_2}{2})^2$
$\Rightarrow \frac{d_2}{2} = \sqrt{13^2 - 5^2} = 12$
$\Rightarrow d_2 = 24$
Area of the rhombus = $\frac{1}{2} \times d_1 \times d_2$
$= \frac{1}{2} \times 24 \times 10 = 120$

Sol 10.(a)
We know that
$a^2 = (\frac{d_1}{2})^2 + (\frac{d_2}{2})^2$
Where a = side of the rhombus and d_1, d_2 be the diagonals of the rhombus.
$\Rightarrow 20^2 = (\frac{24}{2})^2 + (\frac{d_2}{2})^2$
$\Rightarrow \frac{d_2}{2} = \sqrt{20^2 - 12^2} = 16$
$\Rightarrow d_2 = 32$
Area of the rhombus = $\frac{1}{2} \times d_1 \times d_2$
$= \frac{1}{2} \times 24 \times 32 = 384$

Sol 11.(c)
Let AB = a cm
$\Rightarrow$ AC = a+9
$\Rightarrow$ BC = 2a-3
According to the question
a+a+9+2a-3 = 34
4a = 28
a = AB = 7 cm
AC = 7+9 = 16 cm
BC = 2(7)-3 = 11 cm
Clearly AB is the smallest side

Sol 12.(d)
Let AB = a cm
$\Rightarrow$ AC = a+1
$\Rightarrow$ BC = 2a-3
According to the question
a+a+1+2a-3 = 34

4a = 36
a = AB = 9 cm
AC = 9+1 = 10 cm
BC = 2(9)-3 = 15 cm
Clearly AB is the smallest side

Sol 13. (c)
%age increase in area = 13+13+ $\frac{13\times13}{100}$ = 27.69

Sol 14. (d)
%age change in area = (-13)+(-13)+ $\frac{(-13)\times(-13)}{100}$ = -24.31
Here, -ve sign indicates that area is decreasing.

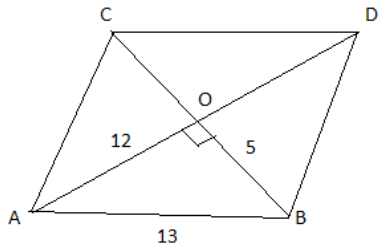
Sol 15. (b) There are 12 sticks of 1 unit length so perimeter of the triangle = 12 unit
Right angle triangle with perimeter 12 is with dimensions 3,4 and 5.
Area of the $\Delta = \frac{1}{2} \times 4 \times 3 = 6$ *sq units*

Sol 16. (b)
One of the sides of newly formed cuboid = 4×5 = 20cm
Other two sides will be 3cm.
Surface area of cuboid = 2(lb+bh+hl)
= $2(20 \times 5 + 5 \times 5 + 5 \times 20) = 450$ cm^2

Sol 17. (b)
Weight of solid cylinder = $\pi r^2 h$ × Density
= $\frac{22}{7} \times 14 \times 14 \times 35 \times 8 = 172480$ gm = 172.48 Kg

Sol 18. (d)
Let the number of spheres casted be n.
Therefore, ATQ:
$\frac{4}{3} \times \frac{22}{7} \times 5^3 = n \times \frac{4}{3} \times \frac{22}{7} \times 2^3$
$\Rightarrow n = 15\frac{5}{8} \approx 15$ full sphere

S19. (c) In the given figure of rhombus:



Other diagonal is 5 x 2 = 10cm
Therefore, Area = $\frac{1}{2} \times D1 \times D2 = \frac{1}{2} \times 10 \times 24 = 120$ sq. cm

Sol. 20. (a) After joining 6 cubes adjacent to each other.
Then, length = 6x4 = 24 cm
Breadth = 4cm
Height = 4cm
Therefore, Total Surface Area of resulting cuboid =2(lb+bh+lh)
=
2(24x4+4x4+24x4) = 2x208 = 416 sq. cm

Sol 21. (b) 8 cubes will be formed after cutting the edge of length 32 cm into 4 cm identical cubes.
Therefore, Sum of total surface area = $8 \times 6a^2 = 8 \times 6 \times 4^2$ = 768 cm^2

Sol 22. (c) Length of half of other diagonal = $\sqrt{6.5^2 - 6^2} = \sqrt{12.5 \times 0.5} = 2.5$
Therefore, Area of Rhombus = $\frac{1}{2} \times D1 \times D2 = \frac{1}{2} \times 12 \times 5 = 30$

Sol 23. (d) No. of spheres = $\frac{9\times9\times9}{2\times2\times2} = \frac{729}{8} = 91$

Sol 24. (b)
60% = $\frac{3}{5}$
20% = $\frac{1}{5}$

	Old : New
Radius	5 : 8
Height	5 : 4
Volume	125 : 256

Required percentage = $\frac{256-125}{125} \times 100 = 104.8\%$

Sol 25. (a) Total Surface area of joined cube = 2x(lb+bh+lh) = 2x(20x4+4x4+4x20)
= 2x176 = 352

Sol 26. (b) Area of triangle excluding portion covered by sector = $\frac{1}{2} \times 10 \times 24 - \frac{180}{360} \times \frac{22}{7} \times 3.5 \times 3.5$
= 120-19.25 = 100.75 sq. cm

Sol 27. (c) No. of spheres = $\frac{6\times6\times6}{2\times2\times2} = 27$

Sol 28. (d) Other diagonal = $2 \times \sqrt{5^2 - 4^2} = 6$
Therefore, Area = $\frac{1}{2} \times 8 \times 6 = 24$

Sol29. (d) Other diagonal = $2 \times \sqrt{26^2 - 24^2} = 20$
Therefore, Area = $\frac{1}{2} \times D1 \times D2 = 480$

Sol 30. (b) Area of triangle excluding the sectors = $\frac{1}{2} \times 16 \times 30 - \frac{180}{360} \times \frac{22}{7} \times 7 \times 7$
= 240 - 77 = 163 sq.cm

Sol 31. (d)
Increase in radius: 2-----5
Increase in height: 2-----3
Increase in volume: 8------125
Percentage increase = $\frac{67}{8} \times 100 = 837.5\%$

Sol 32. (a) Total surface area of the cuboid formed = 2x(lb+bh+lh)
= 2x(40x5+5x5+5x40)
= 2x425 = 850 sq. cm

Sol 33. (b) No. of spheres = $\frac{7\times7\times7}{2\times2\times2} = \frac{343}{8} = 42$

Pinnacle

Sol 34. (c) ATQ, $\frac{1}{3} \times 154 \times h = 924$
$\Rightarrow h = 18\ m$

Sol 35. (b) Total surface area = 2x(18x6+6x6+6x18) = 2x252 = 504

Sol 36. (d) ATQ: $\frac{22}{7} \times r^2 \times 6 = 231$
Therefore, r = 3.5 cm

Sol 37. (a)
Volume of bigger cube = 100 × 100 × 100 = 1000000 cm^3
Volume of smaller cube = 10 × 10 × 10 = 1000 cm^3
Required number of cubes = $\frac{1000000}{1000} = 1000$

Sol 38. (b)
According to question
3+4+5 unit = 24
1 unit = 2
3 unit = 6
4 unit = 8
5 unit = 10
Cleary, given triangle is a right angle triangle.
Area of triangle = $\frac{1}{2} \times 6 \times 8 = 24cm^2$

Sol 39. (d)
Required number of soaps = $\frac{11\times0.82\times0.63\times100\times100\times100}{8\times4.5\times2} = 78925$

Sol 40. (c)
Lateral surface area = 2(l+b)h
= 2(24+16)7.5 = 600 cm^2

Sol 41. (a)
3+2+4 = 9 unit = 72
1 unit = 8
3 unit = 24
2 unit = 16
4 unit = 32

Sol 42. (b)
Required volume = $3 \times 36 \times \frac{5000}{60}$
= $9000m^3$

Sol 43. (d)
Volume = $l \times b \times h$
2160 = 20 × 12 × h
H = $\frac{2160}{20\times12}$ = 9 cm

Sol 44. (b) Area = $\frac{1}{2} \times 20 \times (7.5 + 8.6) = 322$

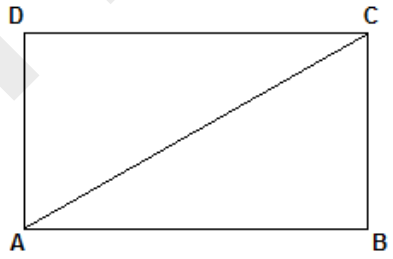
Sol 45. (c) Amount spent for dyeing the walls = 230x5x7.5 = Rs. 8625

Sol 46. (d) Given, $6 \times a^2 = 1944$
$\Rightarrow a = 18$
Therefore, Volume = $a^3 = 5832$

Sol 47. (a) In the given solid figures. Cuboid has the maximum no. of vertex i.e. 8.

Sol 48. (b) Required volume = (90x75x50) - (85x70x45) = 337500-267750
= 69750

Sol 49. (c)



Given, AC = $4\sqrt{5}$
Let AB = 2a and BC = a
Then, AC = $4\sqrt{5} = a\sqrt{5} \Rightarrow a = 4$
Therefore, Area = 4x8 = 32

Sol 50. (c) Height of platform = $\frac{\frac{22}{7}\times\frac{7}{2}\times\frac{7}{2}\times18}{14\times18} = 2.75m$

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Sol 1. (d)
Let the side of cube = a
Volume of cube = a^3
Now,
Radius of the cylinder = $\frac{a}{2}$
Height of the cylinder = a
Volume of the cylinder = $\pi r^2 h$
$= \pi(\frac{a}{2})^2 a = \frac{\pi}{4} a^3$
Required %age = $\frac{a^3 - \frac{\pi}{4}a^3}{a^3} \times 100$
$= \frac{a^3(1-\frac{22}{7\times4})}{a^3} \times 100$
$= \frac{6}{28} \times 100 \approx 21$

Sol 2. (c)
Let the heights of the cylinders are h_1 *and* h_2.
Volume of the first cylinder = $\pi r^2 h$
$\Rightarrow$ x = $\pi(\frac{a}{2})^2 h_1$
$\Rightarrow h_1 = \frac{4x}{\pi a^2}$
Similarly
$h_2 = \frac{4y}{\pi b^2}$
Required ratio = $\frac{4x}{\pi a^2} : \frac{4y}{\pi b^2}$
= x b^2 :y a^2

Sol 3. (b)
20% = $\frac{1}{5}$
And 40% = $\frac{2}{5}$
We know that volume is directly proportional to the product of the square of the radius and the height

	Old : New
Radius	5 : 4
Height	5 : 7
Volume	125 : 112

Decrease in volume = 125-112 = 13
Required %age = $\frac{13}{125} \times 100 = 10.4\%$

Sol 4. (b)
Let original volume = v , original radius = r and original height = h and new height = H

$v = \frac{1}{3}\pi r^2 h$

$\Rightarrow h = \frac{3v}{\pi r^2}$

According to the question

$3v = \frac{1}{3}\pi(2r)^2 H$

$\Rightarrow H = \frac{9v}{4\pi r^2}$

Required ratio $= \frac{3v}{\pi r^2} : \frac{9v}{4\pi r^2}$

$= 4 : 3$

Sol 5. (c)

Curved surface area of a cone $= \pi rl$

$\Rightarrow 2310 = \frac{22}{7} \times 21 \times l$

$\Rightarrow l = 35$ cm

Height of the cone $= \sqrt{l^2 - r^2}$

$= \sqrt{35^2 - 21^2} = 28$ cm

Now,

Volume of the cone $= \frac{1}{3}\pi r^2 h$

$= \frac{1}{3} \times \frac{22}{7} \times 21 \times 21 \times 28$

$= 12936\ cm^3$

Sol 6. (a)

Volume of the cuboid $= 2 \times$ Volume of the cube

Let the side of cube = a

Volume of the cuboid $= 32 \times 12 \times 9\ cm^3$

Volume of the cube $= a^3$

$\Rightarrow 32 \times 12 \times 9 = 2 \times a^3$

$\Rightarrow a = \sqrt[3]{16 \times 12 \times 9} = 12$

Total surface are of the cuboid = 2(lb+bh+hl)

$= 2(32 \times 12 + 12 \times 9 + 32 \times 9)$

$= 1560\ cm^2$

Total surface area of the cube = $6a^2 = 6 \times 12^2 = 864\ cm^2$

Required ratio = $1560 : 2 \times 864$

$= 65 : 72$

Sol 7. (c)

Volume of prism = base area × height

$1731.6 = \frac{1}{2} \times (15+11) \times 9 \times$ height

$\Rightarrow$ height = 14.8

Sol 8. (a)

Lateral surface area of the cylinder $= 2\pi rh$

$\Rightarrow 352 = 2 \times \frac{22}{7} \times r \times 7$

$\Rightarrow r = 8$

Volume of the cylinder $= \pi r^2 h$

$= \frac{22}{7} \times 8 \times 8 \times 7 = 1408$

Sol 9. (a)

Total surface area of a hollow hemisphere $= 2\pi(R^2 + r^2) + \pi(R^2 - r^2)$

Here R =7 cm and r = 6 cm

total surface are of the vessel = $2 \times \pi \times (7^2 + 6^2) + \pi \times (7^2 - 6^2)$

$= \pi(2 \times 85 + 13) = 183\pi$

Sol 10. (a)

Volume of the sphere $= \frac{4}{3}\pi r^3$

Here,

$\frac{4}{3}\pi 9^3 = \frac{4}{3}\pi 1^3 + \frac{4}{3}\pi x^3 + \frac{4}{3}\pi 8^3$

$\Rightarrow \frac{4}{3}\pi 9^3 = \frac{4}{3}\pi(1^3 + x^3 + 8^3)$

$\Rightarrow 729 = 1 + x^3 + 512$

$\Rightarrow x = 6$

Surface area of the sphere $= 4\pi r^2$

$= 4 \times \pi \times 6^2$

$= 144\pi$

Sol 11. (a)

Let the original radius be r.

According to the question $4\pi(r+4)^2 = 4\pi r^2 + 464\pi$

$\Rightarrow r^2 + 16 + 8r = r^2 + 116$

r=12.5

Volume of the sphere $= \frac{4}{3}\pi r^3$

$= \frac{4}{3} \times \pi \times 12.5 \times 12.5 \times 12.5 = \frac{15625}{6}\pi\ cm^3$

Sol 12. (a)

Volume of pyramid $= \frac{1}{3} \times Base\ Area \times Height$

Area of an equilateral triangle $= \frac{\sqrt{3}}{4} a^2$

$\Rightarrow 45\sqrt{3} = \frac{1}{3} \times \frac{\sqrt{3}}{4} \times 6 \times 6 \times Height$

$\Rightarrow$ Height = 15

Sol 13.(b)

Area of the base of a cone $= \pi r^2$

$\Rightarrow 400\pi = \pi r^2$

$\Rightarrow r = 20$

Slant height (l) of the cone $= \sqrt{h^2 + r^2}$

$= \sqrt{15^2 + 20^2} = 25$

curved surface area of the cone $= \pi rl$

$= \pi \times 20 \times 25 = 500\pi$

Sol 14. (c)

20, 21 and 29 are triplet pairs, clearly given triangle is an right angle triangle.

Area of the triangle $= \frac{1}{2} \times 20 \times 21 = 210\ cm^2$

Volume of the prism = Base Area × Height

$\Rightarrow 7560 = 210 \times$ Height

$\Rightarrow$ Height = 36

Lateral surface area of the triangle = Base perimeter × Height

$= (20+21+29) \times 36$

$= 2520\ cm^2$

Sol 15. (b)

We know that, 1000 litres = $1\ m^3$

$\Rightarrow$ Volume of the water taken out $= \frac{15400}{1000} = 15.4\ m^3$

Volume of water taken out $= \pi r^2 h$

$15.4 = \pi \times 3.5 \times 3.5 \times h$

$\Rightarrow h = 0.4$ m or 40 cm

Sol 16. (c)

Radius = 8 cm = 80 mm

Length of wire = 24m = 24000 mm

$\Rightarrow \frac{4}{3}\pi r^3 = \pi R^2 h$

Here r = radius of the sphere and h is the height of the wire

$\Rightarrow \frac{4}{3} \times 80 \times 80 \times 80 = R^2 \times 24000$

$\Rightarrow R^2 = \frac{4}{3} \times 80 \times 80 \times 80 \times \frac{1}{24000}$

$\Rightarrow R = \frac{16}{3} = 5\frac{1}{3}$

Pinnacle

Sol 17. (a)
56, 90 and 106 are triplet pairs. Clearly given triangle is a right angle triangle.
Circum radius of the right angle triangle = $\frac{Hypotenuse}{2}$
$= \frac{106}{2} = 53$
Circumference of the circum circle of the triangle $= 2\pi r$
$= 2 \times \pi \times 53 = 106\pi$

Sol 18. (d)
Volume of the pyramid = $\frac{1}{3} \times$ Base Area $\times$ Height
Area of an equilateral triangle = $\frac{\sqrt{3}}{4} a^2 = \frac{\sqrt{3}}{4} \times 8 \times 8 = 16\sqrt{3}$
Volume of the pyramid = $\frac{1}{3} \times 16\sqrt{3} \times 24\sqrt{3} = 384\ cm^3$

Sol 19. (d)
$33\frac{1}{3}\% = \frac{1}{3}$
We know that volume is directly proportional to the product of the square of the radius and the height

	Old : New
Radius	3 : 2
Height	1 : 2
Volume	9 : 18

Decrease in volume = 9-8 = 1
Required %age = $\frac{1}{9} \times 100 = 11\frac{1}{9}\%$

Sol 20. (d)
$\frac{1}{3}\pi R^2 H = \pi r^2 h$
Here R is the radius of the cone, H is the height of the cone, r is the radius of cylinder and h is the height of the cylinder.
$\frac{1}{3} \times \pi \times R^2 \times H = \pi \times r^2 \times h$
$\Rightarrow \frac{1}{3} \times 3.2^2 \times 7.2 = r^2 \times 9.6$
$\Rightarrow r = 1.6$
Diameter of the cylinder = 2×1.6 = 3.2 cm

Sol 21. (c)
Let the number of bottles required = n
Quantity of the liquid = $\frac{2}{3} \times \pi \times r^3$
$= \frac{2}{3} \times \pi \times 18^3$
Capacity of a bottle = $\pi r^2 h$
$= \pi \times 3^2 \times 12$
Now,
$\frac{2}{3} \times \pi \times 18^3 = n \times \pi \times 3^2 \times 12$
$n = \frac{2 \times 18 \times 18 \times 18}{3 \times 3 \times 3 \times 12} = 36$

Sol 22. (a)
Let the side of cube = a
$\Rightarrow$ sides of the cuboid a,a and $\frac{a}{3}$
Total surface area of the cube = $6a^2$
Total surface area of the cuboid = $2\{(a \times a) + (a \times \frac{a}{3}) + (a \times \frac{a}{3})\} = \frac{10}{3} a^2$
Required ratio = $6a^2 : 2 \times \frac{10}{3} a^2$
$= 9 : 10$

Sol 23. (d)
Curved surface area of a cylinder = $2\pi rh$
Total surface area of a cylinder = $2\pi r(r + h)$
According to the question
$2\pi rh = \frac{1}{3} \times 2\pi r(r + h)$
$\Rightarrow 6\pi rh = 2\pi rh + 2\pi r^2$
$\Rightarrow 4\pi rh = 2\pi r^2$
$\Rightarrow$ r=2h or r:h=2:1
$\Rightarrow$ Diameter : Height = 4:1

Sol 24. (c)
Area covered in one revolution = $2\pi rh$
$= 2 \times \frac{22}{7} \times \frac{1}{2} \times \frac{5}{4} = \frac{55}{14}$
Total revolution in one hour = 60×14
Area covered in one hour = $60 \times 14 \times \frac{55}{14} = 3300\ m^2$

Sol 25. (a)
volume of a sphere = $\frac{4}{3}\pi r^3$
$\Rightarrow 4851 = \frac{4}{3} \times \frac{22}{7} \times r^3$
$\Rightarrow \frac{4851 \times 21}{4 \times 22} = r^3$
$\Rightarrow r = \frac{21}{2}$
surface area of a sphere = $4\pi r^2$
$= 4 \times \frac{22}{7} \times \frac{21}{2} \times \frac{21}{2} = 1386$

Sol 26. (b)
Let the radius of sphere = r and height of sphere = h
$\Rightarrow$ radius of cylinder = 3r and height of cylinder = 4r
According to the question
$\frac{4}{3}\pi r^3 \times N = \pi(3r)^2(4r)$
$\Rightarrow \frac{4}{3}\pi r^3 \times N = 36\pi r^3$
$\Rightarrow N = 27$

Sol 27. (c)
$20\% = \frac{1}{5}$
We know that volume is directly proportional to the product of the square of the radius and the height

	Old : New
Radius	5 : 6
Height	H : h
Volume	25H : 36h

According to the question
25H = 36h
$H : h = 36 : 25$
Required %age = $\frac{36-25}{36} \times 100 = 30\frac{5}{9}\%$

Sol 28. (a)
Let the radius (r) of cone = 5k and height(h) of cone = 12k
Slant height(l) of cone = $\sqrt{(5k)^2 + (12k)^2} = 13k$
Curved surface area of the cone = πrl
$\Rightarrow 816.4 = 3.14 \times 5k \times 13k$
$\Rightarrow k^2 = \frac{816.4}{3.14 \times 65}$
$\Rightarrow k = 2$
Radius(5k) = 5(2) = 10
Height (12k) = 12(2) = 24
Volume of the cone = $\frac{1}{3}\pi r^2 h$

Pinnacle

$= \frac{1}{3} \times 3.14 \times 10^2 \times 24 = 2512\ cm^3$

Sol 29. (d)
12, 35 and 37 are triplet pairs, clearly given triangle is a right angle triangle.
Circum radius of a right angle triangle $= \frac{Hypotenuse}{2} = \frac{37}{2} = 18.5$ cm

Sol 30. (c)
Area of an equilateral triangle $= \frac{\sqrt{3}}{4} a^2$
$\Rightarrow 16\sqrt{3} = \frac{\sqrt{3}}{4} a^2$
$\Rightarrow a = 8$
Radius of the pyramid = in radius of the triangle $= \frac{a}{2\sqrt{3}} = \frac{8}{2\sqrt{3}} = \frac{4}{\sqrt{3}}$
And
area of its lateral face $= \frac{1}{2} \times base \times slant\ height$
$\frac{1}{2} \times 8 \times slant\ height = 30$
$\Rightarrow slant\ height = \frac{15}{2}$
Height of the pyramid $= \sqrt{l^2 - r^2}$
$= \sqrt{(\frac{15}{2})^2 - (\frac{4}{\sqrt{3}})^2} = \sqrt{\frac{611}{12}}$

Sol 31. (c)
Let the radius of hemisphere = r
$\Rightarrow$ radius of the sphere $= \frac{r}{2}$
Volume of hemisphere $= \frac{2}{3} \pi r^3$
Volume of sphere $= \frac{4}{3} \pi(\frac{r}{2})^3 = \frac{1}{6} \pi r^3$
Area of the remaining solid $= \frac{2}{3} \pi r^3 - \frac{1}{6} \pi r^3 = \frac{1}{2} \pi r^3$
Required ratio $= \frac{1}{6} \pi r^3 : \frac{1}{2} \pi r^3$
$= 1 : 3$

Sol 32. (a)
lateral surface area of prism = Base perimeter $\times$ height
$= (5+8+12) \times 18 = 450\ cm^2$

Sol 33. (d)
Earth taken out $= \pi r^2 h$
$= \frac{22}{7} \times 2.8 \times 2.8 \times 15 = 369.60$
Let the length of of platform = l
$\Rightarrow 369.60 = l \times b \times h$
$\Rightarrow l = \frac{369.60}{8 \times 1.5} = 30.8$ m

Sol 34. (b)
We know that, 1000 litre = 1 m^3
$\Rightarrow$ 18000 litre = 18 m^3
Let the width of the tank = w
$18\ m^3 = l \times b \times w$
$18 = 12 \times \frac{30}{100} \times w$
w = 5 m

Sol 35. (a)
Curved surface area of a cylinder $= 2\pi rh$
$\Rightarrow 60\pi = 2 \times \pi \times 3 \times h$
$\Rightarrow h = 10$m
Volume of a cylinder $= \pi r^2 h$
$= \pi \times 3 \times 3 \times 10 = 90\pi$

Sol 36. (c)
Volume of the cylinder $= \pi R^2 H$
Volume of the toy $= \frac{1}{3} \pi r^2 h + \frac{2}{3} \pi r^3$
According to the question
$\pi R^2 H = n \times (\frac{1}{3} \pi r^2 h + \frac{2}{3} \pi r^3)$
$\frac{22}{7} \times 12 \times 12 \times 15 = n \times \frac{22}{7} (\frac{1}{3} \times 3 \times 3 \times 9 + \frac{2}{3} \times 3 \times 3 \times 3)$
$\Rightarrow n = 48$

Sol 37. (a)
Internal radius of hemisphere $= \frac{24}{2} = 12$ cm
External radius of the hemisphere =12+0.5 =12.5 cm
Total surface area of a hollow hemisphere
$= 2\pi(R^2 + r^2) + \pi(R^2 - r^2)$
$= \frac{22}{7} \{ 2 \times \{(12.5)^2 + (12)^2\} + (12.5)^2 - (12)^2$
$= 612.75\pi$

Sol 38. (d)
Slant height of the cone = radius of the sector
And
$\frac{\theta}{360} \times$ perimeter of the sector = perimeter of the base of the cone
Let the radius of cone =r
$\frac{120}{360} \times 2 \times \pi \times 10.5 = 2 \times \pi \times r$
$\Rightarrow r = 3.5$
Height of the cone $= \sqrt{l^2 - r^2}$
$= \sqrt{(10.5)^2 - (3.5)^2} = 7\sqrt{2}$
Area of the cone $= \frac{1}{3} \times \pi \times 3.5 \times 3.5 \times 7\sqrt{2} = \frac{343\sqrt{2}}{12} \pi$

SSC MTS

Sol 1. (d)
Volume of a sphere $= \frac{4}{3}\pi r^3$
Radius of water droplet (r) = 1 mm or $\frac{1}{10}$ cm
Let the radius of bubble = R
According to the question
0.1 % of 1.728 x 10^6 x $\frac{4}{3}\pi r^3 = \frac{4}{3}\pi R^3$
$\Rightarrow \frac{0.1}{100}$ x 1.728 x 10^6 x $\frac{4}{3} \times \pi \times (\frac{1}{10})^3 = \frac{4}{3}\pi R^3$
$\Rightarrow \frac{1728}{1000} = R^3$
$\Rightarrow R = 1.2$ cm
Diameter of the bubble = 2 x 1.2 = 2.4 cm

Sol 2. (c)
Let the side of smaller cube = a and side of bigger cube = A
$\Rightarrow \frac{a^3}{A^3} = \frac{64}{125}$
$\Rightarrow \frac{a}{A} = \frac{4}{5}$
Total surface area of smaller cube $= 6a^2 = 6$ x 4^2
Total surface area of bigger cube $= 6a^2 = 6$ x 5^2
Required ratio = 6 x 4^2 : 6 x 5^2
= 16 : 25

Sol 3. (b)
Volume of a sphere $= \frac{4}{3}\pi r^3$
Volume of a cone $= \frac{1}{3}\pi r^2 h$
According to the question
$\frac{4}{3}\pi r^3 = \frac{1}{3}\pi r^2 h$
$\Rightarrow h = 4r$

Sol 4. (b)
Perimeter of rhombus = 2 $\sqrt{a^2+b^2}$
Where a and b the the diagonal of rhombus
$20 = 2\sqrt{6^2+b^2}$
$100-36 = b^2$
$\Rightarrow$ b = 8 cm

Sol 5. (a)
Diameter of circle = side of square = 6
Area of the circle = $\pi r^2 = \frac{22}{7}$ x 3 x 3 = $\frac{198}{7}$ cm^2

Sol 6.(c)
$6\frac{2}{3}\% = \frac{1}{15}$ and $8\frac{1}{3}\% = \frac{1}{12}$

	Old : New
Length	15 : 14
Width	12 : 13

Now,
For length
15 unit = 15
So, 14 unit = 14
Also
For width
12 unit = 12
13 unit = 13
Old Area = 2 (15+12) x 11 = 594
New Area = 2 (14+13) x 11= 594
Clearly there is no change in the two areas.

Sol 7. (b)
Volume of cube = a^3 = 15 x 15 x 15 = 3375 cm^3
Volume of cuboid = (l x b x h) = 3375-175 = 3200 cm^3
$\Rightarrow$ (l x b x 32) = 3200
$\Rightarrow$ (l x b) = 100 cm^2
Here (lxb) is nothing but the base area of the cuboid

Sol 8. (c)
Height of the cone = 5 cm
Base radius of the cone = 12 cm
Slant height of the cone (l) = $\sqrt{b^2+h^2} = \sqrt{5^2+12^2} = 13$ cm
Now,
The curved surface area of the cone = $\pi rl = \frac{22}{7}$ x 12 x 13 = 156 π cm^2

Sol 9. (d)
Total surface are of cuboid = 2(lb+bh+hl) = 2(5x2 + 2x4 + 5x4)
= 76 cm^2

Sol 10. (a)
Perimeter of the triangle = 70 units
The triplet pairs which have sum = 70 are 20,21 and 29.
The required area = $\frac{1}{2}$ x Base x Perpendicular = $\frac{1}{2}$ x 20 x 21 = 210 square units

Sol 11. (a)
Let the radius of sphere = radius of cylinder = height of the cylinder = r
Curved surface area of sphere = $4\pi r^2$
Curved surface area of cylinder = $2\pi rh = 2\pi r^2$ .....(r : h)
Required ratio = $4\pi r^2 : 2\pi r^2$ = 2:1

Sol 12. (a)
According to the question

Length	:	Breadth	:	Height
2	:	1		
		2	:	1

Balancing the ratio for breadth

Length	:	Breadth	:	Height
4	:	2	:	1

Now,
Height = 1 unit = 2 cm
Breadth = 2 unit = 2 x 2 = 4 cm
Length = 4 unit = 4 x 2 = 8 cm
Volume of cuboid = 8 x 4 x 2 = 64 cm^3
We know that,
Volume of cube = a^3
$\Rightarrow a^3 = 64$
$\Rightarrow$ a = 4 cm

Sol 13. (b)
Diameter of the hemisphere = 35 cm
Total surface area of the hemisphere = $3\pi r^2 = 3$ x $\frac{22}{7}$ x $\frac{35}{2}$ x $\frac{35}{2}$
= 2887.5 cm^2

Sol 14.(d)
Area of an equilateral triangle = $\frac{\sqrt{3}}{4}a^2 = \frac{\sqrt{3}}{4} \times 4 \times 4 = 4\sqrt{3}$ cm^2

Sol 15. (b) Let n be the number of turns.
Total length of the ribbon = number of turns x perimeter of the cylinder
l = n x c
$\Rightarrow$ n = $\frac{l}{c}$

Sol 16. (b)
Volume of a cone = $\frac{1}{3}\pi r^2 h$
$\Rightarrow 1232 = \frac{1}{3} \times \frac{22}{7} \times r^2 \times 24$
$\Rightarrow 7 = r$
Slant height of the cone (l) = $\sqrt{r^2+h^2} = \sqrt{7^2+24^2} = 25$
Curved surface area of cone = $\pi rl = \frac{22}{7} \times 7 \times 25 = 550$ cm^2

Sol 17. (d)
Let the side of square = a
We know that
Inradius of a square = $\frac{a}{2}$
and
Circum-radius of a square = $\frac{a\sqrt{2}}{2}$
Required ratio = $\frac{a}{2} : \frac{a\sqrt{2}}{2}$ = 1 : $\sqrt{2}$

Sol 18. (b)
Curved surface area of a cylinder = $2\pi rh$
$\Rightarrow$ 2 x $\frac{22}{7}$ x r x 32 = 25344

$\Rightarrow$ r = 126

Volume of the cylinder = $\pi r^2 h = \frac{22}{7}$ x 126 x 126 x 32

Required volume = $\frac{22}{7}$ x 126 x 126 x 32 x $\frac{22}{7 \times 792}$ = 6336 cm^3

Sol 19. (b)

Diagonal of a square = a $\sqrt{2}$

$\Rightarrow$ 24 = a $\sqrt{2}$

$\Rightarrow$ a = $12\sqrt{2}$

Perimeter of the square = 4a = 4 x $12\sqrt{2} = 48\sqrt{2}$ cm

Sol 20.(b)

Total surface area of a hemisphere = $3\pi r^2 = 3 \times \frac{22}{7} \times 14 \times 14$

= 1848 cm^2

Curved surface area of a hemisphere = $2\pi r^2 = 2 \times \frac{22}{7} \times 14 \times 14$

= 1232 cm^2

Sol 21. (c)

Radius of the cylinder = 7 cm

Height of the cylinder = 7 x 2 = 14 cm

Curved surface area of the cylinder = $2\pi rh = 2 \times \frac{22}{7} \times 7 \times 14$

=616 cm^2

Sol 22. (c)

Curved surface area of the hexagon = $6 \frac{\sqrt{3}}{4} a^2 = 6 \times \frac{\sqrt{3}}{4} \times 4 \times 4$

Curved surface area of the square = $a^2 = 4\sqrt{2} \times 4\sqrt{2} = 32$ cm^2

Required ratio = $24\sqrt{3} : 32$

$= 3\sqrt{3} : 4$

Sol 23. (c)

Let the radius of cone = 2 unit and height of the cone = 3 unit and the radius of cylinder = 3 unit and height of the cylinder = 4 unit

Volume of cylinder = $\pi r^2 h = \frac{22}{7}$ x 3 x 3 x 4 cm^2

Volume of cone = $\frac{1}{3}\pi r^2 h = \frac{1}{3}$ x $\frac{22}{7}$ x 2 x 2 x 3 cm^2

Required ratio = $\frac{1}{3}$ x $\frac{22}{7}$ x 2 x 2 x 3 : $\frac{22}{7}$ x 3 x 3 x 4

= 1 : 9

Sol 24. (c)

Area of rhombus = $\frac{1}{2}$ x d_1 x d_2

$\Rightarrow$ 300 = $\frac{1}{2}$ x 30 x d_2

$\Rightarrow$ d_2 = 20 cm

Sol 25. (c)

The height of an equilateral triangle = $\frac{\sqrt{3}}{2}$ a

$\Rightarrow 20\sqrt{2} = \frac{\sqrt{3}}{2}$ a

$\Rightarrow$ a = $\frac{40\sqrt{2}}{\sqrt{3}}$

Area of an equilateral triangle = $\frac{\sqrt{3}}{4} a^2 = \frac{\sqrt{3}}{4} \times \frac{40\sqrt{2}}{\sqrt{3}} \times \frac{40\sqrt{2}}{\sqrt{3}} = \frac{1}{3} 800\sqrt{3}$

Sol 26. (c)

7, 24 and 25 are triplet pairs. So given triangle is an right angle triangle.

Area of a right angle triangle = $\frac{1}{2}$ x Base x Height

= $\frac{1}{2}$ x 7 x 24 = 84 cm^2

Sol 27. (a)

Diagonal of a inscribed square = diameter of the circle = 28 cm

Diagonal of square = a $\sqrt{2}$

28 = a $\sqrt{2}$

$\Rightarrow$ a = 14 $\sqrt{2}$

Area of the square = $a^2 = (14\sqrt{2})^2 = 392$ cm^2

Sol 28. (b)

The height of a right circular cone = 24 cm

The radius of the base = 7 cm

Slant height of the cone (l) = $\sqrt{r^2 + h^2} = \sqrt{7^2 + 24^2} = 25$

Curved surface area of cone = $\pi rl = \frac{22}{7} \times 7 \times 25 = 550$ cm^2

The cost of painting = 550 x 6 = Rs. 3300

Sol 29. (d)

Area of rhombus = $\frac{1}{2}$ x d_1 x d_2

= $\frac{1}{2}$ x 24 x 18

= 216 sq. cm

Sol 30. (a)

base of the right angle triangle = 9 cm

hypotenuse of the right angle triangle = 41 cm

Perpendicular of the right angle triangle = $\sqrt{41^2 - 9^2} = 40$

Area of a right angle triangle = $\frac{1}{2}$ x Base x Height

= $\frac{1}{2}$ x 9 x 40 = 180 cm^2

Sol 31. (b)

Diagonal of the square = Diameter of the circle = 2 x 28 cm = 56 cm

Diagonal of the square = $a\sqrt{2}$

$\Rightarrow a\sqrt{2} = 56$

$\Rightarrow$ a= $28\sqrt{2}$

Area of the square = $a^2 = (28\sqrt{2})^2 = 1568$ cm^2

Sol 32. (c)

Area of 4 walls = 2(l+b) × h

= 2(12+10) × 3 = 132 cm^2

Required cost = 132 x 50 = Rs. 6600

Sol 33. (b)

Radius = 21 cm

Height = 40 cm

Curved surface area of the cylinder = $2\pi rh = 2 \times \frac{22}{7} \times 21 \times 40$

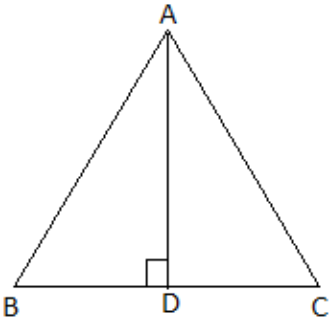
= 5280 cm^2

Pinnacle

the cost of painting = 5280 x 20 = Rs. 105600

Sol 34. (c)
Let the length of the rectangle = 5k and breadth of the rectangle = 4k
According to the question
5k x 4k = 180
$\Rightarrow k^2 = 9$
$\Rightarrow$ k = 3
So, length of the rectangle = 15 cm and breadth of the rectangle = 12 cm
Diagonal of the rectangle = $\sqrt{15^2 + 12^2} = \sqrt{369}$ cm

Sol 35. (b)
Let ΔABC be the given triangle and AB = AC = 10 cm
And BC = 12 cm



Draw AD $\perp$ BC
Now, We know that the perpendicular on the unequal side of an isosceles triangle from the opposite vertex divides it into two equal parts.
BD=DC= $\frac{BC}{2}$ = 6 cm
$\Rightarrow$ AD = $\sqrt{AB^2 - BD^2}$
.....(Pythagoras theorem)

= $\sqrt{10^2 - 6^2}$ = 8 cm
Area of the triangle = $\frac{1}{2}$ x Base x Height
= $\frac{1}{2}$ x 12 x 8 = 48 cm^2

Sol 36. (a)
area of the square = 144 cm^2
Side of the square (a) = $\sqrt{144}$ = 12 cm
Diagonal of the square = $12\sqrt{2}$ cm
Required perimeter = 4 x $12\sqrt{2}$ = $48\sqrt{2}$ cm

Sol 37. (b)
curved surface of the hemisphere = $2\pi r^2$ = 2 x $\frac{22}{7}$ x 14 x 14 = 1232 cm^2
the cost of painting = 1232 x 45 = 55440

Sol 38. (d)
The rectangle is given one full rotation about its breadth as the axis so a cylinder will be formed, and the height of the cylinder will be 12 cm and radius will be 15 cm.
Required volume = $\pi r^2 h$ = $\pi \times 15 \times 15 \times 12 = 2700\pi$

Sol 39. (a)
Volume of the cube = $a^3 = 216$
$\Rightarrow$ a = $\sqrt[3]{216}$ = 6 cm
the area of one face of the cube = 6 x 6 = 36 cm^2

Sol 40. (b)
Side of the square = Diameter of the circle = 28 cm
Radius of the circle = $\frac{28}{2}$ = 14 cm
Area of the circle = πr^2 = $\frac{22}{7}$ x 14 x 14 = 616 cm^2

Sol 41. (d)
Side of the square = Diameter of the circle = 14 cm
Perimeter of the circle = πd = $\frac{22}{7}$ x 14 = 44 cm

Sol 42. (c)
the total surface area of the cube = $6a^2 = 6 \times (8)^2 = 384$ cm^2

Sol 43. (d)
The diagonals of the rhombus = 48 cm
The side of the rhombus = 26 cm
The other side of the rhombus = 2 x ($\sqrt{26^2 - (\frac{48}{2})^2}$) = 20 cm
Required area = $\frac{1}{2}$ x 48 x 20 = 480 cm^2

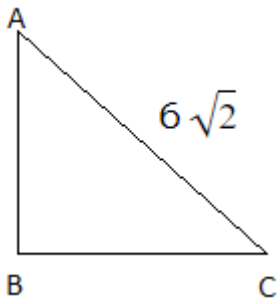
Sol 44. (a)
The diagonal of a rectangle = 26 cm
The side of the rectangle = 10 cm
The other side of the rectangle = $\sqrt{26^2 - (10)^2} = 24$ cm
The area of the rectangle = 24 x 10 = 240 cm^2

Sol 45. (a)
Let the required number of balls = n
Volume of a spherical ball = $\frac{4}{3}\pi r^3$
According to the question
$\frac{4}{3} \times \frac{22}{7} \times 180 \times 180 \times 180 = n \times \frac{4}{3} \times \frac{22}{7} \times 45 \times 45 \times 45$
n = 64

Sol 46. (d)
Number of smaller cuboids = $(k)^n$
Where, k = *factor by which sides will get divided*
n = *number of cuts*
$8 = (k)^3$
k = 2
Size of smaller cuboids = $\frac{100}{2}$ x $\frac{80}{2}$ x $\frac{60}{2}$ = 50 x 40 x 30
Total surface area of smaller cuboids = $2(50 \times 40 + 40 \times 30 + 50 \times 30)$
= 9400 cm^2
Total surface area of all the smaller cuboids = 8 x 9400 = 75200 cm^2

Sol 47. (b)

Ratio of the angles in the given triangle = 1 : 1 : 2
Let the angles are 1 unit, 1 unit and 2 unit
According to the question
(1+1+2) unit = 180°
1 unit = 45°
2 unit = 90°
⇒ ∠A = ∠B = 45° and ∠C = 90°



⇒ AB=AC= 1 unit and AC = $\sqrt{2}$ unit ...(Trigonometric property)
According to the question
$\sqrt{2}$ unit = $6\sqrt{2}$ cm
1 unit = 6 cm
Area of the triangle = $\frac{1}{2}$ x AB x BC = $\frac{1}{2}$ x 6 x 6 = 18 cm^2

Sol 48. (a)
Let the side of cube = a
the longest rod placed in the cube = a $\sqrt{3}$ = 21 $\sqrt{3}$
⇒ a = 21 cm
Area of the floor = a^2 = 21 x 21 = 441 cm^2

Sol 49. (c)
10% = $\frac{1}{10}$
Volume of a cone is directly proportional multiplication of the square of the radius and the height of the cone.

	Original : New
Height	10 : 9
Radius	10 : 11
Volume	1000 : 1089

Required %age = $\frac{1089-1000}{1000}$ x 100 = 8.9%
Clearly there is an increase of 8.9% in the volume of the cone.

Sol 50. (b)
Let the length of one of the side = x cm
⇒ the length of the other side = (x+21) cm
⇒ $x^2 + (x+21)^2 = 39^2$
....(pythagoras theorem)
⇒ $x^2 + x^2 + 441 + 42x = 1521$
⇒ $2x^2 + 42x - 1080 = 0$
⇒ $x^2 + 21x - 540 = 0$
⇒ $x^2 + 36x - 15x - 540 = 0$
⇒ x(x+ 36)- 15 (x+36) = 0
⇒ (x- 15)(x+36) = 0
⇒ x = 15
Required area = $\frac{1}{2}$ x 15 x (15+21) = 270 cm^2

Sol 51. (a)
Area of the Path = 2(width of path){length+breadth+2(width of path)}
= 2(3.5){25+15+2(3.5)} = 329 cm^2
Required cost = 329 x $\frac{51}{2}$ = 8389.50

Sol 52. (a)
Let the side of square = a
⇒ Diameter of the circle = a
So, Area of the square = a^2
And area of the circle = $\pi(\frac{a}{2})^2$ = $\frac{11}{14}a^2$
Required ratio = $a^2 : \frac{11}{14}a^2$
= 14 : 11

Sol 53. (a)
Radius of cone = 20 cm
Height of the cone = 21 cm
Slant height of the cone = $\sqrt{20^2 + 21^2} = 29$
Total surface area of cone = $\pi r(l+r) = \frac{22}{7}$ x 20 x (20+29) = 3080

Sol 54. (b)
Volume of Prism = Base Area x Height
288 = Base Area x 24
⇒ Base Area of the Prism = 12

Sol 55. (c)
Volume of cuboid = $l \times b \times h$ = $18 \times 24 \times 4 = 1728 cm^3$
Volume of cube (a^3) = 1728
Side of cube = $\sqrt[3]{1728}$ = 12 cm

Sol 56. (a)
Total surface area of cuboid = 2(lb+bh+hl) = 2{(7 x 8)+(8 x 9)+(9 x 7)}
= 382 cm^2

Sol 57. (c)
Volume of Prism = Base Area x Height
308 = Base Area x 11
⇒ Base Area of the Prism = 28 cm^2

Sol 58. (a)
Diagonal of the square ($a\sqrt{2}$) = $6\sqrt{2}$
⇒ Side of the square(a) = 6
⇒ Area of the square = $a^2 = 6^2$ = 36 cm^2
Let the side of new square = A
According to the question
A^2 = 2 x 36 = 72 cm^2
⇒ A = $\sqrt{72} = 6\sqrt{2}$
Diagonal of the new square ($A\sqrt{2}$) = $6\sqrt{2}$ x $\sqrt{2}$ = 12 cm

Sol 59. (d)
We know that 10 metre = 1000 cm
Let the required number of cubes = n
We know that 10 metre = 1000 cm

Volume of bigger cube = $(1000)^3$
Volume of smaller cube = $(10)^3$
According to the question
$(1000)^3 = n \times (10)^3$
$\Rightarrow n = 10,00,000$

Sol 60. (b)
Diameter of the cylinder = 8 cm
$\Rightarrow$ Radius of the cylinder = $\frac{8}{2} = 4$ cm
Curved surface area of the cylinder = $2\pi rh = 2 \times \pi \times 4 \times 10 = 80\pi$

Sol 61. (b)
Total volume of 2 cubes = $2 \times (10)^3 = 2000$ cubic mm
Volume of water = 200 cubic cm = 200000 cubic mm
Total volume = 202000 cubic mm = 202 ml

Sol 62. (a)
Let the side of cube = a cm
Diagonal of one face = $a\sqrt{2} = 128\sqrt{2}$
$\Rightarrow a = 128$
According to the question
Volume of cube = volume of cuboid
$128 \times 128 \times 128 = 512 \times 160 \times h$
$\Rightarrow h = 25.6$ cm

Sol 63. (a)
Total surface area of a hemisphere = $3\pi r^2 = 462$
$\Rightarrow 3 \times \frac{22}{7} \times r^2 = 462$
$\Rightarrow r = 7$ cm
Diameter of the hemisphere = $7 \times 2 = 14$ cm

Sol 64. (d)
Volume of the hemisphere = $\frac{2}{3}\pi r^3 = \frac{2}{3} \times \frac{22}{7} \times 30 \times 30 \times 30$ cm^3
Volume of the cylinder = $\pi R^2 h = \frac{22}{7} \times R^2 \times 180$
According to the question
$\frac{2}{3} \times \frac{22}{7} \times 30 \times 30 \times 30 = \frac{22}{7} \times R^2 \times 180$
$\Rightarrow R = 10$ cm
Diameter of the cylinder = $2 \times 10 = 20$ cm

Sol 65. (a)
Radius of the cone = 21 cm
Height of the cone = 28 cm
Slant height of the cone = $\sqrt{21^2 + 28^2} = 35$
Total surface area of cone = $\pi r(l + r) = \frac{22}{7} \times 21 \times (21+35) = 3696\ cm^2$

Sol 66. (d)
Volume of the cylinder = $\pi r^2 h = \frac{22}{7} \times 9^2 \times 7 = 1782\ cm^3$

Sol 67. (b)
Surface area of a cylinder is directly proportional to the multiplication of its radius and the height.

	A : B
Radius	5 : 6
Height	7 : 4
Surface Area	35 : 24

Required ratio = 24 : 35

Sol 68. (d)
Let the side of the square = a
$\Rightarrow$ Area of the square = $a^2 = 18\sqrt{3}$
$\Rightarrow a = \sqrt{18\sqrt{3}}$
Side of an equilateral triangle = Diagonal of the square = $a\sqrt{2} = (\sqrt{18\sqrt{3}})\sqrt{2}$ cm
Required area = $\frac{\sqrt{3}}{4} side^2 = \frac{\sqrt{3}}{4} \times \{(\sqrt{18\sqrt{3}})\sqrt{2}\}^2 = 27$

Sol 69. (b)
Radius of the sphere = $\frac{42}{2} = 21$ cm
The volume of the sphere = $\frac{4}{3}\pi r^3$
$= \frac{4}{3} \times \frac{22}{7} \times 21 \times 21 \times 21 = 38808\ cm^3$

Sol 70. (a)
Distance covered in one role = $2\pi r = 2 \times \frac{22}{7} \times \frac{35}{2} = 110$ cm
Total distance covered = $110 \times 20 = 2200$ cm or 22 meters

Sol 71. (c)
50% = $\frac{1}{2}$

	Original : New
Length	2 : 3
Area	1 : 1
Breadth	$\frac{1}{2}$: $\frac{1}{3}$
	3 : 2

Required %age = $\frac{3-2}{3} \times 100 = 33.33$ %

Sol 72. (b)
10% = $\frac{1}{10}$

	Original : New
Length	10 : 11
Breadth	10 : 11
Height	10 : 9
	x
Volume	1000 : 1089

Required %age = $\frac{1089-1000}{1000} \times 100 = 8.9$ %
$\Rightarrow$ Clearly there is an increase of 8.9% in volume

Sol 73.(a)
50% = $\frac{1}{2}$
Volume of a cylinder is directly proportional to the multiplication of the square of its radius and the height.

	A : B
Radius	1 : 2
Height	2 : 1
Volume	2 : 4

Required %age = $\frac{4-2}{2} \times 100 = 100\%$
Sol 74. (a)

Volume of a cube = a^3 = 7.5 x 7.5 x 7.5 = 421.875 cm^3

Sol 75. (c)
Volume of the cylinder = $\pi r^2 h$
Surface area of the cylinder = $2\pi rh$
According to the question
$\frac{14}{1} = \frac{\pi r^2 h}{2\pi rh}$
$\Rightarrow$ r = 28
$\Rightarrow$ Volume of the cylinder = $\frac{22}{7}$ x 28 x 28 x 50 = 123200 cm^3

Sol 76. (d)
Curved surface area of the cylinder = $2\pi rh$
$\Rightarrow 440 = 2 \times \frac{22}{7} \times r \times 10$
$\Rightarrow$ r = 7 cm

Sol 77. (a)
Volume of a sphere = $\frac{4}{3}\pi r^3 = \frac{4}{3} \times \frac{22}{7} \times 21^3$
Volume of a cylinder = $\pi r^2 h = \frac{22}{7} \times 14^2 \times h$
According to the question
$\frac{4}{3} \times \frac{22}{7} \times 21^3 = \frac{22}{7} \times 14^2 \times h$
$\Rightarrow$ h = 63 cm

Sol 78. (b)
Total surface area of a cube = $6a^2 = 864$
$\Rightarrow a = \sqrt{144} = 12\ cm$
Volume of a cube = a^3 = 12 x 12 x 12 = 1728 cm^3

Sol 79. (c)
The volume of a right circular cylinder = $\pi r^2 h$
the volume of a right circular cone = $\frac{1}{3}\pi R^2 H$
According to the question
$\pi r^2 h = 3 \times (\frac{1}{3}\pi R^2 H)$
$\pi \times 6^2 \times 1 = \pi \times 3^2 \times H$
$\Rightarrow$ H = 4 cm
Slant height of the cone = $\sqrt{r^2 + h^2} = \sqrt{3^2 + 4^2} = 5$ cm

Sol 80. (d)
The volume of a sphere = $\frac{4}{3}\pi r^3$
$\Rightarrow 36\pi = \frac{4}{3} \times \pi \times r^3$
$\Rightarrow$ r = 3 cm

Sol 81. (a)
Curved surface area of a hemisphere = $2\pi r^2$ = 2 x $\frac{22}{7}$ x 21 x 21
= 2772 cm^2
Volume of a hemisphere = $\frac{2}{3}\pi r^3$ = $\frac{2}{3}$ x $\frac{22}{7}$ x 21 x 21 x 21 = 19404 cm^3

Sol 82. (c)
35, 84 and 91 are triplet pairs. So, given triangle is a right angle triangle.
Area of a right angle triangle = $\frac{1}{2}$ x Base x Height = $\frac{1}{2}$ x 35 x 84 = 1470 cm^2

Sol 83. (d)
Lateral surface area of a cube = $4a^2$
$\Rightarrow 144 = 4a^2$
$\Rightarrow$ a = $\sqrt{36}$ = 6 cm

Sol 84. (b)
Height of the cone = 4 cm
Radius of the cone = 3 cm
Slant height of the cone = $\sqrt{r^2 + h^2} = \sqrt{3^2 + 4^2} = 5$ cm
Total surface area of cone = $\pi r(l + r)$ = π x 3 x (5+3) = 24π cm^2

Sol 85. (a)
Side of cube = diameter of sphere = a
Volume of cube = a^3
Volume of sphere = $\frac{4}{3}\pi r^3 = \frac{4}{3}\pi(\frac{a}{2})^3 = \frac{\pi}{6}a^3$
Required ratio = $a^3 : \frac{\pi}{6}a^3 = 6 : \pi$

Sol 86. (a)
$66\frac{2}{3}\% = \frac{2}{3}$
Height of the cylinder = h
Radius of the cylinder = $\frac{2}{3}h$
Total surface area of cylinder = $2\pi r(r + h) = 2\pi(\frac{2}{3}h)(\frac{2}{3}h + h) = \frac{20}{9}\pi h^2\ cm^2$

Sol 87. (c)
the area of a scalene triangle = $\sqrt{s(s-a)(s-b)(s-c)}$ .....(heroine rule)
Where, s = $\frac{a+b+c}{2}$
Here, s = $\frac{25+39+56}{2}$ = 60 m
The required area = $\sqrt{60(60-25)(60-39)(60-56)}$
= 420 m^2

Sol 88. (d)
40% = $\frac{2}{5}$ and 10% = $\frac{1}{10}$
Volume of a cone is directly proportional to the multiplication of the square of its radius and the height.

	Original : New
Radius	10 : 9
Height	5 : 7
Volume	500 : 567

Required %age = $\frac{567-500}{500}$ x 100 = 13.4%
$\Rightarrow$ Clearly there is an increase of 13.4% in the volume.

Sol 89. (d)
110, 600 and 610 are triplet pairs. So, the given triangle is a right angle triangle.
Area of the triangle = $\frac{1}{2}$ x Base x Height = $\frac{1}{2}$ x 110 x 600 = 33000 m^2
$\Rightarrow$ Area of the park = 33000 x $\frac{7}{15}$ = 15400 m^2
$\Rightarrow \pi r^2 = 15400$
$\Rightarrow$ r = 70 m
Diameter of the park = 2 x 70 = 140 meters

Sol 90. (a)
The volume of a right circular cylinder = $\pi r^2 h$
the volume of a sphere = $\frac{4}{3}\pi R^3$
According to the question
$\pi \times 4^2 \times \frac{16}{3} = \frac{4}{3}\pi R^3$
$\Rightarrow$ R = 4 cm
Curved surface area of the sphere = $4\pi r^2 = 4 \times \pi \times 4^2 = 64\pi$

Sol 91. (a)
Let the breadth of the rectangle = b
$\Rightarrow$ the length of the rectangle = b+6
According to the question
2(b+6+b) = 100
b = 22 cm
$\Rightarrow$ l = 22+6 = 28 cm
Area of rectangle =Area of circle = 22 x 28 = 616 cm^2
$\Rightarrow \pi R^2 = 616$
$\Rightarrow$ R = $\sqrt{196}$ = 14 cm
Perimeter of the circle = $2\pi r$ = 2 x $\frac{22}{7}$ x 14 = 88 cm

Sol 92. (a)
the total surface area of the cylinder = $2\pi r(r+h)$
the curved surface area of the cylinder = $2\pi rh$
According to the question
$\frac{2}{5} = \frac{2\pi rh}{2\pi r(r+h)}$
2(r+h) = 5h
$\Rightarrow \frac{r}{h} = \frac{3}{2}$
Let the radius = 3k and height = 2k
Now,
$1155 = 2\pi r(r+h)$
$\Rightarrow 1155 = 2 \times \pi \times 3k(3k+2k)$
$\Rightarrow 1155 = 30k^2 \times \frac{22}{7}$
$\Rightarrow \frac{105\times7}{60} = k^2$
$\Rightarrow$ k= $\frac{7}{2}$
So, height of the cylinder = $2 \times \frac{7}{2}$ = 7 cm

Sol 93. (a)
Diameter of a sphere = diagonal of cube = 2 x 6 = 12 cm
Diagonal of cube = $a\sqrt{3}$
$\Rightarrow a\sqrt{3} = 12$
$\Rightarrow$ a = $4\sqrt{3}$ cm

Sol 94.(c)
Volume of sphere is directly proportion to the cube of the radius and the curved surface area of the sphere is directly proportional to the square of the radius.
Volume of the smaller sphere : volume of the bigger sphere = 64:125
$\Rightarrow$ Radius of the smaller sphere : Radius of the bigger sphere
= $\sqrt[3]{64} : \sqrt[3]{125} = 4:5$
$\Rightarrow$ Curved surface area of the smaller sphere : Curved surface area of the bigger sphere = $4^2 : 5^2$ = 16:25

Sol 95. (d)
Radius of the sphere = $\frac{18}{2}$ = 9 cm
Volume of the sphere = $\frac{4}{3}\pi r^3 = \frac{4}{3} \times \frac{22}{7} \times 9^3 = 3054.86\ cm^3$

Sol 96.(a)
Area of sector = $\frac{\theta}{360}\pi r^2 = \frac{210}{360} \times \frac{22}{7} \times 30 \times 30 = 1650\ cm^2$

Sol 97. (a)
Total distance = 1.8 km or 1800 meters
Distance covered in one rotation = $2\pi r$
According to the question
$1800 = 160 \times 2 \times \pi \times r$
$\Rightarrow$ r = $\frac{45}{8\pi}$

Sol 98. (a)
Area of a circle = πr^2
$\Rightarrow 154 = \frac{22}{7} \times r^2$
$\Rightarrow$ r = 7cm

We know that, perimeter of a circle is directly proportional to its radius.
$\Rightarrow$ Perimeter of smaller circle : perimeter of bigger circle = 7 : 21 = 1 : 3

Sol 99.(a)
Side of the square = a
Diagonal of the square = $\sqrt{2}$ x (side) = $a\sqrt{2}$
Required ratio = $a\sqrt{2}$:a = $\sqrt{2}$: 1

Sol 100. (a)
Volume of the sphere = $\frac{4}{3}\pi r^3 = \frac{4}{3} \times \pi \times 15^3$
Diameter of the cylinder = 6mm
Radius of the cylinder = $\frac{6}{2}$ mm = 3mm = 0.3 cm
Volume of the cylinder = $\pi r^2 h = \pi \times 0.3^2 \times h$
According to the question
$\frac{4}{3} \times \pi \times 15^3 = \pi \times 0.3^2 \times h$
$\Rightarrow$ h = 50000

Sol 101.(d)
Volume of the cuboid = 343 x 49 x 7 cm^3
Let the number of cube = n
Volume of the cube = 7x7x7 = 343 cm^3
According to the question
343 x 49 x 7 = n x 343
$\Rightarrow$ n = 343
Total surface area = 6 x 7^2 = 294
Total surface area of 343 cubes = 343 x 294 = 100842

Sol 102.(d)
Volume of the cuboid = $l \times b \times h$
$= 6 \times 8 \times 10 = 480\ cm^3$

Sol 103.(b)
Perimeter of the circle = $2\pi r$ = 132 cm
$\Rightarrow 2 \times \frac{22}{7} \times r = 132$
$\Rightarrow$ r = 21 cm

Radius of circle = length of the rectangle(l) = 21 cm
Breadth of the rectangle(b) = 20 cm
Diagonal of the rectangle = $\sqrt{l^2+b^2}=\sqrt{21^2+20^2}=29$ cm

Sol 104. (b)
Volume of the sphere = $\frac{4}{3}\pi r^3 = \frac{4}{3}\times\pi\times 1^3$
Total volume = $2541\times\frac{4}{3}\times\pi\times 1$
Volume of cube = a^3
According to the question
$2541\times\frac{4}{3}\times\pi = a^3$
⇒ a = 22 cm
Curved surface area of cube = $6a^2 = 6$ x 22 x 22 = 2904 cm^2

Sol 105. (d)
Volume of the bucket = $\pi r^2 h =$ $\frac{22}{7}$ x 48 x 48 x 27
Volume of the cone = $\frac{1}{3}\pi r^2 h = \frac{1}{3}$ x $\frac{22}{7}$ x 54 x 54 x h
According to the question
$\frac{22}{7}$ x 48 x 48 x 27 = $\frac{1}{3}$ x $\frac{22}{7}$ x 54 x 54 x h
⇒ h = 64

Sol 106. (a)
400, 420 and 580 are triplet pairs.
So given triangle is a right angle triangle.
⇒ Area of the triangle = $\frac{1}{2}$ x Base x Height = $\frac{1}{2}$ x 400 x 420 = 84000 m^2
⇒ Area of the ground = $\pi r^2 =$ 84000 x $\frac{220}{3\times100}$ = 61600 m^2
⇒ r^2 = 61600 x $\frac{7}{22}$
⇒ r = 140 m
Required perimeter = $2\pi r =$ 2 x $\frac{22}{7}$ x 140 = 880 m

Sol 107.(c)
200, 210 and 290 are triplet pairs.
So given triangle is a right angle triangle.
⇒ Area of the park = $\frac{1}{2}$ x Base x Height = $\frac{1}{2}$ x 200 x 210
= 21000 m^2 or $\frac{21000}{10000}$ hectares = 2.1 hectares

Sol 108. (a)
Volume of a frustum = $\frac{1}{3}\pi($ $R^2+r^2+R.r$)h
= $\frac{1}{3}$ x $\frac{22}{7}$ x$(8^2+4^2+8\times4)\times7$
= 821.3 m^3 or 821.3 kilolitres

Sol 109. (a)
Volume of smaller spherical ball = $\frac{4}{3}\pi r^3 = \frac{4}{3}\times\pi\times(0.6)^3$
Let radius of bigger ball = R
According to the question
$\frac{4}{3}\pi R^3 = 1000\times\frac{4}{3}\times\pi\times(0.6)^3$
⇒ $R^3 = 216$
⇒ R = $\sqrt[3]{216} = 6$ cm
Required surface area = $4\pi R^2 = 4\times\pi\times6\times6 = 144\pi$

Sol 110. (b)
Let height of the cone = radius of the cone = k cm
Volume of the cone = $\frac{1}{3}\pi r^2 h$
⇒ $\frac{1}{3}\pi(k)^2 k = 72\pi$
⇒ k = 6 cm
So, slant height of the cone(l) = $\sqrt{6^2+6^2}=6\sqrt{2}$
Curved surface area of cone = $\pi rl = \pi\times6\times6\sqrt{2}=36\sqrt{2}\pi$

Sol 111. (d)
Area of a circle = πr^2
⇒ $\pi r^2 = 3118.5$
⇒ $r^2 = 3118.5\times\frac{7}{22} = 992.25$
⇒ r = $\sqrt{992.25} = 31.5$
Perimeter of circle = $2\pi r =$ $2\times\frac{22}{7}\times31.5 = 198$
Let the length of the rectangle = 7k and breadth of the rectangle = 4k
Perimeter of circle = 2(7k+4k)
According to the question
198 = 2(7k+4k)
⇒ k = 9
⇒ the length of the rectangle = 7 x 9 = 63 cm

Sol 112. (b)
Radius of the wire = 0.5 mm = 0.05 cm
Length of the wire = $\frac{128}{3}$ m = $\frac{12800}{3}$ cm
Volume of the wire = $\pi r^2 h =$ $\frac{22}{7}\times0.05\times0.05\times\frac{12800}{3} =$ 33.52 cm^3
Volume of sphere = $\frac{4}{3}\pi R^3$
⇒ $\frac{4}{3}\pi R^3 = 33.52$
⇒ $R^3 = 7.99\approx8$
⇒ R = 2

Sol 113. (a)
Diameter of cone = 10 cm
⇒ Radius of cone = $\frac{10}{2}$ = 5 cm
Height of the cone = 12 cm
Slant height = $\sqrt{12^2+5^2}$ = 13 cm
The total surface area = $\pi r(l+r)$
= $\pi\times5(13+5)$ = 90π

Sol 114. (c)
Volume of the cuboid = $\sqrt{abc}$
Where a,b and c are the areas of three adjacent faces.
⇒ Required Volume = $\sqrt{18\times20\times40}$ = 120 cm^3

Sol 115. (d)
Area of the circle = πr^2
⇒ $616 = \pi r^2$
⇒ $r^2 = 616$ x $\frac{7}{22}$
⇒ r = 14 cm
Perimeter of circle = $2\pi r$ = $2\times\frac{22}{7}\times14 = 88$
Perimeter of the square = 4a
According to the question
88 = 4a
⇒ a = 22 cm
Required area = $a^2 =$ 22 x 22 = 484 cm^2

Sol 116. (c)

Let the height of cuboid = x cm
Surface Area of cuboid = 2(lb+bh+hl)
$\Rightarrow 340 = 2[(10 \times 8)+(x \times 8)+(10 \times x)]$
$\Rightarrow 170 = 80 + 18x$
$\Rightarrow x = 5cm$
the length of the longest stick that can be fitted inside the cuboid = $\sqrt{l^2+b^2+h^2} = \sqrt{10^2+8^2+5^2} = 3\sqrt{21}$ cm

Sol 117. (b)
Volume of cylinder is directly proportional to the multiplication of square of radius and the height of the cylinder

	Original : New
Radius	3 : 1
Volume	1 : 1
Height	$\frac{1}{9}$: 1
	1 : 9

$\Rightarrow$ Clearly the height of the cylinder will become 9 times of the original height.

Sol 118. (d)
Let the required number of cubes = n
Side of smaller cube = 10 cm
Side of bigger cube = 10 m = 1000 cm
According to the question
$10 \times 10 \times 10 \times n = 1000 \times 1000 \times 1000$
n = 10,00,000

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Sol 1. (c) Radius of the garden is 42 m.
Distance covered in 8 rounds is = $8 \times 2\Pi \times radius = 8 \times 2 \times \frac{22}{7} \times 42$
= 2112 m

OR, as radius is a multiple of 7
We will check option which is multiple of 11 as , stating that answer will also be multiple of 11
Only option(c) satisfies the given condition.

Sol 2. (b) It is given that; base radius of 2 cylinders are in the ratio 3:4 and their heights are in the ratio of 4:9.

We know that,
Volume of cylinder = $\Pi r^2 h$
Volume $\propto$ radius^2
Volume $\propto$ height
Hence ratio of their volumes is
$\frac{3\times3\times4}{4\times4\times9} = \frac{1}{4}$

Sol 3. (b) Let ,
Length of a rectangle is a
Breadth of rectangle is b
Area of rectangle is 'ab'
After 40% increase, length becomes '1.4a'
After 20% decrease, Breadth becomes '0.8b'
Hence, area of rectangle is (1.4a)(0.8b)= '1.12ab'
Thus, %increase in area of rectangle is '12%'

Sol 4. (d) Circumference of a circle = $2\Pi R$
Let r_1 and r_2 be the inner and outer radius of the ring respectively. And c_1 and c_2 be inner and outer circumference.
$2\Pi r_1 = 440$ m $\Rightarrow r_1 = 70$ m
$2\Pi r_2 = 506$ m $\Rightarrow r_2 = 80.5$ m
Area of the ring = $\Pi[(r_2)^2-(r_1)^2]$
$= \frac{22}{7} \times [(80.5)^2-(70)^2]$
= 4966.5 m^2
Cost of levelling the ring = $6 \times$ 4966.5 m^2
= ₹ 29,799

OR, In such question we can directly check if the given options are multiple of 11 or 7(as we can see that radius is multiple of 7 and when area is calculated only one multiple of 7 strikes out) or 9.

Sol 5. (a) Curved surface of a hemisphere = $2\Pi r^2$
$= 2 \times \frac{22}{7} \times 7 \times 7$
= 308 cm^2

Sol 6. (b) Circumference = $2\Pi R$
$= 2 \times \frac{22}{7} \times R = 66$ m
R = $\frac{21}{2}$ m
Height = 36 m
Slant height = $\sqrt{(36)^2+(\frac{21}{2})^2} = \frac{75}{2}$ m
Area of canvas = $\Pi \times R \times L = \frac{22}{7} \times \frac{21}{2} \times \frac{75}{2}$
= 1237.5 m^2

Sol 7. (a) Volume of water in cylinder = Volume of rectangular tub
$\Pi r^2 h = l*b*h$
$\frac{22}{7} \times 30 \times 30 \times 42 = 75 \times 44 \times h$
H = 36 cm

Sol 8. (c) Area of regular hexagon
$= 6 \times \frac{\sqrt{3}}{4} \times side^2 = 2400\sqrt{3}$
side = 40 m
Perimeter of hexagon = 6 × side = 240 m
Cost of fencing = 240 × 16.80 = ₹4,032

Sol 9. (b) Let the side of square A = x
Diagonal$_A$ = $\sqrt{2}x$ = (a+b) units
Side of square B = $\sqrt{2}x$
Area$_B$ = $2(a+b)^2$

Sol 10. (d) Let radius of cylinder be 'r' and height of cylinder be 'h'
Change in 'r' $\Rightarrow 10 \rightarrow 9$
Change in 'h' $\Rightarrow 10 \rightarrow 12$
Volume of cylinder = $\Pi \times r^2 \times h$

Pinnacle

Let v_1 and v_2 be volumes of before and after change.

$\Rightarrow \frac{v_1}{v_2} = (\frac{r_1}{r_2})^2 \times (\frac{h_1}{h_2})$

$\Rightarrow \frac{v_2}{v_1} = (\frac{9}{10})^2 \times (\frac{12}{10})$

$\Rightarrow \frac{v_2}{v_1} = (\frac{81}{100}) \times (\frac{12}{10})$

$\Rightarrow \frac{v_2}{v_1} = \frac{972}{1000}$

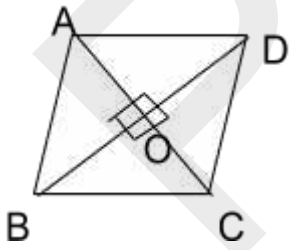
$\Rightarrow$ % decrease $= \frac{1000-972}{972} \times 100 =$ 2.8%

Sol 11. (d) Perimeter of a square $= 4 \times$ side $= 64$ cm
Side = 16 cm
Area of square $= (\text{side})^2 = 256$ cm^2

Sol 12. (a) Let x spheres be made out of one big sphere
Volume of big sphere = Volume of x small spheres
$\frac{4}{3} \times \Pi \times R^3 = x \times \frac{4}{3} \times \Pi \times r^3$
$x = (\frac{R}{r})^3 = (\frac{20}{0.5})^3 = 64{,}000$

Sol 13. (a) Area of disc $= 0.64\ \Pi$ m^2
Thus, radius of disc = 0.8 m
Circumference $= 2\Pi r = 1.6\Pi$ m
Distance = 1.408 km = 1408 m
Number of revolution $= \frac{1408}{1.6\Pi} =$ 280

Sol 14. (b) Diagonals of a rhombus bisect each other at 90°.



Let AC = 16 cm and BD = 12 cm
Then, AO =OC = 8 cm and BO =OD = 6cm
Area of all triangles will be equal.
Thus area(ABCD) $= 4 \times$ area(Δ AOB) $= 4 \times (\frac{1}{2} \times 8 \times 6) = 96$ cm^2

Sol 15. (c) Area of circular track $= \Pi(29^2 - 23^2) = \frac{22}{7} \times 6 \times 52$ m^2
Cost of levelling = ₹ $7 \times \frac{22}{7} \times 6 \times 52 =$ ₹ 6,864

Sol 16. (c) Area of four walls $= 2 \times (l+b) \times h = 2 \times (6+4) \times 4 = 80$ m^2

Sol 17. (c) Let two equal sides = x cm each.
2x + 18 = 50
x = 16 cm

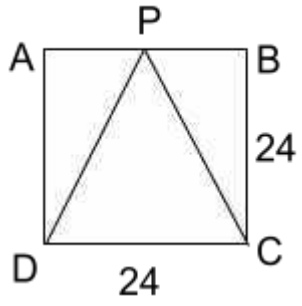
Sol 18. (b) Area of a circle $= \Pi \times r^2$
Area $\propto$ radius^2
% decrease in area = -11-11+ $\frac{11 \times 11}{100} =$ -22+1.21 = 20.79%

Sol 19. (c) Let 'l' be the length and 'b' be the breadth of a rectangle.
$2(l+b) = 50 \Rightarrow l+b = 25$
$l \times b = 150$
l = 15 and b = 10 satisfy the above equation.
Shorter side = 10

Sol 20. (d) Triangle with sides 3cm, 5 cm and 4 cm will be a right angled triangle.
Area $= \frac{1}{2} \times 3 \times 4 = 6$cm^2

Sol 21. (a) Radius = 14 cm
Area $= \Pi \times r^2 = \frac{22}{7} \times 14 \times 14 =$ 616 cm^2
Circumference $= 2 \times \Pi \times r = 2 \times \frac{22}{7} \times 14 = 88$ cm

Sol 22. (c) ABCD is a square with side 24 cm.



Area of $\Delta PDC = \frac{1}{2} \times 24 \times 24 =$ 288 cm^2

Sol 23. (b) Area of sector $= \Pi \times r^2 \times \frac{\theta}{360} = \frac{22}{7} \times 14^2 \times \frac{45}{360} =$ 77 cm^2

Sol 24. (b) Total surface area of a cuboid $= 2(lb+bh+hl) = 27832$ cm^2
l:b:h = 7:5:3
Length = 7x
Breadth = 5x
Height = 3x
$2(35x^2+15x^2+21x^2) = 27832$
$71x^2 = 13916$
x = 14 cm
Volume $= l \times b \times h = 105x^3 =$ 288120 cm^3

Sol 25. (b) Volume $\propto$ (radius)^3
$\frac{Volume_A}{Volume_B} = (\frac{r_A}{r_B})^3 = \frac{125}{64}$
$\frac{r_A}{r_B} = \frac{5}{4}$
$r_A + r_B = 9x = 36$
x = 4
$r_A = 20$ and $r_B = 16$
Surface area of sphere A $= 4 \times \Pi \times r_A^2 = 4 \times \frac{22}{7} \times 400 = 1600\ \Pi$

Sol 26. (c) Volume of a cuboid $= l \times b \times h = 330$ cm^3
Base Area $= l \times b = 15$ cm^2
Height $= \frac{330}{15} = 22$ cm

Sol 27. (a) $2 \times \Pi \times r = 1100$
r = 175 cm
Diameter = 350 cm

Sol 28. (a) Let side of a square = x m
Perimeter of rectangular plot $= 2(35+15) = 100$ m
4x = 100
x = 25 m

SSC CHSL 2019
1.Sol: (c)

L = 12 cm

$15^2 = 12^2 + B^2$

B = 9

required area = $12 \times 9 = 108\ cm^2$

2.Sol: (a)

we know,

PL × LQ = RL × LS

9 × 4 = 6 × RL

RL = 6 cm

3.Sol: (b)

Use Intersecting Chord Theorem

$AP \times PB = CP \times PD$

$6 \times 9 = 3 \times PD$

PD = 18cm

4.Sol (a)

Perimeter of rectangle = 2(L+B)

Let length = 5x and Breath = 2x

so,

2(5x+2x) = 238

x = 17

Length = 17 × 5 = 85m

5.Sol (b)

Area of the triangle MLN = $\frac{1}{2} \times r^2$

$36 = \frac{1}{2} \times r^2$

$r = 6\sqrt{2}$

Area of the circle = πr^2

$= \pi (6\sqrt{2})^2$

$= 72\pi$

6.Sol (d)

Let the radius of the circle formed by the sum of two circles = R

Area of a circle = πr^2

Therefore,

$\Pi (15^2 + 8^2) = \Pi R^2$

R= 17 cm

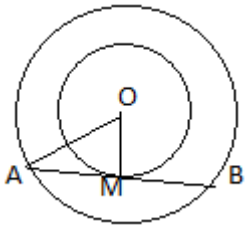
7.Sol(c)

The distance between two parallel tangents of a circle is the diameter of the circle.

Therefore,

D = 2r =2 × 8 = 16 *cm*

8.Sol: (a)



AM = $\sqrt{13^2 - 5^2} = 12$

AB = 2 × 12 = 24 cm

9.Sol (c)

Use Heron's formula,

Area of triangle = $\sqrt{s(s-a)(s-b)(s-c)}$, s= semiperimeter of triangle

$s = \frac{a+b+c}{2} = \frac{11+12+13}{2} = 18$

Area of triangle = $\sqrt{18(18-11)(18-12)(18-13)}$

$= 6\sqrt{105}\ cm^2$

10.Sol. let the number of spherical metal balls = n

Vol of all spherical metal balls = Vol of cylindrical vessel

$n \times \frac{4}{3}\pi r^3 = \pi r^2 h$

$n \times \frac{4}{3}\pi(1)^3 = \pi(6)^2 5$

n = 135

11.Sol:(b)

S= $\frac{29+39+34}{2}$

Area of triangle= $\sqrt{49 \times 24 \times 10 \times 15}$

=420

Area of square=420+21=441

Side=21 cm

12.Sol:(a)

Short trick:

Radius of the circle = $\sqrt{(\frac{6}{2})^2 + (\frac{8}{2})^2}$

= 5

13.Sol:(d)

Let each side=10

volume= 10 × 10 × 10 =1000

New length, breadth and height=11,12,8

New volume= 11 × 12 × 8 =1056

Required percentage= $\frac{56}{1000} \times 100$=5.6%

14.Sol: (c)

Volume of cylinder = $\pi r^2 h = \frac{22}{7} \times 5^2 \times 14 = 1100$

15.Sol: (a)

we know,

$\frac{324}{225} = (\frac{x}{10})^2$

$\frac{18}{15} = \frac{x}{10}$

$x = 12$

16.Sol.(a) :

let side of smallest square = 2 unit

Then, diameter of circle in which smallest square is inscribed will equal to diagonal of square = $2\sqrt{2}$ unit and this diameter is equal to the side of the middle square.

Now, diameter of outer circle = 4unit

So side of the largest square = 4 unit

Therefore, the ratio of the area of the largest square to that of the smallest square is 4 : 1.

17.Sol. (b)

Let the pipe take T hours to raise the water level by 4m.

$180\ m \times 140\ m \times 4m = 1.2m \times 0.75m \times 15000m \times T$

T = 7.47 hours

= 7 hours 28 minutes

18.Sol: (d)

Perimeter = 8x, length = x, and let breadth = b

2(x+b) = 8x

b = 3x

Area of rectangle = 1323

$3x \times x = 1323$

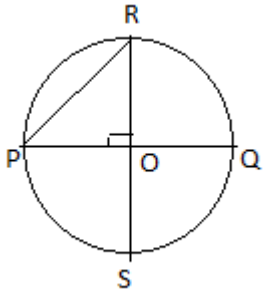
Pinnacle

$x = 21$
So, Length = 21 cm

19.Sol: (d)
Area of equilateral triangle = $\frac{\sqrt{3}}{4} \times 12 \times 12 = 36\sqrt{3}$

20.Sol: (d)
We know,
$(\frac{chord1}{2})^2 + (\frac{chord2}{2})^2 = R^2$
$(\frac{16}{2})^2 + (\frac{chord2}{2})^2 = 10^2$
$(\frac{chord2}{2})^2 = 36$
Chord2 = 12 cm

21.Sol: (d)



PO = OR = 45° (radius)
Cos 45° = $\frac{PQ}{PR}$
$\frac{1}{\sqrt{2}} = \frac{PQ}{PR}$
PO = $\frac{PR}{\sqrt{2}}$
PQ = $2 \times \frac{PR}{\sqrt{2}}$
PR = $\frac{PQ}{\sqrt{2}}$

22.Sol: (d)
Area of rectangle = $a^2 - b^2$
(a+b) × b = (a+b)(a-b)
b = (a-b)

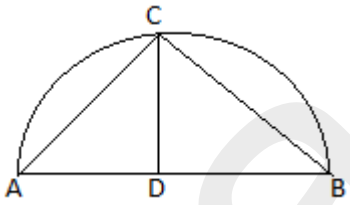
23.Sol: (a)
Volume of cone = $\frac{1}{3}\pi r^2 h = \frac{1}{3} \times \frac{22}{7} \times 6 \times 6 \times 7 = 264$

24.Sol: (c)
$(\frac{chord1}{2})^2 + (\frac{chord2}{2})^2 = R^2$
$(\frac{6}{2})^2 + (\frac{chord2}{2})^2 = 5^2$
$(\frac{chord2}{2})^2 = 25$
Chord2 = 8 cm

25.Sol: (c)
Let Length = x, then breadth = 4x
area of rectangle = 1764
$x \times 4x = 1764$
$x = 21$
then, breadth = 4x = 84

26.Sol: (c)
Side of the squares = $\sqrt{16} : \sqrt{1} = 4 : 1$
Ratio of perimeter will be = 4 : 1

27.Sol: (a)



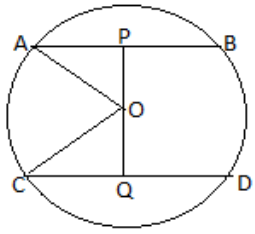
AD = DB = CD = 4 cm
AB = 8 cm
Area of triangle = $\frac{1}{2} \times 8 \times 4 = 16$ cm^2

28.Sol: (b)
we know,
$ZT^2 = ZY \times ZX$
$6^2 = 4 \times (4+x)$
x = 5

29.Sol: (d)
Area of square = 7200
$a^2 = 7200$
a = $60\sqrt{2}$
Length of diagonal = $\sqrt{2}a$
= $60\sqrt{2} \times \sqrt{2} = 120$

30.Sol: (b)
Total volume of the tank = 72 × 100 × 100 × 100
Rate of filling = 60 liter per min
In 1 hours = 60 × 60
Required time = $\frac{72 \times 100 \times 100 \times 100}{60 \times 60 \times 1000}$ = 20 hours

31.Sol: (c)

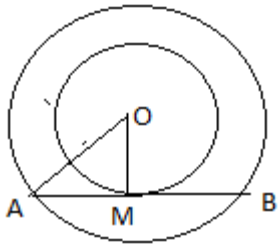


OC = OA = 10 cm
CQ = 8 cm, AP = 6
OQ = $\sqrt{10^2 - 8^2} = 6$
OP = $\sqrt{10^2 - 6^2} = 8$
PQ = OP+OQ = 6+8 = 14

32.Sol: (b)
area of a square park = $16x^2 + 8x + 1$
$a^2 = (4x + 1)^2$
a = 4x+1

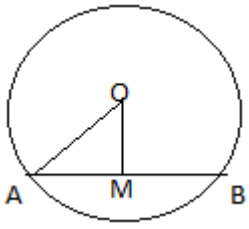
33.Sol: (d)
Area of an equilateral triangle = $\frac{\sqrt{3}}{4} \times 4\sqrt{3} \times 4\sqrt{3} = 12\sqrt{3} cm^2$

34.Sol: (b)



AM = $\sqrt{13^2 - 12^2} = 5$
AB = $2 \times 5 = 10$ cm

35.Sol: (a)



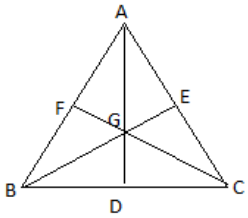
AM = $\frac{20}{2} = 10$ cm
OM = $\sqrt{15^2 - 10^2} = 5\sqrt{5}$

Pinnacle

36.Sol: (d)

Area of circle = $\pi r^2 = \pi \times (\sqrt{5})^2 = 5\pi$

37.Sol: (d)



We know, centroid divides the area of a triangle in 6 parts.

So, area of triangle DGC = 1 unit

Then, area of triangle AGF+area of triangle BGF = 2 unit

1 unit = 20 cm^2

2 unit = 40 cm^2

38.Sol: (d)

Perimeter of circle = $2 \times \frac{22}{7} \times 28 = 176$

Perimeter of Square = 176

4a = 176

a = 44

Area of square = $(44)^2 = 1936$

Area of circle = $\frac{22}{7} \times 28 \times 28 = 2464$

Required difference = 2464-1936 = 528 cm^2

39.Sol: (a)

Perimeter of the first circle = $2\pi \times 20 = 40\pi$

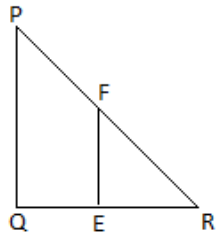
Perimeter of the second circle = $2\pi \times 13 = 26\pi$

Sum of perimeter = $40\pi + 26\pi = 66\pi$

$2\pi R = 66\pi$

R = 33 cm

40.Sol: (b)



QE : EF = 1 : 1

QR = 2 unit

$\frac{Area\ of\ quadrilateral\ PQEF}{Area\ of\ triangle\ PQR} = \frac{2^2-1}{2^2} = \frac{3}{4}$

41.Sol: (b)

Let, length = 3x, breadth = 2x

$3x \times 2x = 864$

$x = 12$

Length = 36 cm, Breadth = 24 cm

Perimeter = 2(36+24) = 120

Cost of fencing = $120 \times 15 = 1800$

42.Sol: (d)

Number of revolutions = $\frac{770}{2\times\frac{22}{7}\times\frac{49}{2\times100}} = 500$

43.Sol: (b)

Height of the equilateral triangle = $\frac{\sqrt{3}}{2} \times 12 = 6\sqrt{3}$

XL = $6\sqrt{3} \times \frac{2}{3} = 4\sqrt{3}$

44.Sol: (b)

$\Rightarrow 4a^2 . = 900$

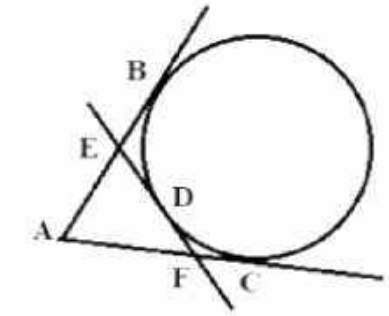
$\Rightarrow$ a = 15

45.Sol: (d)

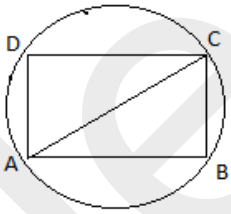
AC = AB = 15 cm (By tangent rule)

DE = DF = BE = 3 cm

AE = 15-3 = 12 cm



46.Sol: (a)



AC = $\sqrt{24^2 + 7^2} = 25$

Radius of circle = $\frac{25}{2}$

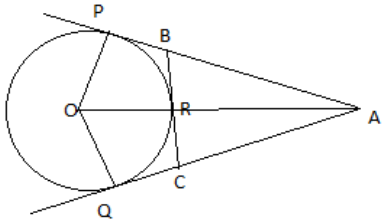
Area of the circle = $3.14 \times \frac{25}{2} \times \frac{25}{2} = 490.625\ cm^2$

47.Sol: (d)

The minimum integral value of x = 6+x > 10

x = 5

48.Sol: (b)



AO = 26 cm

PO = OQ = 10 cm

AP = $\sqrt{26^2 - 10^2} = 24$

AP = AQ = 24 cm

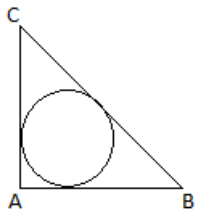
we know,

AP+PQ = AB+BC+AC

24+24 = AB+BC+AC

the perimeter of ΔABC = 24+24 = 48 cm

49.Sol: (b)



BC = $\sqrt{48^2 + 14^2} = 50$

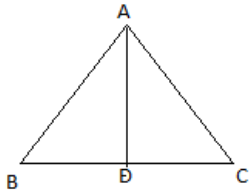
Inradius = $\frac{48+14-50}{2} = 6$

50.Sol: (b)

Area is directly proportional to side^2

So area of triangle BDE= $(\frac{1}{2})^2 \times 136 = 34$

51.Sol: (b)



AB = AC

AD = 6

AD is perpendicular to BC

we know, 6, 8 and 10 are triplet

so, CD = BD = 8 cm, AC = 10

Perimeter = 10+10+8+8 = 36 (which satisfy)

BC = 16 cm

so, Area of triangle ABC = $\frac{1}{2} \times 16 \times 6 = 48$

52.Sol: (c)

Volume of cylindrical wire = $\pi r^2 h$

$3.96 \times 1000 = \frac{22}{7} \times \frac{3}{10} \times \frac{3}{10} \times h$

h = 14000 cm or 140 m

53.Sol.(a)

2 Π r=22

$2 \times \frac{22}{7} \times r = 22$

r= $\frac{7}{2}$

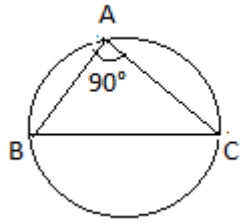
2 Π r=4

$2 \times \frac{22}{7} \times r = 44$

r=7

Width of ring=7- $\frac{7}{2}$ =3.5 cm

54.Sol: (b)



AB = AC = $7\sqrt{2}$

BC = $\sqrt{(7\sqrt{2})^2 + (7\sqrt{2})^2}$

BC = 14

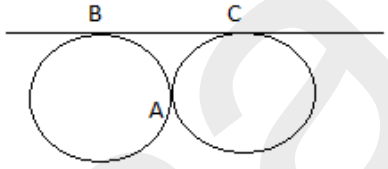
Radius = $\frac{14}{2} = 7$

55.Sol: (c)

Height of the equilateral triangle = $\frac{\sqrt{3}}{2} \times 18 = 9\sqrt{3}$

PL = $\frac{2}{3} \times 9\sqrt{3} = 6\sqrt{3}$

56.Sol: (c)



We know,

BC = $2\sqrt{3 \times 7} = 2\sqrt{21}$

57.Sol:

Let breadth = x and perimeter = 8x

Perimeter of rectangle = 2(l+b)

8x = 2(L+x)

6x = 2L

$\frac{x}{L} = \frac{1}{3}$

Area of rectangle = L × B

$363 = 3x \times x$

$x = 11$

Therefore, Breadth of rectangle = 11

58.Sol .(c):

Perimeter of a rectangle = 2(l+b) = 80

= (l+b) = 40cm

area = l × b = 375 cm^2.

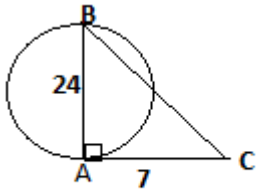
the difference between the length and the breadth of the rectangle

$(l-b)^2 = (l+b)^2 - 4lb$

$(l-b)^2 = 1600 - 1500 = 100$

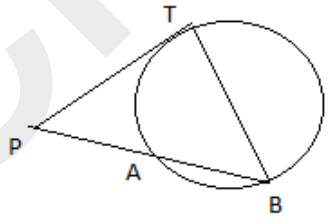
(l - b) = 10 cm

59.Sol .(c):



the length of BC = 25 cm (By pythagoras theorem).

60.Sol (a)



Let AB = x cm

$PT^2 = PA \times PB$

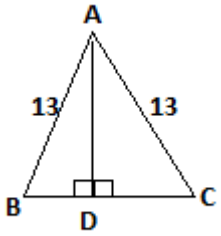
$100 = 5(x + 5)$

$x = 15$ cm

Here PT = 10 cm, PB = 20 therefore TB = $10\sqrt{3}$ (by pythagoras theorem)

Radius of the circle = TB/2 = $5\sqrt{3}$ cm

61.Sol. (a)



AD is the median which bisect BC and AD is also a perpendicular on BC.

Here, AB = 13, AD = 12 , therefore BD = CD is 5 (by pythagoras theorem)

Pinnacle

Then, The length of BC = BD+CD = 5+5 =10 cm.

62.Sol.(a)

$2\Pi r=22$

$2 \times \frac{22}{7} \times r = 22$

$r= \frac{7}{2}$

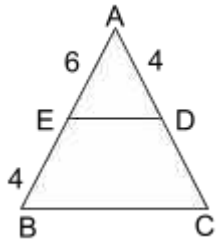
$2\Pi r=4$

$2 \times \frac{22}{7} \times r = 44$

r=7

Width of ring=7- $\frac{7}{2}$ =3.5 cm

63.Sol.(a)



$\angle ABC=\angle ADE$

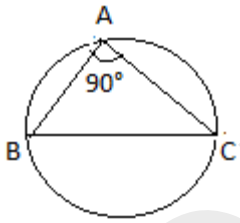
$\Delta ABC \sim \Delta ADE$

$\frac{AB}{AD} = \frac{AC}{AE}$

$\frac{10}{4} = \frac{4+x}{6}$

x=11

64.Sol: (b)



AB = AC = $7\sqrt{2}$

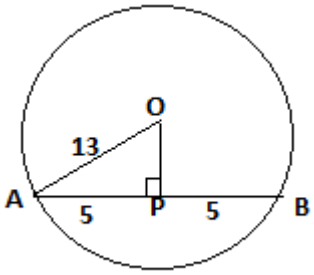
BC = $\sqrt{(7\sqrt{2})^2 + (7\sqrt{2})^2}$

BC = 14

Radius = $\frac{14}{2} = 7$

65.Sol (a)

Perpendicular line from the centre on the chord, bisects the chord so AP = 10/2 = 5 cm



The perpendicular distance of the chord from the centre is:

OP = $\sqrt{13^2 - 5^2}$ = 12cm

66.Sol (a)

The ratio of the length and the perimeter of a rectangle = 2:7

the perimeter of a rectangle = 2(l+b) = 7 units

=

l+b = 7/2

=

2+b = 7/2

= b

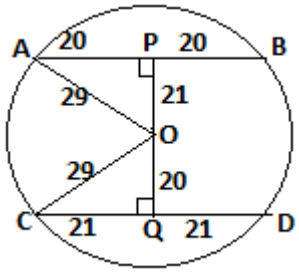
= 3/2

So, the ratio of the length and breadth of the rectangle = 2 : $\frac{3}{2}$ = 4 : 3

67.Sol(c)

As OP ⊥ AB, OQ ⊥ CD, bisects the chord AB and CD respectively

Now we can get OP and OQ by Pythagoras Theorem



The length of PQ = OP+OQ = 21+20 = 41cm

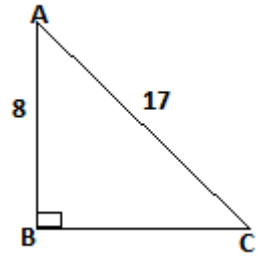
68.Sol (c)

$\angle B$: $\angle C$: $\angle A$

9 : 2 : 7

9+2+7= 18 units = 180°

1 unit = 10°



Therefore $\angle B$ = 90°, it is a right triangle

BC = $\sqrt{17^2 - 8^2}$ = 15

69.Sol (d)

let a be the side of the cube.

The total surface area of a solid cube = $6a^2$

$6a^2$ = 2400

a = 20cm

volume of the cube = $a^3 = (20)^3$ = 8000 cm^2

70.Sol: (b)

BP = BQ = 28 cm (by tangent rules)

QC = 40-28 = 12 cm

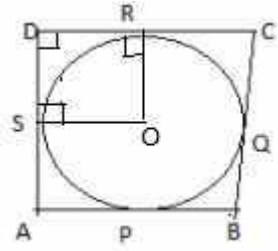
QC = RC = 12 cm (by tangent rules)

DR = 25-12 = 13 cm

DR = DS = 13 cm

$\angle D$ = 90°

If we draw perpendicular to R and S then it also makes 90°



DR =DS = OR = OS = 13

.

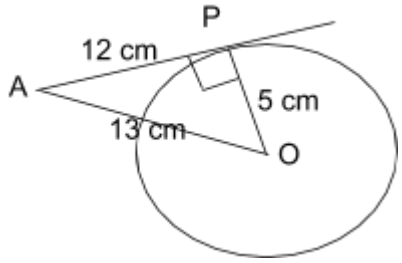
Sol 71. (a)

Perimeter of rectangular field = 32 m

Length : Breadth = 5 : 3

Let length = 5x and breadth = 3x
Perimeter of rectangle = 2(l + b)
= 2 (5x + 3x) = 32
16x = 32
x = 2
Length = 5x = 10 m and breadth = 3x = 6 m

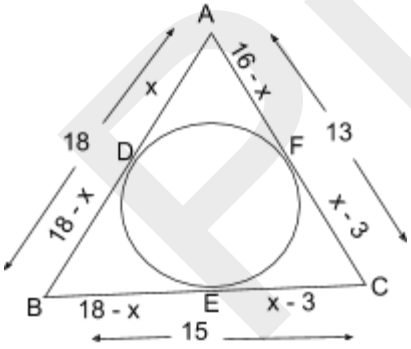
Sol 72. (d)



Sol 72. (a)
$x + \frac{1}{x} = 5$
Square both sides, we get:-
$\Rightarrow x^2 + \frac{1}{x^2} + 2 = 25$
$\Rightarrow x^2 + \frac{1}{x^2} = 23$

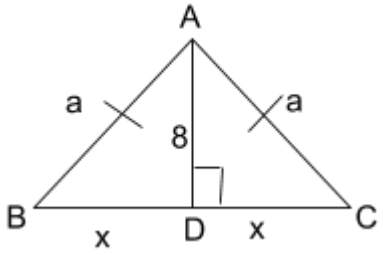
Sol 73. (a)
Let the side of cube = a cm
Diagonal of cube = $a\sqrt{3}$ cm
$a\sqrt{3} = \sqrt{27} \Rightarrow a = 3$ cm
Volume of cube = $a^3 = (3)^3 = 27cm^3$

Sol 74. (c)



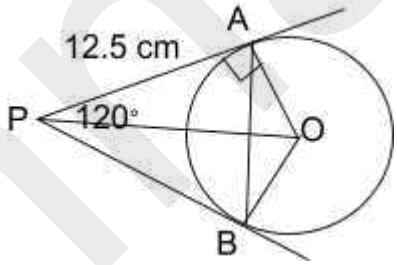
x = 16 - x
$\Rightarrow$ 2x = 16
$\Rightarrow$ AD = x = 8
BE = 18 - x = 10
CF = x - 3 = 8 - 3 = 5
$\Rightarrow$ AD + BE + CF = 8 + 10 + 5 = 23

Sol 75. (c)



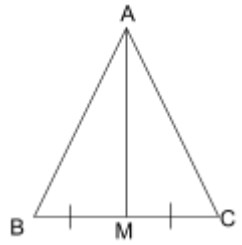
Perimeter of Δ ABC = a + a + 2x = 2a + 2x = 64
$\Rightarrow$ a + x = 32 … (i)
Using pythagoras theorem in Δ ABC; $a^2 = x^2 + 8^2$
$\Rightarrow a^2 - x^2 = 8^2$
$\Rightarrow$ (a - x)(a + x) = 64
$\Rightarrow$ (a - x)(32) = 64
$\Rightarrow$ a - x = 2 … (ii)
From (i) and (ii) :- a = 17 and x = 15
Area of Δ ABC = $\frac{1}{2} \times BC \times AD$
= $\frac{1}{2} \times 30 \times 8 = 120$ cm^2

Sol 76. (b)



Δ PAO $\cong$ Δ PBO :- AO = BO; PO = common and AP = BP (tangents drawn from the same point to a circle are equal in length.
Therefore, $\angle$APO = $\angle$BPO = 60° each
In Δ PAO, cos 60° = $\frac{PA}{PO}$
$\Rightarrow \frac{1}{2} = \frac{12.5}{PO} \Rightarrow$ PO = 2 $\times$12.5 = 25 cm

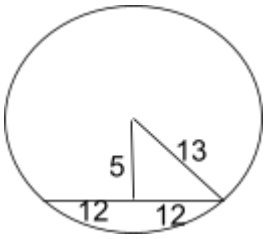
Sol 77. (c)



AM is the median of Δ ABC.
Area of Δ ABM = 18 cm^2
Therefore, area (Δ ABM) = area (Δ ACM) …. (Median divides the triangle into two equal areas).
$\Rightarrow$ area of Δ ABC = 2 $\times$ area of Δ ABM = 2 $\times$ 18 = 36 cm^2

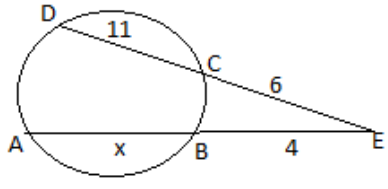
Sol 78. (b)
Perimeter = 2(l+b) = 50 cm
$\frac{area}{length} = \frac{5}{1}$
$\Rightarrow \frac{length \times breadth}{length} = \frac{5}{1}$
$\Rightarrow$ breadth = 5
2(l+5) = 50 cm
$\Rightarrow$ l + 5 = 25
$\Rightarrow$ l = 20 cm

Sol 79. (d)



Radius = 13 cm
Diameter = 2 $\times$13 = 26 cm

Sol 80. (b)



BE $\times$ AE = CE $\times$ DE
$\Rightarrow$ 4 $\times$ (4+x) = 6 $\times$ 17
$\Rightarrow$ 4 + x = $\frac{102}{4}$ = 25.5
$\Rightarrow$ x = 21.5 cm

Sol 81. (b)
Diameter = 12 inch = 30.48 cm

Pinnacle

Radius = 15.24 cm

Circumference = $2\Pi r = 2 \times \frac{22}{7} \times 15.24 = 95.79$ cm

Sol 82. (a)

Length:Breadth of a rectangle = 5:3

Length = 5x and Breadth = 3x

Length - Breadth = 8

$\Rightarrow 5x - 3x = 8$

$\Rightarrow 2x = 8$

$\Rightarrow x = 4$

Area of rectangle = Length × Breadth = $5x \times 3x = 15x^2 = 15 \times (4)^2 = 240$ m^2

Sol 83. (a)

Radius of sphere = 7.5 cm

Volume of sphere = $\frac{4}{3} \times \Pi \times R^3 = \frac{4}{3} \times \frac{22}{7} \times (7.5)^3 = 1767.85$ cm^3

Sol 84. (a)

$2(3x+2x) = 730$

$x = 73$

Length = $3x = 3 \times 73 = 219$

Breadth = $2x = 2 \times 73 = 146$

Required area = $219 \times 146 = 319743$

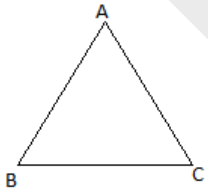
Sol 85. (d)

$\frac{\sqrt{3}}{2} \times a = 12$

$a = 8\sqrt{3}$

Area of triangle = $\frac{\sqrt{3}}{4} \times 8\sqrt{3} \times 8\sqrt{3} = 83.1384$ cm^2

Sol 86. (d)



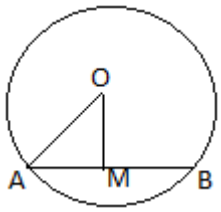
$S = \frac{a+b+c}{2} = \frac{5+6+7}{2} = 9$

Area of triangle = $\sqrt{9(9-5)(9-6)(9-7)}$

$= 6\sqrt{6}$

$= 6 \times 2.449 = 14.6969$ cm^2

Sol 87. (c)

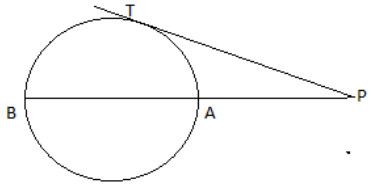


AM = 24/2 = 12 cm

AO = radius = $\sqrt{12^2 - 5^2} = 13$

Area of circle = $\frac{22}{7} \times 13 \times 13 = 531.14$

Sol 88. (a)



PT = 12 cm

radius = 5 cm, then AB = 10 cm

Let, AP = x

we know,

$PT^2 = PA \times PB$

$12^2 = x(x + 10)$

on solving, x = 8 cm

Sol 89. (d)

Sum of two other two sides are = 18-7 = 11 cm

let one side = x then another side = 11-x

Semiprimeter = $\frac{18}{2} = 9$ cm

$\sqrt{108} = \sqrt{9(9-7)(9-x)(9-11+x)}$

$108 = 9 \times 2 \times (9-x) \times (-2+x)$

$6 = (9-x)(x-2)$

put the value now,

x = 8

then, other side = 3

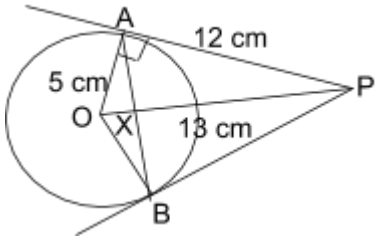
Sol 90. (a)

Length is increased by 12% and breadth is decreased by 8%.

Net effect on area = $+ 12 - 8 + \frac{12 \times (-8)}{100} = 4 - .96 = + 3.04$

3.04% increase in area.

Sol 91. (b)



Area of ΔPAB, M = $\frac{1}{2} \times AB \times PX$

Let OX = a and PX = 13 - a

Area of $\Delta PAO = \frac{1}{2} \times AO \times PA = \frac{1}{2} \times AX \times PO$

$\Rightarrow \frac{1}{2} \times 5 \times 12 = \frac{1}{2} \times AX \times 13$

$\Rightarrow AX = \frac{60}{13}$

$AB = 2 \times AX = \frac{120}{13}$

Use pythagoras theorem in Δ AXO;

$OX^2 = OA^2 - AX^2$

$\Rightarrow OX^2 = 5^2 - (\frac{60}{13})^2$

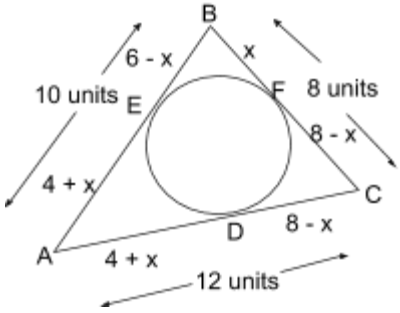
$OX = \frac{25}{13}$

$PX = 13 - \frac{25}{13} = \frac{169-25}{13} = \frac{144}{13}$

Area of ΔPAB, M = $\frac{1}{2} \times \frac{120}{13} \times \frac{144}{13}$

$\sqrt{\frac{M}{15}} = \sqrt{\frac{1}{15} \times \frac{1}{2} \times \frac{120}{13} \times \frac{144}{13}} = \frac{24}{13}$

Sol 92. (b)



6 - x = x

$\Rightarrow 2x = 6$

$\Rightarrow$ BF, x = 3

$\Rightarrow$ AD = 4 + x = 7

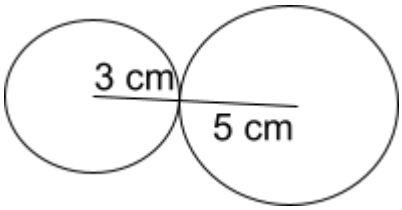
AD × BF = 7 × 3 = 21

Sol 93. (a)

In a right angled triangle, with sides 5cm and 12 cm, hypotenuse = 13 cm (using pythagoras theorem)

Therefore, perimeter of right triangle = 5 + 12 + 13 = 30 cm

Sol 94. (d)

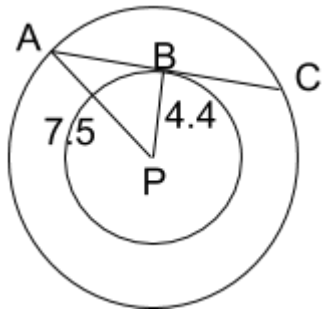


Sol 95. (c)
Diameter of wheel = 210 cm
Speed of car = 120 km/h
Distance covered by car in 1 hour = 120 km
i.e. in 60 min distance covered = 12000000cm
In 1 min distance covered = $\frac{12000000}{60}$ = 200000 cm
No. of revolution taken by wheel per minute to cover 200000 cm = $\frac{200000 \times 2 \times 7}{2 \times 22 \times 210}$ = 303.03

Sol 96. (b)
$\Rightarrow \frac{Perimeter}{Length} = \frac{6}{1}$
$\Rightarrow \frac{2 \times (L+B)}{L} = \frac{6}{1}$
$\Rightarrow \frac{(L+B)}{L} = \frac{3}{1}$
$\Rightarrow$ L + B = 3L
$\Rightarrow$ B = 2L
$\Rightarrow$ L : B = 1:2
Length of rectangle = a
Breadth of rectangle = 2a
Area of rectangle = 288 cm^2
L × B = 288
a × 2a = 288
a^2 = 144
Length, a = 12 cm

Sol 97. (b)
Perimeter of isosceles triangle = 125 cm
Base = 33 cm
Let each equal side = x cm
x + 33 + x = 125 cm
2x = 125 - 33 = 92
Length of each equal side, x = 46 cm

Sol 98. (b)



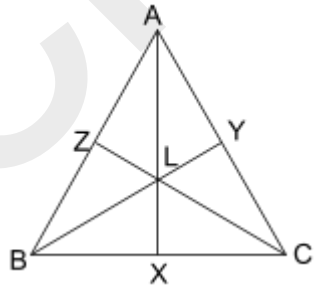
We know, tangent is ⊥ar to the radius.
Using pythagoras theorem in Δ ABP, $AP^2 = BP^2 + AB^2$
$(7.5)^2 = (4.4)^2 + AB^2$
$AB^2 = (7.5)^2 - (4.4)^2$
AB^2 = (7.5 - 4.4)(7.5 + 4.4) = (3.1)(11.9) ≈6.07
AC = 2 × AB = 2 × 6.07 = 12.14 cm

Sol 99. (c)
In a rectangular plot, Length = 5 × breadth
Therefore, L:B = 5:1
Area of rectangular plot = 2000 m^2
L × B = 2000
5 × B × B = 2000
B = 20 m

Sol 100. (a)
Diameters of two grounds = 42 m and 26 m
Radius of two grounds = 21 m and 13 m
Sum of area of two grounds = Π × $(21)^2$ + Π × $(13)^2$ = Π × [441 + 169] = Π × [610]
Let the radius of new ground = R
Π × $(R)^2$ = Π × [610]
Sol 101. (d)
Perimeter of isosceles triangle = 90 cm
Base = 26 cm
Sum of other two equal sides = 90 - 26 = 64 cm
Each equal side = 32 cm

Sol 102. (a)
For an isosceles right triangle, sides = a, a, a $\sqrt{2}$
Perimeter = a + a + a $\sqrt{2}$ = 30
2a + $\sqrt{2}$ a = 30
a (2 + $\sqrt{2}$) = 30
a = $\frac{30}{2+\sqrt{2}}$ = 15(2 - $\sqrt{2}$)
Area of triangle = $\frac{1}{2}$ × a^2 = $\frac{1}{2}$ × 225 × (2 - $\sqrt{2}$)^2 = $\frac{1}{2}$ × 225 × (4 + 2 - 4 $\sqrt{2}$) = $\frac{1}{2}$ × 225 × (6 - 4 $\sqrt{2}$) = 225 × (3 - 2 $\sqrt{2}$) = 225 × (3 - 2 [1.414]) = 225 × (3 - 2.828) = 225 × (0.172) ≈ 38.7 m^2

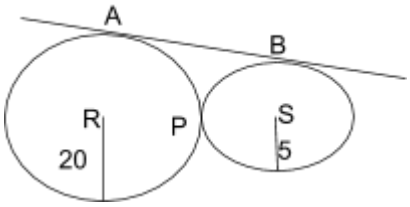
Sol 103. (c)



In Δ*ABC*, AX, BY and CZ are medians which intersect at point L.
Area (Δ*ABC*) = 30cm^2
We know, the median divides the area of the triangle in equal parts.
Therefore, ar(Δ*ALZ*)=ar(Δ*ALY*)=ar(Δ*BLZ*)=ar(Δ*BLX*)=ar(Δ*CLY*)=ar(Δ*CLX*) = 5 cm^2
Area of quadrilateral BXLZ = 10cm^2

Sol 104. (b)
For an isosceles triangle, base = perpendicular = a cm
$\frac{1}{2}$ × a × a = 121 cm^2
a = 11 $\sqrt{2}$ cm
Hypotenuse = $\sqrt{2}$ × 11 $\sqrt{2}$ = 22 cm

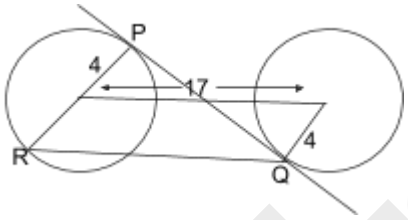
Sol 105. (d)



Direct Common Tangent, AB = $\sqrt{(r_2+r_1)^2-(r_2-r_1)^2}$ = $\sqrt{(20+5)^2-(20-5)^2}$ = $\sqrt{(25)^2-(15)^2}$ = $\sqrt{(25+15)(25-15)}$ = $\sqrt{(40)(10)}$ = 20 cm

Sol 106. (d)
Circumference of a quadrant, 2 Π r = 22 cm
$2\times\frac{22}{7}\times r = 22$
$r = \frac{7}{2}$
Area of quadrant = $\frac{\Pi r^2}{4}$ = $\frac{22\times7\times7}{7\times2\times2\times4}$ = 9.625 cm^2

Sol 107. (a)

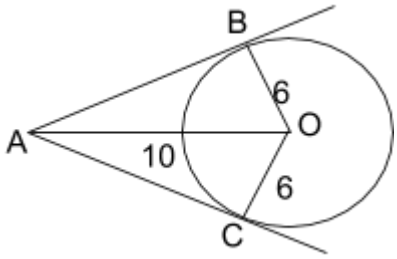


In Δ RPQ, use pythagoras theorem:
$RQ^2 = PQ^2 + RP^2$
$17^2 = PQ^2 + 8^2$
$PQ^2 = 17^2 - 8^2$
PQ^2 = (17-8)(17+8) = (9)(25) = 15^2
PQ = 15 cm

Sol 108. (a)
Volume of cone = $\frac{1}{3}\Pi R^2 H$

Sol 109. (d)
The length of tangents drawn from an external point to a circle are equal in length

Sol 110. (d)

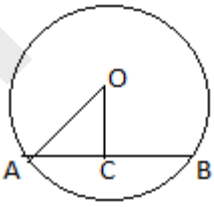


Tangent is perpendicular to the circle, thus, AB ⊥ OB.
Therefore, AB = 8 cm (using pythagoras theorem)
Area of quadrilateral ABOC = area of Δ ABO + area of Δ ACO
⇒ $\frac{1}{2}\times$ OB × AB + $\frac{1}{2}\times$ OC × AC
⇒ $\frac{1}{2}\times6\times8+\frac{1}{2}\times6\times8$
⇒ $2\times\frac{1}{2}\times6\times8 \Rightarrow 6\times8$ = 48 cm^2

111.Sol: (c)
Volume of cube = 343
$a^3 = 343$
a = 7
Therefore, edge of the cube = 7 cm

112.Sol: (d)
Required percentage = 10+10+ $\frac{10\times10}{100}$ = 21%

113.Sol: (a)



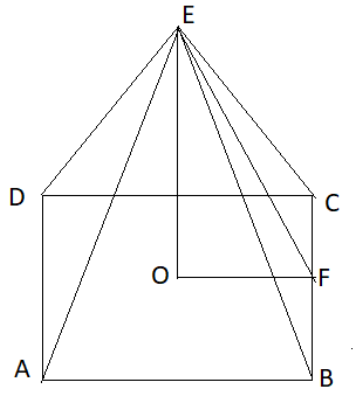
AC = $\frac{16}{2}$ = 8 cm
OC = 6 cm
AO = $\sqrt{8^2+6^2}$ = 10
Radius = 10 cm

SSC CGL 2019 TIER-II
114.Sol:(b)
Let height =h
Length = l
Breadth = b
lb = 3
bh = 12
hl = 16
$(lbh)^2 = 3\times12\times16$
lbh = 24
As $1m^3 = 1000l$
So total volume = 24000 *l*

115.Sol:(a)
Volume of bigger sphere = $\frac{4}{3}\pi\ 15^3$
Volume of smaller sphere = $\frac{4}{3}\pi\ 5^3$
Number of sphere formed = $\frac{\frac{4}{3}\pi\ 15^3}{\frac{4}{3}\pi\ 5^3}$ = 125
Surface area of bigger sphere = $4\pi15^2$
Surface area of smaller sphere = $4\pi5^2$
Total surface area of smaller spheres= 125 × $4\pi5^2$
Ratio of surface area = $\frac{4\pi15^2}{125\times4\pi5^2}$ = 1 : 5

116.Sol:(a)
Volume ratio $\frac{v_1}{v_2} = \frac{\pi3^2H}{\pi2^2h} = \frac{3^2H}{2^2h}$
$\frac{v_1}{v_2} = \frac{27}{16} = \frac{9H}{4h}$
$\frac{H}{h} = \frac{3}{4}$
H : h = 3 : 4

117.Sol:(d)



Perimeter of base =40 cm
Height(OE) =10 cm
In right angled triangle OEF
OF=5
$EF^2 = OF^2 + OE^2$

EF= $5\sqrt{5}$

Slant height(EF)= $5\sqrt{5}$

Lateral surface area = $\frac{1}{2}$ × perimeter of base × Slant height

= $\frac{1}{2}$ × 40 × $5\sqrt{5}$ =100 $\sqrt{5}$

118.Sol:(b)

Curved surface area of cylinder = $2\pi rh = 2\pi 5 \times 30 = 300\pi$

Slant height of cone = $\sqrt{5^2 + 12^2} = 13$

Surface area of cone = $\pi rl = \pi 5 \times 13 = 65\pi$

Surface area of 2 cone = 130 π

Total surface area = 430 π

119.Sol:(d)

Ratio of sides of triangle = $\sqrt{A_1} : \sqrt{A_2} = \sqrt{9} : \sqrt{12}$

BC: EF = 3 : $2\sqrt{3}$

EF = $2.1 \times \frac{2\sqrt{3}}{3} = \frac{7\sqrt{3}}{5}$

120.Sol:(a)

R : H = 1 : 3

Curved surface area of cylinder = $2\pi rh = 2 \times \frac{22}{7} \times r \times 3r = 3696$

r = 14

Volume = $\pi r^2 h = \frac{22}{7} \times 14 \times 14 \times 42 = 25872 cm^3$

$1\ m^3 = 1000000\ cm^3$

Volume = $0.025872 m^3$

$1m^3 = 1000l$

Volume = 25.872 l

121..Sol:(c)

Ratio of sides = ratio of perimeters

Ratio of perimeters = $\frac{43.2}{28.8} = 3 : 2$

AB : DE =3 : 2

AB = $12 \times \frac{3}{2}$

=18cm

122.Sol:(b)

Area of base = 81 $\pi\ cm^2 = \pi r^2$

r = 9cm

3Slant height = $\sqrt{9^2 + 12^2} = 15cm$

Curved surface area = $\pi rl = \pi \times 9 \times 15 = 135\pi$

123.Sol:(c)

Regular hexagon consist of 6 equilateral triangles

Area of triangle = $\frac{\sqrt{3}}{4} a^2 = \frac{25\sqrt{3}}{4}$

Area of base = 6 × Area of triangle = $\frac{150\sqrt{3}}{4}$

Volume of prism = area of base × height

= $\frac{150\sqrt{3}}{4} \times 12\sqrt{3}$

= 1350

124.Sol:(c)

Volume of cylinder = $\pi r^2 h$

Volume after changes = $\pi (1.2r)^2 (0.7h) = 1.008 \pi r^2 h$

Percentage change = $\frac{0.008\pi r^2 h}{1\pi r^2 h} \times 100 = 0.8$ % increase

125.Sol:(a)

Density = $\frac{mass}{volume}$

$10.5 = \frac{6688}{volume}$

$volume = \frac{6688}{10.5}$

Volume of spherical shell = $\frac{4}{3}\pi(R^3 - r^3)$

$\frac{6688}{10.5} = \frac{4}{3} \times \frac{22}{7} (216 - r^3)$

Solving the above eq

$216 - r^3 = 152$

r = 4

126.Sol:(a)

Given that R +r = 14

$4\pi R^2 - 4\pi r^2 = 112\pi$

$R^2 - r^2 = 28$

$(R + r)(R - r) = 28$

R - r = 2

R = 8 , r = 6

Volume is in the ratio of the cube of their radius = $8^3 : 6^3$

= 512 : 216 = 64 : 27

127.Sol:(a)

Radius: Height = 3 : 4

Slant height = 5 (in ratio)

Curved surface area = πrl

$240\pi = \pi \times 3r \times 5r$

r= 4

Radius = 12

Height = 16

Volume = $\frac{1}{3}\pi r^2 h = \frac{1}{3}\pi\ 12 \times 12 \times 16$

Volume = 768 π

128.Sol:(a)

$D_1^2 + D_2^2 = 2(S_1^2 + S_2^2)$

= 2(9 + 100)

= 218

129.Sol:(b)

R = new radius

R = r + 2.5

Surface area of the sphere = $4\pi r^2$

$4 \times \pi \times (R^2 - r^2) = 110$

$(R^2 - r^2) = \frac{35}{4}$

$(R + r)(R - r) = \frac{35}{4}$

(R + r) = 3.5

R = 3 and r = 0.5

Volume = $\frac{4}{3}\pi r^3 = \frac{4}{3} \times \frac{22}{7} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{11}{21}$

130.Sol:(b)

l= 1.2m =120cm

r = 24 cm

R = 39cm

Volume = $\pi(R^2 - r^2) h = \pi \times 945 \times 120 = 113400\pi$

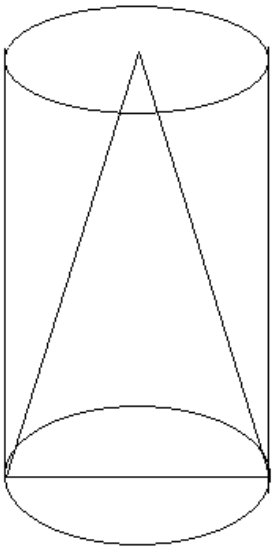
Mass = density × volume

Mass = (113400 π × 8)/1000

Mass = 907.2 π

131.Sol:(b)
Height = 10
Volume = area of base × height
160 = 10 × area of base
Area of base = 16
$a^2 = 16$
a = 4
Total surface area of prism =(2 × area of base)+ height × perimeter of base
Total surface area of prism = 32 + 160
Total surface area of prism = 192

132.Sol:(c)



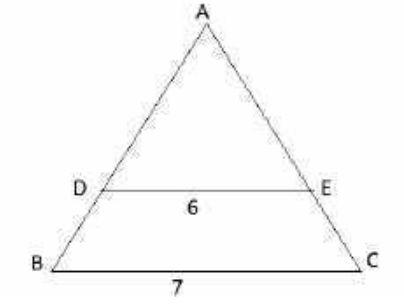
h = 18
r = 7.5
l = 19.5(by pythagoras theorem)
Total surface area = surface area of cylinder + area of cone + area of circular side (above)
Total surface area = $2\pi r\, h + \pi r l + \pi r^2$
Total surface area = $\pi r(2h + l + r)$
Total surface area = π 7.5(36 + 19.5 + 7.5)
Total surface area = π 7.5(63)
Total surface area = 472.5π

133.Sol:(d)
Volume of the sphere = $\frac{4}{3}\pi r^3$
Volume of the sphere = 27 $\frac{4}{3}\pi$
Volume of the first sphere = 8 $\frac{4}{3}\pi$
Volume of the second sphere = 3.375 $\frac{4}{3}\pi$
Volume of third sphere = 27 $\frac{4}{3}\pi$ -(8 $\frac{4}{3}\pi$ + 3.375 $\frac{4}{3}\pi$) = 15.625 $\frac{4}{3}\pi$
Radius of the third sphere = 2.5
Surface area of the third sphere = $4\pi r^2 = 4 \times \pi \times 6.25 = 25\pi$

134.Sol:(d)
Ratio of radius = 5 : 6
Ratio of volume = 8 : 9 = $\frac{1}{3}\pi r^2 h : \frac{1}{3}\pi R^2 H$
8 : 9 = 25h : 36H
32 : 25 = h : H

135.Sol:(a)
circumference = $2\pi r$
158.4 = $2\pi r$
r = 25.2cm
h = 100cm
Volume = $\pi r^2 h = \frac{22}{7} \times 25.2 \times 25.2 \times 100 = 199584\ cm^3 = 0.199584\ m^3$
$1\ m^3 = 1000l$
Volume = 199.584 litre = 199.6 litre

136.Sol:(b)



$\Delta ADE \simeq \Delta ABC$
Ratio of $\frac{area\ of\ \Delta ADE}{area\ of\ \Delta ABC} = \frac{DE^2}{BC^2} = \frac{36}{49}$
$\frac{area\ of\ \Delta ADE}{area\ of\ trapezium\ ABCD} = \frac{DE^2}{BC^2 - DE^2} = \frac{36}{49-36} = \frac{36}{13}$

137.Sol:(b)
Volume of the tank = $\frac{2}{3} \times \pi \times 10.5^3 \times \frac{2}{3} = 1617\ m^3$
$1\ m^3 = 1000l$
$1617\ m^3 = 1617000l$
Time required = $\frac{1617000}{7.7 \times 3600} = \frac{175}{3}$

138.Sol:(a)
Volume of pyramid = $\frac{1}{3}$ × area of base × height
Area of base = $\frac{\sqrt{3}}{4}a^2 = 16\sqrt{3}$
Volume of pyramid = $\frac{1}{3} \times 16\sqrt{3} \times 30\sqrt{3} = 480$

139.Sol:(b)
Circumference = 2 π r
44 =2 π r
r =7
Curved surface area = $\pi r l$
l = $\sqrt{24^2 + 7^2}$ =25
Curved surface area = $\frac{22}{7} \times 7 \times 25 = 550$

140.Sol:(b)
Volume of cuboid = 18 cm × 36cm × 72cm =46656
Volume of 1 cube = $\frac{46656}{8}$ = 5832
Side of cube = $\sqrt[3]{5832}$ = 18
Lateral surface area of 8 cubes = 8 × 4 × 18 × 18 =10368
Total surface area of the cuboid = 2((18 × 36) +(36 × 72) +(72 × 18))
= 9072
Required ratio = 10368 : 9072 = 7 : 8

141.Sol:(c)
Area of base = ($\sqrt{3}\ a^2$)/4=25 $\sqrt{3}$
Volume of pyramid = $\frac{1}{3}$ × Height × Area of base
Volume of pyramid = $\frac{1}{3} \times 40\sqrt{3} \times 25\sqrt{3}$ =1000 m^3

142.Sol:(a)

$2\pi rh=5\pi r^2$
r/h=2/5

143.Sol:(d)
Volume of hemisphere = $\frac{2}{3}\pi r^3$
$\frac{2}{3}\pi r^3 = 2425\frac{1}{2} cm^3$
r=10.5 cm

144.Sol:(a)
Initial radius = 5r Initial height =5h
Final radius = 4r Final height = 6h
Initial volume = $125\pi r^2 h$
Final volume = $96\pi r^2 h$
Decrease in volume = $29\pi r^2 h$
Percentage decrease = $(29\pi r^2 h/125\pi r^2 h)\times 100 = 23.2\%$

145.Sol.(c)
h:d=6:5
h:2r=6:5
h:r=12:5
h=12k ,r=5k
Volume $=(1/3)\times\pi r^2 h$
$(1/3)\times\pi r^2 h=2200/7$
$25k^2\times 12k=300$
k=1
h=12 ,r=5
$l^2=h^2+r^2$
l=13

146.Sol:(b)
$r_1=3k$, $r_2=4k$
$h_1=8a$ $h_2=5k$
Volume of 1st cylinder$=\pi\times r_1^2 h_1=72\pi k^3$
Volume of 1st cylinder$=\pi\times r_2^2 h_2==80\pi k^3$
Ratio = 9:10

147.Sol:(b)
Volume of solid lead sphere$=(4/3)\pi r^3=(4/3)\pi 21^3$
Volume of lead balls$=(4/3)\pi r^3=(4/3)\pi 1.5^3$
Number of lead balls =Volume of solid lead sphere/Volume of lead balls
Number of lead balls $=(4/3)\pi 21^3/(4/3)\pi 1.5^3=2744$

148.Sol:(b)
Total surface area of prism = 2 × Area of base + Curved surface area
Area of base= $15^2=225\ cm^2$
Curved surface area= Perimeter of base × height= 4 ×15 × 8=480
Total surface area of prism = 2 × 225+480=930 cm^2

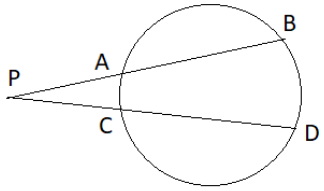
149.Sol:(b)
Let the length of equal sides (Perpendicular and Base)=x
Hypotenuse= $\sqrt{2}$ x
Perimeter = $(2+\sqrt{2})x$
$8(\sqrt{2}+1)=(2+\sqrt{2})x$
On solving $x=4\sqrt{2}$
Hypotenuse = $\sqrt{2}\times 4\sqrt{2}=8$

150.Sol:(d)

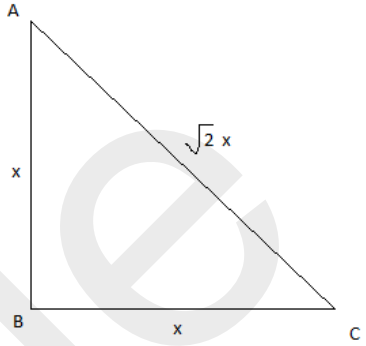
I + b + h = 20
$\sqrt{l^2+b^2+h^2}=12$
$l^2+b^2+h^2=144$
$(l+b+h)^2=l^2+b^2+h^2+2(lb+bh+hl)$
400- 144 = 2(lb + bh +hl)
256 = 2(lb + bh +hl)

151Sol:(d)
Surface area $=4\pi r^2=1386$
R = 10.5
Volume $=\frac{4}{3}\pi r^3=\frac{4}{3}\times\frac{22}{7}\times 10.5\times 10.5\times 10.5=4851\ cm^3$

152.Sol:(d)
PA × PB = PC × PD
PA × (PA - 4) = 15 × 4
PA = 10



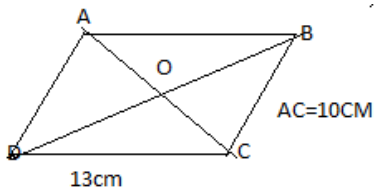
153.Sol:(c)



Perimeter = $(2+\sqrt{2})x = 8(2+\sqrt{2})$
x= 8 also satisfy pythagoras theorem
Area = $\frac{1}{2}\times 8\times 8=32 cm^3$

SSC CPO 2019

154. Sol:(c)
As we know diagonals of a rhombus bisect each other and also intersect each other at 90 degrees Therefore AO=OC=5cm



in Triangle DOC $OD^2=CD^2$
And angle DOC=90degree- OC^2 (pythagorean theorem)
$=13^2-5^2=144$
OD= $\sqrt{144}$ =12 cm
Area of rhombus= ½ × Product of Diagonals
=½ ×24 ×10
=120.

Alternate solution
Rhombus divides itself into 4 equal triangles so we can simply multiply area of one triangle × 4

Pinnacle

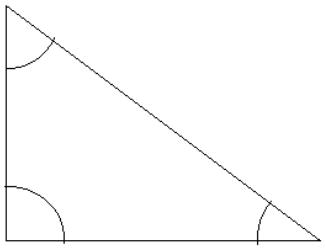
Area of triangle = ½ × 5 × 12= 30
Area of rhombus=30 × 4=120

155.Sol:(a)
Perimeter of a square= 4 × Side
Perimeter of a Rectangle= 2 × (length+breadth)
As given in the question Perimeter of Square and Rectangle are equal
Perimeter of square is 40m=4 × Side, so Side of Square=10m
In Rectangle let length be 3x so breadth will be 2x
Total Perimeter of Rectangle= 2 × (3x+2x) =10x
10x=40(given)
So x=4 metres
Length of Rectangle is 3x=12metres
Breadth of Rectangle is 2x= 8 metres
Area= Length × Breadth
So Area= 12 × 8=96 square metres.

156.Sol:(d)
As we know Area $\propto$ $side^2$
Ratio of original side to decreased side
100:89
100:89
Solving this
10000:7921
100:79.21 (by dividing by 100)
Net percentage decrease=100-79.21=20.79%

157.Sol:(d)
Radius of cylinder=14cm
Curved surface area of cylinder=880 cm (given)
$2\pi RH=880$
$\frac{44}{7} \times 14 \times H=880$
So H=10
Volume of cylinder= πR^2H
$= \frac{22}{7} \times 14 \times 14 \times 10$
$= 6160$

158..



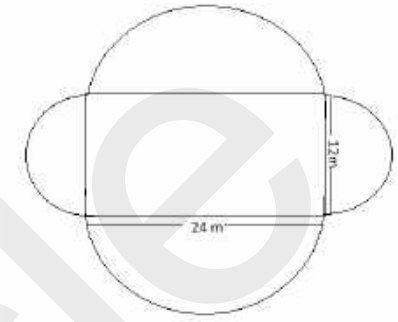
Since we know that (10,24,26) is a pythagorean triplet so we can easily find out the area of the triangle to be $\frac{1}{2} \times base \times$ height
So are of triangle will be equal to 120
At each vertices a circle of radius 4.2 cm is drawn so the total area of circle will be $\frac{1}{2} \times$ area of circle as the sum of angles of a triangle is equal to 180°
Area of circle = $\frac{1}{2} \times \pi \times 4.2 \times 4.2$ =27.72
Area of triangle excluding the portion covered by circle is 120-27.72=92.28

Sol:159.(d)
Volume of cube = $a^3 = 9^3 = 729$
Volume of cuboid = 5 × 13 × 31 = 2015
Total volume = 2015 + 729 = 2744
Side of a cube = 14cm
Surface area of a cube = $6a^2 = 6 \times 14^2 = 1176cm^2$

Sol:160.(d)
Area of trapezium = $\frac{1}{2} \times$ (sum of parallel sides) × height
Area of trapezium = $\frac{1}{2} \times 40 \times 7 = 140cm^2$
We know that $1m^2 = 10000cm^2$
Area in $m^2 = 0.014$

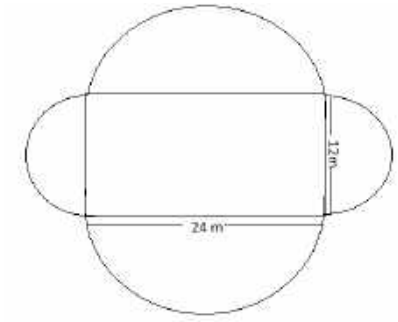
Sol:161.(b)
Diameter = 42cm
Radius = 21 cm
Distance travelled in 1 revolution = $2\pi r$ = 132cm
Distance travelled in 1 revolutions = 132 × 12 = 1584cm = 15.84cm

Sol:162.(a)



Area of rectangular field = 24 × 12 = 288
Area of bigger semi circle = $\frac{1}{2}\pi r^2 = 72\pi$
Area of smaller semi circle = $\frac{1}{2}\pi r^2 = 18\pi$
Area of 2 bigger semi circle = 144π
Area of 2 smaller semi circle = 36π
Total area of circles = 180π = 565.2
Total area = 853.2
Cost = 853.2 × 100 = 85320

Sol:163.(d)



Area of rectangular field = 24 × 12 = 288
Area of bigger semi circle = $\frac{1}{2}\pi r^2 = 72\pi$
Area of smaller semi circle = $\frac{1}{2}\pi r^2 = 18\pi$

Pinnacle

Area of 2 bigger semi circle = 144π
Area of 2 smaller semi circle = 36π
Total area of circles = $180\pi = 565.2$
Total area = 853.2

Sol:164(b)
Volume of cube = $a^3 = 9^3 = 729$
Volume of cuboid = $5 \times 13 \times 31 = 2015$
Total volume = 2015 + 729 = 2744
Side of a cube = 14cm
Surface area of a cube = $6a^2 = 6 \times 14^2 = 1176cm^2$
Cost = $1176 \times 10 = 11,760$

Sol:165.(c)
Area of trapezium = $\frac{1}{2} \times$ (sum of parallel sides) $\times$ height
Area of trapezium = $\frac{1}{2} \times 32 \times 6 = 96cm^2$
We know that $1m^2 = 10000cm^2$
Area in $m^2 = 0.0096$

Sol:166.(d)
A hexagon consist of 6 equilateral triangle
Area of 1 triangle = $\frac{1944\sqrt{3}}{6} = 324\sqrt{3}$
$\frac{\sqrt{3}}{4}a^2 = 324\sqrt{3}$
a = 36
Perimeter = $36 \times 6 = 216$
Cost = $216 \times 11.50 = 2,484$

Sol:167.(c)
Area of bigger sphere = $\frac{4}{3}\pi 11^3$
Area of smaller sphere = $\frac{4}{3}\pi 2^3$
Number of spheres = $\frac{1331}{8} = 166.375$
Approximately 166 spheres can be made

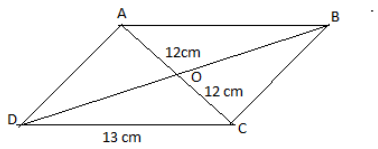
168.Sol:(a)
Length of room=12m
Breadth of room=8m
Height of room=10m
Total area of 4 walls=2(L+B)H
$=2(20) \times 10$
400
Area of ceiling=$L \times B = 12 \times 8 = 96$
Total area to be Whitewashed= 400+96= 496
Cost of whitewashing is Rs.25 per m^2
So total cost= $496 \times 25 = 12400$

169.Sol:(a)
Diagonal of square=$6\sqrt{2}$
Side of square =6 , perimeter of square= 24
Base of triangle=24
Height of triangle = $\sqrt{144} = 12$ (area of square=side^2)
Area of triangle= $\frac{1}{2} \times 12 \times 24 = 144$

170.Sol:(d)
Let the side of square=a
Length of rectangle=a+10
Breadth of rectangle=a-5
Area of rectangle= $(a+10) \times (a-5) = a^2+5a-50$
Area of square=a^2
Equating both the areas we get
5a=50, a=10
Length of rectangle=20
Breadth of rectangle=5
Perimeter of rectangle=2(20+5)=50

171.Sol:(a)
Perimeter of a right angled triangle=60
hypotenuse= 26 given
As we know (5,12,13) is a well known triplet so multplying this triplet by 2 we get(10,24,26) and sum also comes out to be 60
So the required area = $\frac{1}{2} \times 10 \times 24 = 120$

172.Sol:(b)



in Triangle DOC $OD^2 = CD^2$
And angle DOC=90degree- OC^2 (pythagorean theorem)
$= 13^2 - 12^2 = 25$
OD= $\sqrt{25} = 5$ cm
Area of rhombus= ½ × Product of Diagonals
=½ × 24 × 10
=120.

173.Sol:(d)
Radius of the base of a cylinder = 14cm
volume = $6160\,cm^3$
Volume of cylinder= πR^2H
$= = \frac{22}{7} \times 14 \times 14 \times H = 6160$
Solving this we get H=10
Curved surface area of cylinder= $2\pi RH = 2 \times \frac{22}{7} \times 14 \times 10 = 880$

174.Sol:(d)
Perimeter of square=40
Perimeter of rectangle=$2 \times 40 = 80$
Let length of rectangle=3x
Breadth of rectangle=2x
Total perimeter of rectangle= 2(3x+2x)
10x=80
x=8
length of rectangle=24
Breadth of rectangle=16
area of rectangle=$24 \times 16 = 384$

175.Sol:(a)
Side of a square is decreased by 17%
So the ratio will be 100:83
area $\propto$ Side^2
Area ratio =$100^2:83^2$
=10000:6889
=100:68.89
Reduction in area =100-68.89=31.11

Pinnacle

Required percentage=31.11%

Sol:176.(d)
Area of cylinder = $\pi r^2 h$
According to the question
$\pi r^2 h_1 = \pi 4^2 r^2 h_2$
$h_1 : h_2 = 4^2 : 1$
$h_1 : h_2 = 16 : 1$

Sol:177(d)
Surface area of sphere = $4\pi r^2$
Volume of the sphere = $\frac{4}{3} \pi r^3$
According to the question
$\frac{4\pi r^2}{\frac{4}{3}\pi r^3} = \frac{2}{7}$
$\frac{3}{r} = \frac{2}{7}$
r = 10.5

Sol:178.(d)
Volume of the sphere = $\frac{4}{3} \pi r^3 =$ 4851
$r^3 = 1157.625$
r = 10.5
Surface area = $4 \pi r^2 = 4 \times \frac{22}{7} \times$ 110.25 = 1386

Sol:179.(d)
Area of four walls = 2h(l + b) = 20 (20) = $400m^2$
Cost = 400 × 25 = Rs 10,000

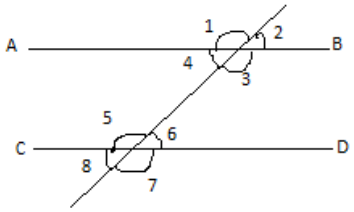
Pinnacle

GEOMETRY / ज्यामिति

LINES/ रेखाएं

1). Parallel Lines / समानांतर रेखाएं : Two or more lines which will never meet just like railway track./ दो या दो से अधिक रेखाएं जो रेलवे ट्रैक की तरह कभी नहीं मिलेंगी|

2). Transverse Lines/ अनुप्रस्थ रेखाएं: A line which cuts parallel lines as shown in the figure below./
एक रेखा जो समानांतर रेखाओं को काटती है, जैसा कि नीचे दिए गए चित्र में दिखाया गया है|



- EF is the transverse line. AB and CD are parallel lines. Symbol of parallel lines is '||'. To denote a line symbols like $\overline{AB}$ or simply AB are used.
  EF अनुप्रस्थ रेखा है | AB और CD समानांतर रेखाएं हैं| '||' समानांतर लाइनों का प्रतीक है| एक रेखा को निरूपित करने के लिए $\overline{AB}$ या AB का उपयोग किया जाता है।
- Let's take a look at various angles made by the transverse line and the parallel lines :
  अनुप्रस्थ रेखा और समानांतर लाइनों द्वारा बनाए गए विभिन्न कोण :

(i) Corresponding Angles / संगतकोण :- $\angle 1$ and $\angle 5$, $\angle 2$ and $\angle 6$, $\angle 4$ and $\angle 8$, $\angle 3$ and $\angle 7$ are pairs of corresponding angles.
Corresponding angles are equal./ संगतकोण समान होते हैं। E.g. $\angle 1 = \angle 5$

(ii) Alternate Angles / एकान्तर कोण:- E.g. $\angle 1 = \angle 7$ or, $\angle 4 = \angle 6$ or, $\angle 3 = \angle 5$ etc.

(iii) Vertically opposite angles / शीर्षाभिमुख कोण :- E.g. $\angle 1 = \angle 3$ or, $\angle 2 = \angle 4$ etc.

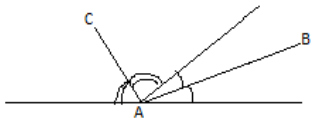
(iv) Adjacent angles/ आसन्न कोण:- $\angle 1 + \angle 2 = 180°$ in this case as these are linear pair. Any two angles which are adjacent are called adjacent angles. It is not necessary that their sum should be 180° .
इस मामले में ये रैखिक युग्म हैं। किसी भी दो कोण जो आसन्न हैं उन्हें आसन्न कोण कहा जाता है। यह आवश्यक नहीं है कि उनका योग 180° होना चाहिए

(v) Sum of Interior angles on same side = 2 right angles = 180° .The angles, made by bisectors of interior angle, with each other will 90° .
एक ही तरफ के आंतरिक कोणों का योग 2 समकोण यानि 180° के बराबर होता है। आंतरिक कोण के द्विभाजक द्वारा बनाए गए कोण, एक दूसरे के साथ 90° होंगे।

(vi) Sum of Exterior angles on same side = 180°
एक ही तरफ के बाहरी कोणों का योग 180° होता है |

Note: From a point infinite number of lines can be made./ एक बिंदु से अनंत रेखाएं बनाई जा सकती है|

3). Internal angle bisector and External angle bisector./ आंतरिक कोण द्विभाजक और बाहरी कोण द्विभाजक.
In the given figure AB is the internal angle bisector and AC is the external angle bisector.
दिए गए आंकड़े में AB आंतरिक कोण द्विभाजक है और AC बाह्य कोण द्विभाजक है।



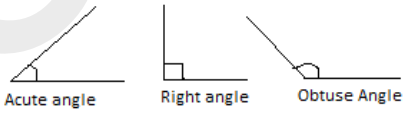
ANGLES/ कोण

Various types of angles are as follows:/ विभिन्न प्रकार के कोण इस प्रकार हैं:

1) Acute Angle / न्यून कोण: Angles which are less than 90° ./कोण जो 90° से कम हैं|

2) Right Angle / समकोण: 90° angle is called right angle. 90° कोण को समकोण कहा जाता है|

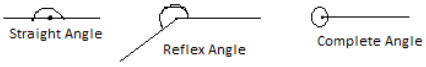
3) Obtuse Angle / अधिक कोण: Angles greater than 90° and less than 180° ./ 90° से अधिक और 180° से कम|



4) Straight Angles/ऋजु कोण: Angle equal to 180° ./ 180° के बराबर कोण|

5) Reflex angle/ बृहत कोण: Angles greater than 180° and less than 360° ./180° से अधिक और 360° से कम कोण|

6) Complete Angle/सम्पूर्ण कोण: 360° angle is called complete angle./ 360° कोण को पूर्ण कोण कहा जाता है|



7) Complementary Angles/ संपूरक कोण: Sum of the angles is equal to 90°./ कोण का योग 90° के बराबर होता है|

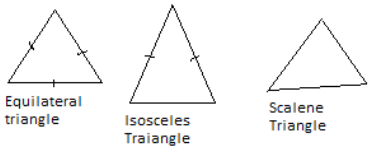
8) Supplementary Angles/पूरक कोण: Sum of the angles is equal to 180°./ कोण का योग 180° के बराबर होता है|

TRIANGLES/त्रिभुज

Types:

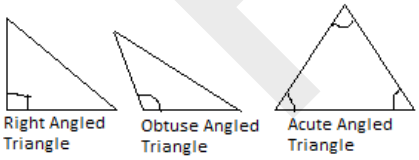
1) Based on sides/ भुजाओं के आधार पर:-

- Equilateral Triangles / समबाहु त्रिभुज: All three sides are equal in length./ तीनो भुजाएं समान होती है|
- Isosceles Triangles / समद्विबाहु त्रिभुज: Any two sides are equal in length./ कोई दो भुजाएं समान होती हैं|
- Scalene Triangle/ विषमबाहु त्रिभुज: All three side are different in length. / तीनों भुजाएं असमान लंबाई वाली होती हैं|



2) Based on angles:-

- Right angle triangle / समकोण त्रिभुज: One of the angle is 90°.
- Obtuse angled triangle / अधिककोण त्रिभुज: One angle will be more than 90°.
- Acute angled triangle / न्यूनकोण त्रिभुज: All three angles are less than 90°.



Properties of Triangles

1. If a line DE intersects two sides of a triangle AB and AC at D and E respectively, then:

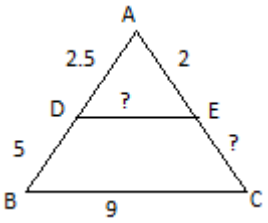
यदि एक रेखा DE, क्रमशः D और E पर किसी त्रिभुज के AB और AC भुआजों को काटती है, तो

$\frac{AD}{DB} = \frac{AE}{EC}$ and $\frac{AD}{AB} = \frac{DE}{BC}$.

Also if D and E are mid points of AB and AC respectively, then:

इसके अलावा अगर D और E क्रमशः AB और AC के मध्य बिंदु हैं, तब:

$DE = \frac{BC}{2}$ and DE will be parallel to BC./DE, BC के समानांतर होगा|



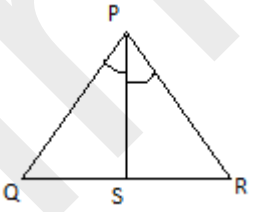
E.g. Let AD = 2.5 units; DB = 5, AE = 2 and BC = 9, then EC = ? and DE = ?

$\frac{AD}{DB} = \frac{AE}{EC} \Rightarrow \quad EC = AE \times \frac{DB}{AD}$

$= 2 \times \frac{5}{2.5} = 4\ units.$

Similarly DE = 3 units. (!!Find yourself!!)

2. In case of angle bisector / कोण द्विभाजक: $\frac{PQ}{QS} = \frac{PR}{SR}$ or, $\frac{QS}{SR} = \frac{PQ}{PR}$



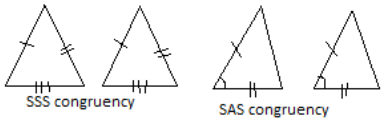
Here PS is the angle bisector and a common side of the triangles ΔPQS and ΔPSR.

Congruency of Triangles / त्रिभुज की सर्वांगसमता :

Two triangles will be congruent if:

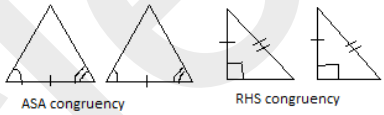
1. SSS: (Side – Side – Side rule): When all three sides are equal. / जब सभी तीन भुजाएं बराबर होती हैं|

2. SAS: (Side – Angle – Side rule): When two sides and one angle are equal. / जब दोनों भुजाएं और एक कोण समान हो।



3. ASA: (Angle – Side – Angle rule): When two angles and one side are equal./जब दो कोण और एक भुजा समान हो।

4. RHS: (Right angle – Hypotenuse – Side rule): When one side and hypotenuse of right angled triangle are equal.

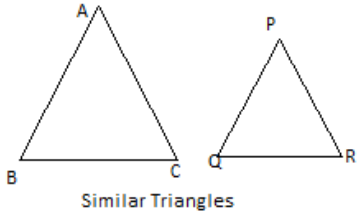


Similarity of Triangles / त्रिभुज की समरूपता

1). Two triangles are similar if they are just like each other, i.e. their shapes are same. The sizes of similar triangles may be different./ दो त्रिकोण समान होते हैं यदि वे एक दूसरे के समान होते हैं, यानी उनके आकार समान होते हैं। समान त्रिभुज के माप भिन्न हो सकते हैं|

2). In congruency the triangles are mirror images of each other. *We can say that all congruent triangles are similar but the vice versa is not true.*

अनुकूलता में त्रिभुज एक दूसरे की दर्पण चित्र होते है। हम कह सकते हैं कि सभी सर्वांगसमता त्रिभुज समान हैं, लेकिन इसका विपरीत सही नहीं कहा जा सकता है।



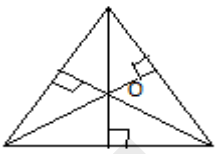
Pinnacle

3). *Important properties of similar triangles:*

- $\frac{Area\ of\ \Delta ABC}{Area\ of\ \Delta PQR} = \frac{AB^2}{PQ^2} = \frac{AC^2}{PR^2} = \frac{BC^2}{QR^2}$
- $\frac{Perimeter\ of\ \Delta ABC}{Perimeter\ of\ \Delta PQR} = \frac{AB}{PQ} = \frac{AC}{PR} = \frac{BC}{QR}$

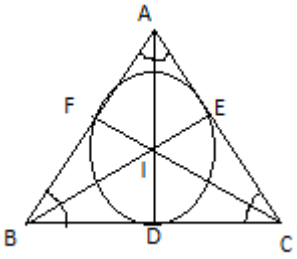
Altitude / शीर्ष-लंब :

- It is also known as height. / यह ऊंचाई के रूप में भी जाना जाता है|
- The line segment drawn from vertex of a triangle perpendicular to its opposite side is called an Altitude of a triangle. / त्रिभुज के शिर्ष से उसके विपरीत भुजा पर बनाए गए लंब को शीर्ष-लंब कहा जाता है|
- The point at which the altitudes of a triangle intersect is called as **Orthocenter**. / जिस बिंदु पे एक त्रिभुज के शीर्ष-लंब मिलते है उसे **लम्बकेन्द्र** कहा जाता है|
- Generally Orthocenter is denoted by 'O'.

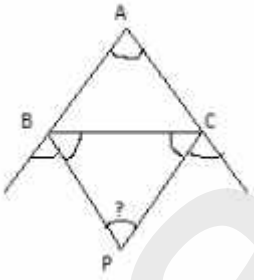


In-center/ अन्तः केंद्र

- The point at which the *internal angle bisectors* of a triangle meet. It is generally denoted by 'I'./ जिस बिंदु पे किसी त्रिभुज के आंतरिक कोण विभाजक मिलते है उसे अन्तः केंद्र कहा जाता है|
- From the in-center the in-circle of a triangle is drawn. The radius of the in-circle is equal to ID = IE = IF.
  अन्तः केंद्र से त्रिभुज का अन्तः वृत्त बनाया जाता है| अन्तः केंद्र की त्रिज्या ID = IE = IF के बराबर होती है|

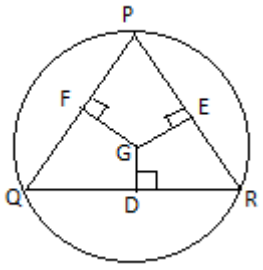


- *Important Results:*
  - $\angle BIC = 90° + \frac{\angle A}{2}$ (for Internal angle bisectors)
  - $\angle BPC = 90° - \frac{\angle A}{2}$ (for external angle bisectors)



Circum-center / परि केंद्र

- The point at which the *perpendicular bisectors* of the sides of triangle meet.
  जिस बिन्दु पर त्रिभुज की भुजाओं के लंब समद्विभाजक मिलते है|
- From the circum-center the circumcircle of a triangle is drawn. The radius of the circum-circle is equal to PG = RG = QG.
  परि केंद्र से त्रिभुज का परिवृत्त बनाया जाता है| परिवृत्त की त्रिज्या PG = RG = QG के बराबर होगी|

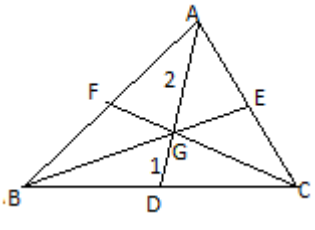


- Since the angle formed at the center of a circle is double of the angle formed at the circumference, we have:/ चूंकि एक वृत्त के केंद्र में गठित कोण परिधि में बने कोण का दोगुना होता है, हम कह सकते है की:
  $\angle QGR = 2\angle P$,
  $\angle QGP = 2\angle R$ and
  $\angle PGR = 2\angle Q$.

Note: A line which is perpendicular to another line and also bisects it into two equal parts is called a perpendicular bisector. / एक रेखा जो दूसरी रेखा से लंबवत होती है और इसे दो समान भागों में विभाजित करती है उसे एक लंब समद्विभाजक कहा जाता है।

Centroid / केन्द्रक

- It is the point of intersection of *the medians* of a triangle. It is also called center of mass.
  त्रिभुज की तीनो माध्यिकाओं का प्रतिच्छेद बिंदु| इसे गुरुत्व केंद्र भी कहते है गुरुत्व केंद्र|
- The median is a line drawn from the vertex of a triangle to the mid – point of opposite side.
  माध्यिका एक त्रिभुज के शीर्ष से लेकर विपरीत भुजा के मध्य बिंदु पर खींची गई रेखा है।
- Each median is divided in the ratio of 2 : 1 at the centroid.
  सभी माधिकाये केन्द्रक पे 2 : 1 अनुपात में विभाजित होती है|
- Median divides the triangle into two equal areas.
  माध्यिका त्रिभुज को दो समान क्षेत्रों में विभाजित करती है|



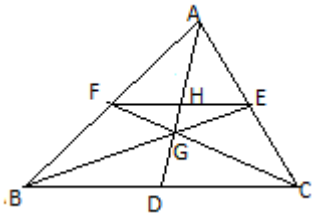
- **Apollonius theorem:** / अपोलोनियस प्रमेय

$AB^2 + AC^2 = 2(AD^2 + BD^2)$

Other key points for medians:/ माध्यिका के लिए अन्य प्रमुख बिंदु:

- All the medians of a triangle divide it into six parts with equal areas./ किसी त्रिभुज की तीनो माधिकाये त्रिभुज को छे बराबर हिस्सों में बांटती है

  Therefore, $Area\ of\ \Delta ABC = 6 \times Area\ of\ any\ of\ the\ smaller\ parts.$
- $Area\ of\ \Delta FEG = \frac{1}{12} \times Area\ of\ \Delta ABC$



- FE divides the line AG in the ratio of 3:1 i.e. $\frac{AH}{HG} = \frac{3}{1}$.

Note: In case of Equilateral triangle, orthocenter, in-center, circum-center and centroid lie at the same point.

Other Facts about triangles:

1). Sum of two sides is always greater than the third side. दो भुजाओं की लम्बाई का योग तीसरी भुज से जायदा होगा|

E.g. AB +BC > CA, AB + AC > BC, BC + CA > AB.

2). Difference of two sides is always less than the third side. दो भुजाओं की लम्बाई का अंतर तीसरी भुजा की लम्बाई से कम होगा|

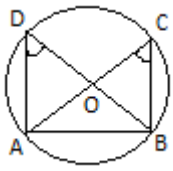
E.g. AB - BC < CA, AB - AC < BC, BC - CA < AB.

CIRCLE/ वृत्त

Properties of circles

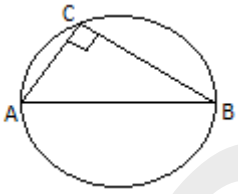
1). Angles in the same segment of a circle from the same base are always equal.

समान आधार से एक सर्कल के एक ही क्षेत्र में कोण हमेशा समान होते हैं|



2). Angle dropped on the circumference of a circle with the diameter as base is always a right angle.

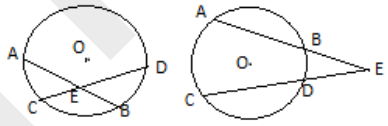
वृत्त के व्यास को आधार ले कर परिधि पे बनाया गया कोण हमेसा समकोण होगा|



3). Two chords AB and CD of a circle intersect, internally or externally, at E then:

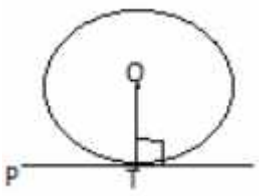
एक वृत्त की दो जिवा AB और CD अगर E पे एक दूसरे को काटती है तो:

$AE \times EB = CE \times ED$



4). The tangent to a circle at a point on its circumference is perpendicular to the radius at that point.

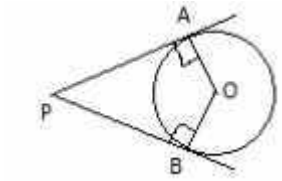
किसी वृत्त की परिधि पर किसी बिन्दु पे स्पर्शेखा उस बिन्दु पे त्रिज्या के समकोण होगी | **PT ⊥ OT**



5). Two tangents to a circle drawn from the same point outside it are equal in length.

वृत्त के बाहर के किसी बिन्दु से बनाई गयी स्पर्शेखाए समान लम्बाई की होंगी|

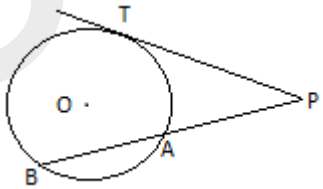
PA = PB



6). For a tangent, PT, and a secant, PB, drawn to circle from a point P, we have:

किस बिन्दु, P, से बनाई गई किसी स्पर्शेखा, PT, और एक प्रतिच्छेदी रेखा, PB, के लिए:

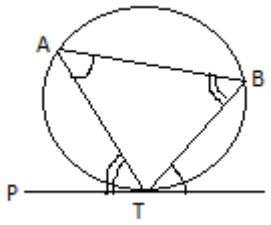
$PT^2 = PB \times PA$



7). Angle made by a chord with a tangent is always equal to the angle dropped on any point of circumference taking the chord as base.

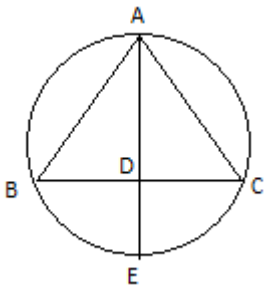
किसी जिवा और स्पर्शेखा के बीच का कोण, जीवा को आधार ले कर परिधि पे बनाये गए कोण के बराबर होगा|

$\angle PTA = \angle ABT$

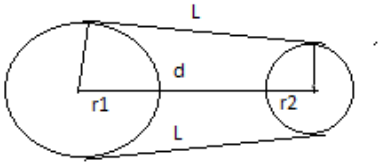


8). In the following case:/इस परिस्तिथि में:

$AB \times AC + AE \times DE = AE^2$



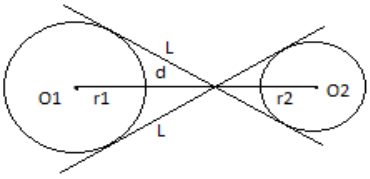
Direct Tangents: अनुस्पर्श स्पर्शरेखा



Length of direct common tangent **(L)** = $\sqrt{d^2-(r_1-r_2)^2}$

Where, d = distance between two centers and r_1, r_2 are radii of the circles.

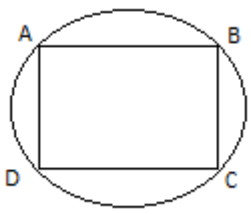
Transverse Tangents / अनुप्रस्थ स्पर्शरेखा :



Length of transverse tangent **(L)** = $\sqrt{d^2-(r_1+r_2)^2}$

When two circles touch each other, distance between their centers, **d** = r_1+r_2 .

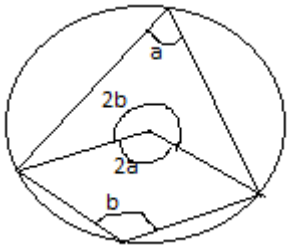
Cyclic Quadrilateral / चक्रीय चतुर्भुज: A quadrilareral drawn inside a cirlce with its vertices lying on the circumference./ एक वृत्त के अंदर बनाया गया चतुर्भुज जिसकी भुजाए परिधि पे हो|



Sum of opposite angles = 180 °

i.e. $\angle A+\angle C=\angle B+\angle C=180°$

Important result: In the following type of cyclic quadrilateral remember the relationship between the angles, as shown:/ निम्नलिखित प्रकार के चक्रीय चतुर्भुज में, कोण के बीच के संबंध को ध्यान रखें, जैसा कि दिखाया गया है:

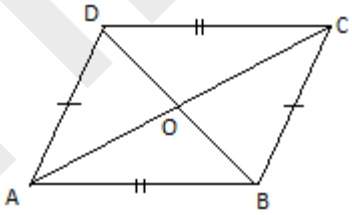


QUADRILATERAL/ चतुर्भुज

Any closed figure that has four sides is called a quadrilateral./ किसी भी बंद आकृति, जिसकी चार भुजाएं हो, को चतुर्भुज कहा जाता है।

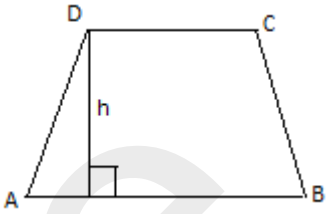
Depending on length of sides, orientation, they can be classified as followed:

1). **Parallelogram** / समानांतर चतुर्भुज: Opposite sides are equal and parallel./ विपरीत भुजाएं बराबर और समानांतर होती है|



- AB = DC and AD = BC
- $\angle A+\angle B=\angle B+\angle C=\angle C+\angle D=\angle D+\angle A=180°$
- $\angle A=\angle C$ and $\angle B=\angle D$
- $AC \neq OC$
- The diagonals bisect each other i.e./ विकर्ण एक दूसरे को विभाजित करते है: AO = OC and OB = OD
- All rectangles are parallelogram but all parallelogram are not rectangles. / सभी आयत, समानांतर चतुर्भुज हैं लेकिन सभी समानांतर चतुर्भुज आयताकार नहीं हैं।

2). **Trapezium** / समलम्ब चतुर्भुज: Only one pair of opposite sides are parallel. / विपरीत पक्षों की केवल एक जोड़ी समानांतर होती है।



Area of trapezium ABCD

= $\frac{1}{2}\times Sum\ of\ parallel\ side\times height$

= $\frac{1}{2}\times(AB+DC)\times h$

3). **Rhombus** / समचतुर्भुज: All sides are equal and opposite sides are parallel to each other./ सभी भुजाएं समान लम्बाई की हैं और विपरीत पक्ष एक दूसरे के समानांतर हैं।

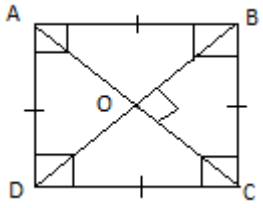
- $\angle A+\angle B=\angle B+\angle C=\angle C+\angle D=\angle D+\angle A=180°$
- $\angle A=\angle C$ and $\angle B=\angle D$
- $4a^2=d_1{}^2+d_2{}^2$
  i.e. Sum of squares of sides = Sum of squares of diagonals.
  भुजाओं के वर्गों का योग = विकर्णों के वर्गों का योग।
- Diagonals bisect each other at right angles and form four right angled triangles with equal areas.
  विकर्ण एक दूसरे को विभाजित करते है और बराबर छेत्रफल के चार समकोण त्रिभुज बनाते है|

$area\ of\ \Delta AOB=\Delta BOC=\Delta COD=\Delta DOA=\frac{1}{4}\times area\ of\ rhombus\ ABCD$

- The diagonals are not of equal lengths./ विकर्ण बराबर लम्बाई के नहीं होते|

4). **Square** / वर्ग: All sides are equal in length and adjacent sides are perpendicular to each other. /

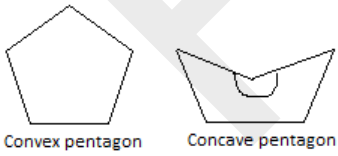
सभी भुजाएं लंबाई में बराबर हैं और आसन्न पक्ष एक दूसरे के लिए लंबवत हैं।



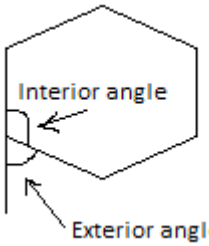
- AB = BC = CD = AD and $\angle A = \angle B = \angle C = \angle D = 90°$
- Diagonals bisect each other at right angles and form four right angled isosceles triangles.
  विकर्ण एक दूसरे को लंबवत द्विविभाजि करते है और चार समकोण त्रिभुज बनाते है|
- Diagonals are of equal length/ विकर्ण बराबर लंबाई के होते है: i.e. AC = BD.
- In a rectangle the diagonals do not intersect at right angles./ आयत में विकर्ण लंबवत नहीं होते

5). **Polygons:**/बहुभुज:

- Convex polygon: / उत्तल बहुभुज: All its interior angles are less than 180° ./ इसके सभी आंतरिक कोण 180° से कम होते है|
- Concave polygon / अवतल बहुभुज: At least one angle is more than 180°./ कम से कम एक आंतरिक कोण 180° से अधिक होता है|



- **Regular Polygons / समबहुभुज:** All sides and angles are equal./सभी भुजाएं और कोण बराबर हैं।



- o Sum of all exterior angles / सभी बाह्य कोणों का योग = 360°.
- o Each exterior angle / प्रत्येक बाह्य कोण = $\frac{360°}{n}$, where n = number of sides. / भुजाओ की संख्या
- o Exterior angle + Interior angle = 180°
  बाह्य कोण + आंतरिक कोण = 180°
- o In case of convex polygon, sum of all interior angles = $(2n-4)\times 90°$
  उत्तल बहुभुज में सभी आंतरिक कोण का योग $(2n-4)\times 90°$ होता है |
- o Number of diagonals = $\frac{n(n-1)}{2} - n$, n = number of sides.
  विकर्णों की संख्या = $\frac{n(n-1)}{2} - n$, n = भुजाओ की संख्या

Variety Questions

Q1. A circle is inscribed in a triangle ABC. It touches the sides AB, BC and AC at the points R, P and Q respectively. If AQ = 4.5 cm, PC = 5.5 cm and BR = 6 cm, then the perimeter of the triangle ABC is:

एक वृत्त किसी त्रिभुज ABC में अन्तर्निहित है | यह भुजाओं AB, BC और AC को क्रमशः बिंदु R, P और Q पर स्पर्श करता है | यदि AQ = 4.5 सेमी, PC = 5.5 सेमी और BR = 6 सेमी है, तो त्रिभुज ABC का परिमाप ज्ञात करें |

SSC CGL 4 June 2019(Morning)

(a) 30.5 cm
(b) 28 cm
(c) 32 cm
(d) 26.5 cm

Q2. In ΔABC, F and E are the points on sides AB and AC respectively, such that FE || BC and FE divides the triangle in two parts of equal area. If AD ⊥ BC and AD intersect FE at G, then GD : AG = ?

ΔABC में, F और E क्रमशः भुजा AB और AC पर स्थित ऐसे बिंदु हैं कि FE || BC है तथा FE त्रिभुज को बराबर क्षेत्रफल वाले दो भागों में विभाजित करती है | यदि AD ⊥ BC है और AD, FE को G पर काटती है, तो GD : AG = ?

SSC CGL 4 June 2019(Morning)

(a) $\sqrt{2} : 1$
(b) $(\sqrt{2} - 1) : 1$
(c) $2\sqrt{2} : 1$
(d) $(\sqrt{2} + 1) : 1$

Q3. In a circle of radius 10 cm, with centre O, PQ and PR are two chords each of length 12 cm. PO intersects chord QR at the points S. The length of OS is :

त्रिज्या 10 सेमी तथा केंद्र O वाले एक वृत्त में, PQ तथा PR दो जीवाएं हैं जिनमें से प्रत्येक की लंबाई 12 सेमी है | PO, जीवा QR को बिंदु S पर काटती है | OS की लंबाई है :

SSC CGL 4 June 2019(Morning)

(a) 2.8 cm
(b) 2.5 cm
(c) 3.2 cm
(d) 3 cm

Pinnacle

Q4. In a ΔABC, the bisectors of $\angle B$ and $\angle$C meets at point O inside the triangle. If $\angle$BOC = 122^0, then the measure of $\angle$A

ΔABC में, $\angle B$ तथा $\angle$C के द्विभाजक त्रिभुज के भीतर बिंदु O पर मिलते हैं | यदि $\angle$BOC = 122^0 है, तो $\angle$A का माप क्या होगा ?

SSC CGL 4 June 2019(Morning)

(a) 64^0

(b) 62^0

(c) 72^0

(d) 68^0

Q5. In ΔABC, AD $\perp$ BC and BE $\perp$ AC, AD and BE intersect each other at F. If BF = AC, then the measure of $\angle$ABC is:

त्रिभुज ABC में, AD $\perp$ BC है तथा BE $\perp$ AC है | AD और BD एक दूसरे को F पर काटते हैं | यदि BF = AC है, तो $\angle$ABC का माप क्या होगा ?

SSC CGL 4 June 2019(Afternoon)

(a) 45^0

(b) 60^0

(c) 70^0

(d) 50^0

Q6. Two circles of radii 10 cm and 8 cm intersect at the point P and Q. If PQ = 12 cm and the distance between the centres of the circle is x cm. The value of x (correct to one decimal place) is:

त्रिज्या 10 सेमी और 8 सेमी के दो वृत्त एक दूसरे को बिंदु P तथा Q पर काटते हैं | यदि PQ = 12 सेमी है तथा वृत्तों के केंद्र के बीच की दूरी x सेमी है, तो x का मान (एक दशमलव स्थान तक) ज्ञात करें|

SSC CGL 4 June 2019(Afternoon)

(a) 13.9

(b) 14.8

(c) 13.3

(d) 12.8

Q7. ΔABC is similar to ΔDEF. The area of ΔABC is 100 cm^2 and the area of ΔDEF is 49 cm^2. If the altitude of $\Delta ABC = 5cm$, then the corresponding altitude of ΔDEF is: त्रिभुज ABC त्रिभुज DEF के समरूप है | त्रिभुज ABC का क्षेत्रफल 100 वर्ग सेमी है तथा त्रिभुज DEF का क्षेत्रफल 49 वर्ग सेमी है | यदि त्रिभुज ABC की ऊंचाई = 5 सेमी है, तो त्रिभुज DEF की संगत ऊंचाई ज्ञात करें |

SSC CGL 4 June 2019(Afternoon)

(a) 7 cm

(b) 4.5 cm

(c) 6 cm

(d) 3.5 cm

Q8. AB and CD are two parallel chords of a circle such that AB = 6 cm and CD = 2AB. Both chords are on the same side of the centre of the circle. If the distance between is equal to one-fourth of the length of CD, then the radius of the circle is-

AB और CD किसी वृत्त की दो ऐसी समानांतर जीवाएं हैं कि AB = 6 सेमी है और CD = 2AB है | दोनों जीवाएं वृत्त के केंद्र के एक ही तरफ हैं | यदि बीच की दूरी CD की लंबाई के एक चौथाई के बराबर है, तो वृत्त की त्रिज्या ज्ञात करें |

SSC CGL 4 June 2019(Evening)

(a) $3\sqrt{5}$ cm

(b) $4\sqrt{3}$ cm

(c) $4\sqrt{5}$ cm

(d)$5\sqrt{3}$ cm

Q9. In a ΔABC, the sides AB and AC are extended to P and Q respectively. The bisectors of $\angle PBC$ and $\angle$QCB intersect at a point R. If $\angle R = 66^0$, then the measure of $\angle A$ is:

त्रिभुज ABC में, AB और AC भुजाओं को क्रमशः P और Q तक बढ़ाया जाता है | $\angle PBC$ तथा $\angle$QCB के द्विभाजक एक बिंदु R पर मिलते हैं | यदि $\angle R = 66^0$, है, तो कोण A का मान ज्ञात करें |

SSC CGL 4 June 2019(Evening)

(a) 36^0

(b) 24^0

(c) 48^0

(d) 72^0

Q10. ABCD is a cyclic quadrilateral in which $\angle A = 67^0$ and $\angle B = 92^0$. What is the difference between the measure of $\angle C$ and $\angle$D ?

ABCD एक चक्रीय चतुर्भुज है जिसमें $\angle A = 67^0$ और $\angle B = 92^0$ है | $\angle C$ और $\angle$D के माप में क्या अंतर है ?

SSC CGL 4 June 2019(Evening)

(a) 29^0

(b) 27^0

(c) 19^0

(d) 25^0

Q11. A circle is inscribed in ΔABC, touching AB at P, BC at Q and AC at R. If AR=5 cm, RC= 6 cm and AB=12 cm, then perimeter of ΔABC is:

एक वृत्त किसी त्रिभुज ABC में समाहित है जो AB को P पर, BC को Q पर तथा AC को R पर स्पर्श करता है | यदि AR = 5 सेमी और AB = 12 सेमी है, तो त्रिभुज ABC का परिमाप ज्ञात करें |

SSC CGL 6 June 2019(Morning)

(a) 40 cm

(b) 32 cm

(c) 37 cm

(d) 36 cm

Q12. ABCD is a cyclic quadrilateral whose diagonals intersect at P. If AB=BC, $\angle$DBC= 70^0 and $\angle$BAC= 30^0, then the measure of $\angle$PCD is: ABCD एक चक्रीय चतुर्भुज है जिसके विकर्ण एक-दूसरे को P पर काटते हैं | यदि AB = BC, $\angle$DBC= 70^0 तथा $\angle$BAC= 30^0 है, तो कोण PCD का

माप क्या है ? **SSC CGL 6 June 2019(Morning)**

(a) 35^0

(b) 50^0

(c) 55^0

(d) 30^0

Q13. G is the centroid of the triangle ABC, where AB, BC and CA are 7 cm, 24 cm and 25 cm respectively, then BG is:

G त्रिभुज ABC का केन्द्रक है जिसमें AB, BC और CA क्रमशः 7 सेमी, 24 सेमी और 25 सेमी हैं | BG का मान ज्ञात करें |

SSC CGL 6 June 2019(Morning)

(a) $6\frac{1}{3}$

(b) $8\frac{1}{3}$

(c) $5\frac{1}{2}$

(d) $4\frac{1}{6}$

Q14. ABCD is a trapezium in which AB parallel to DC and its diagonals intersect at P. If AP = (3x - 1) cm, PC = (5x - 3) cm, BP = (2x + 1) cm and PD = (6x - 5) cm, then the length of DB is:

ABCD एक समलम्ब है जिसमें AB, DC के समानांतर है तथा इसके विकर्ण P पर एक दूसरे को काटते हैं | यदि AP = (3x - 1) सेमी, PC = (5x - 3) सेमी, BP = (2x + 1) सेमी तथा PD = (6x - 5) सेमी है, तो DB की लंबाई क्या होगी ?

SSC CGL 6 June 2019(Morning)

(a) 14 cm

(b) 12 cm

(c) 10 cm

(d) 16 cm

Q15. In △ABC with sides 6 cm , 7 cm and 8 cm, the angle bisector of the largest angle divides the opposite side into two segments. What is the length of the shorter segment?

त्रिभुज ABC में, जिसकी भुजाएं 6 सेमी, 7 सेमी और 8 सेमी की हैं, सबसे बड़े कोण का कोण समद्विभाजक सामने की भुजा को दो खंड में विभाजित करता है | छोटे खंड की लंबाई ज्ञात करें |

SSC CGL 6 June 2019(Afternoon)

(a) $\frac{24}{5}$ cm

(b) $\frac{21}{5}$ cm

(c) $\frac{48}{13}$ cm

(d) $\frac{56}{13}$ cm

Q16. The vertices of △PQR lie on a circle with centre O. SR is a tangent to the circle at the point R. If QR bisects the ∠ORS, then what is the measure of ∠RPQ?

त्रिभुज PQR के शीर्ष बिंदु एक वृत्त पर अवस्थित हैं जिसका केंद्र O है | SR बिंदु R पर वृत्त की स्पर्श रेखा है | यदि QR, ∠ORS को द्विभाजित करता है, तो कोण RPQ का माप ज्ञात करें |

SSC CGL 6 June 2019(Afternoon)

(a) 60°

(b) 45°

(c) 40°

(d) 30°

Q17. In a circle with centre O, ACBO is a parallelogram where C is a point on the minor arc AB. What is the measure of ∠AOB?

केंद्र O वाले एक वृत्त में, ACBO एक समानांतर चतुर्भुज है जिसमें C छोटी चाप AB पर स्थित एक बिंदु है | कोण AOB का मान ज्ञात करें |

SSC CGL 6 June 2019(Afternoon)

(a) 150°

(b) 100°

(c) 110°

(d) 120°

Q18. In a circle with center O and radius 10 cm, PQ and RS are two parallel chords of lengths x cm and 12 cm, respectively, and both the chords are on the opposite sides of O. If the distance between PQ and RS is 14 cm, the value of x is :

केंद्र O तथा त्रिज्या 10 सेमी वाले एक वृत्त में, PQ और RS दो समानांतर जीवाएं हैं जिनकी लंबाई क्रमशः x सेमी और 12 सेमी है | दोनों जीवाएं O के विपरीत दिशा में हैं| यदि PQ और RS के बीच की दूरी 14 सेमी है, तो x का मान ज्ञात करें |

SSC CGL 6 June 2019(Evening)

(a) 16

(b) 20

(c) 15

(d) 18

Q19. PQRS is a cyclic quadrilateral. If angle P is three times the angle R and angle S is five times the angle Q , then the sum of angles Q and R is :

PQRS एक चक्रीय चतुर्भुज है | यदि कोण P कोण R का तिगुना है तथा कोण S कोण Q से पांच गुना है, तो कोण Q और R का योग ज्ञात करें |

SSC CGL 6 June 2019(Evening)

(a) 65°

(b) 70°

(c) 75°

(d) 72°

Q20. In △ACE , B and D are the points on side AC and CE , respectively, such that BD is parallel to AE and AE = (8/3)BD. What is the ratio of the area of △BDC to that of △AEC.

△ACE में, B और D वे बिंदु हैं जो क्रमशः भुजा AC और CE पर इस प्रकार स्थित हैं कि BD, AE के समानांतर है तथा AE = (8/3)BD है | △BDC तथा △AEC के क्षेत्रफल में अनुपात ज्ञात करें |

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(a) 9 : 64

(b) 3 : 8

(c) 8 : 11

(d) 9 : 16

Q21. The radii of three concentric circles are in the ratio 4 : 5 : 7 . What is the ratio of the area

between the two inner circles to that between the two outer circles?
तीन संकेंद्री वृत्तों की त्रिज्याएँ 4 : 5 : 7 के अनुपात में हैं | दो आतंरिक वृत्तों के बीच के क्षेत्रफल तथा दो बाह्य वृत्तों के बीच के क्षेत्रफल के बीच अनुपात ज्ञात करें |
SSC CGL 6 June 2019(Evening)
(a) 4 : 7
(b) 5 : 9
(c) 4 : 5
(d) 3 : 8

Q22. The area of a △ ABC is one unit. DE is a straight line parallel to BC , joining the points D and E on AB and AC respectively such that AD : DB = 1 : 6. The ratio of the areas of the triangles ADE and ABC is :
एक त्रिभुज ABC का क्षेत्रफल 1 इकाई है | DE, BC के समानांतर एक सीधी रेखा है जो क्रमशः AB और AC पर स्थित बिंदु D तथा E को इस प्रकार जोड़ती है कि AD : DB = 1 : 6 है | त्रिभुज ADE और ABC के क्षेत्रफल में अनुपात ज्ञात करें |
SSC CGL 6 June 2019(Evening)
(a) 1 : 36
(b) 1 : 49
(c) 1 : 6
(d) 1 : 7

Q23. In △ ABC , D is a point on AC such that AB = BD = DC. If ∠BAD = 70°, then the measure of ∠B is : त्रिभुज ABC में, D एक ऐसा बिंदु है कि AB = BD = DC है | यदि ∠BAD = 70° है, तो कोण B का मान ज्ञात करें |
SSC CGL 6 June 2019(Evening)
(a) 75°
(b) 80°
(c) 82°
(d) 70°

Q24. AB is a diameter of a circle with centre O. CB is a tangent to the circle at B. AC intersects the circle at G. If the radius of the circle is 6cm and AG = 8cm, then the length of BC is :
AB एक वृत्त का व्यास है जिसका केंद्र O है | CB, B पर वृत्त की स्पर्श रेखा है | AC, वृत्त को G पर काटता है | यदि वृत्त की त्रिज्या 6 सेमी है तथा AG = 8 सेमी है, तो BC की लंबाई ज्ञात करें |
SSC CGL 7 June 2019(Morning)
(a) $2\sqrt{5}$ cm
(b) $6\sqrt{6}$ cm
(c) $2\sqrt{6}$ cm
(d) $6\sqrt{5}$ cm

Q25. A circle is inscribed in quadrilateral touching sides AB , BC , CD and AD at the points P , Q , R and S respectively. If BP = 4cm, SD = 6cm and BC = 7cm, then the length of DC is:
एक वृत्त किसी चतुर्भुज के भीतर स्थित है जो भुजाओं AB, BC, CD और AD को क्रमशः P, Q, R और S पर स्पर्श करता है | यदि BP = 4 सेमी, SD = 6 सेमी और BC = 7 सेमी है, तो DC की लंबाई ज्ञात करें |
SSC CGL 7 June 2019(Morning)
(a) 8 cm
(b) 9 cm
(c) 10 cm
(d) 7 cm

Q26. The sides AB and AC of a △ ABC are extended to P and Q respectively. If the bisectors of ∠PBC and ∠QCB intersect at O, and ∠A = 92°, then ∠BOC is equal to :
एक त्रिभुज ABC की भुजाओं AB और AC को क्रमशः P तथा Q तक बढ़ाया जाता है | यदि ∠PBC तथा ∠QCB के समद्विभाजक एक दूसरे को O पर काटते हैं तथा ∠A = 92° है, तो ∠BOC किसके बराबर है ?
SSC CGL 7 June 2019(Morning)
(a) 44°
(b) 46°
(c) 88°
(d) 42°

Q27. In △ ABC , AD bisects ∠A and intersects BC at D. If BC = a , AC = b and AB = c, then BD = ?
त्रिभुज ABC में AD कोण A को समद्विभाजित करता है तथा BC को D पर काटता है | यदि BC = a, AC = b और AB = c है, तो BD = ?
SSC CGL 7 June 2019(Morning)
(a) $\frac{ac}{b+c}$
(b) $\frac{bc}{c+a}$
(c) $\frac{ac}{b+a}$
(d) $\frac{ab}{b+c}$

Q28. In △ABC , ∠A is a right angle. The lengths of AC and BC 6 cm and 10 cm respectively. Point D is on AB such that BD = 4 cm. What is the length of CD?
त्रिभुज ABC में, कोण A समकोण है | AC और BC की लंबाई क्रमशः 6 सेमी और 10 सेमी है | बिंदु D, AB पर इस प्रकार स्थित है कि BD = 4 सेमी है | CD की लंबाई ज्ञात करें |
SSC CGL 7 June 2019(Afternoon)
(a) $2\sqrt{13}$ cm
(b) $3\sqrt{10}$ cm
(c) $2\sqrt{10}$ cm
(d) $3\sqrt{13}$ cm

Q29. ABCD is a quadrilateral whose side AB is the diameter of a circle through A, B, C and D. If ∠ADC = 130°, then the measure of ∠BAC is : ABCD एक चतुर्भुज है जिसकी भुजा AB, A, B, C और D से गुजरने वाले वृत्त का व्यास है | यदि ∠ADC = 130° है, तो कोण BAC का मान ज्ञात करें |
SSC CGL 7 June 2019(Afternoon)
(a) 40°
(b) 45°
(c) 35°
(d) 50°

Q30. In a circle of radius 10 cm and centre O, PQ and PR are two equal chords , each of length 12

cm. What is the length (in cm) of chord QR?
केंद्र O तथा त्रिज्या 10सेमी वाले वृत्त में, PQ और PR दो बराबर जीवाएं हैं जिनमें से प्रत्येक की लंबाई 12 सेमी है | जीवा QR की लंबाई क्या है ?
SSC CGL 7 June 2019(Afternoon)
(a) 18.6
(b) 20.4
(c) 18.4
(d) 19.2

Q31. The base and altitude of an isosceles triangle are 10 cm and 12 cm respectively. Then the length of each equal side is:
एक समद्विबाहु त्रिभुज का आधार तथा उसकी ऊंचाई क्रमशः 10 सेमी और 12 सेमी है| प्रत्येक बराबर भुजा की लंबाई ज्ञात करें |
SSC CGL 7 June 2019(Evening)
(a) 10 cm
(b) 7.5 cm
(c) 8.5 cm
(d) 13 cm

Q32. In a circle with centre O, PQR is a tangent at the point Q on it. AB is a chord in the circle parallel to the tangent such that ∠BQR = 70°. What is the measure of ∠AQB?
केंद्र O वाले एक वृत्त में, PQR इस पर स्थित बिंदु Q पर एक स्पर्श रेखा है | AB वृत्त में एक जीवा है जो स्पर्श रेखा से इस प्रकार समानांतर है कि ∠BQR = 70° है | ∠AQB का मान ज्ञात करें |
SSC CGL 7 June 2019(Evening)
(a) 40°
(b) 60°
(c) 55°
(d) 35°

Q33. Two chords AB and CD of lengths 5 cm and 11 cm respectively, are parallel and are on the same side of the centre O of a circle. If the distance between the chords is 3 cm, then what is the diameter of the circle?
लंबाई क्रमशः 5 सेमी और 11 सेमी की दो जीवाएं AB और CD समानांतर हैं तथा वृत्त के केंद्र O के एक ही तरफ स्थित हैं | यदि जीवाओं के बीच की दूरी 3 सेमी है, तो वृत्त का व्यास क्या होगा ?
SSC CGL 7 June 2019(Evening)
(a) 37 cm
(b) $\sqrt{146}$ cm
(c) $\sqrt{142}$ cm
(d) 38 cm

Q34. In △ABC, AM is perpendicular on BC and AN is bisector of ∠A. What is the measure of ∠MAN, if ∠B = 55° and ∠C = 35° ?
त्रिभुज ABC में, AM, BC पर लम्ब है तथा AN कोण A का द्विभाजक है | ∠MAN का मान ज्ञात करें यदि ∠B = 55° and ∠C = 35 है |
SSC CGL 7 June 2019(Evening)
(a) 10°
(b) 12°
(c) 15°
(d) 5°

Q35 . A circle touches the side PQ of a △APQ at the point R and sides AP and AQ produced at the points B and C, respectively. If the perimeter of △APQ = 30 cm, then the length of AB is :
एक वृत्त त्रिभुज APQ की भुजा PQ को बिंदु R पर स्पर्श करता है तथा भुजाओं AP और AQ को क्रमशः बिंदु B और C तक बढ़ाया जाता है | यदि त्रिभुज APQ का परिमाप = 30 सेमी है, तो AB की लंबाई ज्ञात करें |
SSC CGL 10 June 2019(Morning)
(a) 20 cm
(b) 10 cm
(c) 12 cm
(d) 15 cm

Q36. In a △ABC, right angled at B, AB = 7 cm and (AC - BC) = 1 cm. The value of (secC + cotA) is :
त्रिभुज ABC में, जिसमें B समकोण है, AB = 7 सेमी और (AC - BC) = 1 सेमी है | (secC + cotA) का मान ज्ञात करें |
SSC CGL 10 June 2019(Morning)
(a) $\frac{19}{24}$
(b) $\frac{4}{3}$
(c) $\frac{3}{4}$
(d) 1

Q37. In △PQR, QT is perpendicular to PR and s is a point on QR such that , ∠PSQ = p°. If ∠TQR = 46° and ∠SPR = 32°, then the value of p is : त्रिभुज PQR में, QT, PR पर लंब है और QR पर बिंदु s इस प्रकार पर है कि ∠PSQ = p° है | यदि ∠TQR = 46° और ∠SPR = 32° है, तो p का मान ज्ञात करें |
SSC CGL 10 June 2019(Morning)
(a) 78°
(b) 82°
(c) 76°
(d) 72°

Q38. In △ADC, E and B are the points on the sides AD and AC respectively such that ∠ABE = ∠ADC. If AE = 6cm, BC = 2cm, BE = 3cm and CD = 5cm, then (AB + DE) is :
त्रिभुज ADC में, E और D क्रमशः भुजाओं AD और AC पर स्थित ऐसे बिंदु हैं कि ∠ABE = ∠ADC है | यदि AE = 6 सेमी, BC = 2 सेमी तथा BE = 3 सेमी और CD = 5 सेमी है, तो (AB + DE) का मान ज्ञात करें |
SSC CGL 10 June 2019(Morning)
(a) 14 cm
(b) 16 cm
(c) $\frac{49}{3}$ cm
(d) $\frac{46}{3}$ cm

Q39. Let O be the centre of a circle and AC be its diameter. BD is a chord intersecting AC at E. Point A is joined at B and D. If $\angle BOC = 50°$ and $\angle AOD = 110°$, then $\angle BEC = ?$
मान लीजिये कि O एक वृत्त का केंद्र है तथा AC इसका व्यास है | BD एक जीवा है जो AC को E पर काटती है | बिंदु A को B और D पर मिलाया जाता है | यदि $\angle BOC = 50°$ और $\angle AOD = 110°$ है, तो $\angle BEC = ?$
SSC CGL 10 June 2019(Morning)
(a) 80°
(b) 70°
(c) 55°
(d) 90°

Q40. In a circle with centre O, AB is the diameter and CD is a chord such that ABCD is a trapezium. If $\angle BAC = 40°$, then $\angle CAD$ is equal to:
केंद्र O वाले एक वृत्त में, AB व्यास है और CD एक ऐसी जीवा है कि ABCD समलम्ब है | यदि $\angle BAC = 40°$ है, तो $\angle CAD$ ज्ञात करें |
SSC CGL 10 June 2019(Afternoon)
(a) 15°
(b) 20°
(c) 50°
(d) 10°

Q41. $\triangle ABC \sim \triangle RQP$ and AB = 4 cm, BC = 6 cm and AC = 5 cm. If $ar(\triangle ABC) : ar(\triangle PQR) = 9 : 4$, then PQ is equals to :
$\triangle ABC \sim \triangle RQP$ है तथा AB = 4 सेमी, BC = 6 सेमी और AC = 5 सेमी है | यदि $ar(\triangle ABC) : ar(\triangle PQR) = 9 : 4$ है, तो PQ किसके बराबर है ?
SSC CGL 10 June 2019(Afternoon)
(a) $\frac{20}{9}$ cm
(b) $\frac{8}{3}$ cm
(c) 4 cm
(d) $\frac{10}{3}$ cm

Q42. From a point P, outside a circle, PAB is a secant and PT is a tangent to the circle, where A, B and T are points on the circle. If PT = 5cm, PA = 4cm and AB = x, then x is equal to: वृत्त के बाहर एक बिंदु P से, PAB एक छेदक रेखा तथा PT वृत्त की एक स्पर्श रेखा है एवं A, B और T वृत्त पर स्थित बिंदु हैं | यदि PT = 5 सेमी, PA = 4 सेमी तथा AB = x सेमी है, तो x का मान किसके बराबर होगा ?
SSC CGL 10 June 2019(Afternoon)
(a) 2.25
(b) 2.75
(c) 2.45
(d) 1.75

Q43. In △ ABC, AD is the median and G is a point on AD such that AG : GD = 2 : 1, then ar(△ BDG) : (△ ABC) is equal to :
त्रिभुज ABC में, AD माध्यिका है तथा G, AD पर ऐसा बिंदु है कि AG : GD = 2 : 1 है, तो ar(△ BDG) : (△ ABC) का मान ज्ञात करें |
SSC CGL 10 June 2019(Afternoon)
(a) 1 : 4
(b) 1 : 9
(c) 1 : 6
(d) 1 : 3

Q44. In a △ ABC, the sides are AB = 16cm, AC = 63cm, BC = 65cm. From A, a straight line AM is drawn up to the midpoint M of side BC. Then the length of AM is equal to :
त्रिभुज ABC में, AB = 16 सेमी, AC = 63 सेमी, BC = 65 सेमी है | A से भुजा BC के मध्य बिंदु M तक एक सीधी रेखा AM खींची जाती है | AM की लंबाई ज्ञात करें |
SSC CGL 10 June 2019(Evening)
(a) 32.5cm
(b) 24.5cm
(c) 23.5cm
(d) 31.5cm

Q45. Chords AB and CD of a circle, when produced, meet at point P outside the circle. If AB = 6 cm, CD = 3 cm and PD = 5 cm, then PB is equal to :
एक वृत्त की जीवाएं AB और CD को जब बढ़ाया जाता है तो वे वृत्त के बाहर बिंदु P पर मिलती हैं | यदि AB = 6 सेमी, CD = 3 सेमी और PD = 5 सेमी है, तो PB का मान क्या होगा ?
SSC CGL 11 June 2019(Morning)
(a) 6 cm
(b) 6.25 cm
(c) 5 cm
(d) 4 cm

Q46. In ΔABC, P is a point on BC such that BP : PC = 2 : 3 and Q is the midpoint of BP. Then $(\Delta ABQ) : (\Delta ABC)$ is equal to:
त्रिभुज ABC में, P, BC पर स्थित एक ऐसा बिंदु है कि BP : PC = 2 : 3 है और Q, BP का मध्य बिंदु है | $(\Delta ABQ) : (\Delta ABC)$ ज्ञात करें |
SSC CGL 12 June 2019(Morning)
(a) 2 : 5
(b) 1 : 5
(c) 1 : 4
(d) 2 : 3

Q47. In a circle with centre O, an arc ABC subtends an angle of 132^0 at the centre of the circle. Chord AB is produced to point P. Then $\angle CBP$ is equal to :
केंद्र O वाले एक वृत्त में, चाप ABC वृत्त के केंद्र पर 132^0 का कोण अंतरित करता है | जीवा AB को बिंदु P तक बढ़ाया जाता है | तो $\angle CBP$ का मान क्या होगा ?
SSC CGL 12 June 2019(Afternoon)
(a) 48^0
(b) 68^0

(c) 66^0
(d) 76^0

Q48. In a circle of radius 13cm, a chord is at a distance of 5cm from its centre. What is the length of the chord?
13 सेमी त्रिज्या वाले एक वृत्त में, इसके केंद्र से 5 सेमी की दूरी पर एक जीवा है | जीवा की लंबाई क्या है ?
SSC CGL 12 June 2019(Afternoon)
(a) 18cm
(b) 20cm
(c) 12cm
(d) 24cm

Q49. PA and PB are tangents to a circle with centre O, from a point P outside the circle, and A and B are points on the circle. If ∠APB = 40°, then ∠OAB is equal to:
PA तथा PB एक वृत्त के बाहर स्थित बिंदु P से वृत्त की स्पर्श रेखाएं हैं जिसका केंद्र O है तथा A और B वृत्त पर स्थित बिंदु हैं | यदि ∠APB = 40° है, तो ∠OAB का मान ज्ञात करें |
SSC CGL 13 June 2019(Evening)
(a)50°
(b)20°
(c)25°
(d)40°

Q50. If the radius of the circumcircle of an equilateral triangle is 8 cm, then the measure of radius of its incircle is: यदि एक समबाहु त्रिभुज के परिवृत्त की त्रिज्या 8 सेमी है, तो इसके अंतःवृत्त की त्रिज्या का मान ज्ञात करें |
SSC CGL 13 June 2019(Evening)
(a)8 cm
(b)12 cm
(c)16 cm
(d)4 cm

Q51. In a circle with centre O, AD is a diameter and AC is a chord. B is a point on AC, such that OB = 5 cm and ∠OBA = 60°. If ∠DOC = 60°, then what is the length of BC?
केंद्र O वाले एक वृत्त में, AD व्यास है तथा AC जीवा है | B, AC पर स्थित बिंदु है जो इस प्रकार है कि OB = 5 सेमी तथा ∠OBA = 60° है | यदि ∠DOC = 60° है, तो BC की लंबाई ज्ञात करें |
SSC CHSL 1 July 2019(Evening)
(a) 4 cm
(b) $3\sqrt{5}$ cm
(c) $5\sqrt{3}$ cm
(d) 5 cm

Q52. Tangents AB and AC are drawn to a circle from a point A, such that, ∠BAC = 40°. A chord CP is drawn parallel to BA. The measure of ∠CBP is:
एक बिंदु A से एक वृत्त पर AB और AC स्पर्श रेखाएं इस प्रकार खींची जाती हैं कि ∠BAC = 40° है | BA के समानांतर एक जीवा CP खींची जाती है | ∠CBP का मान है :
SSC CHSL 1 July 2019(Evening)
(a) 55°
(b) 45°
(c) 35°
(d) 40°

Q53. In △ABC, D is a point on side AB, such that, BD = 2cm and DA = 3cm. E is a point on BC such that DE ∥ AC and AC = 4 cm. Then (Area of △BDE) : (Area of trapezium ACED) is:
त्रिभुज ABC में, D, भुजा AB पर स्थित ऐसा बिंदु है कि BD = 2 सेमी और DA = 3 सेमी है | E, BC पर स्थित ऐसा बिंदु है कि DE|| AC है और AC = 4 सेमी है | तो त्रिभुज (BDE का क्षेत्रफल) : (समलम्ब ACED का क्षेत्रफल) ज्ञात करें |
SSC CHSL 1 July 2019(Evening)
(a) 4 : 21
(b) 2 : 5
(c) 1 : 5
(d) 4 : 25

Q54. Two concentric circles are of radius 15 cm and 9 cm. What is the length of the chord of the larger circle which is tangent to the smaller circle? त्रिज्या 15 सेमी तथा 9 सेमी वाले दो संकेंद्री वृत्त हैं | बड़े वृत्त की जीवा की लंबाई कितनी होगी जो छोटे वृत्त पर स्पर्श रेखा है ?
SSC CHSL 2 July 2019(Morning)
(a) 24 cm
(b) 18 cm
(c) 20 cm
(d) 25 cm

Q55. Two circles of radius 15 cm and 12 cm intersect each other, and the length of their common chord is 18 cm. What is the distance (In cm) between their centres?
15 सेमी तथा 12 सेमी त्रिज्या वाले दो वृत्त एक दूसरे को काटते हैं तथा तथा उनकी उभयनिष्ठ जीवा की लंबाई 18 सेमी है | उनके केंद्रों के बीच की दूरी ज्ञात करें | **SSC CHSL 2 July 2019(Morning)**
(a) $18 + \sqrt{7}$
(b) $15 + \sqrt{7}$
(c) $12 + 2\sqrt{7}$
(d) $12 + 3\sqrt{7}$

Q56. In △ABC, the bisectors of ∠B and ∠C intersect each other at a point D. If ∠BDC = 104°, then the measure of ∠A is:
त्रिभुज ABC में, ∠B और ∠C के द्विभाजक एक दूसरे को एक बिंदु D पर काटते हैं | यदि ∠BDC = 104° है, तो ∠A का मान क्या होगा ?
SSC CHSL 2 July 2019(Afternoon)
(a) 28°
(b) 32°
(c) 30°
(d) 26°

Q57. PAT is a tangent to a circle at a point A on it , and AB is a chord such that, ∠BAT = 72°. If C is a point on the circle such that ∠CBA

= 58°, then what is the measure of ∠CAB?
PAT एक वृत्त के बिंदु A से इस पर खींची गयी स्पर्श रेखा है तथा AB एक ऐसी जीवा है कि ∠BAT = 72° है| यदि C वृत्त पर स्थित ऐसा बिंदु है कि ∠CBA = 58° है, तो ∠CAB का मान ज्ञात करें |
SSC CHSL 2 July 2019(Afternoon)
(a) 50°
(b) 62°
(c) 48°
(d) 60°

Q58. The vertices A, B, C and D of a quadrilateral ABCD lie on a circle. ∠A is thrice ∠C and ∠D is twice ∠B. What is the difference between the measures of ∠B and ∠C?
किसी चतुर्भुज ABCD के शीर्ष बिंदु A, B, C और D एक वृत्त पर स्थित हैं | कोण A कोण C से तिगुना है तथा कोण D कोण B से दोगुना है | कोण B और कोण C के मान में क्या अंतर है ?
SSC CHSL 2 July 2019(Afternoon)
(a) 15°
(b) 28°
(c) 18°
(d) 20°

Q59. in a circle, chords AB and CD intersect each other at E. If CD = 18 cm, DE = 6 cm and AE = 18 cm, then BE = ?
एक वृत्त में, जीवा AB और CD एक दूसरे को E पर काटते हैं | यदि CD = 18 सेमी, DE = 6 सेमी और AE = 18 सेमी है, तो BE = ?
SSC CHSL 2 July 2019(Evening)
(a) 6 cm
(b) 8 cm
(c) 3 cm
(d) 4 cm

Q60. In △ABC, ∠A = 90°. If BL and CM are medians, then:
△ABC में, ∠A = 90° है | यदि BL और CM मध्यिकाएं हैं, तो :
SSC CHSL 2 July 2019(Evening)
(a) $4(BL^2 + CM^2) = 3BC^2$
(b) $4(BL^2 + CM^2) = 5BC^2$
(c) $3(BL^2 + CM^2) = 4BC^2$
(d) $5(BL^2 + CM^2) = 4BC^2$

Q61. In △ABC, BD is perpendicular to AC. E is a point on BC such that ∠BEA = x°. If ∠EAC = 38° and ∠EBD = 40°, then the value of x is: त्रिभुज ABC में, BD, AC पर लम्ब है | E, BC पर स्थित ऐसा बिंदु है कि ∠BEA = x° है | यदि ∠EAC = 38° और ∠EBD = 40° है, तो x का मान क्या होगा ?
SSC CHSL 3 July 2019(Morning)
(a) 88°
(b) 68°
(c) 78°
(d) 72°

Q62. O is the centre of a circle to which PAX and PBY are tangents from a point P at points A and B. Q is a point on the circle ,such that ∠QAX = 49° and ∠QBY = 62°. What is the measure of ∠AQB?
O एक वृत्त का केंद्र है जिस पर PAX और PBY स्पर्श रेखाएं हैं जो बिंदु P से A और B पर खींची गयी हैं | Q, वृत्त पर स्थित एक बिंदु है जो इस प्रकार है कि ∠QAX = 49° और ∠QBY = 62° है | ∠AQB का मान क्या है ?
SSC CHSL 3 July 2019(Morning)
(a) 67°
(b) 59°
(c) 69°
(d) 63°

Q63. In △ABC, AD is the bisector of ∠BAC, meeting BC at D. If AC = 21 cm, BC = 12 cm and the length BD is 2 cm less than DC, then the length of side AB is :
त्रिभुज ABC में, AD, ∠BAC का द्विभाजक है जो BC से D पर मिलता है | यदि AC = 21 सेमी, BC = 12 सेमी है और BD की लंबाई DC से 2 सेमी कम है, तो भुजा AB की लंबाई ज्ञात करें |
SSC CHSL 3 July 2019(Evening)
(a) 14 cm
(b) 15 cm
(c) 18 cm
(d) 10 cm

Q64. In a circle with centre O, A diameter AB and a chord CD intersect each other at E, Ac and AD are joined. If ∠BOC = 48° and ∠AOD = 100°, then what is the measure of ∠CEB? केंद्र O वाले एक वृत्त में, व्यास AB तथा जीवा CD एक दूसरे को E पर काटते हैं | AC तथा AD को मिलाया जाता है | यदि ∠BOC = 48° है और ∠AOD = 100° है, तो ∠CEB का मान ज्ञात करें |
SSC CHSL 3 July 2019(Evening)
(a) 72°
(b) 74°
(c) 78°
(d) 82°

Q65. ABCD is a cyclic quadrilateral such that its sides AD and BC produced meet at P and sides AB and DC produced meet at Q. If ∠A = 62° and ∠ABC = 74°, then the difference between ∠P and ∠Q is :
ABCD एक चक्रीय चतुर्भुज है जो इस प्रकार है कि इसकी भुजाओं AD और BC को बढ़ाने पर वे P पर मिलती हैं तथा AB और DC को बढ़ाने पर वे Q पर मिलती हैं | यदि ∠A = 62° और ∠ABC = 74° है, तो ∠P और ∠Q के बीच अंतर ज्ञात करें |
SSC CHSL 4 July 2019(Morning)
(a) 44°
(b) 23°
(c) 32°
(d) 38°

Q66. In ΔABC, D is a point on BC such that $\angle BAD = \frac{1}{2}\angle ADC$, $\angle BAC = 87°$ and $\angle C = 42°$. What is the measure of $\angle ADB$?
त्रिभुज ABC में, D, BC पर स्थित एक बिंदु है जो इस प्रकार है कि $\angle BAD = \frac{1}{2}\angle ADC$, $\angle BAC = 87°$ तथा $\angle C = 42°$ है | कोण ADB का माप क्या होगा ?
SSC CHSL 4 July 2019(Morning)
(a) 94°
(b) 68°
(c) 102°
(d) 78°

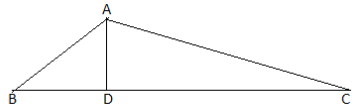
Q67. In a circle with centre O, AB is a diameter. Points C, D and E are on the circle on one side of AB such that ABEDC is a pentagon. The sum of angles ACD and DEB is :
केंद्र O वाले एक वृत्त में, AB एक व्यास है | बिंदु C, D तथा E AB के एक तरफ वृत्त इस प्रकार स्थित हैं कि ABEDC एक पंचभुज है | कोण ACD और DEB का योग ज्ञात करें |
SSC CHSL 4 July 2019(Morning)
(a) 240°
(b) 225°
(c) 270°
(d) 180°

Q68. ΔABC is a triangle, where $\angle B$ is obtuse. AD is perpendicular on CB produced at D. If AB = 8cm, BC = 7cm and BD = 4cm, then AC is equal to :
ABC एक त्रिभुज है, जिसमें कोण B अधिक कोण है | AD, CB पर लम्ब है जिसे D पर डाला गया है | यदि AB = 8 सेमी, BC = 7 सेमी और BD = 4 सेमी है, तो AC किसके बराबर है ?
SSC CHSL 4 July 2019(Morning)
(a) 14cm
(b) 13cm
(c) 15cm
(d) 12 cm

Q69. The ratio of the areas of two triangles ABC and PQR is 3:5 and the ratio of their heights is 5:3. The ratio of the bases of triangle ABC to triangle PQR is :
दो त्रिभुजों ABC और PQR के क्षेत्रफलों का अनुपात 3 : 5 है तथा उनकी ऊंचाई का अनुपात 5 : 3 है | त्रिभुज ABC और त्रिभुज PQR के आधारों के बीच अनुपात ज्ञात करें|
SSC CHSL 5 July 2019(Afternoon)
(a) 1:1
(b) 25:9
(c) 9:25
(d) 2:1

Q70. There is a polygon of 11 sides. How many triangles can be drawn by only using the vertices of the polygon?
11 भुजाओं का एक बहुभुज है | बहुभुज के केवल शीर्षों का प्रयोग करके कितने त्रिभुज खींचे जा सकते हैं ?
SSC CHSL 8 July 2019(Afternoon)
(a) 165
(b) 150
(c) 175
(d) 180

Q71. In the traingle given above $\angle ADB = 90°$, $\angle ABC = 45°$, AD = 10cm, AC = 20 cm. The length of BC is:
ऊपर दिए गए त्रिभुज में, $\angle ADB = 90°$, $\angle ABC = 45°$, AD = 10 सेमी, AC = 20 सेमी है| BC की लंबाई ज्ञात करें |
SSC CPO 16 March 2019(Afternoon)

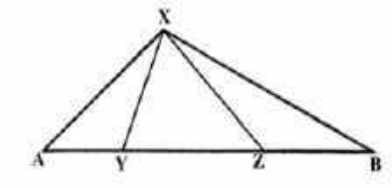


(a)10 cm
(b)27.32 cm
(c)18.42 cm
(d)14.14 cm

Q72. PA and PB are two tangents to a circle with centre O from a point P outside the circle.A and B are points on the circle. If $\angle OAB = 35°$ than $\angle APB$ is equal to:
PA और PB केंद्र O वाले एक एक वृत्त की दो स्पर्शरेखाएं हैं जो वृत्त के बाहर स्थित बिंदु P से निकली हैं | A और B वृत्त पर स्थित दो बिंदु हैं | यदि कोण OAB = 35° है, तो कोण APB किसके बराबर होगा ? **SSC CPO 16 March 2019(Morning)**
(a) 70°
(b) 20°
(c) 25°
(d) 35°

Q73. PA and PB are two tangents from a point P outside a circle with centre O. If A and B are points on the circle such that $\angle APB = 80°$, then $\angle OAB$ is equal to:
PA और PB केंद्र O वाले वृत्त के बाहर स्थित बिंदु P से निकली दो स्पर्श रेखाएं हैं | यदि A और B वृत्त पर स्थित ऐसे दो बिंदु हैं कि $\angle APB = 80°$ है, तो $\angle OAB$ का मान क्या होगा ?
SSC CPO 12 March 2019(Evening)
(a) 55°
(b) 45°
(c) 50°
(d) 40°

Q74. In the given figure, XYZ is an equilateral triangle. $\angle XAY = 40^0$, $\angle XBZ = 30^0$ then $\angle AXB$ is equal to: दी गयी आकृति में XYZ एक समबाहु त्रिभुज है | $\angle XAY = 40^0$, $\angle XBZ = 30^0$ है, तो $\angle AXB$ का मान किसके बराबर है ?
SSC CPO 14 March 2019(Morning)



(a) 110^0
(b) 60^0
(c) 80^0
(d) 90^0

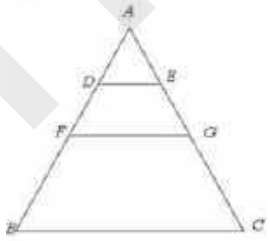
Q75. Side AB of a triangle ABC is 80 cm long, whose perimeter is 170 cm. If angle ABC= 60^0, the shortest side of triangle ABC measures_____cm. एक त्रिभुज ABC की भुजा AB 80 सेमी लंबी है जिसका परिमाप 170 सेमी है | यदि कोण ABC = 60^0 है, तो त्रिभुज ABC की सबसे छोटी भुजा का माप _____ सेमी होगा |
SSC CPO 16 March 2019(Evening)
(a)17
(b)15
(c)25
(d)21

Q76. A unique circle can always be drawn through x number of given non-collinear points, then x must be: / एक अद्वितीय वृत्त हमेशा x संख्या में दिए गए गैर-संरेखीय बिंदुओं से खींचा जा सकता है | x का मान होना चाहिए -
SSC CPO 16 March 2019(Evening)
(a)2
(b)3
(c)4
(d)1

Q77. Which of the following solids has the least number of faces?
निम्न में से किस ठोस के फलकों की संख्या सबसे कम होती है ?
SSC CPO 15 March 2019(Morning)
(a) Cube/ घन
(b) Cone/ शंकु
(c) Triangular prism / त्रिभुजाकार प्रिज्म
(d) Square pyramid / वर्गाकार पिरामिड

Q78. The angles of a triangle are 2x - 3, x + 12, x - 1. Biggest angle of the triangle is :
त्रिभुज के कोण 2x - 3, x + 12, x - 1. तो त्रिभुज का सबसे बड़ा कोण है:
SSC CPO 14 March 2019(Evening)
(a) 42
(b) 83
(c) 94
(d) 55

Q79. In the given triangle, D and E is the middle point of AF and AG, respectively, F and G are the midpoint of AB and AC respectively. If DE is 2.4 cm then what is the value of BC? नीचे दिए गए त्रिभुज में , D और E क्रमश : AF और AG के मध्य बिंदु है , F और G क्रमश : AB और AC के मध्य बिंदु है | यदि DE = 2.4 cm है तो BC का मान क्या है ?
SSC CPO 14 March 2019(Evening)



(a) 4.8 cm
(b) 7.2 cm
(c) 9.6 cm
(d) 3.6 cm

Q80. The ratio between a base angle and a vertical angle of an isosceles triangle (base angles being equal) is 2:5. The vertical angle is:
किसी समद्विबाहु त्रिभुज (जिसके आधार कोण बराबर हैं) के एक आधार कोण और एक कोण के बीच का अनुपात 2 : 5 हैं | उध्वाधर कोण क्या होगा ?
SSC CPO 15 March 2019(Evening)
(a) 80^0
(b) 140^0
(c) 100^0
(d) 40^0

Q81. A triangle ABC is inscribed in a circle with centre O. AO is produced to meet the circle at K and AD ⊥ BC. If ∠B = 80^0 and ∠C = 64^0, then the measure of ∠DAK is :
एक त्रिभुज ABC किसी वृत्त में अंतर्निहित है जिसका केंद्र O है | AO को बढ़ाया जाता है जो वृत्त से K पर मिलता है और AD ⊥ BC है | यदि ∠B = 80^0 और ∠C = 64^0 है, तो ∠DAK का माप क्या होगा ?
SSC CGL 4 June 2019(Afternoon)
(a) 10^0
(b) 16^0
(c) 12^0
(d) 20^0

Q82. In △ABC, AB = 7 cm, BC = 24 cm and AC = 25 cm. If G is the centroid of the triangle, then what is the length (In cm) of BG?
त्रिभुज ABC में, AB = 7 सेमी, BC = 24 सेमी तथा AC = 25 सेमी है | यदि G त्रिभुज का केंद्रक है, तो BG की लंबाई ज्ञात करें |
SSC CHSL 2 July 2019(Morning)
(a) 10
(b) $8\frac{1}{3}$
(c) $8\frac{2}{3}$
(d) 9

Q83. In △ABC, D and E are the points on sides AC and AB, respectively, such that ∠ADE = ∠B. If AD = 7.6 cm, AE = 7.2 cm,

BE = 4.2 cm and BC = 8.4 cm, then DE is equal to:
त्रिभुज ABC में, D तथा E क्रमशः भुजा AC और AB पर स्थित ऐसे बिंदु हैं कि ∠ADE = ∠B है | यदि AD = 7.6 सेमी, AE = 7.2 सेमी, BE = 4.2 सेमी तथा BC = 8.4 सेमी है, तो DE किसके बराबर है ?
SSC CHSL 2 July 2019(Afternoon)
(a) 6.3 cm
(b) 5.8 cm
(c) 7.4 cm
(d) 5.6 cm

Q84. In a circle with centre O, ABDC is a cyclic quadrilateral with AB as a diameter of the circle. AC and BD produced meet at E. If ∠CED = 70°, then what is the measure of ∠COD? केंद्र O वाले एक वृत्त में, ABDC एक चक्रीय चतुर्भुज है जिसमें AB वृत्त का व्यास है | AC और BD को बढ़ाया गया है जो E पर मिलते हैं | यदि ∠CED = 70° है, तो ∠COD का मान ज्ञात करें |
SSC CHSL 3 July 2019(Afternoon)
(a) 45°
(b) 60°
(c) 30°
(d) 40°

Q85. There are two circles of radius 5 cm and 3 cm respectively.The distance between their centres is 10 cm. The length (in cm) of a transverse common tangent is :
त्रिज्या 5 सेमी और त्रिज्या 3 सेमी वाले दो वृत्त हैं | उनके केंद्रों के बीच की दूरी 10 सेमी है |अनुप्रस्थ उभयनिष्ठ स्पर्श रेखा की लंबाई (सेमी में) ज्ञात करें |
SSC CHSL 8 July 2019(Morning)
(a) 9
(b) 6
(c) 8
(d) 10

Q86. PA and PB are the tangents to a circle with centre O, from a point P outside the circle. A and B are the points on the circle. If ∠APB = 72°, then ∠OAB is equal to :
PA तथा PB एक वृत्त पर वृत्त के बाहर स्थित बिंदु P से खींची गयी स्पर्श रेखाएं हैं जिसका केंद्र O है | A तथा B वृत्त पर स्थित बिंदु हैं | यदि ∠APB = 72° है, तो ∠OAB का मान ज्ञात करें |
SSC CHSL 8 July 2019(Evening)
(a) 72°
(b) 24°
(c) 18°
(d) 36°

Q87. The circumcentre, incentre, orthocentre and the centroid of a triangle are one and the same point. The triangle must be:
एक त्रिभुज के परिकेंद्र, अंतःकेंद्र, लम्ब केंद्र तथा केंद्रक एक ही हैं तथा समान बिंदु हैं | यह त्रिभुज अवश्य होगा -
SSC CHSL 9 July 2019(Evening)
(a) Isosceles/ समद्विबाहु
(b) right-angled/ समकोण
(c) right-angled isosceles/ समकोण समद्विबाहु
(d) equilateral/ समबाहु

Q88. The point A of a triangle ABC moves parallel to the straight line BC. Which one among the following also moves along a straight line parallel to BC?
एक त्रिभुज ABC का बिंदु A सीधी रेखा BC के समानांतर जाता है | निम्न में से कौन BC के समानांतर एक सीधी रेखा के साथ जाता है ?
SSC CHSL 10 July 2019(Morning)
(a) The circumcentre
(b) The centroid
(c) The incentre
(d) The orthocentre

Q89. A regular hexagon is inscribed in a circle. What is the ratio of the area of the circle to that of its portion not covered by the hexagon?
एक सम षट्भुज को किसी वृत्त के भीतर रखा गया है | वृत्त के क्षेत्रफल और षट्भुज के द्वारा इसके नहीं घेरे गए हिस्से के क्षेत्रफल में अनुपात ज्ञात करें |
SSC CHSL 10 July 2019(Morning)
(a) $\frac{2\pi}{2\pi-3\sqrt{3}}$
(b) $\frac{\pi}{\pi-3\sqrt{3}}$
(c) $\frac{2\pi}{\sqrt{3}}$
(d) $\frac{\pi}{\sqrt{3}}$

Q90. Two circles of diameters 4.8 cm and 8 cm are such that the distance between their centres is 6.5 cm. What is the length of a common tangent to the circles that does not intersect the line joining the centres ?
व्यास 4.8 सेमी तथा व्यास 8 सेमी वाले दो वृत्त इस प्रकार हैं कि उनके केंद्रों के बीच की दूरी 6.5 सेमी है | इन वृत्तों की उभयनिष्ठ स्पर्श रेखा की लंबाई ज्ञात करें जो केंद्रों को जोड़ने वाली रेखा को नहीं काटती है |
SSC CHSL 10 July 2019(Morning)
(a) 6.3 cm
(b) 6.2 cm
(c) 6.1 cm
(d) 6.0 cm

Q91. In a ΔABC, AD is perpendicular to BC from A, if ∠BAC = 90°, then $AB^2 : AC^2$ is equal to :
त्रिभुज ABC में, AD, A से BC पर डाला गया लम्ब है | यदि ∠BAC = 90° है, तो $AB^2 : AC^2$ का मान क्या होगा ?
SSC CHSL 10 July 2019(Morning)
(a) $BD^2 : CD^2$
(b) CD : BD
(c) $CD^2 : BD^2$
(d) BD : CD

Q92. Equilateral triangles are drawn on the hypotenuse and one of the perpendicular sides of a right-angled isosceles triangles. Their areas are H and A respectively. $\frac{A}{H}$ is equal to : एक समकोण समद्विबाहु त्रिभुज के कर्ण और एक लम्ब भुजा पर दो समबाहु त्रिभुज खींचे जाते हैं | उनके क्षेत्रफल क्रमशः H और A हैं | $\frac{A}{H}$ किसके बराबर है ?

SSC CHSL 10 July 2019(Afternoon)

(a) $\frac{1}{4}$
(b) $\frac{1}{2}$
(c) $\frac{1}{\sqrt{2}}$
(d) $\frac{1}{\sqrt[3]{2}}$

Q93. It is given that the area of a triangle is A. The values of its perimeter, inradius, circumradius and the average of the lengths of the medians are respectively, p,r,R and d. The ratio A : p is equal to
यह दिया गया है कि किसी त्रिभुज का क्षेत्रफल A है | इसके परिमाप, अंतःत्रिज्या, परित्रिज्या और मध्यिकाओं की लंबाई के औसत का मान क्रमशः p,r, R और d है | अनुपात A : p किसके बराबर है :

SSC CHSL 10 July 2019(Afternoon)

(a) $(R+r)^2 : d$
(b) r:2
(c) r:1
(d) $(R-r)^2 : r$

Q94. The area of a sector of a circle with central angle 60° is A. The circumference of the circle is C. Then A is equal to :
एक वृत्त के वृत्त खंड का क्षेत्रफल A है जिसका केंद्रीय कोण 60° है | इस वृत्त की परिधि C है | A किसके बराबर है ?

SSC CHSL 10 July 2019(Evening)

(a) $\frac{c^2}{6\pi}$
(b) $\frac{c^2}{18\pi}$
(c) $\frac{c^2}{24\pi}$
(d) $\frac{c^2}{4\pi}$

Q95. It is given that $\Delta ABC \sim \Delta PRQ$ and that Area ABC : Area PRQ = 16 : 169. If AB = x, AC = y, BC = z (all in cm), then PQ is equal to :
यह दिया गया है कि $\Delta ABC \sim \Delta PRQ$ है तथा ABC का क्षेत्रफल : PRQ का क्षेत्रफल = 16 : 169 है | यदि AB = x, AC = y, BC = z (सभी सेमी में) है, तो PQ का मान क्या होगा ?

SSC CHSL 10 July 2019(Evening)

(a) $\frac{13}{4}$ y
(b) $\frac{13}{4}$ z
(c) $\frac{13}{4}$ x
(d) $\frac{13}{8}$ x

Q96. O,G,I and H are respectively the circumcentre, centroid, incentre and orthocentre of an equilateral triangle. Which of these points are identical ?/ O, G, I तथा H क्रमशः एक समबाहु त्रिभुज के परिकेंद्र, केंद्रक, अंतःकेंद्र और लम्बकेंद्र हैं | निम्न में से कौन से बिंदु समरूप हैं ?

SSC CHSL 11 July 2019(Morning)

(a) O and I only
(b) O and G only
(c) O, G, I and H
(d) O, G and H only

Q97. $\Delta ABC \sim \Delta DEF$ and their perimeters are 64 cm and 48 cm respectively. What is the length AB, if DE is equal to 9 cm?
$\Delta ABC \sim \Delta DEF$ है और उनके परिमाप क्रमशः 64 सेमी और 48 सेमी हैं | AB की लंबाई क्या है, यदि DE का मान 9 सेमी के बराबर है |

SSC CHSL 11 July 2019(Morning)

(a) 17.5 cm
(b) 16 cm
(c) 12 cm
(d) 18 cm

Q98. AB and CD are two chords of a circle which intersect at a point O inside the circle. It is given that, AB = 10 cm, CO = 1.5 cm and DO = 12.5 cm. What is the ratio between the larger and smaller among AO and BO ?
AB और CD एक वृत्त की दो जीवाएं हैं जो वृत्त के भीतर एक बिंदु O पर एक दूसरे को काटती हैं | यह दिया हुआ है कि AB = 10 सेमी, CO = 1.5 सेमी और DO = 12.5 सेमी है, तो AO और BO में बड़े तथा छोटे के बीच क्या अनुपात है ?

SSC CHSL 11 July 2019(Morning)

(a) 7:3
(b) 3:2
(c) 3:1
(d) 4:1

Q99. The perimeter of ΔABC is 24 cm and its side, BC = 9 cm. AD is the bisector of $\angle BAC$, while I is the incentre AI:ID is equal to :
त्रिभुज ABC का परिमाप 24 सेमी है तथा इसकी भुजा BC = 9 सेमी है | AD, $\angle BAC$ का कोण समद्विभाजक है जबकि I अंतःकेंद्र है | AI : ID किसके बराबर है ?

SSC CHSL 11 July 2019(Afternoon)

(a) 7:5
(b) 5:2
(c) 3:2
(d) 5:3

Q100. Two chords, AB and CD of circle meet at a point O, outside the circle. It is given that AB = 7 cm, CD = 4 cm, OB = 5 cm. What is the length of OD?
एक वृत्त की दो जीवाएं AB और CD किसी बिंदु O पर मिलती हैं जो वृत्त के बाहर है | यह दिया गया है कि AB = 7

सेमी, CD = 4 सेमी, OB = 5 सेमी है | OD की लंबाई क्या है ?

SSC CHSL 11 July 2019(Afternoon)

(a) 5 cm
(b) 6 cm
(c) 7.5 cm
(d) 10 cm

Q101. A square has been inscribed in a circle. What is the ratio of the length of a side of the square to the radius of the circle ?
एक वर्ग किसी वृत्त के भीतर स्थित है | वर्ग की एक भुजा की लंबाई तथा वृत्त की त्रिज्या में अनुपात ज्ञात करें |

SSC CHSL 11 July 2019(Afternoon)

(a) 2:1
(b) 1: $\sqrt{2}$
(c) 1:2
(d) $\sqrt{2}$:1

Q102. If in ΔABC, D is a point on BC, such that BD:BC = 2:5, what is the ratio area (ΔABD) : area (ΔADC) ?
यदि त्रिभुज ABC में, D, BC पर स्थित ऐसा बिंदु है कि BD:BC = 2:5 है, तो क्षेत्रफल (ΔABD) : क्षेत्रफल (ΔADC) में अनुपात ज्ञात करें |

SSC CHSL 11 July 2019(Evening)

(a) 2:3
(b) 4:9
(c) 1:2
(d) 2:5

Q103. In a circle, chords AD and BC meet at a point E outside the circle. If $\angle BAE = 76^\circ$ and $\angle ADC = 102^\circ$, then $\angle AEC$ is equal to :
एक वृत्त में, जीवाएं AD और BC वृत्त के बाहर स्थित बिंदु E पर मिलती हैं | यदि $\angle BAE = 76^\circ$ और $\angle ADC = 102^\circ$ है, तो $\angle AEC$ किसके बराबर है ?

SSC CHSL 11 July 2019(Evening)

(a) 28°
(b) 25°
(c) 24°
(d) 26°

Q104. In ΔABC, $\angle ABC = 90^\circ$ and $BD \perp AC$. If AD = 4 cm and CD = 5 cm, then BD is equal to :
त्रिभुज ABC में, $\angle ABC = 90^\circ$ है तथा $BD \perp AC$ है | यदि AD = 4 सेमी और CD = 5 सेमी है, तो BD किसके बराबर है ?

SSC CHSL 11 July 2019(Evening)

(a) $2\sqrt{5}$ cm
(b) $3\sqrt{5}$ cm
(c) $3\sqrt{2}$ cm
(d) $4\sqrt{5}$ cm

Q105. A quadrilateral ABCD is inscribed in a circle with centre O. If $\angle BOC = 92^\circ$ and $\angle ADC = 112^\circ$, then $\angle ABO$ is equal to :
एक चतुर्भुज ABCD किसी वृत्त के भीतर स्थित है जिसका केंद्र O है | यदि $\angle BOC = 92^\circ$ और $\angle ADC = 112^\circ$ है, तो $\angle ABO$ ज्ञात करें |

SSC CHSL 11 July 2019(Evening)

(a) 22°
(b) 24°
(c) 28°
(d) 26°

Q106. OABC is a quadrilateral, where O is the centre of a circle and A, B, C are points in the circle, such that $\angle ABC = 120^\circ$. What is the ratio of the measure of $\angle AOC$ to that of $\angle OAC$?
OABC एक चतुर्भुज है जहाँ O वृत्त का केंद्र है तथा A, B, C वृत्त पर स्थित ऐसे बिंदु हैं कि $\angle ABC = 120^\circ$ है | $\angle AOC$ तथा $\angle OAC$ के माप में अनुपात ज्ञात करें |

SSC CHSL 10 July 2019(Evening)

(a) 3:1
(b) 4:1
(c) 2:1
(d) 3:2

Q107. A and B are two points on a circle with centre O. AT is a tangent, such that $\angle BAT = 45^\circ$. N is a point on OA, such that BN = 10 cm. The length of the median OM of the ΔNOB is :
A और B केंद्र O वाले एक वृत्त पर स्थित दो बिंदु हैं | AT एक स्पर्श रेखा है जो इस प्रकार है कि $\angle BAT = 45^\circ$ है | N, OA पर स्थित एक बिंदु है जो इस प्रकार है कि BN = 10 सेमी है | ΔNOB की मध्यिका OM की लंबाई ज्ञात करें |

SSC CHSL 10 July 2019(Evening)

(a) $10\sqrt{2}$ cm
(b) $5\sqrt{2}$ cm
(c) $5\sqrt{3}$ cm
(d) 5 cm

Q108. In a stadium an athlete is running on a circular path with uniform speed during a practice session. The angle covered by him during one second is found to be 10° by a coach observing him from the centre of the circular track. What would be the measure of angle (in degrees) described by the athlete by an observer standing on the circle? किसी स्टेडियम में एक एथलीट अभ्यास सत्र के दौरान एक समान चाल से वृत्ताकार पथ पर दौड़ रहा है | वृत्ताकार पथ के केंद्र से उसे देख रहे एक कोच की आँखों से उसके (एथलीट) द्वारा एक सेकंड में तय किया गया कोण 10° है | वृत्त पर खड़े प्रेक्षक की आँखों से एथलीट द्वारा बनाए गए कोण का माप क्या होगा ?

SSC CHSL 9 July 2019(Evening)

(a) 5

(b) It depends on the exact position of the observer on the circle
(c) 10
(d) 20

Practice Questions

Q1. In △ABC, AD bisects ∠A which meets BC at D. If BC = a, AC = b and AB = c, then DC = ?
त्रिभुज ABC में, AD कोण A को द्विभाजित करता है जो BC से D पर मिलता है | यदि BC = a, AC = b और AB = c है, तो DC = ?
SSC CGL 7 June 2019(Afternoon)
(a) $\frac{ab}{b+c}$
(b) $\frac{ac}{a+c}$
(c) $\frac{bc}{a+c}$
(d) $\frac{ac}{a+b}$

Q2. In a circle with centre O, AB is a diameter and CD is a chord such that ABCD is a trapezium. If ∠BAC = 15° , then ∠CAD is equal to :
केंद्र O वाले एक वृत्त में, AB व्यास है तथा CD ऐसी जीवा है कि ABCD एक समलम्ब बन जाता है | यदि ∠BAC = 15° है, तो ∠CAD का मान क्या होगा ?
SSC CGL 10 June 2019(Evening)
(a) 30°
(b) 60°
(c) 75°
(d) 45°

Q3. △ ABC ~ △ EDF and AB = 5cm, BC = 8cm and AC = 10cm. If ar(△ ABC) : ar(△ EDF) = 9 : 4, then DF is equal to :
△ ABC ~ △ EDF है तथा AB = 5cm, BC = 8cm और AC = 10cm है | यदि ar(△ ABC) : ar(△ EDF) = 9 : 4, है, तो DF का मान क्या होगा ?
SSC CGL 10 June 2019(Evening)
(a) $\frac{20}{3}$ cm
(b) $\frac{32}{9}$ cm
(c) $\frac{10}{3}$ cm
(d) $\frac{16}{3}$ cm

Q4. In △ ABC, AD is median and G is the point on AD such that AG : GD = 2 : 1, then ar(△ ABG) : ar(△ ABC) is equal to :
त्रिभुज ABC में, AD मध्यिका है तथा G, AD पर स्थित ऐसा बिंदु है कि AG : GD = 2 : 1 है, तो ar(△ ABG) : ar(△ ABC) का मान किसके बराबर होगा ?
SSC CGL 10 June 2019(Evening)
(a) 1 : 5
(b) 1 : 4
(c) 1 : 6
(d) 1 : 3

Q5. In △ ABC , AD is a median and P is a point on AD such that AP : PD = 3 : 4, then ar(△ APB) : ar(△ ABC) is equal to :
त्रिभुज ABC में, AD एक मध्यिका है तथा P, AD पर स्थित ऐसा बिंदु है कि AP : PD = 3 : 4 है, तो ar(△ APB) : ar(△ ABC) ज्ञात करें |
SSC CGL 11 June 2019(Morning)
(a) 2 : 7
(b) 3 : 4
(c) 3 : 7
(d) 3 : 14

Q6. In a circle with centre O, AB is the diameter and CD is a chord such that ABCD is a trapezium. If ∠BAC = 25° , then ∠CAD is equal to :
केंद्र O वाले एक वृत्त में, AB व्यास है तथा CD एक ऐसी जीवा है कि ABCD एक समलम्ब बन जाता है | यदि ∠BAC = 25° है, तो ∠CAD का मान ज्ञात करें |
SSC CGL 11 June 2019(Morning)
(a) 45°
(b) 65°
(c) 40°
(d) 25°

Q7. △ ABC ~ △ QRP and PQ = 6cm, QR = 8cm and PR = 10cm. If ar(△ ABC) : ar(△ QRP) = 1 : 4 , then AB is equal to :
△ ABC ~ △ QRP है और PQ = 6cm, QR = 8cm तथा PR = 10cm है | यदि ar(△ ABC) : ar(△ QRP) = 1 : 4 है, तो AB ज्ञात करें |
SSC CGL 11 June 2019(Morning)
(a) 2 cm
(b) 5 cm
(c) 3 cm
(d) 4 cm

Q8. △ABC ~ △PRQ and PQ = 4 cm , QR = 7 cm and PR = 8 cm. If ar(△ABC) : ar (△PRQ) = 1 : 4, then AC is equal to :
△ABC ~ △PRQ है और PQ = 4 cm , QR = 7 cm तथा PR = 8 cm है | यदि ar(△ABC) : ar (△PRQ) = 1 : 4 है, तो AC का मान क्या होगा ?
SSC CGL 11 June 2019(Afternoon)
(a) 4 cm
(b) 3.7 cm
(c) 1 cm
(d) 2 cm

Q9. In a circle with centre O, AB is the diameter and CD is a chord such that ABCD is a trapezium. If ∠BAC = 18° , then ∠CAD is equal to:
केंद्र O वाले एक वृत्त में, AB व्यास है तथा CD एक ऐसी जीवा है कि ABCD एक समलम्ब बन जाता है | यदि ∠BAC = 18° है, तो ∠CAD का मान ज्ञात करें |
SSC CGL 11 June 2019(Afternoon)
(a) 72°
(b) 36°
(c) 54°
(d) 18°

Pinnacle

Q10. In △ABC , AD is a median and P is a point on AD such that AP : PD = 3 : 4. Then ar(△BPD) : ar(△ABC) is equal to:
त्रिभुज ABC में, AD एक माध्यिका है और P, AB पर स्थित ऐसा बिंदु है कि AP : PD = 3 : 4 है | ar(△BPD) : ar(△ABC) ज्ञात करें |
SSC CGL 11 June 2019(Afternoon)
(a) 1 : 3
(b) 2 : 7
(c) 4 : 7
(d) 2 : 5

Q11. Two chords AB and CD of a circle, when produced, meet at a point P outside the circle. If AB = 6 cm , PB = 5 cm , PD = 4 cm, then CD is equal to :
एक वृत्त की दो जीवाओं AB और CD को जब बढ़ाया जाता है तो वे वृत्त के बाहर बिंदु P पर मिलती हैं | यदि AB = 6 सेमी, PB = 5 सेमी और PD = 4 सेमी है, तो CD का मान किसके बराबर है ?
SSC CGL 11 June 2019(Afternoon)
(a) 8.25 cm
(b) 7.5 cm
(c) 9.75 cm
(d) 7.75 cm

Q12. △ABC ~ △QPR and AB = 8 cm , BC = 12 cm and AC = 6 cm. If ar(△ABC) : ar(△PQR) = 16 : 25, then RQ is equal to:
△ABC ~ △QPR है और AB = 8 cm , BC = 12 cm तथा AC = 6 cm है | यदि ar(△ABC) : ar(△PQR) = 16 : 25 है, तो RQ ज्ञात करें |
SSC CGL 11 June 2019(Evening)
(a) 12.5 cm
(b) 10 cm
(c) 15 cm
(d) 7.5 cm

Q13. In △ABC, P is a point on BC such that BP : PC = 1 : 2 and Q is the mid point of BP. then, ar(△ABQ) : ar (△ABC) is equal to :
त्रिभुज ABC में, P, BC पर स्थित ऐसा बिंदु है कि BP : PC = 1 : 2 है और Q, BP का मध्य बिंदु है | तो ar(△ABQ) : ar (△ABC) का मान क्या होगा ?
SSC CGL 11 June 2019(Evening)
a) 1 : 3
(b) 1 : 6
(c) 1 : 4
(d) 1 : 5

Q14. Two chords AB and CD of a circle intersect at a point P inside the circle. If AB = 7cm , PC = 2 cm and AP = 4 cm, then CD is equal to:
एक वृत्त की दो जीवाएं AB और CD वृत्त के भीतर बिंदु P पर एक दूसरे को काटती हैं | यदि AB = 7 सेमी, PC = 2 सेमी और AP = 4 सेमी है, तो CD किसके बराबर होगा ?
SSC CGL 11 June 2019(Evening)
(a) 6 cm
(b) 8 cm
(c) 4 cm
(d) 5 cm

Q15. In a circle with centre O, AB is the diameter and CD is a chord such that ABCD is a trapezium. If ∠BAC = 24°, then ∠CAD is equal to:
केंद्र O वाले एक वृत्त में, AB व्यास है तथा CD एक ऐसी जीवा है कि ABCD एक समलम्ब बन जाता है | यदि कोण BAC = 24° है, तो ∠CAD का मान क्या होगा ?
SSC CGL 11 June 2019(Evening)
(a) 24
(b) 42
(c) 36
(d) 48

Q16. Δ ABC ~ Δ RQP and PQ = 10 cm, QR = 12 cm and RP = 16 cm. If ar(ΔPQR) : ar (ΔABC) = $\frac{9}{4}$, then BC is equal to:
Δ ABC ~ Δ RQP है और PQ = 10 cm, QR = 12 cm तथा RP = 16 cm है | यदि ar(ΔPQR) : ar (ΔABC) = $\frac{9}{4}$ है, तो BC का मान किसके बराबर होगा ?
SSC CGL 12 June 2019(Morning)
(a) $\frac{20}{3}$ cm
(b) $\frac{32}{3}$ cm
(c) 6 cm
(d) 8 cm

Q17. Chords AB and CD of a circle intersect at a point P inside the circle. If AB = 10 cm. AP = 4 cm and PC = 5 cm, then CD is equal to:
एक वृत्त की जीवायें AB और CD वृत्त के भीतर स्थित बिंदु P पर एक दूसरे को काटती हैं | यदि AB = 10 सेमी, AP = 4 सेमी और PC = 5 सेमी है, तो CD का मान क्या होगा ?
SSC CGL 12 June 2019(Morning)
(a) 4.8 cm
(b) 6.8 cm
(c) 9.8 cm
(d) 7.8 cm

Q18. In a circle with centre O, AB is a diameter and CD is a chord such that AB is a diameter and CD is a chord such that ABCD is a trapezium. If $\angle BAC = 28^0$, then $\angle CAD$ is equal to: केंद्र O वाले एक वृत्त में, AB एक व्यास है तथा CD एक ऐसी जीवा है कि ABCD एक समलम्ब है | यदि $\angle BAC = 28^0$, है, तो कोण CAD ज्ञात करें |
SSC CGL 12 June 2019(Morning)
(a) 34^0
(b) 28^0
(c) 62^0
(d) 32^0

Q19. In ΔABC, P is a point on BC such that BP : PC = 3 : 4 and Q is the midpoint of BP. Then ar(ΔABQ) : ar(ΔABC) is equal to:
त्रिभुज ABC में, P, BC पर स्थित ऐसा बिंदु है कि BP : PC = 3 : 4 है और Q, BP का मध्य बिंदु है | तो ar(ΔABQ) : ar(ΔABC) का मान ज्ञात करें |
SSC CGL 12 June 2019(Afternoon)
(a) 1 : 4
(b) 2 : 7
(c) 3 : 8
(d) 3 : 14

Q20. △ABC ~ △RQP and PQ = 10 cm QR = 12 cm and RP = 18 cm. If ar(△ABC) : ar(△PQR) = 4 : 9 , then AB is equal to :
△ABC ~ △RQP और PQ = 10 cm, QR = 12 cm तथा RP = 18 cm है | यदि ar(△ABC) : ar(△PQR) = 4 : 9 है, तो AB की लंबाई ज्ञात करें |
SSC CGL 12 June 2019(Afternoon)
(a) 8 cm
(b) 12 cm
(c) 9 cm
(d) $\frac{20}{3}$ cm

Q21. △ABC ~ △EDF and ar(△ABC) : ar(△DEF) = 4 : 9. If AB = 6 cm , BC = 8 cm and AC = 10 cm, then DF is equal to :
△ABC ~ △EDF और ar(△ABC) : ar(△DEF) = 4 : 9 है | यदि AB = 6 सेमी, BC = 8 सेमी तथा AC = 10 सेमी है, तो DF का मान क्या होगा ?
SSC CGL 12 June 2019(Evening)
(a) 18 cm
(b) 9 cm
(c) 15 cm
(d) 12 cm

Q22. In a circle with centre O, an arc ABC subtends an angle of 140° at the centre of the circle. The chord AB is produced to point P. Then ∠CBP is equal to :
केंद्र O वाले एक वृत्त में, चाप ABC वृत्त के केंद्र पर 140° का कोण अंतरित करती है| जीवा AB को बिंदु P तक बढ़ाया जाता है | ∠CBP का मान ज्ञात करें |
SSC CGL 12 June 2019(Evening)
(a) 40°
(b) 70°
(c) 80°
(d) 50°

Q23. In △ABC , P is a point on BC such that BP : PC = 4 : 3 and Q is the midpoint of BP. Then ar(△ABQ) : ar(△ACB) is equal to :
त्रिभुज ABC में, P, BC पर स्थित ऐसा बिंदु है कि BP : PC = 4 : 3 है तथा Q, BP का मध्य बिंदु है | ar(△ABQ) : ar(△ACB) ज्ञात करें |
SSC CGL 12 June 2019(Evening)
(a) 1 : 5
(b) 2 : 7
(c) 3 : 7
(d) 4 : 7

Q24. In a circle of radius 13 cm , a chord is at a distance of 12 cm from the centre of the circle. What is the length of the chord?
13 सेमी त्रिज्या वाले एक वृत्त में, वृत्त के केंद्र से 12 सेमी की दूरी पर एक जीवा है | जीवा की लंबाई ज्ञात करें |
SSC CGL 12 June 2019(Evening)
(a) 5 cm
(b) 7 cm
(c) 9 cm
(d) 10 cm

Q25. In a circle of radius 17 cm, a chord is at a distance of 15 cm from the centre of the circle. What is the length of the chord?
17 सेमी त्रिज्या वाले एक वृत्त में, वृत्त के केंद्र से 15 सेमी की दूरी पर एक जीवा है| जीवा की लंबाई ज्ञात करें |
SSC CGL 13 June 2019(Morning)
(a)15 cm
(b)12 cm
(c)8 cm
(d)16 cm

Q26. $\Delta ABC \sim \Delta EDF$ and ar(ΔABC) : ar(ΔDEF) = 1:4. If AB = 7cm, BC = 8 cm and CA = 9 cm, then DF is equal to:
$\Delta ABC \sim \Delta EDF$ और ar(ΔABC) : ar(ΔDEF) = 1 : 4 है | यदि AB = 7 सेमी, BC = 8 सेमी और CA = 9 सेमी है, तो DF का मान किसके बराबर होगा?
SSC CGL 13 June 2019(Morning)
(a)8 cm
(b)16 cm
(c)18 cm
(d)14 cm

Q27. In ΔABC, P is a point on BC such that BP : PC = 4:5 and Q is the midpoint of BP. Then ar(ΔABQ):ar(ΔABC) is equal to:
Δ ABC में, P, BC पर स्थित ऐसा बिंदु है कि BP : PC = 4 : 5 है | Q, BP का मध्य बिंदु है | arc(ΔABQ) : ar(ΔABC) का मान ज्ञात करें |
SSC CGL 13 June 2019(Morning)
(a)1:3
(b)1:9
(c)2:9
(d)2:5

Q28. In a circle with centre O, an arc ABC subtends an angle of 136° at the centre of the circle. The chord AB is produced to a point P. Then ∠CBP is equal to:
केंद्र O वाले एक वृत्त में, चाप ABC वृत्त के केंद्र पर 136° का कोण अंतरित करती है | जीवा AB को एक बिंदु P तक बढ़ाया जाता है | कोण

CBP का मान क्या होगा ? **SSC CGL 13 June 2019(Morning)**
(a)72°
(b)44°
(c)68°
(d)66°

Q29. In ΔABC, P is a point on BC such that BP : PC = 4:11. If Q is the midpoint of BP, then ar (ΔABQ) : ar (ΔABC) is equal to:
त्रिभुज ABC में, P, BC पर स्थित ऐसा बिंदु है कि BP : PC = 4:11 है | यदि Q, BP का मध्य बिंदु है, तो ar (ΔABQ) : ar (ΔABC) का मान किसके बराबर होगा ?
SSC CGL 13 June 2019(Afternoon)
(a)2:11
(b)2:15
(c)3:13
(d)2:13

Q30. In a circle with centre O, an arc ABC subtends an angle of 110° at the centre of the circle. The chord AB is produced to a point P. Then ∠CBP is equal to:
केंद्र O वाले एक वृत्त में, चाप ABC वृत्त के केंद्र पर 110° का कोण अंतरित करती है | जीवा AB को एक बिंदु P तक बढ़ाया जाता है | कोण CBP का मान ज्ञात करें |
SSC CGL 13 June 2019(Afternoon)
(a)60°
(b)55°
(c)65°
(d)70°

Q31. In a circle of radius 17 cm, a chord is at a distance of 8 cm from the centre of the circle. What is the length of the chord?
17 सेमी त्रिज्या वाले एक वृत्त में, वृत्त के केंद्र से 8 सेमी की दूरी पर एक जीवा है | जीवा की लंबाई ज्ञात करें |
SSC CGL 13 June 2019(Afternoon)
(a)20 cm
(b)15 cm
(c)25 cm
(d)30 cm

Q32. $\Delta ABC \sim \Delta NLM$ and ar(ΔABC) : ar(ΔLMN)= 4:9. If AB = 6cm, BC = 8cm and AC = 12 cm, then ML is equal to:
$\Delta ABC \sim \Delta NLM$ है तथा ar(ΔABC) : ar(ΔLMN)= 4:9 है | यदि AB = 6 सेमी, BC = 8 सेमी और AC = 12 सेमी है, तो ML किसके बराबर है ?
SSC CGL 13 June 2019(Afternoon)

(a)18 cm
(b)9 cm
(c)6 cm
(d)12 cm

Q33. In $\Delta ABC, \angle A = 50°$. Its sides AB and AC are produced to the point D and E. If the bisectors of the ∠CBD and ∠BCE meet at the point O, then ∠BOC will be equal to:
त्रिभुज ABC में, $\angle A = 50°$ है | इसकी भुजाओं AB और AC को बिंदु D तथा E तक बढ़ाया जाता है | यदि कोण CBD और कोण BCE के द्विभाजक बिंदु O पर मिलते हैं, तो ∠BOC का मान क्या होगा ?
SSC CGL 13 June 2019(Evening)
(a)65°
(b)75°
(c)40°
(d)55°

Q34. ABCD is a cyclic quadrilateral such that AB is the diameter of the circle circumscribing it and $\angle ADC = 129°$. Then, ∠BAC is equal to:
ABCD एक ऐसा चक्रीय चतुर्भुज है कि AB इसे घेरने वाले वृत्त का व्यास है तथा $\angle ADC = 129°$ है | कोण BAC का मान ज्ञात करें |
SSC CGL 13 June 2019(Evening)
(a)51°
(b)49°
(c)61°
(d)39°

Q35. The sides AB and AC of △ABC are produced to points D and E, respectively. The bisectors of ∠CBD and ∠BCE meet at P. If ∠A = 72°, then the measure of ∠P is :
एक त्रिभुज ABC की भुजाएं AB और AC को क्रमशः बिंदु D तथा E तक बढ़ाया जाता है | ∠CBD तथा ∠BCE के समद्विभाजक P पर मिलते हैं | यदि ∠A = 72° है, तो कोण P का मान ज्ञात करें |
SSC CHSL 1 July 2019(Evening)
(a) 36°
(b) 45°
(c) 60°
(d) 54°

Q36. In △ABC, D and E are the points on sides AB and AC, respectively, such that DE ∥ BC. If DE : BC is 3 : 5, then (Area of △ADE) : (Area of quadrilateral DECB) is: त्रिभुज ABC में, D और E क्रमशः भुजा AB और AC पर स्थित ऐसे बिंदु हैं कि DE ∥ BC है | यदि DE : BC = 3 : 5 है, तो (△ADE का क्षेत्रफल) : (DECB का क्षेत्रफल) ज्ञात करें |
SSC CHSL 2 July 2019(Morning)
(a) 9 : 16
(b) 3 : 4
(c) 9 : 25
(d) 5 : 8

Q37. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and ∠ADC = 158°. Then ∠BAC is equal

to:ABCD एक ऐसा चक्रीय चतुर्भुज है कि AB इसे घेरने वाले वृत्त का व्यास है और ∠ADC = 158° है | कोण BAC का मान ज्ञात करें |

SSC CHSL 2 July 2019(Afternoon)

(a) 50°
(b) 38°
(c) 68°
(d) 40°

Q38. Let △ABC ~ △QPR , and $\frac{\triangle ABC}{\triangle QPR} = \frac{9}{16}$, If AB = 12 cm, BC = 6 cm and AC = 9 cm, then QP is equal to:

मान लीजिये कि △ABC ~ △QPR , तथा $\frac{\triangle ABC}{\triangle QPR} = \frac{9}{16}$ है | यदि AB = 12 सेमी, BC = 6 सेमी और AC = 9 सेमी है, तो QP किसके बराबर है ?

SSC CHSL 2 July 2019(Evening)

(a) 16 cm
(b) 9 cm
(c) 12 cm
(d) 8 cm

Q39. A circle is inscribed in a quadrilateral ABCD , touching sides AB , BC , CD and DA at P , Q , R , and S respectively. If AS = 8 cm , BC = 11 cm and CR = 5 cm, then the length AB is equal to:

एक वृत्त किसी चतुर्भुज ABCD के भीतर स्थित है जो भुजा AB, BC, CD तथा DA को क्रमशः P, Q, R और S पर स्पर्श करता है | यदि AS = 8 सेमी, BC = 11 सेमी और CR = 5 सेमी है, तो AB की लंबाई ज्ञात करें |

SSC CHSL 2 July 2019(Evening)

(a) 12 cm
(b) 13 cm
(c) 16 cm
(d) 14 cm

Q40. In △ABC, AD is perpendicular to BC at D and AE is the bisector of ∠A. If ∠B = 72°and ∠C = 26°, then what is the measure of ∠DAE?

त्रिभुज ABC में, AD, BC पर लम्ब है जो D पर डाला गया है तथा AE कोण A का द्विभाजक है | यदि ∠B = 72°और ∠C = 26° है, तो कोण DAE का मान ज्ञात करें |

SSC CHSL 2 July 2019(Evening)

(a) 23°
(b) 25°
(c) 49°
(d) 37°

Q41. PQRS is a cyclic quadrilateral. If ∠P is four times ∠R and ∠S is three times ∠Q, then the sum of ∠Q and ∠R is:

PQRS एक चक्रीय चतुर्भुज है | यदि ∠P , ∠R से चार गुना है तथा कोण S कोण Q से तीन गुना है, तो कोण Q और कोण R का योग ज्ञात करें |

SSC CHSL 3 July 2019(Morning)

(a) 77°
(b) 73°
(c) 81°
(d) 86°

Q42. In △ABC, D and E are the points on the sides AC and AB , respectively, such that ∠ADE = ∠B. If AE = 8 cm, CD = 3 cm, DE = 6 cm and BC = 9 cm, then AD is equal to: त्रिभुज ABC में, D और E क्रमशः भुजा AC और AB पर स्थित बिंदु हैं जो इस प्रकार हैं कि ∠ADE = ∠B है | यदि AE = 8 सेमी, CD = 3 सेमी, DE = 6 सेमी और BC = 9 सेमी है, तो AD का मान किसके बराबर है ?

SSC CHSL 3 July 2019(Morning)

(a) 8 cm
(b) 6 cm
(c) 9 cm
(d) 7.5 cm

Q43. In △ABC, AD, the bisector of ∠A, meets BC at D. If BC = a, AC = b and AB = c, then BD - DC =

त्रिभुज ABC में, AD जो कोण A का समद्विभाजक है, BC से D पर मिलता है | यदि BC = a, AC = b और AB = c है, तो BD - DC = ?

SSC CHSL 3 July 2019(Afternoon)

(a) $\frac{ac}{b+c}$
(b) $\frac{a(c+b)}{c-b}$
(c) $\frac{a(c-b)}{c+b}$
(d) $\frac{ab}{b+c}$

Q44. Let △ABC ∽ △QPR and $\frac{ar\triangle ABC}{ar\triangle QPR} = \frac{9}{16}$. If AB = 12 cm, Bc = 6 cm and AC = 9 cm, then QR is equal to:

मान लीजिये कि △ABC ∽ △QPR है और $\frac{ar\triangle ABC}{ar\triangle QPR} = \frac{9}{16}$ है | यदि AB = 12 सेमी, BC = 6 सेमी और AC = 9 सेमी है, तो QR का मान किसके बराबर होगा ?

SSC CHSL 3 July 2019(Afternoon)

(a) 12 cm
(b) 16 cm
(c) 8 cm
(d) 9 cm

Q45. If one of the angles of a triangle is 64°, then the angle between the bisectors of the other two interior angles is:

यदि एक त्रिभुज का एक कोण 64° है, तो अन्य दो आतंरिक कोणों के द्विभाजकों के बीच बनने वाला कोण ज्ञात करे |

SSC CHSL 3 July 2019(Afternoon)

(a) 100°
(b) 122°
(c) 96°
(d) 112°

Q46. In a △ABC, D and E are two points on the sides AB and BC , respectively such that AD : DB = 2 : 3 and DE ∥ AC. If the area of △ADE is equal to 18 square cm, then what is the area (In square cm) of △ABC? किसी त्रिभुज ABC में, D और E क्रमशः भुजा AB और BC पर स्थित बिंदु हैं जो इस प्रकार हैं कि AD : DB = 2 : 3 है तथा DE ∥ AC है | यदि त्रिभुज ADE का क्षेत्रफल

18 वर्ग सेमी के बराबर है, तो त्रिभुज ABC का क्षेत्रफल (वर्ग सेमी में) ज्ञात करें |

SSC CHSL 3 July 2019(Evening)

(a) 40.5
(b) 75
(c) 54
(d) 45

Q47. Let △ABC ∽ △QPR and $\frac{ar\triangle ABC}{ar\triangle PQR} = \frac{9}{4}$, If AB = 12 cm, BC = 6 cm and AC = 9 cm, then QR is equal to:

मान लीजिये कि △ABC ∽ △QPR है और $\frac{ar\triangle ABC}{ar\triangle PQR} = \frac{9}{4}$ है | यदि AB = 12 सेमी, BC = 6 सेमी और AC = 9 सेमी है, तो QR का मान किसके बराबर है ?

SSC CHSL 3 July 2019(Evening)

(a) 15 cm
(b) 9 cm
(c) 6 cm
(d) 12 cm

Q48. In ΔABC, D and E are two points on the sides AB and AC respectively so that DE||BC and AD /BD =¾. The ratio of the area of trapezium DECB to the area of ΔABC is :

त्रिभुज ABC में, D और E क्रमशः भुजा AB और AC पर स्थित ऐसे दो बिंदु हैं कि DE||BC है और AD /BD =¾ है | समलम्ब DECB के क्षेत्रफल और त्रिभुज ABC के क्षेत्रफल में अनुपात ज्ञात करें | **SSC CHSL 4 July 2019(Afternoon)**

(a) 49:33
(b) 49:40
(c) 40:49
(d) 33:49

Q49. Let $\Delta ABC \sim \Delta QPR$ and $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{9}{4}$. If AB = 9cm, BC = 6cm and AC = 12 cm then QR is equal to :

मान लीजिये कि $\Delta ABC \sim \Delta QPR$ और $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{9}{4}$ है | यदि AB = 9 सेमी, BC = 6 सेमी और AC = 12 सेमी है, तो QR का मान ज्ञात करें |

SSC CHSL 4 July 2019(Afternoon)

(a) 8 cm
(b) 12 cm
(c) 9 cm
(d) 16 cm

Q50. A circle is inscribed in a triangle ABC. It touches sides AB, BC and AC at the points P,Q and R respectively. If BP = 6.5 cm, CQ = 4.5 cm and AR = 5.5 cm, then the perimeter (in cm) of the triangle ABC is :

एक वृत्त किसी त्रिभुज ABC के भीतर स्थित है | यह भुजाओं AB, BC तथा AC को क्रमशः बिंदु P, Q और R पर स्पर्श करता है | यदि BP = 6.5 सेमी, CQ = 4.5 सेमी और AR = 5.5 सेमी है, तो त्रिभुज ABC का परिमाप (सेमी में) क्या होगा ? **SSC CHSL 4 July 2019(Afternoon)**

(a) 16.5
(b) 66
(c) 33
(d) 22

Q51. In a ΔABC, the bisector of ∠B and ∠C meet at point O within the triangle. If ∠A is given, then which among the given option is true ?

एक त्रिभुज ABC में, ∠B और ∠C के द्विभाजक त्रिभुज के भीतर एक बिंदु O पर मिलते हैं | यदि ∠A दिया गया है, तो निम्न में से कौन सा विकल्प सही होगा ?

SSC CHSL 4 July 2019(Afternoon)

(a) $\angle BOC = 90^\circ + (\angle A/2)$
(b) $\angle BOC = 180^\circ - (\angle A/2)$
(c) $\angle BOC = 90^\circ - (\angle A/2)$
(d) $\angle BOC = 180^\circ + (\angle A)$

Q52. Two circle of radii 5 cm and 8 cm intersect at the points A and B. If AB = 8cm and the distance between the centre of two circles is x cm, then the value of x (to the closet integer) is :

त्रिज्या 5 सेमी और 8 सेमी वाले दो वृत्त एक दूसरे को बिंदु A तथा B पर काटते हैं | यदि AB = 8 सेमी है और दोनों वृत्तों के केंद्रों के बीच की दूरी x सेमी है, तो x का मान (निकटतम पूर्णांक में) ज्ञात करें | **SSC CHSL 4 July 2019(Afternoon)**

(a) 8
(b) 10
(c) 9
(d) 11

Q53. Two circles of radii 7 cm and 9 cm intersect at the points A and B. If AB = 6 cm, and the distance between the centres of the circles is x cm, then the value of x (to the closet integer) is :

7 सेमी और 9 सेमी त्रिज्याओं वाले दो वृत्त एक दूसरे को बिंदु A तथा बिंदु B पर काटते हैं | यदि AB = 6 सेमी है, तथा वृत्तों के केंद्रों के बीच की दूरी x सेमी है, तो x का मान (निकटतम पूर्णांक तक) ज्ञात करें |

SSC CHSL 4 July 2019(Evening)

(a) 10
(b) 15
(c) 14
(d) 12

Q54. Let $\Delta ABC \sim \Delta QPR$ and $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{1}{16}$. If AB = 12cm, BC = 6cm and AC = 9 cm then PR is equal to :

मान लीजिये कि $\Delta ABC \sim \Delta QPR$ और $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{1}{16}$ है | यदि AB = 12 सेमी, BC = 6 सेमी और AC = 9 सेमी है, तो PR किसके बराबर है ?

SSC CHSL 4 July 2019(Evening)

(a) 9 cm
(b) 12 cm
(c) 8 cm
(d) 24 cm

Q55. A circle is inscribed in a triangle ABC. It touches sides AB, BC and AC at the points P,Q and R respectively. If BP = 8.5 cm, CQ =

6.5 cm and AR = 4.5 cm, then the perimeter (in cm) of the ΔABC is :
एक वृत्त किसी त्रिभुज ABC के भीतर स्थित है | यह भुजाओं AB, BC और AC को क्रमशः बिंदु P, Q और R पर स्पर्श करता है | यदि BP = 8.5 सेमी, CQ = 6.5 सेमी और AR = 4.5 सेमी है, तो त्रिभुज ABC का परिमाप ज्ञात करें |
SSC CHSL 4 July 2019(Evening)
(a) 35
(b) 49.5
(c) 39
(d) 33

Q56. In triangle ABC, D and E are two points on the sides AB and AC respectively so that DE ||BC and AD/BD = ¾. The ratio of the area of ΔABC to the area of trapezium DECB is :
त्रिभुज ABC में, D और E क्रमशः भुजा AB और AC पर स्थित ऐसे बिंदु हैं कि DE ||BC है और AD/BD = ¾ है | त्रिभुज ABC के क्षेत्रफल तथा समलम्ब DECB के क्षेत्रफल में अनुपात ज्ञात करें |
SSC CHSL 4 July 2019(Evening)
(a) 33:49
(b) 49:40
(c) 40:49
(d) 49:33

Q57. In a Δ ABC, the bisector of ∠B and ∠C meet a point O within the triangle. If ∠BOC is given, then which among the given option is true ?
किसी त्रिभुज ABC में, ∠B और ∠C के द्विभाजक त्रिभुज के भीतर बिंदु O पर मिलते हैं | यदि ∠BOC दिया गया है, तो निम्न में से कौन सा विकल्प सही होगा ?
SSC CHSL 4 July 2019(Evening)
(a) $\angle A = 2(90^\circ - \angle BOC)$
(b) $\angle A = (180^\circ - \angle BOC)$
(c) $\angle A = 90^\circ + \angle BOC$
(d) $\angle A = 2(\angle BOC - 90^\circ)$

Q58. Two circles of radii 7 cm and 9 cm intersect at the points A and B. If AB = 10 cm and the distance between the centres of the circle is x cm, then the value of x is :
त्रिज्या 7 सेमी और 9 सेमी वाले दो वृत्त एक दूसरे को बिंदु A और बिंदु B पर काटते हैं | यदि AB = 10 सेमी है और वृत्तों के केंद्रों के बीच की दूरी x सेमी है, तो x का मान क्या होगा ?
SSC CHSL 5 July 2019(Morning)
(a) $2(\sqrt{6}+\sqrt{7})$
(b) $(\sqrt{6}+7)$
(c) $(\sqrt{6}+\sqrt{14})$
(d) $2(\sqrt{6}+\sqrt{14})$

Q59. In triangle ABC, D and E are two points on the sides AB and AC respectively so that DE||BC and AD/BD = ⅚. The ratio of the area of ΔABC to the area of trapezium DECB is :
त्रिभुज ABC में, D और E क्रमशः भुजा AB और AC पर स्थित ऐसे बिंदु हैं कि DE||BC है तथा AD/BD = ⅚ है | ΔABC के क्षेत्रफल तथा समलंब DECB के क्षेत्रफल के बीच अनुपात ज्ञात करें |
SSC CHSL 5 July 2019(Morning)
(a) 96:121
(b) 121:96
(c) 36:121
(d) 121:36

Q60. In a ΔABC, the bisectors of ∠B and ∠C meet at point O within the triangle. If $\angle BOC = 148^\circ$, then the measure of ∠A is :
एक त्रिभुज ABC में, ∠B तथा ∠C के द्विभाजक त्रिभुज के भीतर बिंदु O पर मिलते हैं | यदि $\angle BOC = 148^\circ$ है, तो कोण A का मान ज्ञात करें |
SSC CHSL 5 July 2019(Morning)
(a) 29°
(b) 58°
(c) 87°
(d) 116°

Q61. A circle is inscribed in a triangle ABC. It touches sides AB, BC and AC at points P, Q and R respectively. If BP = 9cm, CQ = 10 cm and AR = 11 cm, then the perimeter (in cm) of the triangle ABC is :
एक वृत्त किसी त्रिभुज ABC के भीतर स्थित है | यह भुजाओं AB, BC और AC को क्रमशः P, Q और R पर स्पर्श करता है | यदि BP = 9 सेमी, CQ = 10 सेमी और AR = 11 सेमी है, तो त्रिभुज ABC का परिमाप (सेमी में) ज्ञात करें |
SSC CHSL 5 July 2019(Morning)
(a) 57.5
(b) 72.5
(c) 60
(d) 75

Q62. A circle is inscribed in a triangle ABC. It touches sides AB, BC and AC at points P, Q and R respectively. If BP = 5cm, CQ = 7 cm and AR = 6 cm, then the perimeter (in cm) of the ΔABC is :
एक वृत्त किसी त्रिभुज ABC के भीतर स्थित है | यह भुजाओं AB, BC और AC को क्रमशः P, Q और R पर स्पर्श करता है | यदि BP = 5 सेमी, CQ = 7 सेमी और AR = 6 सेमी है, तो त्रिभुज ABC का परिमाप (सेमी में) ज्ञात करें |
SSC CHSL 5 July 2019(Afternoon)
(a) 36
(b) 35
(c) 37.5
(d) 37.25

Q63. In triangle ABC, the length of BC is less than twice the length of AB by 2 cm. The length of AC exceeds the length of AB by 10 cm. The perimeter is 32 cm. The length (in cm) of the smallest side

of the triangle is : त्रिभुज ABC में, BC की लंबाई AB की लंबाई के दोगुने से 2 कम है | AC की लंबाई AB की लंबाई से 10 सेमी अधिक है | परिमाप 32 सेमी है | त्रिभुज की सबसे छोटी भुजा की लंबाई है -

SSC CHSL 5 July 2019(Afternoon)

(a) 4
(b) 10
(c) 8
(d) 6

Q64. In a ΔABC, the bisectors of ∠B and ∠C meet at point O within the triangle. If ∠A = 116°, then the measure of ∠BOC is :
एक त्रिभुज ABC में, कोण B तथा कोण C के द्विभाजक त्रिभुज के भीतर बिंदु O पर मिलते हैं | यदि ∠A = 116° है, तो ∠BOC का मान ज्ञात करें |

SSC CHSL 5 July 2019(Afternoon)

(a) 74°
(b) 116°
(c) 85°
(d) 148°

Q65. In a ΔABC, the bisectors of ∠B and ∠C meet at point O within the triangle. If ∠A= 132°, then the measure of ∠BOC is :
त्रिभुज ABC में, ∠B और ∠C के द्विभाजक त्रिभुज के भीतर बिंदु O पर मिलते हैं | यदि ∠A= 132° है, तो ∠BOC का मान ज्ञात करें |

SSC CHSL 5 July 2019(Evening)

(a) 66°
(b) 84°
(c) 132°
(d) 156°

Q66. A circle is inscribed in a triangle ABC. It touches sides AB, BC and AC at points P, Q and R respectively. If BP = 5.4 cm, CQ = 7.3 cm and AR = 6.1 cm, then the perimeter (in cm) of the triangle ABC is :
एक वृत्त किसी त्रिभुज ABC के भीतर स्थित है | यह भुजाओं AB, BC और AC को क्रमशः बिंदु P, Q और R पर स्पर्श करता है | यदि BP = 5.4 सेमी, CQ = 7.3 सेमी और AR = 6.1 सेमी है, तो त्रिभुज ABC का परिमाप (सेमी में) ज्ञात करें |

SSC CHSL 5 July 2019(Evening)

(a) 37.25
(b) 37.6
(c) 36
(d) 37

Q67. In triangle ABC, the length of BC is less than twice the length of AB by 3 cm. The length of AC exceeds the length of AB by 9 cm. The perimeter of triangle is 34 cm. The length (in cm) of the smallest side of the triangle is :
त्रिभुज ABC में, BC की लंबाई AB की लंबाई के दोगुने से 3 सेमी कम है | AC की लंबाई AB से 9 सेमी अधिक है | त्रिभुज का परिमाप 34 सेमी है | त्रिभुज की सबसे छोटी भुजा की लंबाई (सेमी में) ज्ञात करें |

SSC CHSL 5 July 2019(Evening)

(a) 10
(b) 9
(c) 7
(d) 8

Q68. The ratio of the areas of two triangles ABC and PQR is 4:5 and the ratio of their heights is 5:3. The ratio of the bases of triangle ABC to that of triangle PQR is :
दो त्रिभुजों ABC और PQR के क्षेत्रफलों का अनुपात 4 : 5 है तथा उनकी ऊंचाई का अनुपात 5 : 3 है | त्रिभुज ABC तथा त्रिभुज PQR के आधारों के मध्य क्या अनुपात है ?

SSC CHSL 5 July 2019(Evening)

(a) 12:25
(b) 11:15
(c) 15:11
(d) 25:12

Q69. In a ΔABC, the bisectors of ∠B and ∠C meet at point O within the triangle. If ∠A= 110°, then the measure of ∠BOC is :
एक त्रिभुज ABC में, ∠B और ∠C के द्विभाजक त्रिभुज के भीतर बिंदु O पर मिलते हैं | यदि ∠A= 110° है, तो ∠BOC का मान ज्ञात करें |

SSC CHSL 8 July 2019(Morning)

(a) 55°
(b) 110°
(c) 145°
(d) 84°

Q70. In triangle ABC, the length of BC is less than twice the length of AB by 3 cm. The length of the AC exceeds the length of AB by 1 cm. The perimeter of the triangle is 34 cm. The length (in cm) of the smaller side of the triangle is :
त्रिभुज ABC में, BC की लंबाई AB की लंबाई के दोगुने से 3 सेमी कम है | AC की लंबाई AB की लंबाई से 1 सेमी अधिक है | त्रिभुज का परिमाप 34 सेमी का है | त्रिभुज की छोटी भुजा की लंबाई (सेमी में) ज्ञात करें |

SSC CHSL 8 July 2019(Morning)

(a) 10
(b) 8
(c) 7
(d) 9

Q71. Chords AB and CD of a circle intersect externally at P. If AB = 6 cm, CD = 3 cm and PB = 4 cm, then the length (in cm) of PD is :
एक वृत्त की जीवायें AB और CD एक दूसरे को बाहर से P पर काटती हैं | यदि AB = 6 सेमी, CD = 3 सेमी और PB = 4 सेमी है, तो PD की लंबाई (सेमी में) ज्ञात करें |

SSC CHSL 8 July 2019(Afternoon)

(a) 5
(b) 6
(c) 2
(d) 7

Q72. If in a ΔABC, the bisectors of $\angle B$ and $\angle C$ meet at point O within the triangle. If $\angle BOC = 156^\circ$, then the measure of $\angle A$ is :
यदि एक त्रिभुज ABC में, $\angle B$ और $\angle C$ के समद्विभाजक त्रिभुज के भीतर बिंदु O पर मिलते हैं | यदि $\angle BOC = 156^\circ$ है, तो कोण A का माप ज्ञात करें |
SSC CHSL 8 July 2019(Afternoon)
(a) 66°
(b) 132°
(c) 84°
(d) 156°

Q73. The distance between the centre of two circles of radius 4 cm, and 2 cm is 10 cm. The length (in cm) of a transverse common tangent is :
त्रिज्या 4 सेमी तथा 2 सेमी वाले दो वृत्तो के केंद्रों के बीच की दूरी 10 सेमी है | अनुप्रस्थ उभयनिष्ठ स्पर्श रेखा की लंबाई (सेमी में) ज्ञात करें |
SSC CHSL 8 July 2019(Afternoon)
(a) 10
(b) 6
(c) 8
(d) 4

Q74. The distance between the centre of two circles of radius 3 cm, and 2 cm is 13 cm. The length (in cm) of a transverse common tangent is :
त्रिज्या 3 सेमी तथा 2 सेमी वाले दो वृत्तो के केंद्रों के बीच की दूरी 13 सेमी है | एक अनुप्रस्थ उभयनिष्ठ स्पर्श रेखा की लंबाई (सेमी में) ज्ञात करें |
SSC CHSL 8 July 2019(Evening)
(a) 8
(b) 10
(c) 12
(d) 6

Q75. If in a ΔABC, the bisectors of $\angle B$ and $\angle C$ meet at point O within the triangle. If $\angle BOC = 106^\circ$, then the measure of $\angle A$ is :
त्रिभुज ABC में, $\angle B$ और $\angle C$ के समद्विभाजक त्रिभुज के भीतर बिंदु O पर मिलते हैं | यदि $\angle BOC = 106^\circ$ है, तो $\angle A$ का मान ज्ञात करें |
SSC CHSL 8 July 2019(Evening)
(a) 16°
(b) 106°
(c) 32°
(d) 84°

Q76. Let $\Delta ABC \sim \Delta QPR$ and $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{25}$. If AB = 12 cm, BC = 8 cm and AC = 9 cm, then PR is equal to :
मान लीजिये कि $\Delta ABC \sim \Delta QPR$ है तथा $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{25}$ है | यदि AB = 12 सेमी, BC = 8 सेमी और AC = 9 सेमी है, तो PR की लंबाई ज्ञात करें |
SSC CHSL 8 July 2019(Evening)
(a) 17.5
(b) 20
(c) 18
(d) 15

Q77. In ΔABC, $\angle A = 52^\circ$,Its sides AB and AC are produced to the points D and E respectively. If the bisectors of the $\angle$CBD and $\angle$BCE meet at point O, then $\angle$BOC is equal to:
त्रिभुज ABC में, $\angle A = 52^\circ$ है | इसकी भुजाएं AB और AC क्रमशः बिंदु D और E तक बढ़ाई जाती हैं | यदि $\angle$CBD और $\angle$BCE के समद्विभाजक एक बिंदु O पर मिलते हैं, तो $\angle$BOC किसके बराबर है ?
SSC CHSL 9 July 2019(Morning)
(a) 16°
(b) 106°
(c) 32°
(d) 64°

Q78. Let $\Delta ABC \sim \Delta QPR$ and $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{25}$. If AB = 12 cm, BC = 8 cm and AC = 10 cm, then QR is equal to :
मान लीजिये कि $\Delta ABC \sim \Delta QPR$ है और $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{25}$ है | यदि AB = 12 सेमी, BC = 8 सेमी और AC = 10 सेमी है, तो QR किसके बराबर है ?
SSC CHSL 9 July 2019(Morning)
(a) 15
(b) 18
(c) 20
(d) 25

Q79. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle ADC = 126°, $\angle$BAC is equal to: ABCD एक चक्रीय चतुर्भुज है जो इस प्रकार है कि AB इसे घेरने वाले वृत्त का व्यास है तथा कोण ADC = 126° है | कोण BAC का मान ज्ञात करें |
SSC CHSL 9 July 2019(Morning)
(a) 24°
(b) 72°
(c) 36°
(d) 18°

Q80. The distance between the centres of two circles of radius 2.5 cm each is 13 cm. The length (in cm) of a transverse common tangent is:
त्रिज्या 2.5 सेमी (प्रत्येक) वाले दो वृत्तों के केंद्रों के बीच की दूरी 13 सेमी है | एक अनुप्रस्थ उभयनिष्ठ स्पर्श रेखा की लंबाई ज्ञात करें |
SSC CHSL 9 July 2019(Morning)
(a) 6
(b) 12
(c) 8
(d) 10

Q81. The distance between the centres of two circles of radius 6 cm each is 13 cm. The length (in cm) of a transverse common tangent is:

6 सेमी त्रिज्या (प्रत्येक) वाले दो वृत्तों के केंद्र के बीच की दूरी 13 सेमी है | अनुप्रस्थ स्पर्श रेखा की लंबाई है -

SSC CHSL 9 July 2019(Afternoon)

(a) 10
(b) 12
(c) 5
(d) 6

Q82. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle ADC = 146° , ∠BAC is equal

To:

ABCD एक चक्रीय चतुर्भुज है जो इस प्रकार है कि AB इसे घेरने वाले वृत्त का व्यास है तथा कोण ADC = 146° है | ∠BAC का मान ज्ञात करें |

SSC CHSL 9 July 2019(Afternoon)

(a) 56°
(b) 24°
(c) 72°
(d) 18°

Q83. In ΔABC, ∠A = 72° ,Its sides AB and AC are produced to the points D and E respectively. If the bisectors of the ∠CBD and ∠BCE meet at point O, then ∠BOC is equal to: त्रिभुज ABC में, ∠A = 72° है | इसकी भुजाओं AB और AC को क्रमशः बिंदु D और E तक बढ़ाया जाता है | यदि ∠CBD और ∠BCE के समद्विभाजक बिंदु O पर मिलते हैं, तो कोण BOC का मान ज्ञात करें |

SSC CHSL 9 July 2019(Afternoon)

(a) 16°
(b) 54°
(c) 32°
(d) 106°

Q84. Let $\Delta ABC \sim \Delta QPR$ and $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{25}$. If AB = 12 cm, BC = 8 cm and BC = 10 cm, then QP is equal to :

मान लीजिये कि $\Delta ABC \sim \Delta QPR$ है तथा $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{25}$ है | यदि AB = 12 सेमी, BC = 8 सेमी और BC = 10 सेमी है, तो QP किसके बराबर है ?

SSC CHSL 9 July 2019(Afternoon)

(a) 20
(b) 18
(c) 15
(d) 30

Q85. Two chords AB and CD of a circle intersect at a point O inside the circle. It is given that AO = 1 cm, AB = 13 cm, CD = 8 cm. What is the ratio between the larger and smaller section among CO and OD?

एक वृत्त की दो जीवायें AB और CD एक दूसरे को वृत्त के भीतर एक बिंदु O पर काटती हैं | यह दिया गया है कि AO = 1 सेमी, AB = 13 सेमी, CD = 8 सेमी है | CO और OD के बीच बड़े और छोटे खंड के बीच अनुपात ज्ञात करें |

SSC CHSL 9 July 2019(Evening)

(a) 11 : 5
(b) 9 : 7
(c) 3 : 1
(d) 5 : 3

Q86. In a triangle ABC, PQ is a straight line parallel to AC, such that Area ABC : Area PBQ = 3:1. Then CB : CQ is equal to:

त्रिभुज ABC में, PQ, AC के समानांतर एक सीधी रेखा है जो इस प्रकार है कि ABC का क्षेत्रफल : PBQ का क्षेत्रफल = 3 : 1 है | तो CB : CQ का मान किसके बराबर है?

SSC CHSL 9 July 2019(Evening)

(a) $\frac{\sqrt{3}}{2}$ $(\sqrt{3}+1)$
(b) $\frac{\sqrt{3}}{2}$ $(\sqrt{3}-1)$
(c) $\frac{\sqrt{3}}{2}$
(d) $\frac{\sqrt{3}-2}{2}$

Q87. Two circles of diameters 2 cm and 5.6 cm are such that the distance between their centres is 8.2 cm. What is the length of a common tangent to the circles that does not intersect the line joining the centre ?

2 सेमी और 5.6 सेमी व्यास वाले दो वृत्त इस प्रकार हैं कि उनके केंद्रों के बीच की दूरी 8.2 सेमी है | इन वृत्तों की उभयनिष्ठ स्पर्श रेखा की लंबाई ज्ञात करें जो केंद्रों को जोड़ने वाली रेखा को काटती नहीं है |

SSC CHSL 10 July 2019(Afternoon)

(a) 8.4 cm
(b) 7.2 cm
(c) 8 cm
(d) 6.4 cm

Q88. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle $\angle ADC = 142^0$. Then angle BAC is equal to:

ABCD एक चक्रीय चतुर्भुज है इस प्रकार कि AB वृत्त का एक व्यास है जो इसके भीतर बनाया गया है और कोण $\angle ADC = 142^0$ है,तो कोण BAC का मान ज्ञात कीजिये?

SSC CPO 16 March 2019(Morning)

(a) 52^0
(b) 60^0
(c) 40^0
(d) 50^0

Q89. ABCD is a cyclic quadrilateral such that AB is the diameter of the circle circumscribing it and $\angle ADC = 145^0$. What is the measure of ∠BAC? ABCD एक ऐसा चक्रीय चतुर्भुज है कि AB इसे घेरने वाले वृत्त का व्यास है और $\angle ADC = 145^0$ है| कोण BAC का माप क्या है ?

SSC CPO 12 March 2019(Evening)

(a) 35^0
(b) 50^0

(c) 40^0
(d) 55^0

Q90. Let $\triangle ABC \sim \Delta QPR$ and $\frac{ar(\Delta ABC}{ar(\Delta PQR)} = \frac{9}{16}$, If AB= 12 cm, BC= 6 cm, and AC = 9cm, then PR is equal to:
मान लीजिये कि $\triangle ABC \sim \Delta QPR$ और $\frac{ar(\Delta ABC}{ar(\Delta PQR)} = \frac{9}{16}$ है | यदि AB = 12 सेमी, BC = 6 सेमी और AC = 9 सेमी है, तो PR किसके बराबर है ?
SSC CPO 12 March 2019(Evening)
(a) 9
(b) 12
(c) 16
(d) 8

Q91. In ΔABC, $\angle A = 30^0$ If the bisector of angle B and angle C meet at a point O in the interior of the triangle, then ∠BOC is equal to :
ΔABC, $\angle A = 30^0$ है | यदि कोण B तथा कोण C के द्विभाजक त्रिभुज के आतंरिक भाग में एक बिंदु O पर मिलते हैं, तो कोण BOC का मान ज्ञात करें |
SSC CPO 12 March 2019(Evening)
(a) 105^0
(b) 75^0
(c) 90^0
(d) 120^0

Q92. Let $\triangle ABC \sim \Delta RPQ$ and $\frac{ar(\Delta ABC}{ar(\Delta PQR)} = \frac{1}{9}$. If AB=3 cm, BC=4 cm and AC=5 cm, then PQ is equal to: मान लीजिये कि $\triangle ABC \sim \Delta RPQ$ है तथा $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{1}{9}$ है | यदि AB = 3 सेमी, BC = 4 सेमी तथा AC = 5 सेमी है, तो PQ किसके बराबर है ?
SSC CPO 13 March 2019(Evening)
(a) 9cm
(b) 18cm
(c) 12cm
(d) 15cm

Q93. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 160^0$. What is the measure of the ∠BAC?
ABCD एक ऐसा चक्रीय चतुर्भुज है कि AB इसे घेरने वाले वृत्त का व्यास है और कोण $\angle ADC = 160^0$ है | कोण BAC का माप क्या है ?
SSC CPO 13 March 2019(Evening)
(a) 60^0
(b) 75^0
(c) 70^0
(d) 65^0

Q94. In △ABC, ∠A = 70°. AB and AC are produced to points D and E respectively. If the bisectors of ∠CBD and ∠BCE meet at the point O, then ∠BOC is equal to
△ABC, ∠A = 70° में AB और AC को क्रमशः बिंदु D तथा E तक बढ़ाया जाता है | यदि कोण CBD तथा कोण BCE के द्विभाजक बिंदु O पर मिलते हैं, तो कोण BOC का मान क्या होगा ?
SSC CPO 13 March 2019(Evening)
(a) 95^0
(b) 70^0
(c) 55^0
(d) 105^0

Q95. PA and PB are two tangents from a point P outside the circle with centre O. If A and B are points on the circle such that ∠APB = 110°, then ∠OAB is equal to :
PA तथा PB केंद्र O वाले वृत्त के बाहर स्थित बिंदु P से निकली स्पर्श रेखाएं हैं | यदि A और B वृत्त पर स्थित ऐसे बिंदु हैं कि ∠APB = 110° है, तो ∠OAB किसके बराबर है ?
SSC CPO 13 March 2019(Evening)
(a) 45^0
(b) 55^0
(c) 70^0
(d) 35^0

Q96. PA and PB are two tangents to a circle with centre O, from a point P outside the circle. A and B are points on the circle. If ∠APB = 40°, then ∠OAB is equal to:
PA तथा PB केंद्र O वाले वृत्त के बाहर स्थित एक बिंदु P से निकली दो स्पर्श रेखाएं हैं | A तथा B वृत्त पर स्थित बिंदु हैं | यदि ∠APB = 40° है, तो ∠OAB किसके बराबर है ?
SSC CPO 12 March 2019(Morning)
(a) 40°
(b) 20°
(c) 50°
(d) 25°

Q97:- If $\triangle ABC \sim \triangle QPR$, $\frac{ar(\triangle ABC)}{ar(\triangle PQR)} = \frac{9}{4}$, AC = 12 cm and AB= 18 cm and BC = 15 cm, then PR is equal to:
यदि $\triangle ABC \sim \triangle QPR$, $\frac{ar(\triangle ABC)}{ar(\triangle PQR)} = \frac{9}{4}$, AC = 12 सेमी तथा AB= 18 सेमी और BC = 15 सेमी है, तो PR किसके बराबर है ?
SSC CPO 12 March 2019(Morning)
(a) $\frac{20}{3}$ cm
(b) 12 cm
(c) 8 cm
(d) 10 cm

Q98. In △ABC, ∠A = 50° . Its sides AB and AC are produced to the point D and E. If the bisectors of ∠CBD and ∠BCE meet at the point O, then ∠BOC is equal to:
त्रिभुज ABC में ∠A = 50° है | इसकी भुजाओं AB तथा AC को बिंदु D और E तक बढ़ाया जाता है | यदि ∠CBD तथा ∠BCE के द्विभाजक बिंदु O पर मिलते हैं, तो ∠BOC का मान किसके बराबर होगा ?

SSC CPO 12 March 2019(Morning)
(a) 75°
(b) 65°
(c) 55°
(d) 40°

Q99. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle ADC = 140°. Then angle BAC is equal to:
ABCD एक ऐसा चक्रीय चतुर्भुज है कि AB इसे घेरने वाले वृत्त का व्यास है और कोण ADC = 140° है | कोण BAC किसके बराबर है ?
SSC CPO 12 March 2019(Morning)
(a) 38°
(b) 40°
(c) 50°
(d) 60°

Q100. ABCD is a cyclic quadrilateral such that AB is the diameter of the circle circumscribing it and $\angle ADC = 155^\circ$, then what is the measure of $\angle BAC$?
ABCD एक ऐसा चक्रीय चतुर्भुज है कि AB इसे घेरने वाले वृत्त का व्यास है और $\angle ADC = 155^\circ$ है| कोण BAC का मान ज्ञात करें |
SSC CPO 13 March 2019(Morning)
(a) 35^0
(b) 55^0
(c) 65^0
(d) 45^0

Q101. From a point P outside the circle with centre O, two tangents PA and PB are drawn to meet the circle at A and B respectively. If $\angle APB = 70^\circ$, then $\angle OAB$ is equal to :
केंद्र O वाले वृत्त के बाहर स्थित किसी बिंदु P से दो स्पर्श रेखाएं PA और PB खींची जाती हैं जो वृत्त से क्रमशः A और B पर मिलती हैं | यदि $\angle APB = 70^\circ$ है, तो कोण OAB का मान ज्ञात करें |
SSC CPO 13 March 2019(Morning)
(a) 35^0
(b) 65^0
(c) 45^0
(d) 55^0

Q102. Let $\Delta ABC \sim \Delta RPQ$ *and* $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{1}{4}$. If PQ = 4 cm, and PR = 7 cm, QR - 6 cm ,then AC is equal to:
मान लीजिये कि $\Delta ABC \sim \Delta RPQ$ और $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{1}{4}$ है | यदि PQ = 4 सेमी और PR = 7 सेमी तथा QR - 6 सेमी है, तो AC का मान किसके बराबर है ?
SSC CPO 13 March 2019(Morning)
(a) 2 cm
(b) 4 cm
(c) 3 cm
(d) 3.5 cm

Q103. In ΔABC, $\angle A = 40^0$. If the bisectors of the $\angle B$ and $\angle C$, meet at a point O, then $\angle BOC$ is equal to:
ΔABC, $\angle A = 40^0$ है | यदि $\angle B$ और $\angle C$ के द्विभाजक एक बिंदु O पर मिलते हैं, तो $\angle BOC$ का मान क्या होगा ?
SSC CPO 13 March 2019(Morning)
(a) 130^0
(b) 90^0
(c) 70^0
(d) 110^0

Q104. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle BAC= 50^0. Then angle ADC is equal to:
ABCD एक ऐसा चक्रीय चतुर्भुज है कि AB इसे घेरने वाले वृत्त का व्यास है तथा कोण BAC = 50^0 है| कोण ADC का मान ज्ञात करें |
SSC CPO 14 March 2019(Morning)
(a) 60^0
(b) 150^0
(c) 130^0
(d) 140^0

Q105. PA and PB are two tangents to a circle with centre O, from a point P outside the circle. A and B are points on the circle. If ∠ OAB= 20^0, then ∠APB is equal to:
PA तथा PB केंद्र O वाले वृत्त के बाहर स्थित बिंदु P से वृत्त पर खींची गयी दो स्पर्श रेखाएं हैं | A और B वृत्त पर स्थित बिंदु हैं | यदि ∠OAB= 20^0 है, तो ∠APB का मान क्या होगा ?
SSC CPO 14 March 2019(Morning)
(a) 25^0
(b) 50^0
(c) 20^0
(d) 40^0

Q106.Triangle PQR is a right-angled at Q. If PQ=6 cm , PR=10 cm, then QR is equal to:
त्रिभुज PQR एक समकोण त्रिभुज है जिसमें Q समकोण है | यदि PQ = 6 सेमी, PR = 10 सेमी है, तो QR किसके बराबर होगा ?
SSC CPO 14 March 2019(Morning)
(a)5 cm
(b)8 cm
(c)7 cm
(d)9 cm

Q107. If two equal circles whose centres are O and o' intersect each other at the point A and B, OO' = 12 cm and AB= 16 cm, then radius of the circle is:
यदि दो बराबर वृत्त जिनके केंद्र O तथा o' हैं, एक-दूसरे को बिंदु A तथा B पर काटते हैं, तथा OO' = 12 सेमी एवं

AB = 16 सेमी है, तो वृत्त की त्रिज्या ज्ञात करें |
SSC CPO 16 March 2019(Evening)
(a)15 cm
(b)10 cm
(c)14 cm
(d)12 cm

Q108. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle ADC = 125^0. Then angle BAC is equal to
ABCD एक ऐसा चक्रीय चतुर्भुज है कि AB इसे घेरने वाले वृत्त का व्यास है तथा कोण ADC = 125^0 है | कोण BAC का मान ज्ञात करें |
SSC CPO 15 March 2019(Morning)
(a) 20^0
(b) 30^0
(c) 60^0
(d) 35^0

Q109. PA and PB are two tangents to a circle with centre O, from a point P outside the circle A and B are points on the circle. If ∠APB= 86^0, then ∠OAB is equal to:
PA तथा PB केंद्र O वाले वृत्त के बाहर स्थित बिंदु P से वृत्त पर खींची गयी स्पर्श रेखाएं हैं | A तथा B वृत्त पर स्थित बिंदु हैं | यदि ∠APB= 86^0 है, तो ∠OAB का मान ज्ञात करें |
SSC CPO 15 March 2019(Morning)
(a) 43^0
(b) 45^0
(c) 50^0
(d) 20^0

Q110. PA and PB are two tangents to a circle with centre O, from a point P outside the circle. A and B are points on the circle. If ∠OAB= 38^0, then ∠APB is equal to:
PA तथा PB केंद्र O वाले वृत्त के बाहर स्थित किसी बिंदु P से वृत्त पर खींची गयी दो स्पर्श रेखाएं हैं | A और B वृत्त पर स्थित बिंदु हैं | यदि ∠OAB= 38^0 है, तो ∠APB का मान ज्ञात करें |
SSC CPO 16 March 2019(Afternoon)
(a) 25^0
(b) 35^0
(c) 20^0
(d) 76^0

Q111. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle ADC =144°. Then angle BAC is equal to: ($\pi = \frac{22}{7}$)
ABCD एक ऐसा चक्रीय चतुर्भुज है कि AB इसे घेरने वाले वृत्त का व्यास है तथा कोण ADC = 144° है | कोण BAC का मान ज्ञात करें |
SSC CPO 16 March 2019(Afternoon)
(a)60°
(b)150°
(c) 54°
(d)40°

Q 112. ABCD is a cyclic quadrilateral in which AB is a diameter of the circle formed on it. If angle ADC is equal to 130°, what is the value of angle BAC?
ABCD एक चक्रीय चतुर्भुज है जिसमे AB इस पर बने वृत्त का एक व्यास है | कोण ADC = 130° है तो कोण BAC का मान क्या है ?
SSC CPO 14 March 2019(Evening)
(a) 60^0
(b) 50^0
(c) 150^0
(d) 40^0

Q113. Two touch lines drawn from a point P outside of a circle with center O are PA and PB. A and B is the point on the circle. If ∠APB = 70, then what is the value of ∠OAB?
केंद्र O वाले एक वृत्त के बाहर किसी बिंदु P से खींची गयी दो स्पर्श रेखाएं PA और PB है | Aऔर B वृत्त पर बिंदु है | यदि ∠APB = 70, तो ∠OAB का मान क्या है ? **SSC CPO 14 March 2019(Evening)**
(a) 20^0
(b) 35^0
(c) 25^0
(d) 50^0

Q114. Which of the following has the maximum number of vertex?
निम्नलिखित में से किस ठोस में सबसे अधिक शीर्ष होते है
SSC CPO 14 March 2019(Evening)
(a) Cuboid
(b) Triangular Prism
(c) Hexagonal pyramid
(d) Tetrahedron

Q115. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and angle ADC = 148^0. Then angle BAC is equal to:
ABCD एक चक्रीय चतुर्भुज (cyclic quadrilateral) है जिसमें AB इस पर बने वृत्त का एक व्यास है और कोण ADC = 148^0 है | कोण BAC निम्नलिखित में से किसके बराबर होगा :
SSC CPO 15 March 2019(Evening)
(a) 150^0
(b) 58^0
(c) 40^0
(d) 60^0

Q116. PA and PB are two tangents to a circle with centre O, from P outside the circle. A and B are points on the circle. If ∠APB= 100^0, then ∠OAB is equal to:
केंद्र O वाले एक वृत्त के बाहर किसी बिंदु P से खींची गई दो स्पर्श रेखाएँ PA और PB हैं | वृत्त पर A और B बिंदु हैं |

यदि $\angle APB = 100^0$, तो $\angle OAB$ का मान क्या होगा ?

SSC CPO 15 March 2019(Evening)

(a) 25^0
(b) 20^0
(c) 50^0
(d) 35^0

Q117. Let ΔABC and ΔABD be on the same base AB and between the same parallels AB and CD. Then the relation between areas of ΔABC and ΔABD will be:

मान लीजिये कि ΔABC तथा ΔABD एक ही आधार AB पर स्थित हैं तथा समान समानांतर रेखाओं AB तथा CD के बीच हैं | ΔABC तथा ΔABD के क्षेत्रफलों में क्या संबंध होगा ?

SSC-MTS 13 August 2019 (Evening)

(a) Area (ΔABC) = $\frac{1}{2}$ Area (ΔABD)
(b) Area (ΔABC) = Area (ΔABD)
(c) Area (ΔABD) = $\frac{1}{3}$ Area (ΔABC)
(d) Area (ΔABD) = $\frac{1}{2}$ Area (ΔABC)

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Q1. The sides AB and AC of ΔABC are produced to P and Q respectively. The bisectors of $\angle CBP$ and $\angle BCQ$ meet at O. If the measure of $\angle A$ is 44°, then what is the measure of $\frac{1}{2}\angle BOC$?

एक त्रिभुज ABC की भुजाओं AB और AC को क्रमशः P और Q तक बढ़ाया जाता है | $\angle CBP$ और $\angle BCQ$ के समद्विभाजक O पर मिलते हैं | यदि कोण A का मान 44° है, तो $\frac{1}{2}\angle BOC$ का मान क्या होगा ?

SSC CGL TIER II (11 September 2019)

(a) 33°
(b) 38°
(c) 34°
(d) 32°

Q2. In ΔABC, D is a point on side BC such that $\angle ADC = \angle BAC$. If CA = 12 cm, and CB = 8cm, then CD is equal to :

त्रिभुज ABC में, D भुजा BC पर स्थित एक बिंदु है जो इस प्रकार है कि $\angle ADC = \angle BAC$ है | यदि CA = 12 सेमी और CB = 8 सेमी है, तो CD का मान किसके बराबर होगा ?

SSC CGL TIER II (11 September 2019)

(a) 12 cm
(b) 15 cm
(c) 18 cm
(d) 16 cm

Q3. In ΔABC, $\angle A = 52^\circ$ and O is the orthocentre of the triangle (BO and CO meet AC and AB at E and F respectively when produced). If the bisectors of $\angle OBC$ and $\angle OCB$ meet at P, then the measure of $\angle BPC$ is: त्रिभुज ABC में, $\angle A = 52^\circ$ है तथा O त्रिभुज का लम्ब केंद्र है | (BO और CO बढाए जाने पर AC तथा AB से क्रमशः E तथा F पर मिलते हैं |) यदि $\angle OBC$ तथा $\angle OCB$ के समद्विभाजक P पर मिलते हैं, तो $\angle BPC$ का मान क्या होगा ?

SSC CGL TIER II (11 September 2019)

(a) 124°
(b) 132°
(c) 138°
(d) 154°

Q4. In ΔABC, AB = 6cm, AC = 8cm, and BC = 9cm. The length of median AD is :

त्रिभुज ABC में, AB = 6 सेमी, AC = 8 सेमी और BC = 9 सेमी है | मध्यिका AD की लंबाई ज्ञात करें |

SSC CGL TIER II (11 September 2019)

(a) $\frac{\sqrt{317}}{2}$ cm
(b) $\frac{\sqrt{119}}{2}$ cm
(c) $\frac{\sqrt{313}}{2}$ cm
(d) $\frac{\sqrt{115}}{2}$ cm

Q5. PQRS is a cyclic quadrilateral in which PQ = 14.4 cm, QR = 12.8 cm and SR= 9.6 cm. If PR bisects QS, what is the length of PS?

PQRS एक चक्रीय चतुर्भुज है जिसमें PQ = 14.4 सेमी, QR = 12.8 सेमी और SR = 9.6 सेमी है | यदि PR, QS को द्विभाजित करता है, तो PS की लंबाई कितनी है ?

SSC CGL TIER II (11 September 2019)

(a) 15.8 cm
(b) 16.4 cm
(c) 13.6 cm
(d) 19.2 cm

Q6. In ΔABC, AB = 7 cm, BC = 10cm, and AC = 8 cm. If AD is the angle bisector of $\angle BAC$, where D is a point on BC, then BD is equal to :

यदि त्रिभुज ABC में, AB = 7 सेमी, BC = 10 सेमी तथा AC = 8 सेमी है | यदि AD कोण BAC का समद्विभाजक है, जहाँ D, BC पर स्थित एक बिंदु है, तो BD का मान किसके बराबर है ?

SSC CGL TIER II (11 September 2019)

(a) $\frac{16}{3}$ cm
(b) $\frac{15}{4}$ cm
(c) $\frac{14}{3}$ cm
(d) $\frac{17}{4}$ cm

Q7. In ΔABC, D and E are the point on sides AB and BC respectively such that DE || AC. If AD : DB = 5:3, then what is the ratio of the area of ΔBDE to that of the trapezium ACED ? / त्रिभुज ABC में, D और E क्रमशः भुजा AB और BC पर स्थित ऐसे बिंदु हैं कि DE || AC है | यदि AD : DB = 5 : 3 है, तो त्रिभुज BDE के क्षेत्रफल और समलम्ब ACED के क्षेत्रफल में अनुपात ज्ञात करें |

SSC CGL TIER II (11 September 2019)
(a) 4:25
(b) 9:55
(c) 9:64
(d) 1:6

Q8. In a trapezium ABCD, DC | | AB, AB = 12 cm and DC=7.2 cm. What is the length of the line segment joining the mid-points of its diagonals? / एक समलम्ब ABCD में, DC II AB, AB = 12 सेमी और DC = 7.2 सेमी है | इसके विकर्णों के मध्य बिंदुओं को जोड़ने वाली रेखाखंड की लंबाई ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 2.6 cm
(b) 4.8 cm
(c) 2.4 cm
(d) 3.6 cm

Q9. Chord AB of a circle is produced to a point P, and C is a point on the circle such that PC is a tangent to the circle. If PC=18 cm, and BP = 15 cm, then AB is equal to : / किसी वृत्त की जीवा AB को एक बिंदु P तक बढ़ाया जाता है तथा C वृत्त पर स्थित एक ऐसा बिंदु है कि PC वृत्त की एक स्पर्श रेखा है | यदि PC = 18 सेमी और BP = 15 सेमी है, तो AB का मान किसके बराबर है ?
SSC CGL TIER II (11 September 2019)
(a) 5.8 cm
(b) 6.2 cm
(c) 6.6 cm
(d) 8.5 cm

Q10. In ΔABC, $\angle A = 58^\circ$. If I is the incentre of the triangle, then the measure of $\angle BIC$ is : / त्रिभुज ABC में, $\angle A = 58^\circ$ है | यदि I त्रिभुज का अंतःकेंद्र है, तो कोण BIC का मान ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 109°
(b) 123°
(c) 112°
(d) 119°

Q11. A circle is inscribed in ΔABC, touching AB, BC and AC at points P, Q and R respectively. If AB-BC = 4cm, AB-AC = 2cm and the perimeter of ΔABC = 32 cm, then PB+AR is equal to : / एक वृत्त त्रिभुज ABC के भीतर स्थित है जो AB, BC और AC को क्रमशः बिंदु P, Q और R पर स्पर्श करता है | यदि AB-BC = 4 सेमी, AB-AC = 2 सेमी और त्रिभुज ABC का परिमाप = 32 सेमी है, तो PB+AR का मान ज्ञात करें | **SSC CGL TIER II (11 September 2019)**
(a) 12 cm
(b) 13 cm
(c) $\frac{33}{5}$ cm
(d) $\frac{38}{3}$ cm

Q12. If each interior angle of a regular polygon is $(128\frac{4}{7})^\circ$, then what is the sum of the number of its diagonal and the number of its sides? / यदि किसी सम बहुभुज का प्रत्येक आतंरिक कोण $(128\frac{4}{7})^\circ$ है, तो इसके विकर्णों की संख्या और इसकी भुजाओं की संख्या का योग ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 15
(b) 19
(c) 17
(d) 21

Q13. In quadrilateral ABCD, the bisectors of $\angle A$ and $\angle B$ meet at O and $\angle AOB = 64^\circ$. $\angle C + \angle D$ is equal to : / चतुर्भुज ABCD में, कोण A और कोण B के समद्विभाजक O पर मिलते हैं तथा $\angle AOB = 64^\circ$ है | $\angle C + \angle D$ का मान ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 136°
(b) 128°
(c) 116°
(d) 148°

Q14. In ΔABC, the medians AD, BE and CF meet at O. What is the ratio of the area of ΔABD to the area of ΔAOE ? / त्रिभुज ABC में, मध्यिका AD, BE और CF बिंदु O पर मिलती हैं | त्रिभुज ABD तथा त्रिभुज AOE के क्षेत्रफलों में अनुपात ज्ञात करें | **SSC CGL TIER II (12 September 2019)**
(a) 2:1
(b) 3:1
(c) 5:2
(d) 3:2

Q15. In a circle, AB and DC are two chords. When AB and DC are produced, they meet at P. If PC = 5.6 cm, PB = 6.3 cm and AB = 7.7 cm, the the length of CD is : / एक वृत्त में, AB तथा DC दो जीवाएं हैं | जब AB और DC को बढ़ाया जाता है, तो वे P पर मिलती हैं | यदि PC = 5.6 सेमी, PB = 6.3 सेमी और AB = 7.7 सेमी है, तो CD की लंबाई ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 8.35 cm
(b) 9 cm
(c) 10.15 cm
(d) 9.25 cm

Q16. The sum of the interior angles of a regular polygon is 1260°. What is the difference between an exterior angle and an interior angle of the polygon? / एक सम बहुभुज के आतंरिक कोणों का योग 1260° है | इस बहुभुज के एक बाह्य तथा एक आतंरिक कोण में अंतर ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 105°
(b) 100°
(c) 120°
(d) 90°

Q17. In a circle with centre O, AC and BD are two chords. AC and BD meet at E when produced. If AB is the diameter and $\angle AEB = 68^\circ$, then the measure of $\angle DOC$ is : / केंद्र O वाले एक वृत्त में, AC और BD दो जीवाएं हैं | AC और BD बढ़ाए जाने पर E पर मिलती हैं | यदि AB व्यास है तथा $\angle AEB = 68^\circ$ है, तो कोण DOC का मान ज्ञात करें |

SSC CGL TIER II (12 September 2019)

(a) 32°
(b) 30°
(c) 22°
(d) 44°

Q18. In ΔABC, the perpendiculars drawn from A, B and C meet the opposite sides at D, E and F, respectively. AD, BE and CF intersect at point P. If $\angle EPD = 116^\circ$ and the bisectors of $\angle A$ and $\angle B$ meet at Q, then the measure of $\angle AQB$ is :

त्रिभुज ABC में, A, B तथा C से खींचे गए लम्ब सामने की भुजाओं पर क्रमशः D, E और F पर मिलते हैं | AD, BE और CF बिंदु P पर प्रतिच्छेद करते हैं | यदि $\angle EPD = 116^\circ$ है और कोण A तथा कोण B के समद्विभाजक Q पर मिलते हैं , तो कोण AQB का मान ज्ञात करें |

SSC CGL TIER II (12 September 2019)

(a) 96°
(b) 122°
(c) 124°
(d) 64°

Q19. The perimeters of two similar triangles ABC and PQR are 78 cm and 46.8 cm, respectively. If PQ = 11.7, then the length of AB is :

दो समरूप त्रिभुजों ABC और PQR के परिमाप क्रमशः 78 सेमी और 46.8 सेमी हैं | यदि PQ = 11.7 है, तो AB की लंबाई ज्ञात करें |

SSC CGL TIER II (12 September 2019)

(a) 19.5 cm
(b) 23.4 cm
(c) 24 cm
(d) 20 cm

Q20. In ΔPQR, I is the incentre of the triangle. If $\angle QIR = 107^\circ$, then what is the measure of $\angle P$?

त्रिभुज PQR में, I त्रिभुज का अंतःकेंद्र है | यदि $\angle QIR = 107^\circ$ है, तो कोण P का माप क्या है ?

SSC CGL TIER II (12 September 2019)

(a) 37°
(b) 43°
(c) 73°
(d) 34°

Q21. The sides PQ and PR of ΔPQR are produced to points S and T, respectively. The bisectors of $\angle SQR$ and $\angle TRQ$ meet at U. If $\angle QUR = 79^\circ$, then the measure of $\angle P$ is : त्रिभुज PQR की भुजाओं PQ और QR को क्रमशः S और T तक बढ़ाया जाता है | $\angle SQR$ और $\angle TRQ$ के समद्विभाजक U पर मिलते हैं | यदि $\angle QUR = 79^\circ$ है, तो कोण P का मान ज्ञात करें |

SSC CGL TIER II (12 September 2019)

(a) 41°
(b) 49°
(c) 22°
(d) 23°

Q22. In a quadrilateral ABCD, the bisectors of $\angle C$ and $\angle D$ meet at E. If $\angle CED = 56^\circ$ and $\angle A = 49^\circ$, then the measure of $\angle B$ is :

एक चतुर्भुज ABCD में, कोण C तथा कोण D के समद्विभाजक E पर मिलते हैं | यदि $\angle CED = 56^\circ$ और $\angle A = 49^\circ$ है, तो कोण B का मान क्या होगा ?

SSC CGL TIER II (12 September 2019)

(a) 71°
(b) 54°
(c) 63°
(d) 67°

Q23. In $\angle ABC$, AB=AC and D is a point on BC. If BD = 5cm, AB = 12cm and AD = 8 cm, then the length of CD is :

त्रिभुज ABC में, AB=AC है और D, BC पर स्थित एक बिंदु है | यदि BD = 5 सेमी, AB = 12 सेमी और AD = 8 सेमी है, तो CD की लंबाई ज्ञात करें |

SSC CGL TIER II (12 September 2019)

(a) 14.8 cm
(b) 16.2 cm
(c) 16 cm
(d) 14 cm

Q24. The bisector of $\angle B$ in ΔABC meets AC at D. If AB = 10 cm, BC= 11cm and AC = 14 cm, then the length of AD is :

ΔABC में $\angle B$ का समद्विभाजक AC से D पर मिलता है | यदि AB = 10 सेमी, BC = 11 सेमी और AC = 14 सेमी है, तो AD की लंबाई क्या होगी ?

SSC CGL TIER II (12 September 2019)

(a) 6 cm
(b) $\frac{22}{3}$ cm
(c) 7 cm
(d) $\frac{20}{3}$ cm

Q25. A circle is inscribed in a quadrilateral ABCD touching AB, BC, CD and AD at the points P,Q,R and S, respectively, and $\angle B = 90^\circ$. If AD = 24 cm, AB=27 cm and DR = 6cm, then what is the circumference of the circle ?

एक वृत्त चतुर्भुज ABCD के भीतर स्थित है जो AB, BC, CD और AD को क्रमशः P, Q, R और S पर स्पर्श करता है और $\angle B = 90^\circ$ है | यदि AD = 24 सेमी, AB = 27 सेमी और DR = 6 सेमी है, तो वृत्त की परिधि ज्ञात करें |

SSC CGL TIER II (12 September 2019)
(a) 20π
(b) 18π
(c) 15π
(d) 12π

Q26. In Δ ABD, C is the midpoint of BD. If AB = 10 cm, AD = 12 cm and AC = 9 cm, then BD = ?
त्रिभुज ABD में, C, BD का मध्य बिंदु है | यदि AB = 10 सेमी, AD = 12 सेमी और AC = 9 सेमी है, तो BD = ?
SSC CGL TIER II (13 September 2019)
(a) $2\sqrt{41}$
(b) $2\sqrt{10}$
(c) $\sqrt{41}$
(d) $\sqrt{10}$

Q27. S is the incentre of Δ PQR. If $\angle$ PSR = 125°, then the measure of $\angle$ PQR is :
S, त्रिभुज PQR का अंतःकेंद्र है | यदि $\angle$ PSR = 125° है, तो कोण PQR का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 75°
(b) 55°
(c) 80°
(d) 70°

Q28. If in Δ ABC, D and E are the points on AB and BC respectively such that DE | | BC, and AD:AB = 3:8, then (area of ΔBDE) : (area of quadrilateral DECA) = ?
यदि त्रिभुज ABC में, D और E क्रमशः AB और BC पर स्थित ऐसे बिंदु हैं कि DE | | BC है और AD:AB = 3:8 है, तो (ΔBDE का क्षेत्रफल) : (चतुर्भुज DECA का क्षेत्रफल) ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 9:55
(b) 9:64
(c) 8:13
(d) 25:39

Q29. Two parallel chords on the same side of the centre of a circle are 12 cm and 20 cm long and the radius of the circle is $5\sqrt{13}$ cm. What is the distance (in cm) between the chords ? किसी वृत्त के केंद्र के एक ही तरफ दो समानांतर जीवाएं 12 सेमी और 20 सेमी लंबी हैं तथा वृत्त की त्रिज्या $5\sqrt{13}$ सेमी की है | जीवाओं के बीच की दूरी (सेमी में) ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 2
(b) 3
(c) 2.5
(d) 1.5

Q30. A circle touches the side BC of ΔABC at D and AB and AC are produced to E and F, respectively. If AB = 10 cm, AC=8.6 cm and BC=6.4 cm, then BE = ?
एक वृत्त त्रिभुज ABC की भुजा BC को D पर स्पर्श करता है और AB तथा AC को क्रमशः E और F तक बढ़ाया जाता है | यदि AB = 10 सेमी, AC = 8.6 सेमी और BC = 6.4 सेमी है, तो BE = ?
SSC CGL TIER II (13 September 2019)
(a) 3.2 cm
(b) 3.5 cm
(c) 2.2 cm
(d) 2.5 cm

Q31. If the measure of each exterior angle of a regular polygon is $(51\frac{3}{7})^\circ$, then the ratio of the number of its diagonals to the number of its sides is :
यदि किसी सम बहुभुज के प्रत्येक बाह्य कोण का मान $(51\frac{3}{7})^\circ$ है, तो इसके विकर्णों की संख्या तथा इसकी भुजाओं की संख्या में अनुपात ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 5:2
(b) 13:6
(c) 3:1
(d) 2:1

Q32. In ΔABC, BE $\perp$ AC, CD $\perp$ AB and BE and CD intersect each other at O. The bisectors of $\angle$ OBC and $\angle$ OCB meet at P. If $\angle$ BPC = 148°, then what is the measure of $\angle$ A ? त्रिभुज ABC में, BE $\perp AC$, CD $\perp AB$ तथा BE और CD एक दूसरे को O पर काटती हैं | $\angle$ OBC तथा $\angle$ OCB के समद्विभाजक P पर मिलते हैं | यदि $\angle$ BPC = 148° है, तो कोण A का मान क्या है ?
SSC CGL TIER II (13 September 2019)
(a) 56°
(b) 28°
(c) 32°
(d) 64°

Q33. In ΔPQR, $\angle$ Q $\succ$ $\angle$ R, PS is the bisector of $\angle$ P and PT $\perp$ QR. If $\angle$ SPT = 28° and $\angle$ R = 23°, then the measure of $\angle$ Q is :
त्रिभुज PQR में, $\angle$ Q $\succ$ $\angle$ R, है तथा PS कोण P का समद्विभाजक है और PT $\perp$ QR है| यदि $\angle$ SPT = 28° और $\angle$ R = 23° है, तो कोण Q का मान क्या है ?
SSC CGL TIER II (13 September 2019)
(a) 74°
(b) 79°
(c) 82°
(d) 89°

Q34. In quadrilateral ABCD, $\angle$ C = 72° and $\angle$ D = 28°. The bisectors of $\angle$ A and $\angle$ B meet in O. What is the measure of $\angle$ AOB ?
चतुर्भुज ABCD में, $\angle$ C = 72° और $\angle$ D = 28° है | कोण A तथा कोण B के समद्विभाजक O पर मिलते हैं | कोण AOB का मान ज्ञात करें |

SSC CGL TIER II (13 September 2019)
(a) 48°
(b) 54°
(c) 50°
(d) 36°

Q35. In ΔABC, D and E are the points on AB and AC respectively such that AD × AC = AB × AE. If ∠ADE = ∠ACB + 30° and ∠ABC = 78°, then ∠A = ?
त्रिभुज ABC में, D और E क्रमशः भुजा AB और AC पर स्थित ऐसे बिंदु हैं कि AD × AC = AB × AE है | यदि ∠ADE = ∠ACB + 30° है तथा ∠ABC = 78° है, तो कोण A का मान क्या होगा ?
SSC CGL TIER II (13 September 2019)
(a) 56°
(b) 54°
(c) 68°
(d) 48°

Q36. The bisector of ∠A in ΔABC meets BC in D. If AB = 15 cm, AC = 13 cm and BC = 14 cm, then DC = ? त्रिभुज ABC में कोण A का समद्विभाजक BC से D पर मिलता है | यदि AB = 15 सेमी, AC = 13 सेमी और BC = 14 सेमी है, तो DC = ?
SSC CGL TIER II (13 September 2019)
(a) 8.5 cm
(b) 7.5 cm
(c) 6.5 cm
(d) 8 cm

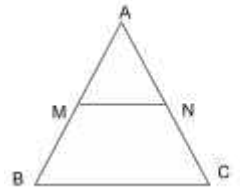
Q37. If each interior angle of a regular polygon is $(128\frac{4}{7}°)$, then what is the sum of number of sides and the number of its diagonals.
यदि एक सम बहुभुज का प्रत्येक आंतरिक कोण $(128\frac{4}{7}°)$ है, तो इसकी भुजाओं की संख्या एवं विकर्णों की संख्या का योग क्या है ?
SSC CGL TIER II (11 September 2019)
(a) 15
(b) 19
(c) 17
(d) 21

Q38. If in ΔPQR, ∠P = 120°, PS ⊥ QR at S and PQ+QS=SR, then the measure of ∠Q is :
यदि त्रिभुज PQR में, ∠P = 120°, S पर PS ⊥ QR और PQ+QS=SR है, तो कोण Q का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 20°
(b) 50°
(c) 40°
(d) 30°

Q39. In a circle with centre O, ABCD is a cyclic quadrilateral and AC is the diameter. Chords AB and CD are produced to meet at E. If ∠CAE = 34° and ∠E = 30°, then ∠CBD is equal to :
केंद्र O वाले एक वृत्त में, ABCD एक चक्रीय चतुर्भुज है तथा AC व्यास है | जीवाएं AB और CD बढ़ाई जाती हैं जो E पर मिलती हैं | यदि ∠CAE = 34° और ∠E = 30° है, तो कोण CBD का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 36°
(b) 26°
(c) 24°
(d) 34°

SSC CGL 2019 TIER 1

Q1. In Δ ABC, MN∥BC, the area of quadrilateral MBCN =130sqcm. If AN : NC = 4:5, then the area of Δ MAN is:
त्रिभुज ABC में, MN∥BC है तथा चतुर्भुज MBCN का क्षेत्रफल 130 वर्ग सेमी है | यदि AN : NC = 4 : 5 है, तो त्रिभुज MAN का क्षेत्रफल ज्ञात करें |



SSC CGL 3 March 2020 (Morning)
(a) 40 cm^2
(b) 45 cm^2
(c) 65 cm^2
(d) 32 cm^2

Q2. A,B and C are three points on a circle such that the angles subtended by the chord AB and AC at the centre O are 110° and 130° respectively. Then the value of ∠BAC is:
A, B और C एक वृत्त पर स्थित तीन ऐसे बिंदु हैं कि जीवा AB और AC के द्वारा केंद्र O पर अंतरित किये गए कोण क्रमशः 110° तथा 130° हैं | ∠BAC का मान है :
SSC CGL 3 March 2020 (Morning)
(a) 70°
(b) 75°
(c) 60°
(d) 65°

Q3. The area of Δ ABC is 44 cm^2. If D is the midpoint of BC and E is the midpoint of AB, then the area (in cm^2) of Δ BDE is:
Δ ABC का क्षेत्रफल 44 वर्ग सेमी है | यदि D, BC का मध्य बिंदु है तथा E, AB का मध्य बिंदु है, तो Δ BDE का क्षेत्रफल (वर्ग सेमी में) होगा :
SSC CGL 3 March 2020 (Morning)
(a) 5.5
(b) 44
(c) 22
(d) 11

Q4. In Δ ABC, AB=AC and AL is perpendicular to BC at L. In Δ DEF, DE=DF and DM is perpendicular to EF at M. If (area

of ΔABC):(area of ΔDEF) = 9:25, then $\frac{DM+AL}{DM-AL}$ is equal to:
त्रिभुज ABC में, AB = AC है तथा AL, BC पर L पर डाला गया लम्ब है | ΔDEF में, DE = DF है तथा DM, EF पर M पर डाला गया लम्ब है | यदि (ΔABC का क्षेत्रफल) : (ΔDEF का क्षेत्रफल) = 9 : 25 है, तो $\frac{DM+AL}{DM-AL}$ का मान किसके बराबर है ?
SSC CGL 3 March 2020 (Afternoon)

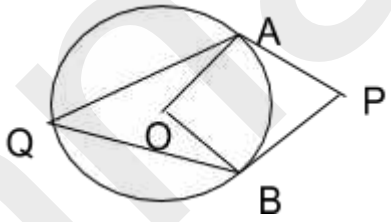
(a) 6
(b) 4
(c) 3
(d) 5

Q5. ΔABC is an equilateral triangle and $AD \perp BC$, where D lies in BC. If AD= $4\sqrt{3}$ cm, then what is the perimeter (in cm) of ΔABC?
त्रिभुज ABC एक समबाहु त्रिभुज है तथा $AD \perp BC$ है, जहाँ D, BC पर स्थित है | यदि AD = $4\sqrt{3}$ सेमी है, तो त्रिभुज ABC का परिमाप (सेमी में) कितना होगा ?
SSC CGL 3 March 2020 (Afternoon)
(a) 27
(b) 24
(c) 30
(d) 21

Q6. PQRS is a cyclic quadrilateral in which PQ= x cm, QR= 16.8 cm, RS= 14 cm and PS= 25.2 cm and PR bisects QS. What is the value of x?
PQRS एक चक्रीय चतुर्भुज है जिसमें PQ = x सेमी, QR = 16.8 सेमी तथा RS = 14 सेमी एवं PS = 25.2 सेमी है | PR, QS को समद्विभाजित करता है | x का मान कितना है ?
SSC CGL 3 March 2020 (Afternoon)
(a) 18
(b) 21
(c) 28
(d) 24

Q7. Quadrilateral ABCD circumscribes a circle. If AB= 8cm, BC = 7cm and CD= 6cm, then the length of AD is:
चतुर्भुज ABCD एक वृत्त को चारो तरफ से घेरता है | यदि AB = 8 सेमी, BC = 7 सेमी और CD = 6 सेमी है, तो AD की लंबाई कितनी होगी ?
SSC CGL 3 March 2020 (Afternoon)
(a) 6 cm
(b) 7.5 cm
(c) 7 cm
(d) 6.8 cm

Q8. In the given figure, AP and BP are tangents to a circle with centre O. If $\angle APB = 62°$ then the measure of $\angle AQB$ is:
दी गयी आकृति में, AP और BP वृत्त की स्पर्श रेखाएँ हैं जिसका केंद्र O है | यदि $\angle APB = 62°$ है, तो $\angle AQB$ का मान क्या होगा ?

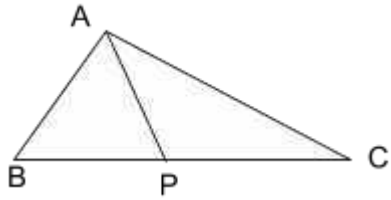


SSC CGL 3 March 2020 (Evening)
(a) 28 °
(b) 59 °
(c) 31 °
(d) 118 °

Q9. In ΔABC, if AB=AC and $\angle BAC = 40°$, then the measure of $\angle B$ is:
त्रिभुज ABC में, यदि AB = AC तथा $\angle BAC = 40°$ है, तो कोण B का मान क्या होगा ?
SSC CGL 3 March 2020 (Evening)
(a) 40°
(b) 60°
(c) 50°
(d) 70°

Q10. In a circle with radius 5cm, a chord is at a distance of 3cm from the centre. The length of the chord is:
5 सेमी त्रिज्या वाले एक वृत्त में, केंद्र से 3 सेमी की दूरी पर एक जीवा है | इस जीवा की लंबाई कितनी है ?
SSC CGL 3 March 2020 (Evening)
(a) 7 cm
(b) 4 cm
(c) 8 cm
(d) 3 cm

Q11. In the given figure, AP bisects $\angle BAC$. If AB=4 cm, AC = 6 cm and BP = 3 cm, then the length of CP is:
दी गयी आकृति में, AP, $\angle BAC$ को समद्विभाजित करता है | यदि AB = 4 सेमी, AC = 6 सेमी और BP = 3 सेमी है, तो CP की लंबाई क्या होगी ?



SSC CGL 3 March 2020 (Evening)

(a) 3 cm
(b) 7 cm
(c) 5 cm
(d) 4.5 cm

Q12. In ΔABC, $\angle A = 90°$, M is the midpoint of BC and D is a point on BC such that $AD \perp BC$. If AB= 7 cm and AC = 24 cm, then AD:AM is equal to:
ΔABC में, $\angle A = 90°$ है, M, BC का मध्य बिंदु है तथा D, BC पर स्थित ऐसा बिंदु है कि $AD \perp BC$ है | यदि AB = 7 सेमी, AC = 24 सेमी है, तो AD:AM किसके बराबर है ?
SSC CGL 4 March 2020 (Morning)

(a) 168:275
(b) 24:25
(c) 32:43
(d) 336:625

Q13. In ΔABC, $\angle B = 68°$ and $\angle C = 32°$. Sides AB and AC are produced to points D and E, respectively. The bisectors of $\angle DBC$ and $\angle BCE$ meet at F. What is the measure of $\angle BCF$? /
त्रिभुज ABC में, $\angle B = 68°$ तथा $\angle C = 32°$ है | भुजाओं AB और AC को क्रमशः बिंदु D और E तक बढ़ाया जाता है | $\angle DBC$ तथा $\angle BCE$ के समद्विभाजक F पर मिलते हैं | कोण BCF का मान ज्ञात करें |
SSC CGL 4 March 2020 (Morning)
(a) 55°
(b) 39°
(c) 50°
(d) 65°

Q14. ABCD is a cyclic quadrilateral in which AB= 16.5 cm, BC = x cm, CD = 11 cm, AD= 19.8 cm and BD is bisected by AC at O. What is the value of x?/
ABCD एक चक्रीय चतुर्भुज है जिसमें AB = 16.5 सेमी, BC = x सेमी, CD = 11 सेमी, AD = 19.8 सेमी है तथा BD को AC के द्वारा O पर समद्विभाजित किया जाता है | x का मान क्या है ?
SSC CGL 4 March 2020 (Morning)
(a) 12.4 cm
(b) 13.8 cm
(c) 13.2 cm
(d) 12.8 cm

Q15. In ΔABC, AB=AC. A circle drawn through B touches AC at D and intersects AB at P. If D is the mid point of AC and AP = 2.5 cm, then AB is equal to:
त्रिभुज ABC में, AB = AC है | B से खींचा गया एक वृत्त AC को D पर स्पर्श करता है तथा AB को P पर काटता है | यदि D, AC का मध्य बिंदु है एवं AP = 2.5 सेमी है, तो AB का मान किसके बराबर है ?
SSC CGL 4 March 2020 (Morning)
(a) 9 cm
(b) 7.5 cm
(c) 12.5 cm
(d) 10 cm

Q16. PRT is a tangent to a circle with centre O, at the point R on it. Diameter SQ of the circle is produced to meet the tangent at P and QR is joined. If $\angle QRP = 28°$, then the measure of $\angle SPR$ is: /
PRT एक वृत्त, जिसका केंद्र O है, पर स्थित बिंदु R से जाने वाली स्पर्श रेखा है | वृत्त के व्यास SQ को बढ़ाया जाता है जो स्पर्श रेखा से P पर मिलता है तथा QR को मिलाया जाता है | यदि $\angle QRP = 28°$ है, तो $\angle SPR$ का मान क्या होगा ?
SSC CGL 4 March 2020 (Afternoon)
(a) 29°
(b) 34°
(c) 62°
(d) 32°

Q17. In ΔPQR, $\angle Q = 85°$ and $\angle R = 65°$. Points S and T are on the sides PQ and PR, respectively such that $\angle STR = 95°$, then the ratio of QR and ST is 9:5. If PQ= 21.6 cm, then the length of PT is:
ΔPQR में, $\angle Q = 85°$ तथा $\angle R = 65°$ है | बिंदु S तथा T क्रमशः भुजाओं PQ और PR पर इस तरह स्थित हैं कि $\angle STR = 95°$ है | QR तथा ST का अनुपात 9 : 5 है | यदि PQ = 21.6 सेमी है, तो PT की लंबाई ज्ञात करें |
SSC CGL 4 March 2020 (Afternoon)
(a) 10.5 cm
(b) 9.6 cm
(c) 12 cm
(d) 9 cm

Q18. In ΔABC, D and E are the points on sides AC and BC, respectively such that DE ∥ AB. F is the point on CE such that DF ∥ AE. If CE= 6cm and CF = 2.5 cm, then BC is equal to:
त्रिभुज ABC में, D और E क्रमशः भुजाओं AC तथा BC के मध्य बिंदु हैं जो इस प्रकार हैं कि DE ∥ AB है | F, CE पर स्थित ऐसा बिंदु है कि DF ∥ AE है | यदि CE = 6 सेमी और CF =2.5 सेमी है, तो BC किसके बराबर है ?
SSC CGL 4 March 2020 (Afternoon)
(a) 14.4 cm
(b) 15.6 cm
(c) 14 cm
(d) 12 cm

Q19. Two chords AB and CD of a circle are produced to intersect each other at point P outside the circle. If AB=7 cm, BP = 4.2 cm and PD = 2.8 cm, then the length of CD is: /
एक वृत्त की दो जीवाओं AB और CD को बढ़ाया जाता है जो एक-दूसरे को वृत्त के बाहर बिंदु P पर काटती हैं | यदि AB = 7 सेमी, BP = 4.2 सेमी तथा PD = 2.8 सेमी है, तो CD की लंबाई कितनी है ?
SSC CGL 4 March 2020 (Afternoon)
(a) 12 cm
(b) 14.6 cm
(c) 15.8 cm
(d) 14 cm

Q20. The chords AB and CD of a circle intersect at E. If AE = 12cm, BE = 20.25 cm and CE = 3DE, then the length (in cm) of CE is:
एक वृत्त की दो जीवाएँ AB तथा CD एक-दूसरे को E पर काटती हैं | यदि AE = 12 सेमी, BE = 20.25 सेमी

तथा CE = 3DE है, तो CE की लंबाई (सेमी में) कितनी होगी ?
SSC CGL 4 March 2020 (Evening)
(a) 27
(b) 25.5
(c) 18
(d) 28.5

Q21. In ΔABC, $\angle B = 72°$ and $\angle C = 44°$. Side BC is produced to D. The bisectors of $\angle B$ and $\angle ACD$ meet at E. What is the measure of $\angle BEC$?
त्रिभुज ABC में, $\angle B = 72°$ तथा $\angle C = 44°$ है | भुजा BC को D तक बढ़ाया जाता है | $\angle B$ तथा $\angle ACD$ के समद्विभाजक E पर मिलते हैं | कोण BEC का मान क्या होगा ?
SSC CGL 4 March 2020 (Evening)
(a) 58 °
(b) 46 °
(c) 32 °
(d) 36 °

Q22. In ΔABC, AC= 8.4 cm, BC= 14 cm. P is a point on AB such that CP = 11.2 cm and ∠ACP = ∠B. What is the length (in cm) of BP?
ΔABC में, AC = 8.4 सेमी, BC = 14 सेमी है | P, AB पर स्थित एक ऐसा बिंदु है कि CP = 11.2 सेमी तथा ∠ACP = ∠B है | BP की लंबाई (सेमी में) कितनी है ?
SSC CGL 4 March 2020 (Evening)
(a) 4.12
(b) 2.8
(c) 3.78
(d) 3.6

Q23. Two circles of radii 7cm and 5 cm intersect each other at A and B, the distance between their centres is 10 cm. The length (in cm) of the common chord AB is:
दो वृत्त, जिनकी त्रिज्याएँ 7 सेमी तथा 5 सेमी हैं, एक-दूसरे को A और B पर प्रतिच्छेद करते हैं | उनके केंद्रों के बीच की दूरी 10 सेमी है | उभयनिष्ठ जीवा AB की लंबाई (सेमी में) कितनी है ?
SSC CGL 4 March 2020 (Evening)
(a) $\frac{3\sqrt{66}}{5}$
(b) $\frac{4\sqrt{66}}{5}$
(c) $\frac{2\sqrt{74}}{5}$
(d) $\frac{3\sqrt{74}}{5}$

Q24. In ΔABC, ∠C = 90°, AC = 5cm and BC = 12 cm. The bisector of ∠A meets BC at D. What is the length of AD?
त्रिभुज ABC में, ∠C = 90°, AC = 5 सेमी तथा BC = 12 सेमी है | कोण A का समद्विभाजक BC से D पर मिलता है | AD की लंबाई कितनी है ?
SSC CGL 5 March 2020 (Morning)
(a) $\frac{5\sqrt{13}}{3}$ cm
(b) $\frac{4}{3}\sqrt{13}$ cm
(c) $2\sqrt{13}$ cm
(d) $\frac{2}{3}\sqrt{13}$ cm

Q25. D is the midpoint of BC of ΔABC. Point E lies on AC such that CE = $\frac{1}{3}$ AC. BE and AD intersect at G. What is $\frac{AG}{GD}$?
D त्रिभुज ABC का मध्य बिंदु है | बिंदु E, AC पर इस प्रकार स्थित है कि CE = $\frac{1}{3}$ AC है | BE और AD एक-दूसरे को D पर प्रतिच्छेद करते हैं | $\frac{AG}{GD}$ क्या है ?
SSC CGL 5 March 2020 (Morning)
(a) 8:3
(b) 4:1
(c) 5:2
(d) 3:1

Q26. Sides AB and DC of a cyclic quadrilateral ABCD are produced to meet at E, and sides AD and BC are produced to meet at F. If ∠ADC = 75° and ∠BEC = 52°, then the difference between ∠BAD and ∠AFB ?
एक चक्रीय चतुर्भुज ABCD की भुजाओं AB और DC को बढ़ाया जाता है जो E पर मिलती हैं तथा भुजाओं AD और BC को बढ़ाया जाता है जो F पर मिलती हैं | यदि ∠ADC = 75° तथा ∠BEC = 52° है, तो ∠BAD तथा ∠AFB के बीच क्या अंतर है ?
SSC CGL 5 March 2020 (Morning)
(a) 23°
(b) 22°
(c) 31°
(d) 21°

Q27. Two chords AB and CD of a circle with centre O intersect each other at P. If ∠APC=95° and ∠AOD=110°, then what ∠BOC is:
केंद्र O वाले एक वृत्त की दो जीवाएँ AB तथा CD हैं जो एक-दूसरे को P पर प्रतिच्छेद करती हैं | यदि ∠APC=95° तथा ∠AOD=110° है, तो ∠BOC का मान क्या होगा ?
SSC CGL 5 March 2020 (Morning)
(a) 65°
(b) 70°
(c) 60°
(d) 55°

Q28. In ΔPQR, PQ=24 cm and ∠Q=58°. S and T are points on side PQ and PR, respectively such that ∠STR = 122°. If PS= 14cm and PT= 12cm, then the length of RT is:
त्रिभुज PQR में, PQ = 24 सेमी तथा ∠Q=58° है | S और T क्रमशः भुजा PQ तथा PR पर स्थित ऐसे बिंदु हैं कि ∠STR = 122° है | यदि PS = 14 सेमी तथा PT = 12 सेमी है, तो RT की लंबाई कितनी होगी ?
SSC CGL 5 March 2020 (Afternoon)
(a) 16.4 cm
(b) 15 cm

(c) 16 cm
(d) 14.8 cm

Q29. In $\Delta ABC, \angle B = 90°$. If points D and E are on side BC such that BD=DE=EC, then which of the following is true?
त्रिभुज ABC में, $\angle B = 90°$ है | यदि बिंदु D और E भुजा BC पर इस प्रकार स्थित हैं कि BD=DE=EC है, तो निम्नलिखित में से कौन सा सही होगा ?
SSC CGL 5 March 2020 (Afternoon)
(a) $8AE^2 = 3AC^2+5AD^2$
(b) $8AE^2 = 5AC^2+3AD^2$
(c) $5AE^2 = 2AC^2+3AD^2$
(d) $5AE^2 = 3AC^2+2AD^2$

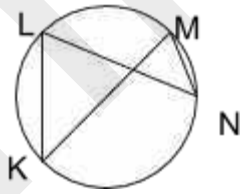
Q30. Diameter AB of a circle with centre O is produced to point P such that PO = 16.5 cm. PQR is a secant which intersects the circle at Q and R such that PQ = 12 cm and PR = 19.2 cm. The length of AB (in cm) is:
केंद्र O वाले एक वृत्त के व्यास AB को बिंदु P तक इस प्रकार बढ़ाया जाता है कि PO = 16.5 सेमी है | PQR एक छेदक रेखा है जो वृत्त को Q तथा R पर इस प्रकार काटती है कि PQ = 12 सेमी तथा PR = 19.2 सेमी है | AB की लंबाई (सेमी में) कितनी है ?
SSC CGL 5 March 2020 (Afternoon)
(a) 15.8
(b) 14.2
(c) 15.2
(d) 14.4

Q31. ABCD is a cyclic quadrilateral in which sides AD and BC are produced to meet at P, and sides DC and AB meet at Q when produced. If $\angle A = 60°$ and $\angle ABC = 72°$ then $\angle DPC - \angle BQC$ =
ABCD एक चक्रीय चतुर्भुज है जिसमें भुजाओं AD तथा BC को बढ़ाया जाता है जो P पर मिलती हैं तथा भुजाओं DC और AB को बढ़ाया जाता है जो Q पर मिलती हैं | यदि $\angle A = 60°$ तथा $\angle ABC = 72°$ है, तो $\angle DPC - \angle BQC$ = ?
SSC CGL 5 March 2020 (Afternoon)

(a) 24°
(b) 40°`
(c) 36°
(d) 30°

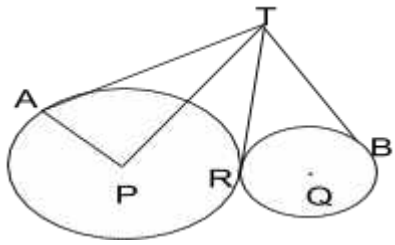
Q32. If angles of a triangle are in the ratio 2:3:4, then the measure of the smallest angle is:
यदि एक त्रिभुज के कोणों का अनुपात 2 : 3 : 4 है, तो सबसे छोटे कोण का मान क्या है ?
SSC CGL 5 March 2020 (Evening)
(a) 40°
(b) 20°
(c) 50°
(d) 30°

Q33. In the given figure, if $\angle KLN = 58°$, then $\angle KMN$?
दी गयी आकृति में, यदि $\angle KLN = 58°$ है, तो $\angle KMN$ का मान क्या होगा ?



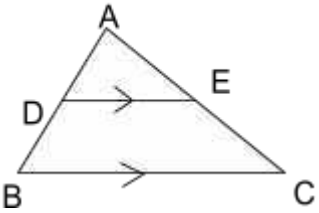
SSC CGL 5 March 2020 (Evening)
(a) 58°
(b) 42°
(c) 26°
(d) 32°

Q34. In the figure, two circles with centres P and Q touch externally at R. Tangents AT and BT meet the common tangent TR at T. If AP = 6cm and PT = 10 cm, then BT =?
दी गयी आकृति में, दो वृत्त जिनके केंद्र P तथा Q हैं, वे एक-दूसरे को बाहर से R पर स्पर्श करते हैं | स्पर्श रेखाएँ AT तथा BT उभयनिष्ठ स्पर्श रेखा TR से T पर मिलती हैं | यदि AP = 6 सेमी तथा PT = 10 सेमी है, तो BT = ?



SSC CGL 5 March 2020 (Evening)
(a) 6 cm
(b) 12 cm
(c) 8 cm
(d) 10 cm

Q35. In the given figure, if DE ∥ BC, AD = 2.5 cm, DB = 3.5 cm and EC = 4.2 cm, then the measure of AC is:
दी गयी आकृति में, यदि DE ∥ BC, AD = 2.5 सेमी, DB = 3.5 सेमी तथा EC = 4.2 सेमी है, तो AC का माप क्या होगा ?



SSC CGL 5 March 2020 (Evening)
(a) 7.4 cm
(b) 7.2 cm
(c) 3.2 cm
(d) 3 cm

Q36. ABC is an equilateral triangle. P,Q and R are the midpoints of sides AB, BC and CA respectively. If the length of the side of the triangle ABC is 8 cm, then the area of ΔPQR is:
ABC एक समबाहु त्रिभुज है | P, Q और R क्रमशः भुजाओं AB, BC तथा CA के मध्य बिंदु हैं | यदि त्रिभुज ABC की भुजा की लंबाई 8 सेमी है,

तो त्रिभुज PQR का क्षेत्रफल कितना होगा ?

SSC CGL 6 March 2020 (Morning)

(a) $8\sqrt{3}\ cm^2$

(b) $\frac{\sqrt{3}}{3}\ cm^2$

(c) $4\sqrt{3}\ cm^2$

(d) $\frac{\sqrt{3}}{4}\ cm^2$

Q37. If the area of an equilateral triangle is $36\sqrt{3}\ cm^2$, then the perimeter of the triangle is:

यदि एक समबाहु त्रिभुज का क्षेत्रफल $36\sqrt{3}$ वर्ग सेमी है, तो इस त्रिभुज का परिमाप कितना होगा ?

SSC CGL 6 March 2020 (Morning)

(a) 12 cm

(b) $18\sqrt{3}$ cm

(c) 36 cm

(d) $36\sqrt{3}$ cm

Q38. Two tangents PA and PB are drawn to a circle with centre O from an external point P. If ∠OAB = 30°, then ∠APB is:

केंद्र O वाले वृत्त पर एक बाहरी बिंदु P से दो स्पर्श रेखाएँ PA तथा PB खींची जाती हैं | यदि ∠OAB = 30° है, तो ∠APB का मान क्या होगा ?

SSC CGL 6 March 2020 (Morning)

(a) 120°

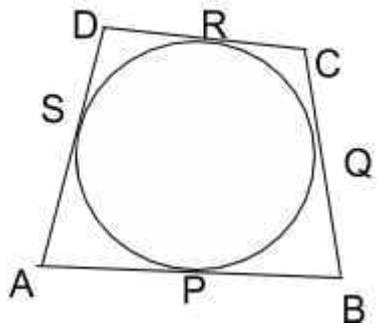
(b) 60°

(c) 30°

(d) 15°

Q39. In the given figure, if AB = 10cm, CD = 7 cm, SD = 4 cm and AS = 5 cm, then BC = ?

दी गयी आकृति में, यदि AB = 10 सेमी, CD = 7 सेमी, SD = 4 सेमी तथा AS = 5 सेमी है, तो BC = ?



SSC CGL 6 March 2020 (Afternoon)

(a) 9 cm

(b) 8 cm

(c) 6 cm

(d) 7.5 cm

Q40. In a triangle, if the measures of two sides are 5 cm and 8 cm, then the third side can be:

किसी त्रिभुज में, यदि दो भुजाओं का माप 5 सेमी तथा 8 सेमी है, तो तीसरी भुजा हो सकती है :

SSC CGL 6 March 2020 (Afternoon)

(a) 14 cm

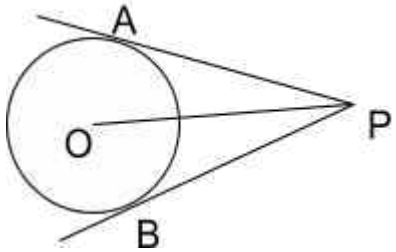
(b) 3 cm

(c) 2 cm

(d) 4 cm

Q41. In the given figure, if ∠ APO = 35°, then which of the following options is correct?

दी गयी आकृति में, यदि ∠ APO = 35° है, तो निम्नलिखित में से कौन सा विकल्प सही होगा ?



SSC CGL 6 March 2020 (Afternoon)

(a) ∠ APB = 60°

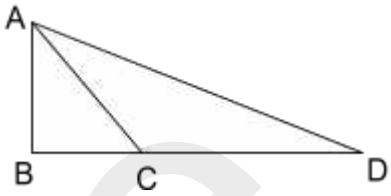
(b) ∠ BPO = 35°

(c) ∠ BPO = 55°

(d) ∠ APB = 80°

Q42. In the given figure, if AB = 8 cm, AC = 10 cm, ∠ABD = 90° and AD = 17 cm, then the measure of CD is:

दी गयी आकृति में, यदि AB = 8 सेमी, AC = 10 सेमी, ∠ABD = 90° तथा AD = 17 सेमी है, तो CD की लंबाई ज्ञात करें |



SSC CGL 6 March 2020 (Afternoon)

(a) 9 cm

(b) 8 cm

(c) 10 cm

(d) 11 cm

Q43. In a triangle ABC, DE is parallel to BC; AD = a, DB = a+4, AE = 2a+3, EC = 7a. What is the value of 'a' if a>0?

एक त्रिभुज ABC में, DE, BC के समानांतर है | AD = a, DB = a+4, AE = 2a+3, EC = 7a है | यदि a>0 है, तो a का मान क्या होगा ?

SSC CGL 6 March 2020 (Evening)

(a) 3

(b) 5

(c) 6

(d) 4

Q44. In ΔABC, if the ratio of angle is in the proportion 3:5:4, then the difference between the biggest and the smallest angle (in degrees) is:

त्रिभुज ABC में, यदि कोणों का अनुपात 3 : 5 : 4 है, तो सबसे बड़े और सबसे छोटे कोण के बीच क्या अंतर (डिग्री में) होगा ?

SSC CGL 6 March 2020 (Evening)

(a) 25°

(b) 35°

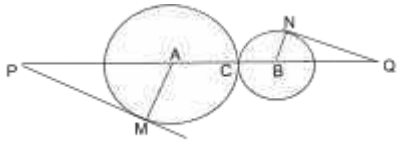
(c) 30°

(d) 20°

Q45. Two circles of radii 8 cm and 6 cm touch each other externally. The length of the direct common tangent is:
8 सेमी तथा 6 सेमी त्रिज्याओं वाले दो वृत्त एक-दूसरे को बाहर से स्पर्श करते हैं | प्रत्यक्ष उभयनिष्ठ स्पर्श रेखा की लंबाई कितनी है ?
SSC CGL 6 March 2020 (Evening)
(a) 13.86
(b) 20
(c) 24
(d) 10.12

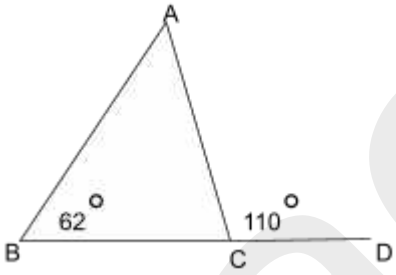
Q46. A, B and C are three points on a circle such that the angles subtended by the chords AB and AC at the centre O are 80° and 120°, respectively. The value of ∠BAC is:
A, B तथा C एक वृत्त पर स्थित तीन ऐसे बिंदु हैं कि जीवाओं AB तथा AC के द्वारा केंद्र पर अंतरित कोण क्रमशः 80° तथा 120° हैं | कोण BAC का मान क्या है ?
SSC CGL 6 March 2020 (Evening)
(a) 75°
(b) 80°
(c) 85°
(d) 70°

Q47. In the given figure, MP is the tangent to a circle with centre A and NQ is a tangent to a circle with centre B. If MP = 15 cm, NQ = 8 cm, PA = 17 cm and BQ = 10 cm, then AB is:
दी गयी आकृति में, MP एक वृत्त की स्पर्श रेखा है जिसका केंद्र A है तथा NQ उस वृत्त की स्पर्श रेखा है जिसका केंद्र B है | यदि MP = 15 सेमी, NQ = 8 सेमी, PA = 17 सेमी तथा BQ = 10 सेमी है, तो AB का मान क्या होगा ?



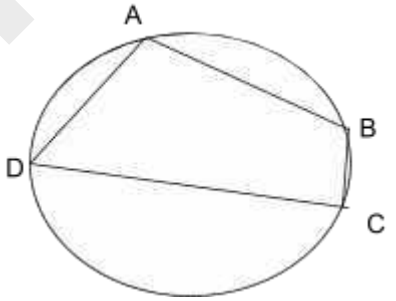
SSC CGL 7 March 2020 (Morning)
(a) 13.5 cm
(b) 23 cm
(c) 14 cm
(d) 28 cm

Q48. In the given figure, the measure of ∠BAC is:
दी गयी आकृति में, कोण BAC का मान क्या होगा ?



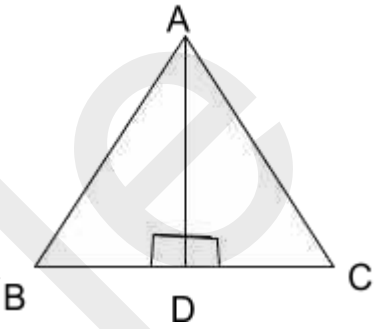
SSC CGL 7 March 2020 (Morning)
(a) 56°
(b) 62°
(c) 48°
(d) 58°

Q49. In the given figure, if ∠A = 100°, then ∠C=?
दी गयी आकृति में, यदि ∠A = 100° है, तो कोण C = ?



SSC CGL 7 March 2020 (Morning)
(a) 50°
(b) 100°
(c) 80°
(d) 90°

Q50. In the given figure, ΔABC is an isosceles triangle, in which AB=AC, AD ⊥ BC, BC = 6cm and AD = 4cm. The length of AB is:
दी गयी आकृति में, त्रिभुज ABC एक समद्विबाहु त्रिभुज है जिसमें AB = AC, AD ⊥ BC, BC = 6 सेमी तथा AD = 4 सेमी है | AB की लंबाई कितनी है ?



SSC CGL 7 March 2020 (Morning)
(a) 6 cm
(b) 7 cm
(c) 4 cm
(d) 5 cm

Q51. The perimeter of an isosceles triangle is 50 cm. If the base is 18 cm, then find the length of the equal sides.
एक समद्विबाहु त्रिभुज का परिमाप 50 सेमी है | यदि इसका आधार 18 सेमी है, तो बराबर भुजाओं की लंबाई ज्ञात करें |
SSC CGL 7 March 2020 (Afternoon)
(a) 18 cm
(b) 25 cm
(c) 16 cm
(d) 32 cm

Q52. AB is the diameter of a circle with centre O. The tangent at a point C on the circle meets AB produced at Q. If ∠CAB = 42°, then what is the measure of ∠CQA?
AB एक वृत्त का व्यास है जिसका केंद्र O है | वृत्त पर स्थित एक बिंदु C से गुजरने वाली स्पर्श रेखा AB से Q

Pinnacle

पर मिलती है | यदि ∠CAB = 42° है, तो ∠CQA का मान क्या होगा ?

SSC CGL 7 March 2020 (Afternoon)

(a) 5°
(b) 7°
(c) 6°
(d) 17°

Q53. In ΔABC, D, E and F are the midpoints of sides AB, BC and CA, respectively. If AB = 12 cm, BC = 20 cm and CA = 15 cm, then the value of $\frac{1}{2}(DE + EF + DF)$ is:

त्रिभुज ABC में, D, E तथा F क्रमशः भुजाओं AB, BC तथा CA के मध्य बिंदु हैं | यदि AB = 12 सेमी, BC = 20 सेमी तथा CA = 15 सेमी है, तो $\frac{1}{2}(DE + EF + DF)$ का मान क्या होगा ?

SSC CGL 7 March 2020 (Afternoon)

(a) 23.5 cm
(b) 11.75 cm
(c) 15.67 cm
(d) 5.88 cm

Q54. In quadrilateral PQRS, RM ⊥ QS, PN ⊥ QS and QS = 6cm. If RM = 3 cm and PN = 2 cm, then the area of PQRS is:

चतुर्भुज PQRS में, RM ⊥ QS, PN ⊥ QS तथा QS = 6 सेमी है | यदि RM = 3 सेमी तथा PN = 2 सेमी है, तो PQRS का क्षेत्रफल कितना होगा ?

SSC CGL 7 March 2020 (Afternoon)

(a) 13 cm^2
(b) 15 cm^2
(c) 14 cm^2
(d) 11 cm^2

Q55. In ΔABC, D is a point on BC such that AD is the bisector of ∠A, AB = 11.7 cm, AC = 7.8 cm and BC = 13 cm. What is the length (in cm) of DC?

त्रिभुज ABC में, D, BC पर स्थित एक ऐसा बिंदु है कि AD, ∠A का समद्विभाजक है | AB = 11.7 सेमी, AC = 7.8 सेमी तथा BC = 13 सेमी है | DC की लंबाई (सेमी में) कितनी है ?

SSC CGL 7 March 2020 (Evening)

(a) 5.2
(b) 6.5
(c) 7.8
(d) 5.6

Q56. The length of each equal side of an isosceles triangle is 15 cm and the included angle between those two sides is 90°. Find the area of the triangle.

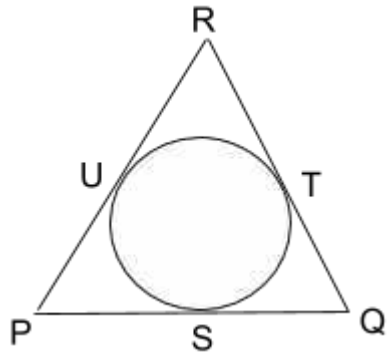
एक समद्विबाहु त्रिभुज की प्रत्येक बराबर भुजा की लंबाई 15 सेमी है तथा उनके बीच का कोण 90° है| इस त्रिभुज का क्षेत्रफल ज्ञात करें |

SSC CGL 7 March 2020 (Evening)

(a) $\frac{225}{2}$ cm^2
(b) 225 cm^2
(c) $\frac{255}{2}$ cm^2
(d) $\frac{125}{2}$ cm^2

Q57. In the given figure, a circle inscribed in ΔPQR, touches its sides PQ, QR and RP at points S, T and U, respectively. If PQ = 15 cm, QR = 10 cm and PR = 12 cm, then find the length of PS, QT and RU?

दी गयी आकृति में, त्रिभुज PQR के भीतर एक वृत्त स्थित है जो भुजाओं PQ, QR तथा RP को क्रमशः S, T और U बिंदुओं पर स्पर्श करता है | यदि PQ = 15 सेमी, QR = 10 सेमी तथा PR = 12 सेमी है, तो PS, QT तथा RU की लंबाई कितनी होगी ?



SSC CGL 7 March 2020 (Evening)

(a) PS= 8.5cm, QT= 3.5cm and RU= 6.5cm
(b) PS= 6.5cm, QT= 8.5cm and RU= 3.5cm
(c) PS= 3.5cm, QT= 6.5cm and RU= 8.5cm
(d) PS= 8.5cm, QT= 6.5cm and RU= 3.5cm

Q58. Triangle PDC is drawn inside the square ABCD of side 24 cm where P lies on AB. What is the area of the triangle?

त्रिभुज PDC को एक वर्ग ABCD के भीतर खींचा गया है जिसकी भुजा 24 सेमी है तथा P, AB पर स्थित है | इस त्रिभुज का क्षेत्रफल कितना है ?

SSC CGL 9 March 2020 (Morning)

(a) 298 cm^2
(b) 200 cm^2
(c) 288 cm^2
(d) 280 cm^2

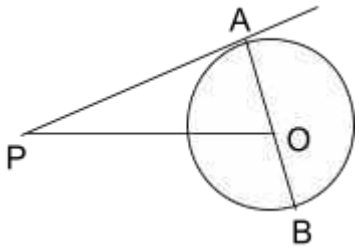
Q59. What is the area of a sector of a circle of radius 14 cm and the central angle 45°? (Take $\Pi = \frac{22}{7}$)

एक वृत्त के खंड का क्षेत्रफल ज्ञात कीजिए जिसकी त्रिज्या 14 सेमी तथा केंद्रीय कोण 45° है | ($\Pi = \frac{22}{7}$)

SSC CGL 9 March 2020 (Morning)

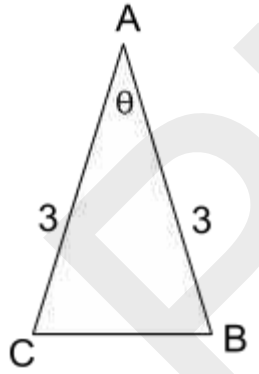
(a) 11cm^2
(b) 77cm^2
(c) 67cm^2
(d) 70cm^2

Q60. In the figure, PA is a tangent from an external point P to the circle with centre O. If ∠POB = 110°, then the measure of ∠APO is:
दी गयी आकृति में, PA किसी बाहरी बिंदु P से केंद्र O वाले वृत्त पर खींची गयी स्पर्श रेखा है | यदि ∠POB = 110° है, तो कोण APO का मान क्या होगा ?



SSC CGL 9 March 2020 (Morning)
(a) 30°
(b) 40°
(c) 25°
(d) 20°

Q61. In the given figure ΔABC, if θ = 80°, the measure of each of the other two angles will be:
दी गयी आकृति में, त्रिभुज ABC में, यदि θ = 80° है, तो दोनों अन्य कोणों में से प्रत्येक का मान क्या होगा ?



SSC CGL 9 March 2020 (Morning)
(a) 80°
(b) 60°
(c) 40°
(d) 50°

Q62. Arrange the angles from smallest to largest in the triangle, where the sides are AB=7cm, BC=9cm and CA=8cm.
एक त्रिभुज के कोणों को सबसे छोटे से सबसे बड़े कोण के क्रम में व्यवस्थित कीजिए, जिसकी भुजाएँ AB = 7 सेमी, BC = 9 सेमी तथा CA = 8 सेमी है |
SSC CGL 9 March 2020 (Afternoon)
(a) C,B,A
(b) B,A,C
(c) C,B,D
(d) A,B,C

Q63. In a circle, chords PQ and TS are produced to meet at R. If RQ= 14.4 cm, PQ= 11.2 cm and SR=12.8 cm, then the length of chord TS is:
एक वृत्त में, जीवाओं PQ तथा TS को बढ़ाया जाता है जो R पर मिलती हैं | यदि RQ = 14.4 सेमी, PQ = 11.2 सेमी तथा SR = 12.8 सेमी है, तो जीवा TS की लंबाई कितनी है ?
SSC CGL 9 March 2020 (Afternoon)
(a) 12.4 cm
(b) 16 cm
(c) 14.2 cm
(d) 18 cm

Q64. PAQ is a tangent to a circle with centre O, at a point A on it. AB is a chord such that ∠BAQ = x° (x<90). C is a point on the major arc AB such that ∠ACB = y°. If ∠ABO = 32°, then the value of x+y is:
PAQ केंद्र O वाले एक वृत्त पर स्थित बिंदु A से जाने वाली स्पर्श रेखा है | AB एक ऐसी जीवा है कि ∠BAQ = x° (x<90) है | C बड़ी चाप AB पर स्थित एक ऐसा बिंदु है कि ∠ACB = y° है | यदि ∠ABO = 32° है, तो x+y का मान क्या होगा ?
SSC CGL 9 March 2020 (Evening)
(a) 98
(b) 112
(c) 110
(d) 116

Q65. In the triangle, if AB=AC and ∠ABC = 72°, then ∠BAC is:
एक त्रिभुज में, यदि AB=AC तथा ∠ABC = 72° है, तो कोण BAC का मान क्या होगा ?
SSC CGL 9 March 2020 (Evening)
(a) 36°
(b) 30°
(c) 54°
(d) 18°

Q66. In a circle, AB is the diameter and CD is a chord. AB and CD produced meet at a point P, outside the circle. If PD = 15.3 cm, CD = 11.9 cm and AP = 30.6 cm, then the radius of the circle is:
एक वृत्त में, AB व्यास है तथा CD एक जीवा है | AB तथा CD को बढ़ाया जाता है जो वृत्त से बाहर एक बिंदु P पर मिलती हैं | यदि PD = 15.3 सेमी, CD = 11.9 सेमी तथा AP = 30.6 सेमी है, तो वृत्त की त्रिज्या कितनी है ?
SSC CGL 9 March 2020 (Evening)
(a) 8 cm
(b) 8.5 cm
(c) 9 cm
(d) 7.5 cm

Q67. From an external point P, a tangent PQ is drawn to a circle, with centre O, touching the circle at Q. If the distance of P from the centre is 13 cm and the length of the tangent PQ is 12 cm, then the radius of the circle is:
एक बाहरी बिंदु P से, केंद्र O वाले एक वृत्त पर एक स्पर्श रेखा PQ खींची जाती है, जो वृत्त को Q पर स्पर्श करती है | यदि केंद्र से P की दूरी 13 सेमी है तथा स्पर्श रेखा PQ की लंबाई 12 सेमी है, तो वृत्त की त्रिज्या कितनी होगी ?

SSC CGL 9 March 2020 (Evening)

(a) 3 cm
(b) 5 cm
(c) 10 cm
(d) 12.5 cm

SSC CHSL 2019

Q1.In a triangle XYZ, L and M are mid points of XY and XZ. R is a point on Side LM such that LR : RM = 1 : 2. If LR = 3cm then the value of YZ is equal to:
त्रिभुज XYZ में, L और M क्रमशः भुजाओं XY तथा XZ के मध्य बिंदु है। R, खंड LM पर स्थित एक बिंदु है जो इस प्रकार है कि LR : RM = 1 : 2 है। यदि LR = 3 सेमी है, तो YZ का मान किसके बराबर होगा ?

CHSL 12-10-2020 (morning shift)

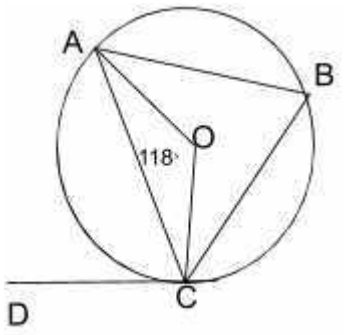
(a) 18 cm
(b) 19 cm
(c) 16 cm
(d) 17 cm

Q2. M is the circumcentre of Δ ABC with circumradius 15 cm. Let BC = 24 cm and ML is perpendicular to BC. Then the length of ML is:
M त्रिभुज ABC का परिकेंद्र है, जिसकी परित्रिज्या 15 सेमी है। मान लीजिए कि BC = 24 सेमी है और ML, BC पर लम्ब है। तो ML की लंबाई ज्ञात कीजिए।

CHSL 12-10-2020 (morning shift)

(a) 9 cm
(b) 12 cm
(c) 10 cm
(d) 8 cm

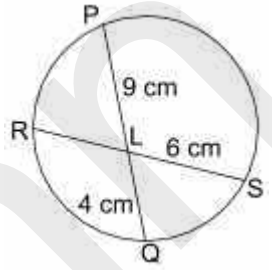
Q3. In the given figure, BC is a chord and CD is a tangent through the point C. If ∠AOC = 118°, then find the ∠ACD.
दी गयी आकृति में, BC एक जीवा है तथा CD एक स्पर्श रेखा है जो C से जाती है। यदि ∠AOC = 118° है, तो ∠ACD का मान ज्ञात कीजिए।



CHSL 12-10-2020 (morning shift)

(a) 63°
(b) 56°
(c) 65°
(d) 59°

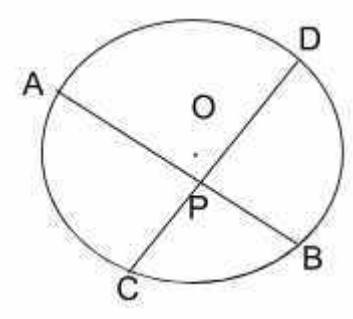
Q4.In the given figure, chords PQ and RS intersect each other at point L. Find the length of RL.
दी गयी आकृति में, जीवाएँ PQ और RS एक-दूसरे को बिंदु L पर प्रतिच्छेद करती हैं। RL की लंबाई ज्ञात कीजिए।



CHSL 12-10-2020 (morning shift)

(a) 6 cm
(b) 8 cm
(c) 3 cm
(d) 2 cm

Q5. In the given figure, O is the centre of the circle. Its two chords AB and CD intersect each other at the point P within the circle. If AB = 15 cm, PB = 9 cm, CP = 3 cm, then find the length of PD.
दी गयी आकृति में, O वृत्त का केंद्र है। इसकी दो जीवाएँ AB और CD एक-दूसरे को वृत्त के भीतर बिंदु P पर प्रतिच्छेद करती हैं। यदि AB = 15 सेमी, PB = 9 सेमी, CP = 3 सेमी है, तो PD की लंबाई ज्ञात कीजिए।



CHSL 12-10-2020 (Afternoon shift)

(a) 16 cm
(b) 18 cm
(c) 20 cm
(d) 22 cm

Q6. XYZ is a triangle. If the medians ZL and YM intersect each other at G, then (Area of Δ GLM : Area of Δ XYZ) is:
XYZ एक त्रिभुज है। यदि माध्यिका ZL और YM एक-दूसरे को G पर प्रतिच्छेद करती हैं, तो (Δ GLM का क्षेत्रफल : Δ XYZ का क्षेत्रफल) ज्ञात कीजिए।

CHSL 12-10-2020 (Afternoon shift)

(a) 1 : 14
(b) 1 : 12
(c) 1 : 11
(d) 1 : 10

Q7. The lengths of the two sides forming the right-angled triangle are 21 cm and 20 cm. What is the radius of the circle circumscribing the triangle?
समकोण बनाने वाली दो भुजाओं की लंबाई 21 सेमी तथा 20 सेमी है।इस त्रिभुज की परिगत वृत्त की त्रिज्या कितनी है?

CHSL 12-10-2020 (Evening shift)

(a) 14.5 cm
(b) 14 cm
(c) 12 cm
(d) 15.5 cm

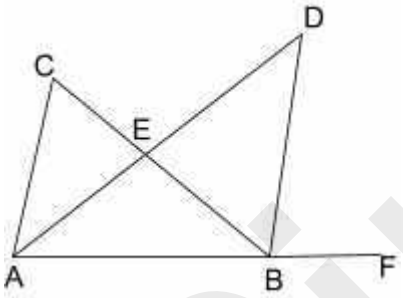
Pinnacle

Q8. Two concentric circles are of radii 13 cm and 5 cm. The length of the chord of the larger circle which touches the smaller circle is:
दो संकेंद्री वृत्तों की त्रिज्या 13 सेमी तथा 5 सेमी है। बड़े वृत्त की जीवा की लंबाई ज्ञात कीजिए, जो छोटे वृत्त को स्पर्श करती है।

CHSL 12-10-2020 (Evening shift)

(a) 24 cm
(b) 15 cm
(c) 13 cm
(d) 10 cm

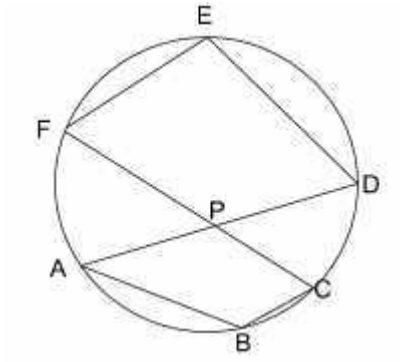
Q9. In the given figure, AD is bisector of angle ∠CAB and BD is bisector of angle ∠CBF. If the angle at C is 34°, the angle ∠ADB is:
दी गयी आकृति में, AD कोण ∠CAB का समद्विभाजक है तथा BD, ∠CBF का समद्विभाजक है। यदि C पर कोण 34° है, तो ∠ADB का कोण ज्ञात कीजिए।



CHSL 13-10-2020 (Morning Shift)

a)34°
(b)32°
(c)17°
(d)16°

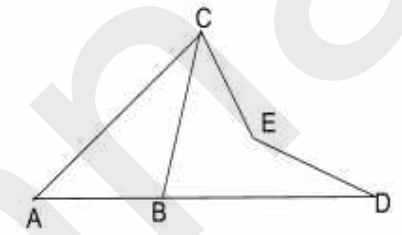
Q10.In the following figure, if angles ∠ABC = 95° ∠FED = 115° (not to scale). Then the angle ∠APC is equal to:
निम्नलिखित आकृति में, यदि कोण ∠ABC = 95° ∠FED = 115° (पैमाने के अनुसार नहीं) है, तो कोण APC का मान क्या होगा ?



CHSL 13-10-2020 (Morning Shift)

(a)120°
(b)150°
(c)135°
(d)155°

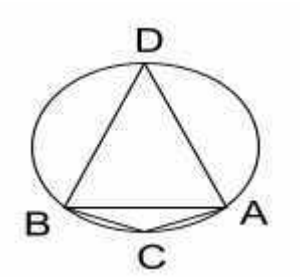
Q11. If in the given figure, ∠ACB + ∠BAC = 80°; ∠BDE = 35° ; ∠BCE = 45° , then the marked angle ∠CED is:
दी गयी आकृति में, ∠ACB + ∠BAC = 80°; ∠BDE = 35° ; ∠BCE = 45° है, तो चिन्हित कोण CED का मान ज्ञात कीजिए।



CHSL 13-10-2020 (Morning Shift)

(a)150°
(b)120°
(c)160°
(d)135°

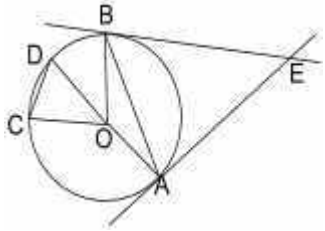
Q12. If in the following figure (not to the scale), ∠ACB = 135° and the radius of the circle is 2 $\sqrt{2}$ cm, then the length of the chord AB is:
यदि निम्नलिखित आकृति (यह पैमाने के अनुसार नहीं है) में, ∠ACB = 135° है तथा वृत्त की त्रिज्या 2 $\sqrt{2}$ सेमी है, तो जीवा AB की लंबाई कितनी होगी ?



CHSL 13-10-2020 (Afternoon Shift)

(a) 3 $\sqrt{2}$ cm
(b) 4 $\sqrt{2}$ cm
(c) 4 cm
(d) 6 cm

Q13. In the following figure (not to scale), at the centre O, if the chord AB subtends double theangle that is subtended by chord CD and the angle ∠AEB = 2∠AOB, then ∠COD is equal to:
निम्नलिखित आकृति (यह पैमाने के अनुसार नहीं है) में, केंद्र O पर, यदि जीवा AB, जीवा CD की तुलना में अंतरित किये गए कोण की तुलना में दोगुना कोण अंतरित करती है और कोण ∠AEB = 2∠AOB है, तो ∠COD किसके बराबर है?

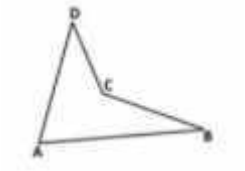


CHSL 13-10-2020 (Afternoon Shift)

(a) 30°
(b) 45°
(c) 60°
(d) 75°

Q14. In the following figure (not to scale), ∠DAB + ∠CBA = 90°, BC = AD, AB = 20 cm, CD = 10 cm, then the area of the quadrilateral ABCD is:
निम्नलिखित आकृति (जो पैमाने के अनुसार नहीं है) में, ∠DAB + ∠CBA = 90°, BC = AD, AB = 20 सेमी, CD = 10 सेमी है, तो चतुर्भुज ABCD का क्षेत्रफल कितना होगा?

Pinnacle



CHSL 13-10-2020 (Afternoon Shift)

(a) 120 cm^2
(b) 150 cm^2
(c) 100 cm^2
(d) 75 cm^2

Q15. In a circle two equal and parallel chords are 6 cm apart and lie on the opposite sides of the centre of the circle.If the length of each chord is 8 cm, than the radius of the circle is:
एक वृत्त में दो बराबर और समान्तर जीवाएँ 6 cm के दुरी पर हैं और वृत्त के केंद्र के विपरीत भाग पर स्थित हैं। यदि प्रत्येक जीवाएँ की लंबाई 8 सेमी है, तो वृत्त की त्रिज्या है:

CHSL 13-10-2020 (Evening Shift)

(a)5 cm
(b)7 cm
(c)3 cm
(d)2 cm

Q16. In ΔPQR, S and T are mid-points of PQ and PR, respectively. If $\angle QPR = 75°$ and $\angle PQR = 40°$, then $\angle TSQ$ is:
ΔPQR में, S और T क्रमशः PQ और PR के मध्य-बिंदु हैं, यदि $\angle QPR = 75°$ और $\angle PQR = 40°$, तो $\angle TSQ$ है :

CHSL 13-10-2020 (Evening Shift)

(a)135°
(b)120°
(c)105°
(d)115°

Q17. In a ΔABC, DE is parallel to BC where D and E are the points on AB and AC, respectively and AD = 4cm, DB = 8 cm, AE = 3 cm, Length of EC is:
ΔABC में, DE, BC के समांतर है जहाँ D और E क्रमशः AB और AC पर बिंदु हैं, और AD = 4 सेमी , DB = 8 सेमी , AE = 3 सेमी , तो EC की लम्बाई है ?

CHSL 13-10-2020 (Evening Shift)

(a) 5 cm
(b) 6 cm
(c) 7 cm
(d) 9 cm

Q18. Two tangents AP and AQ are drawn to a circle with centre O from an external point A, where P and Q are points on the circle. If AP = 12 cm and $\angle PAQ = 60°$, then the length of chord PQ is:
दो स्पर्शरेखा AP और AQ एक बाहरी बिंदु A से केंद्र O के साथ एक वृत्त में खींचे जाते हैं,जहां P और Q वृत्त पर स्थित बिंदु हैं। यदि AP = 12 cm और $\angle PAQ = 60°$, तब जीवाएँ PQ की लंबाई है:

CHSL 14-10-2020 (Morning shift)

(a) 12 cm
(b) 10 cm
(c) 24 cm
(d) 16 cm

Q19. Two tangents AP and AQ are drawn to a circle with centre O from an external point A, where P and Q are points on the circle. If the $\angle PAQ = 70°$, then the $\angle AOP$ is equal to:
दो स्पर्शरेखा AP और AQ एक बाहरी बिंदु A से केंद्र O के साथ एक वृत्त में खींची जाती हैं, जहां P और Q वृत्त पर बिंदु होते हैं। यदि $\angle PAQ = 70°$, तो $\angle AOP$ का मान है:

CHSL 14-10-2020 (Morning shift)

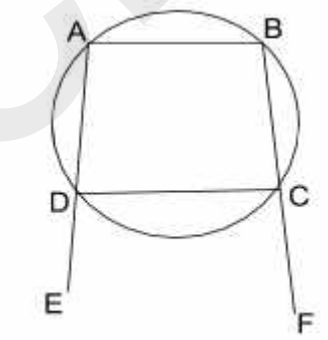
(a) 50°
(b) 45°
(c) 55°
(d) 60°

Q20.. In an equilateral triangle, the value of each exterior angle is:
एक समबाहु त्रिभुज में, प्रत्येक बाहरी कोण का मान है:

CHSL 14-10-2020 (Morning shift)

(a) 140°
(b) 100°
(c) 130°
(d) 120°

Q21. In the given figure, chords AD and BC in the circle, are extended to E and F, respectively.
दिए गए आकृति में, गोले में जीवा AD और BC, क्रमशः E और F तक विस्तारित हैं।

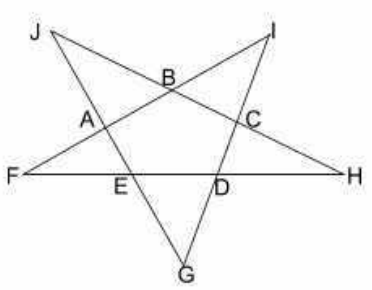


If $\angle CDE = 85°$; $\angle DCF = 94°$, then the value of $\angle ABF + \angle EAB$ is:
यदि $\angle CDE = 85°$; $\angle DCF = 94°$,$\angle ABF + \angle EAB$ का मान है:

CHSL 14-10-2020 (Afternoon shift)

(a) 182°
(b) 194°
(c) 179°
(d) 168°

Q22. ABCDE is a regular pentagon. Its sides are extended as shown in the figure. The value of $\frac{\angle ABC+2\angle EGD+3\angle BAJ}{6}$ is:
ABCDE एक नियमित पंचकोण है। जैसा कि चित्र में दिखाया गया है इसकी भुजाएँ विस्तारित हैं| $\frac{\angle ABC+2\angle EGD+3\angle BAJ}{6}$ का मान है:



CHSL 14-10-2020 (Afternoon shift)

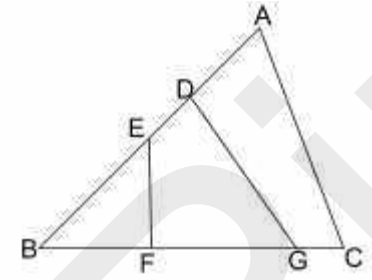
(a) 45°
(b) 30°
(c) 75°
(d) 66°

Q23. In the given figure, if AD = 3, DE = 4, AB = 12, BF = 2, FG = 6, BC = 10. then the value of $\frac{M}{N}$ is:

दिए गए आकृति में, यदि AD = 3, DE = 4, AB = 12, BF = 2, FG = 6, BC = 10. $\frac{M}{N}$ का मान है:

(Assume : M is the area of the quadrilateral FGDE and N is the area of the triangle ABC.)

(मान लें: M चतुर्भुज FGDE का क्षेत्रफल है और N त्रिभुज ABC का क्षेत्रफल है।)



CHSL 14-10-2020 (Afternoon shift)

(a) $\frac{31}{60}$
(b) $\frac{1}{2}$
(c) $\frac{25}{49}$
(d) $\frac{1}{3}$

Q24. If in any triangle, the angles are in the ratio of 1:2:1, then what will be the ratio of its sides?

यदि किसी त्रिभुज में, कोणों का अनुपात 1:2:1 है, तो इसकी भुजाओं का अनुपात क्या होगा?

CHSL 14-10-2020 (Evening shift)

(a) 1:2:3
(b) 2:1:2
(c) 1:2:1
(d) 1: $\sqrt{2}$:1

Q25. Two parallel chords are drawn in a circle of diameter 20 cm. The length of one chord is 16 cm and the distance between the two chords is 12 cm. The length of the other chord is :

एक वृत्त में दो समानांतर जीवाओं को खींचा जाता है, जिसका व्यास 20 सेमी है। एक जीवा की लंबाई 16 सेमी है तथा दोनों जीवाओं के बीच की दूरी 12 सेमी है। दूसरी जीवा की लंबाई कितनी है?

CHSL 14-10-2020 (Evening shift)

(a) 20
(b) 18
(c) 16
(d) 12

Q26. In a circle, PQ and RS are two diameters that are perpendicular to each other. Find the length of chord PR.

एक वृत्त में, PQ तथा RS दो व्यास हैं जो एक-दूसरे पर लम्ब हैं। जीवा PR की लंबाई ज्ञात कीजिए।

CHSL 14-10-2020 (Evening shift)

(a) $\frac{PQ}{2}$
(b) $\sqrt{2}$ PQ
(c) 2PQ
(d) $\frac{PQ}{\sqrt{2}}$

Q27.In ΔPQR, the side QR is extended to S such that RS = PR. If ∠QPS = 110° and ∠PRQ = 70°, then the value of ∠PQR is:

PQR में, भुजा QR को S तक बढ़ाया जाता है ऐसा कि RS = PR. यदि ∠QPS = 110 और ∠PRQ = 70°, तो ∠PQR का मान है:

CHSL 15-10-2020 (Morning shift)

(a)50°
(b)40°
(c)35°
(d)45°

Q28.In a ΔABC, ∠ABC = 2∠CAB, If the side BC is extended to D and ∠ACD = 126°, then ∠CAB is:

ΔABC में, ∠ABC = 2∠CAB, यदि भुजा BC को D और तक बढ़ाया जाता है और ∠ACD = 126°, फिर ∠CAB =

CHSL 15-10-2020 (Morning shift)

(a)84°
(b)36°
(c)42°
(d)63°

Q29.A circle is centered at O. Two tangents AP and AQ are drawn from an external point A. If ∠POQ = 118°, then the ∠PAQ to:

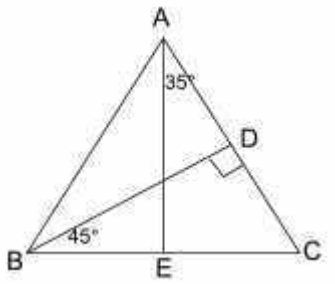
एक वृत्त O पर केंद्रित है। दो स्पर्श रेखाएं AP और AQ बाह्य बिंदु A से खींचे गए हैं। यदि ∠POQ = 118°, फिर ∠PAQ = ?

CHSL 15-10-2020 (Morning shift)

(a)112°
(b)62°
(c)72°
(d)98°

Q30. In the given figure BD perpendicular to AC then what will be the measure of angle AEB?

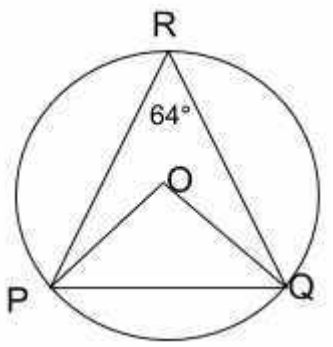
दिए गए आकृति में, BD, AC पे लंबवत है फिर कोण AEB का माप क्या होगा?



CHSL 15-10-2020 (Afternoon shift)

(a) 80°
(b) 100°
(c) 60°
(d) 45°

Q31. In the given figure O is the centre of the circle. If angle ∠PRQ = 64°, then what is the measure of angle ∠OPQ?
दिए गए आकृति में O वृत्त का केंद्र है। यदि कोण ∠PRQ = 64°, फिर कोण ∠OPQ का माप क्या है



CHSL 15-10-2020 (Afternoon shift)

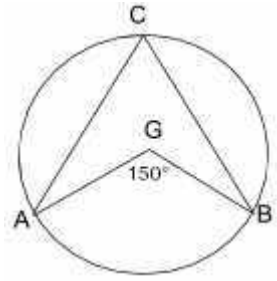
(a) 26°
(b) 32°
(c) 64°
(d) 60°

Q32. The angles of a triangle are in the ratio 3 : 4 : 5. The triangle is:
त्रिभुज के कोण 3: 4: 5 के अनुपात में हैं। त्रिभुज है:

CHSL 15-10-2020 (Afternoon shift)

(a) obtuse angled triangle / अधिक कोण त्रिभुज
(b) right angled triangle / समकोण त्रिभुज
(c) acute angled triangle / न्यूनकोण त्रिभुज
(d) isosceles angled triangle / समद्विबाहु त्रिभुज

Q33. In the figure, 'G' is the centre of the circle. Find the angle ACB when ∠AGB = 150°
आकृति में,'G' वृत्त का केंद्र है। कोण ACB ज्ञात कीजिए जब ∠AGB = 150°



CHSL 15-10-2020 (Evening shift)

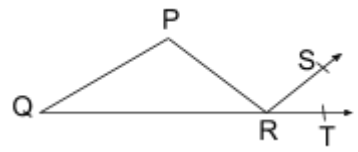
(a) 50°
(b) 60°
(c) 65°
(d) 75°

Q34. In ΔXYZ, if G is the centroid and XL is the median with length 18 cm, then the length of XG is:
XYZ में, यदि G केन्द्रक है और XL 18 सेमी लंबाई वाला माध्यिका है, फिर XG की लंबाई है:

CHSL 15-10-2020 (Evening shift)

(a) 14 cm
(b) 16 cm
(c) 12 cm
(d) 10 cm

Q35. In the given figure, PQR is a triangle in which ∠P : ∠Q : ∠R = 3:2:1, and PR is perpendicular to RS. What will be the measure of angle TRS?
दिए गए आकृति में, PQR एक त्रिकोण है जिसमें ∠P : ∠Q : ∠R = 3:2:1,और PR, RS से लंबवत है।कोण TRS का माप क्या होगा?



CHSL 16-10-2020 (Morning shift)

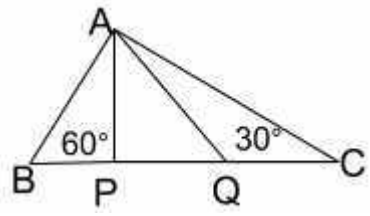
(a) 60°
(b) 45°
(c) 50°
(d) 30°

Q36. If the diameter of circle bisects each of the two chords of the circle, then both the chords:
यदि वृत्त का व्यास वृत्त के दो जीवा को बराबर हिस्सों में काटता है, तो दोनों जीवा:

CHSL 16-10-2020 (Morning shift)

(a) intersect at 90°/90° पर प्रतिच्छेद करेगी
(b) are parallel to each other/एक दूसरे के समानांतर हैं
(c) intersect at 30°/30° पर प्रतिच्छेद करेगी
(d) intersect at 60°/60° पर प्रतिच्छेद करेगी

Q37. In the given figure, AP is perpendicular to BC, and AQ is the bisector ∠PAC. What will be the measure of ∠PAQ?
दिए गए आकृति में, AP, BC से लंबवत है, और AQ ∠PAC द्विभाजक है। ∠PAQ का मान क्या होगा।

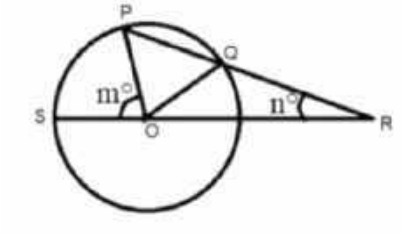


CHSL 16-10-2020 (Morning shift)

(a) 45°
(b) 30°
(c) 50°
(d) 60°

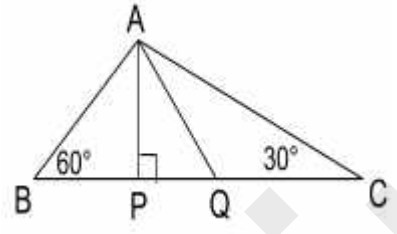
Pinnacle

Q38. In the given figure, if OQ = QR, then the value of m is:
दिए गए आकृति में, यदि OQ = QR, m का मान क्या होगा।



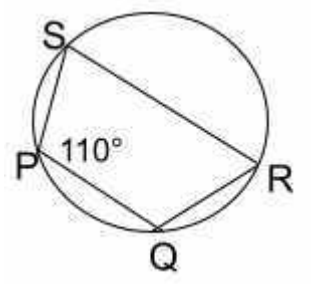
CHSL 16-10-2020 (Morning shift)
(a) 3n°
(b) n°
(c) 2n°
(d) 4n°

Q39. In the given figure, AP is perpendicular to the BC, and AQ is the bisector of ∠A. What will be the measure of ∠PQA?
दिए गए आकृति में, AP BC के लंबवत है, और AQ का द्विभाजक है ∠PQA का मान क्या होगा?



CHSL 16-10-2020 (Afternoon shift)
(a) 50°
(b) 60°
(c) 30°
(d) 75°

Q40. In the given figures, PQRS is a cyclic quadrilateral. What is the measure of the ∠PQR, if PQ is parallel to the SR?
दिए गए आकृति में, PQRS एक चक्रीय चतुर्भुज है। ∠PQR की माप क्या है, यदि PQ, SR के समानांतर है?



CHSL 16-10-2020 (Afternoon shift)
(a) 70°
(b) 110°
(c) 80°
(d) 100°

Q41. In a circle of radius 10 cm, PQ and RS are two parallel chords of length 16 cm and 12 cm respectively. What is the distance between the chords if they are on opposite sides of the centre?
त्रिज्या 10 सेमी के एक वृत्त में, PQ और RS क्रमशः 16 सेमी और 12 सेमी लंबाई के दो समानांतर जीवा हैं। यदि वे केंद्र के विपरीत किनारों पर हैं, तो जीवा के बीच की दूरी क्या है?
CHSL 16-10-2020 (Afternoon shift)
(a) 6 cm
(b) 8 cm
(c) 14 cm
(d) 2 cm

Q42. The radius of a circle is 15 cm and the length of one chord of the circle is 20 cm. What is the distance of the chord from the centre of the circle?
एक वृत्त की त्रिज्या 15 सेमी है और वृत्त के एक जीवा की लंबाई 20 सेमी है। वृत्त के केंद्र से जीवा की दूरी क्या है?
CHSL 16-10-2020 (Evening shift)
(a) $5\sqrt{5}$ cm
(b) $5\sqrt{3}$ cm
(c) $5\sqrt{2}$ cm
(d) $3\sqrt{3}$ cm

Q43. The ratio of three angles of a triangle is 1 : 3 : 5. Which is the measure of the greatest angle?
त्रिभुज के तीन कोणों का अनुपात 1: 3: 5. सबसे बड़ा कोण का माप क्या होगा ?
CHSL 16-10-2020 (Evening shift)
(a) 100°
(b) 80°
(c) 60°
(d) 120°

Q44. The side MN of ΔLMN is produced to X. If ∠LNX = 117° and ∠M = $\frac{1}{2}$∠L, then ∠L is:
ΔLMN की भुजा MN को X तक आगे बढ़ाया जाता है । अगर ∠LNX = 117° और ∠M = $\frac{1}{2}$∠L, फिर ∠L=?
CHSL 19-10-2020 (Afternoon shift)
(a) 77°
(b) 78°
(c) 76°
(d) 75°

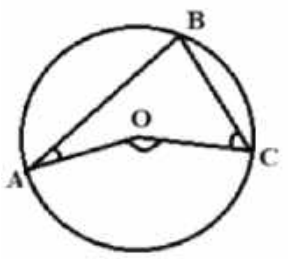
Q45. A, B, C are three points so that AB = 4 cm, BC = 6 cm and AC = 10 cm. The number of circles passing through the points A, B, C is:
A, B, C तीन बिंदु हैं इस प्रकार है की AB = 4 सेमी, BC = 6 सेमी और AC = 10 सेमी। अंक A, B, C से गुजरने वाले वृत्त की संख्या है:
CHSL 19-10-2020 (Afternoon shift)
(a) 3
(b) 0
(c) 2
(d) 1

Q46. The measures of three angles of a triangle are in the ratio of 3 : 2 : 1. The triangle is a/an:
त्रिभुज के तीन कोणों के माप 3: 2: 1. के अनुपात में हैं। त्रिभुज है:
CHSL 19-10-2020 (Evening shift)

Pinnacle

(a) acute angled triangle / न्यूनकोण त्रिभुज
(b) obtuse angled triangle / अधिक कोण त्रिभुज
(c) right angled triangle / समकोण त्रिभुज
(d) equilateral triangle / समबाहु त्रिभुज

Q47. In the given figure, O is the centre of the circle. If ∠BAO = 30° and ∠BCO = 50°, then ∠AOC is equal to:
दिए गए आकृति में, O वृत्त का केंद्र है। यदि ∠BAO = 30° और ∠BCO = 50°, तो ∠AOC का मान है :



CHSL 19-10-2020 (Evening shift)
(a) 160°
(b) 60°
(c) 40°
(d) 80°

Q48. A is a point at a distance 26 cm from the centre O of a circle of radius 10 cm. AP and AQ are the tangents to the circle at the point of contacts P and Q. If a tangent BC is drawn at a point R lying on the minor are PQ to intersect AP at B and AQ at C, then the perimeter of Δ ABC is:
त्रिज्या 10 सेमी के वृत्त के केंद्र O से 26 सेमी की दूरी पर A एक बिंदु है। AP और AQ बिंदु P और Q पर स्पर्शरेखा हैं। यदि स्पर्शरेखा BC वृत्त के PQ माइनर को R पर कटती है और PA को B पर और PQ को C पर प्रतिछेदित करती है , तो ABC की परिधि है

CHSL 20-10-2020 (Morning shift)
(a) 40 cm
(b) 48 cm
(c) 46 cm
(d) 42 cm

Q49. ABC is a right angled triangle, right angled at A. A circle is inscribed in it. The lengths of two sides containing the right angle are 48 cm and 14 cm. The radius of the inscribed circle is:
ABC एक समकोण त्रिभुज है, A पर समकोण है। एक वृत्त इसमें अन्तर्निहित है समकोण वाले दो भुजाओं की लंबाई 48 सेमी और 14 सेमी है। अन्तर्निहित वृत्त की त्रिज्या है
CHSL 20-10-2020 (Morning shift)
(a) 4 cm
(b) 6 cm
(c) 8 cm
(d) 5 cm

Q.50. In Δ ABC, D is a point on BC. If $\frac{AB}{AC} = \frac{BD}{DC}$, ∠B = 75°, and ∠C =45°, then ∠BAD is equal to:
Δ ABC में, D, BC पर एक बिंदु है। यदि $\frac{AB}{AC} = \frac{BD}{DC}$, ∠B = 75°, और ∠C = 45° then, तो ∠BAD बराबर है
CHSL 20-10-2020 (afternoon shift)
(a) 50°
(b) 30°
(c) 60°
(d) 45°

Q.51. In ΔABC, E and D are points on sides AB and AC, respectively, such that ∠ABC = ∠ADE, if AE = 6cm, AD = 4 cm and EB = 4 cm, then the length of DC is:
ΔABC में, E और D क्रमश AB और AC पर एक बिंदु हैं, जैसे कि ∠ABC = ∠ADE, यदि AE = 6cm, AD = 4 cm और EB = 4 cm है, तो DC की लंबाई है:

CHSL 20-10-2020 (afternoon shift)
(a) 11 cm
(b) 8 cm
(c) 9.5 cm
(d) 10 cm

Q.52. If PA and PB are tangents drawn from an external point P to a circle with centre O such that ∠APB = 70°, then ∠OAB is equal to:
यदि PA और PB एक बाहरी बिंदु P से केंद्र O के साथ एक वृत्त में खींची गई स्पर्श रेखाएँ हैं जैसे कि ∠APB = 70°, तो ∠OAB बराबर है:
CHSL 20-10-2020 (afternoon shift)
(a) 40°
(b) 25°
(c) 30°
(d) 35°

Q.53. The tangent at a point A of a circle with centre O intersects the diameter PQ of the circle (when extended) at the point B. If ∠BAP = 125°, then ∠AQP is equal to:
केंद्र O के साथ एक वृत्त के बिंदु A पर स्पर्शरेखा, बिंदु B पर वृत्त के व्यास PQ (जब विस्तारित) को काटती है यदि ∠BAP = 125° है, तो ∠AQP के ज्ञात करे
CHSL 20-10-2020 (Evening shift)
(a) 50°
(b) 55°
(c) 60°
(d) 45°

Q.54. The side ST of Δ RST is produced to P. If ∠RTP= 115° and ∠S= $\frac{2}{3}$ ∠R, then the measure of ∠R is:
Δ RST का भुजा ST, P से उत्पन्न होता है। यदि ∠RTP = 115° और ∠S = $\frac{2}{3}$ ∠R है, तो ∠R का माप है
CHSL 20-10-2020 (Evening shift)

(a) 68°
(b) 69°
(c) 67°
(d) 66°

Q.55. In ΔABC, ∠ABC = 6∠ACB and ∠BAC = 5∠ACB. If AB = 7 cm, and AC = 25 cm then the length of BC is equal to:
ΔABC में, ∠ABC = 6∠ACB और ∠BAC = 5∠ACB। यदि AB = 7 सेमी, और AC = 25 सेमी है, तो BC की लंबाई ज्ञात करे
CHSL 21-10-2020 (Morning shift)
(a) 24 *cm*
(b) 32 *cm*
(c) 26 *cm*
(d) 12 *cm*

Q.56.The side BC of a triangle ABC is extended to the point D. if ∠ACD = 132° and ∠B = $\frac{4}{7}\angle A$, then the measure of ∠A is equal to:
एक त्रिभुज ABC का भुजा BC बिंदु D तक बढ़ा दिया जाता है यदि ∠ACD = 132° और ∠B = $\frac{4}{7}\angle A$, तो $\angle A$ का माप ज्ञात करे
CHSL 21-10-2020 (Afternoon shift)
(a) 60°
(b) 80°
(c) 50°
(d) 84°

Q.57. In a ΔABC, ∠BAC= 90° and AD is perpendicular to BC where D is a point on BC. If BD = 4 cm and CD = 5cm then the length of AD is equal to:
ΔABC, में, ∠BAC = 90° और AD, BC पर लंबवत है जहाँ D, BC पर एक बिंदु है। यदि BD = 4 सेमी और CD = 5 सेमी तो AD की लंबाई ज्ञात करे
CHSL 21-10-2020 (Afternoon shift)
(a) 6
(b) 4.5
(c) $2\sqrt{5}$
(d) $5\sqrt{2}$

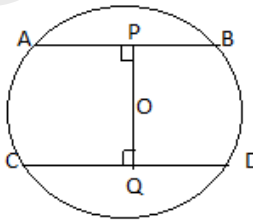
Q.58.The circles of same radius 13 cm intersect each other at A and B. If AB = 10 cm, then the distance between their centres is:
समान त्रिज्या 13 सेमी के वृत्त A और B पर एक दूसरे को काटते हैं। यदि AB = 10 सेमी है, तो उनके केंद्रों के बीच की दूरी है:
CHSL 21-10-2020 (Afternoon shift)
(a) 18 cm
(b) 12 cm
(c) 24 cm
(d) 26 cm

Q.59. In a ΔABC, ∠A = 90°, if BM and CN are two medians, $\frac{BM^2+CN^2}{BC^2}$ is equal to:
ΔABC में, ∠A = 90°, अगर BM और CN दो मध्यिका हैं, तो $\frac{BM^2+CN^2}{BC^2}$ बराबर है:
CHSL 21-10-2020 (Evening shift)
(a) 3/5
(b) 4/5
(c) 5/4
(d) 3/4

Q.60. A chord 10 cm long is drawn in a circle of diameter 26 cm. The perpendicular distance of the chord from the centre is:
10 सेमी लंबी एक जीवा, व्यास 26 सेमी के एक वृत्त में खींचा जाता है। केंद्र से जीवा की लंबवत दूरी है
CHSL 21-10-2020 (Evening shift)
(a) 12 cm
(b) 7 cm
(c) 5 cm
(d) 8 cm

Q.61. In ΔABC, AB = AC. If ∠A is twice the sum of other two angles of the triangle, then the measure of $\frac{1}{2}\angle A$ is:
ΔABC में AB = AC। यदि ∠A त्रिभुज के अन्य दो कोणों का दोगुना है, तो $\frac{1}{2}\angle A$ का माप है:
CHSL 21-10-2020 (Evening shift)
(a) 70°
(b) 60°
(c) 30°
(d) 80°

Q.62.. In the figure, O is the centre of the circle of radius 29 cm, OP ⊥ AB, OQ ⊥ CD and AB is parallel to CD. If AB = 40 cm and CD = 42 cm, then the length of PQ is:
दी गयी आकृति में, O वृत्त का केंद्र है जिसकी त्रिज्या 29 सेमी है , OP ⊥ AB, OQ ⊥ CD और AB, CD के समान्तर है। यदि AB= 40 सेमी और CD = 42 सेमी है, तो PQ की लंबाई है



CHSL 21-10-2020 (Evening shift)
(a) 32
(b) 20
(c) 41
(d) 21

Q.63. AB is a diameter of a circle with centre O, and P is a point on the circle. If ∠POA = 130°, the ∠PBO is equal to:
AB केंद्र O के साथ एक वृत्त पर एक व्यास है, और P वृत्त का एक बिंदु है। यदि ∠POA = 130°, तो ∠PBO का मान ज्ञात करे|
CHSL 26-10-2020 (Morning shift)
(a) 60°
(b) 55°
(c) 65°
(d) 45°

Pinnacle

Q.64. In a ΔABC, $2\angle ABC = 9\angle ACB$ and $2\angle BAC = 7\angle ACB$. If AB = 8 cm, AC = 17 cm, then the length of BC is:
ΔABC में, $2\angle ABC = 9\angle ACB$ और $2\angle BAC = 7\angle ACB$ । यदि AB = 8 सेमी, AC = 17 सेमी है, तो BC की लंबाई है:
CHSL 26-10-2020 (Morning shift)
(a) 8
(b) 25
(c) 15
(d) 9

Q.65. In a circle centred at O, AB is a chord and C is any point on AB such that OC is perpendicular to AB. If the radius of the circle is 10 cm and OC = 6 cm, then the length of the chord is:
एक वृत्त में O केंद्र है , AB एक जीवा है और C, AB पर कोई बिंदु है जैसे OC, AB पर लंबवत है। यदि वृत्त की त्रिज्या 10 सेमी और OC = 6 सेमी है, तो जीवा की लंबाई ज्ञात करे |
CHSL 26-10-2020 (Afternoon shift)
(a) 8
(b) 12
(c) 4
(d) 16

Q.66. If ΔABC is an isosceles triangle with AB = AC and $\angle ABC$ is 65°, then $\angle BCA$ and $\angle BAC$ are, respectively
यदि ΔABC, AB = AC और $\angle ABC$= 65° के साथ एक समद्विबाहु त्रिभुज है, तो क्रमशः $\angle BCA$ और $\angle BAC$ हैं:
CHSL 26-10-2020 (Afternoon shift)
(a) 65° and 50°
(b) 75° and 70°
(c) 50° and 65°
(d) 70° and 75°

Q.67. Two tangents PA and PB are drawn from an external point P to a circle with centre O at the point A and B respectively on it, such that $\angle APB = 120°$, and AP= 12.5 cm. The length of OP is:
दो स्पर्शरेखाएँ PA और PB एक बाहरी बिंदु P से एक बिंदु पर क्रमशः केंद्र A और B पर O के साथ वृत्त की ओर खींची जाती हैं, जैसे कि $\angle APB = 120°$ और AP = 12.5 cm OP की लंबाई है:
CHSL 26-10-2020 (Evening shift)
(a) 24 cm
(b) 25 cm
(c) 26 cm
(d) 20 cm

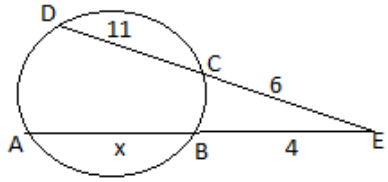
Q.68. A circle inscribed in a triangle ABC touches its sides AB, BC and AC at the points D, E and F, respectively. If AB = 18cm, BC = 15cm and AC = 13 cm then the value of of AD+BE+CF is:
एक त्रिभुज ABC में अंकित एक वृत्त क्रमशः AB, BC और AC के भुजाओं D, E और F को स्पर्श करता है। यदि AB = 18 सेमी, BC = 15 सेमी और AC = 13 सेमी है तो AD+ BE+ CF का मान है:
CHSL 26-10-2020 (Evening shift)
(a) 25
(b) 33
(c) 23
(d) 20

Q.69. The exterior angle of a triangle is 115° and the corresponding interior opposite angles are in the ratio 2:3. The measure of greatest angle of the triangle is:
एक त्रिभुज का बाहरी कोण 115° है और समान आंतरिक विपरीत कोण 2: 3 के अनुपात में हैं। त्रिभुज के सबसे बड़े कोण का माप है:
CHSL 26-10-2020 (Evening shift)
(a) 70°
(b) 65°
(c) 69°
(d) 79°

Q.70. If M is the mid point of the side BC of ΔABC, and the area of ΔABM is $18\,cm^2$, then the area of ΔABC is:
यदि M, ΔABC के भुजा BC के मध्य बिंदु है, और ΔABM का क्षेत्रफल $18\,cm^2$ है, तो ΔABC का क्षेत्रफल है:
CHSL 17-03-2020 (Morning shift)
(a) 30 cm^2
(b) 34 cm^2
(c) 36 cm^2
(d) 32 cm^2

Q.71. A 5 cm long perpendicular is drawn from the centre of a circle to a 24 cm long chord. Find the diameter of the circle.
एक 5 सेंटीमीटर लंबा लंबवत वृत्त के केंद्र से 24 सेमी लंबे जीवा तक खींचा जाता है। वृत्त का व्यास ज्ञात कीजिए।
CHSL 17-03-2020 (Morning shift)
(a) 32 cm
(b) 13 cm
(c) 30 cm
(d) 26 cm

Q.72. In the given figure, chords AB and CD are intersecting each other at point L. Find the length of AB
दी गयी आकृति में, जीवा AB और CD बिंदु L पर एक दूसरे को प्रतिच्छेद कर रहे हैं। AB की लंबाई ज्ञात करें



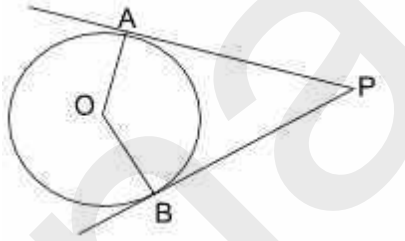
CHSL 17-03-2020 (Morning shift)
(a) 22.5 cm
(b) 21.5 cm
(c) 24.5 cm
(d) 23.5 cm

Q.73. Two sides of a triangle are of length 3 cm and 8 cm. If the length of the third side is 'x' cm, then :
एक त्रिभुज की दो भुजाएँ लंबाई 3 सेमी और 8 सेमी हैं। यदि तीसरे भुजा की लंबाई X सेमी है, तो:
CHSL 17-03-2020 (Morning shift)
(a) 5<x
(b) 5<x<11
(c) 0<x<11
(d) x>11

Q74. A triangle is NOT said to be a right-angled triangle if its sides measure:
एक त्रिभुज को एक समकोण त्रिभुज नहीं कहा जाता है यदि इसके भुजाएं हैं:
CHSL 17-03-2020 (Afternoon shift)
(a) 5 cm, 12 cm and 13 cm
(b) 5 cm, 7 cm and 9 cm
(c) 6 cm, 8 cm and 10 cm
(d) 3 cm, 4 cm and 5 cm

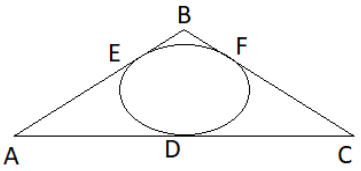
Q75. A secant is drawn from a point P to a circle P to a circle so that it meets the circle first at A, then goes through the centre, and leaves the circle at B. If the length of the tangent from P to the circle is 12 cm, and the radius of the circle is 5 cm, then the distance from P to A is:
एक छेदक रेखा को एक बिंदु P से एक वृत्त तक खींचा जाता है ताकि वह वृत्त में पहले A से मिल जाए, फिर केंद्र से होकर जाता है, और B पर वृत्त छोड़ता है। यदि P से वृत्त की स्पर्शरिखा की लंबाई है 12 सेमी, और वृत्त की त्रिज्या 5 सेमी है, फिर P से A की दूरी है:
CHSL 18-03-2020 (Morning shift)
(a) 8 cm
(b) 12 cm
(c) 18 cm
(d) 10 cm

Q76.PA and PB are tangents to the circle and O is the centre of the circle. The radius is 5 cm and PO is 13 cm. If the area of the triangle PAB is M, then the value of $\sqrt{\frac{M}{15}}$ is:
PA और PB वृत्त के स्पर्शरिखा हैं और O वृत्त का केंद्र है। त्रिज्या 5 सेमी और PO =13 सेमी है। यदि त्रिभुज PAB का क्षेत्रफल M है, तो $\sqrt{\frac{M}{15}}$ का मान है:



CHSL 18-03-2020 (Morning shift)
(a) $\sqrt{\frac{24}{13}}$
(b) $\frac{24}{13}$
(c) $\frac{12}{13}$
(d) $\sqrt{\frac{12}{13}}$

Q77. A circle is inscribed in the triangle ABC whose sides are given as AB = 10, BC = 8, CA = 12 units as shown in the figure. The value of AD × BF is:
त्रिभुज ABC में एक वृत्त अंकित किया हुआ है जिसके किनारे AB = 10, BC = 8, CA = 12 इकाई के रूप में दिए गए हैं जैसा कि चित्र में दिखाया गया है। AD× BF का मान है:



CHSL 18-03-2020 (Morning shift)
(a) 18 units
(b) 21 units
(c) 16 units
(d) 15 units

Q78.Two circles with the same centre P have radii 7.5 cm and 4.4 cm. Through a point A of the larger circle, a tangent is drawn to the smaller circle touching it at B. Find AC (Approximate in cm).
दो सकेंद्रित वृत्त जिनकी त्रिज्याएँ 7.5 सेमी और 4.4 सेमी है। बड़े वृत्त के बिंदु A से, एक स्पर्शरिखा खींचा जाता है जो छोटे वृत्त के B पर स्पर्श करता है, AC की लम्बाई ज्ञात करे (सेमी में अनुमानित)।
CHSL 18-03-2020 (Evening shift)
(a) 14 cm
(b) 12.14 cm
(c) 14.27 cm
(d) 13 cm

Q.79. In a ΔABC, DE is parallel to BC, AD = 3 cm, AE = 4cm and AC = 10 cm, then the value of BD in centimetres, is:
Δ ABC में, DE, BC के समानांतर है, AD = 3 cm, AE = 4cm और AC = 10 cm, फिर BD (सेंटीमीटर में) मान है:
CHSL 19-03-2020 (Morning shift)
(a) 3.5
(b) 7.5
(c) 4.5
(d) 5.5

Q.80. If Δ ABC is a right angled triangle with ∠ABC = 90°, and AC = 10 cm and BC = 8 cm, then the length of AB is:

यदि ΔABC एक समकोण त्रिभुज है, $\angle ABC = 90°$, AC =10, BC =8 cm फिर AB की लंबाई है:

CHSL 19-03-2020 (Morning shift)

(a) 12 cm
(b) 2 cm
(c) 18 cm
(d) 6 cm

Q.81. Two circles of radii 20 cm and 5 cm respectively, touch each other externally at the point P, AB is the direct common tangent of these two circles of centres R and S, respectively. The length of AB is equal to:

दो वृत्त जिनकी त्रिज्याएँ क्रमशः 20 सेमी और 5 सेमी, बिंदु P पर बाह्य रूप से एक दूसरे को स्पर्श करते हैं, AB, केंद्र R और S वाले दो वृत्तों के प्रत्यक्ष सामान्य स्पर्शरेखा है। AB की लंबाई है:

CHSL 19-03-2020 (afternoon shift)

(a) 15 cm
(b) 5 cm
(c) 10 cm
(d) 20 cm

Q.82. If L is the circumcentre of ΔXYZ and angle X is 40°, then the value of $\angle YZL$ is:

यदि L, XYZ का परिकेन्द्र है और $\angle X = 40°$ है,तब $\angle YZL$ का मान है:

CHSL 19-03-2020 (afternoon shift)

(a) 70°
(b) 60°
(c) 40°
(d) 50°

Q.83. The distance between the centres of two equal circles each of radius 4 cm is 17 cm. The length of a transverse tangent is:

दो समान वृत्तों के केंद्रों के बीच की दूरी, प्रत्येक त्रिज्या 4 सेमी, 17 सेमी है। एक अनुप्रस्थ स्पर्शरेखा की लंबाई है:

CHSL 19-03-2020 (afternoon shift)

(a) 15 cm
(b) 16 cm
(c) 14 cm
(d) 19 cm

Q.84. The measure of one of the exterior angles of a triangle is twice one of the interior opposite angles and the measure of the other interior opposite angles is 60°. The triangle is a/an

त्रिभुज के बाहरी कोणों में से एक का माप आंतरिक विपरीत कोणों से दोगुना है और कोण के विपरीत अन्य आंतरिक कोण का माप 60° है। त्रिभुज है ?

CHSL 19-03-2020 (Evening shift)

(a) right triangle
(b) scalene triangle
(c) isosceles triangle
(d) equilateral triangle

Q.85. In a circle centred at O, AB is a chord and C is any point on AB, such that OC is perpendicular to AB. If the length of the chord is 16 cm and OC = 6 cm, the radius of circle is :

O केंद्र वाले एक वृत्त में, AB एक जीवा है और C, AB पर कोई बिंदु है, जैसे OC, AB पर लंबवत है। यदि जीवा की लंबाई 16 सेमी और OC = 6 सेमी है, तो वृत्त की त्रिज्या है:

CHSL 19-03-2020 (Evening shift)

(a) 10 cm
(b) 8 cm
(c) 6 cm
(d) 12 cm

Q.86. If the angle between two radii of a circle be 130°, then the angle between the tangents at the end of these radii is:

यदि किसी वृत्त की दो त्रिज्या के बीच का कोण 130° है, तो इन त्रिज्या के अंत में स्पर्शरेखाओं के बीच का कोण है

CHSL 19-03-2020 (Evening shift)

(a) 50°
(b) 40°
(c) 70°
(d) 90°

Q.87. In ΔABC, AB = AC, and $\angle BAC$ is 50°. Then $\angle ABC$ and $\angle BCA$ are, respectively:

एक त्रिभुज ΔABC, में AB = AC और $\angle BAC = 50°$ तो $\angle ABC$ और $\angle BCA$ का मान ज्ञात कीजिये

CHSL 19-03-2020 (Evening shift)

(a) 50° and 55°
(b) 65° and 65°
(c) 70° and 75°
(d) 55° and 55°

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Q88. ABCD is a cyclic quadrilateral, Diagonal BD and AC intersect each other at E, If $\angle BEC = 128°$ and $\angle ECD = 25°$then what is the measure of $\angle BAC$?

ABCD एक चक्रीय चतुर्भुज है, विकर्ण BD और AC एक दूसरे को E पर काटती है, यदि $\angle BEC = 128°$और $\angle ECD = 25°$ तो $\angle BAC$ का मान क्या होगा ?

CGL 2019 Tier-II (15-11-2020)

(a) 98°
(b) 93°
(c) 103°
(d) 52°

Q89.In ΔPQR, $\angle Q=84°$, $\angle R=48°$, $PS \perp QR$ at S and the bisector of $\angle P$ meet QR at T. What is a measure of $\angle SPT$?

ΔPQR में, $\angle Q=84°$, $\angle R=48°$, $PS \perp QR$ और $\angle P$ का द्विभाजक QR

से T पर मिलता है ∠SPT का मान क्या होगा ?
CGL 2019 Tier-II (15-11-2020)
(a) 21°
(b) 12°
(c) 24°
(d) 18°

Q90. In ΔPQR , O is the incentre and ∠P = 42°. Then what is the measure of ∠QOR?
ΔPQR में, O अन्तः केंद्र है और ∠P=42° है| तो ∠QOR का मान ज्ञात कीजिए |
CGL 2019 Tier-II (15-11-2020)
(a) 132°
(b) 121°
(c) 138°
(d) 111°

Q91. In ΔABC, $\angle A - \angle B = 33°$, $\angle B - \angle C = 18°$, What is the sum of the smallest and the largest angles of the triangle?
ΔABC मे◌ं◌,
$\angle A - \angle B = 33°$, $\angle B - \angle C = 18°$, त्रिभुज के सबसे छोटे और सबसे बड़े कोण का योग क्या है?
CGL 2019 Tier-II (15-11-2020)
(a) 143°
(b) 125°
(c) 92°
(d) 108°

Q92. In ΔABC, the bisector of $\angle A$ intersect side BC at D. If AB=12cm, AC =15cm and BC=18cm , then the length of BD is:
ΔABC में, $\angle A$ का द्विभाजक BC को D पर प्रतिच्छेदित करता है| यदि AB = 12cm, AC = 15cm और BC = 18cm है, तो BD की लंबाई है:
CGL 2019 Tier-II (15-11-2020)
(a) 9cm
(b) 9.6cm
(c) 7.5cm
(d) 8 cm

Q93. In a circle with centre O, a diameter AB is produced to a point P lying outside the circle and PT is a tangent to the circle at the point C on it, If ∠BPT = 36°, then what is the measure of ∠BCP ?
O केंद्र वाले एक वृत्त में, एक व्यास AB को वृत्त के बाहर स्थित एक बिंदु P तक बढ़ाया जाता है और PT उस बिंदु C पर वृत्त के स्पर्शरेखा है, यदि ∠BPT = 36° है, तो ∠BCP का माप क्या है ?
CGL 2019 Tier-II (15-11-2020)
(a) 24°
(b) 18°
(c) 27°
(d) 36°

Q94. In Δ ABC, ∠C=90°, Points P and Q are on the sides AC and BC, respectively, such that AP : PC = BQ : QC = 1 : 2
Then $\frac{AQ^2+BP^2}{AB^2}$ is equal to :
ΔABC में ∠C=90°, बिंदु P और Q क्रमशः AC और BC पर बिंदु इस प्रकार है की AP : PC = BQ : QC = 1 : 2 तो $\frac{AQ^2+BP^2}{AB^2}$ = ?
CGL 2019 Tier-II (15-11-2020)
(a) $\frac{4}{7}$
(b) $\frac{4}{3}$
(c) $\frac{13}{9}$
(d) $\frac{8}{3}$

Q95. In Δ ABC, ∠A = 90°, AD is the bisector of ∠A meeting BC at D and DE ⊥ AC at E. If AB = 10cm and AC = 15 cm, then the length of DE, in cm is:
ΔABC में ∠A=90° AD, ∠A का द्विभाजक है, जो BC से D पर मिलता है, और DE ⊥ AC से E पर मिलता है। यदि AB = 10cm और AC = 15 cm है, तो DE की लंबाई(cm) है,
CGL 2019 Tier-II (15-11-2020)
(a) 7.5
(b) 6.25
(c) 6
(d) 8

Q96. In a circle with centre O, BC is a chord. Point D and A are on the circle, on the opposite side of BC, such that ∠DBC = 28° and BD=DC. What is the measure of ∠BOC?
O केंद्र वाले एक वृत्त में, BC एक जीवा है। बिंदु D और A, वृत्त पर स्थित है जो BC के विपरीत है जैसे कि ∠DBC = 28° और BD = DC। ∠BOC का माप क्या है
CGL 2019 Tier-II (15-11-2020)
(a) 98°
(b) 84°
(c) 112°
(d) 96°

Q97. The sides BA and DE of a regular pentagon are produced to meet at F. What is the measure of ∠EFA?
एक नियमित पंचकोण के BA और DE भुजाओं को F तक बढ़ाया जाता है। ∠ EFAका माप क्या है
CGL 2019 Tier-II (15-11-2020)
(a) 72°
(b) 36°
(c) 60°
(d) 54°

Q98. In a circle , O is the centre of the circle. Chords AB and CD intersect at P. If ∠AOD = 32° and ∠COB = 26°, then the measure of ∠APD lies between:
केंद्र O के साथ एक वृत्त में, जीवा AB और CD,P पर प्रतिच्छेद करते हैं, यदि ∠AOD = 32° और ∠COB = 26° तो ∠APD का माप किसके बीच में होगा
CGL 2019 Tier-II (16-11-2020)
(a) 26° and 30°
(b) 30° and 34°
(c) 22° and 26°
(d) 18° and 22°

Q99. In Δ ABC, D is a point on the side BC such that ∠ADC = 2

∠BAD. If ∠A=80° and ∠C = 38°, then what is the measure of the ∠ADB ?
ΔABC में, D, BC पर एक बिंदु है जैसे ∠ADC = 2∠BAD. यदि ∠A = 80° और ∠C = 38° है, तो ∠ADB का माप क्या है
CGL 2019 Tier-II (16-11-2020)
(a) 52°
(b) 56°
(c) 58°
(d) 62°

Q100. A secant PAB is drawn from an external point P to the circle with centre O, intersecting it at A and B. If OP = 17cm, PA = 12cm and PB = 22.5 cm, then the radius of the circle is :
एक छेदक PAB को बाहरी बिंदु P से केंद्र O वाले वृत्त की ओर खींचा जाता है,जो A और B पर प्रतिच्छेदित करती है । यदि OP = 17 सेमी, PA = 12 सेमी और PB = 22.5 सेमी है, तो वृत्त की त्रिज्या क्या है
CGL 2019 Tier-II (16-11-2020)
(a) $\sqrt{19}$ cm
(b) $\sqrt{17}$ cm
(c) $3\sqrt{2}$ cm
(d) $2\sqrt{3}$ cm

Q101. In ΔABC, D and E are points on the sides AB and AC, respectively, such that DE ∥ BC. If AD = 5cm, DB = 9cm AE = 4cm and BC = 15.4cm, then the sum of the length of DE and EC (in cm) is :
ΔABC में, D और E क्रमश AB और AC भुजाओं पर बिंदु इस प्रकार है की DE||BC , यदि AD = 5cm, DB = 9cm AE = 4cm और BC = 15.4cm है, तो DE और EC (सेमी में) की लंबाई का योग है
CGL 2019 Tier-II (16-11-2020)
(a) 11.6
(b) 12.7
(c) 13.4
(d) 10.8

Q102. In ΔABC, D and E are the midpoint of sides BC and AC, respectively AD and BE intersect at G at right angle. If AD= 18cm and BE = 12cm then the length of DC (in cm) is :
ΔABC में, D और E भुजाओं BC और AC के मध्य बिंदु हैं, क्रमश AD और BE समकोण पर G पर प्रतिच्छेद करते हैं। यदि AD = 18 सेमी और BE = 12 सेमी तो DC (सेमी में) की लंबाई है:
CGL 2019 Tier-II (16-11-2020)
(a) 6
(b) 10
(c) 8
(d) 9

Q103. Let D and E be two points on the side BC of ΔABC such that AD = AE and ∠BAD = ∠EAC. If AB = (3x+1)cm , BD = 9cm , AC = 34cm and EC = (y + 1) cm, then the value of (x + y) is:
ΔABC में, D और E भुजा BC पर दो बिंदु इस प्रकार है की AD = AE और ∠BAD = ∠EAC। यदि AB = (3x +1) cm, BD = 9cm, AC = 34cm और EC = (y+1) cm है, तो (x + y) का मान है
CGL 2019 Tier-II (16-11-2020)
(a) 17
(b) 20
(c) 19
(d) 16

Q104.. In a quadrilateral ABCD, E is a point in the interior of the quadrilateral such that DE and CE are the bisector of ∠D and ∠C, respectively, If ∠B = 82° and ∠DEC = 80° then ∠A= ?
एक चतुर्भुज ABCD में, E, चतुर्भुज के भीतरी भाग का एक बिंदु इस प्रकार है की DE और CE क्रमश ∠D और ∠C के द्विभाजक हैं, यदि ∠B = 82° और ∠DEC = 80° तो ∠A =?
CGL 2019 Tier-II (16-11-2020)
(a) 84°
(b) 78°
(c) 75°
(d) 81°

Q105. In ΔABC ,M and N are the points on the side BC such that AM ⊥ BC, AN is the bisector of ∠A, and M lies between B and N, If ∠B = 68° ∠C = 26°, then the measure of ∠MAN is:
ΔABC में, M और N, भुजा BC पर बिंदु हैं जैसे AM ⊥ BC, AN, ∠A का द्विभाजक है| M, B और N के बीच स्थित है, यदि ∠B=68° ∠C = 26° है, तो ∠MAN का माप है
CGL 2019 Tier-II (16-11-2020)
(a) 24°
(b) 22°
(c) 28°
(d) 21°

Q106. In ΔABC, D and E are points on the sides AB and AC, respectively, such that DE ∥ BC and DE : BC = 6 : 7, (Area of ΔADE) : (Area of trapezium BCED) =?
ΔABC में, D और E, क्रमश AB और AC पर बिंदु हैं, जैसे कि DE||BC और DE : BC = 6 : 7, (ΔADE का क्षेत्रफल): (समलम्ब BCED का क्षेत्रफल) = ?
CGL 2019 Tier-II (16-11-2020)
(a) 49 : 13
(b) 36 : 13
(c) 13 : 36
(d) 13 : 49

Q107. In ΔPQR, ∠P=90°, S and T are the mid points of the sides PR and PQ, respectively. What is the value of $RQ^2/(QS^2 + RT^2)$?
ΔPQR में, ∠P = 90°, S और T क्रमश PR और PQ भुजाओं के मध्य बिंदु हैं। $RQ^2/(QS^2 + RT^2)$ का मान क्या है
CGL 2019 Tier-II (16-11-2020)
(a) $\frac{3}{4}$

(b) $\frac{1}{2}$
(c) $\frac{2}{3}$
(d) $\frac{4}{5}$

Q108. If a regular polygon has 16 sides, then what is the measure (in degrees) of its each interior angle?
यदि एक नियमित बहुभुज के 16 भुजाएं हैं, तो इसके प्रत्येक आंतरिक कोण का माप (डिग्री में) क्या है?
CGL 2019 Tier-II (16-11-2020)
(a) 155
(b) $157\frac{1}{2}$
(c) $159\frac{1}{2}$
(d) 154

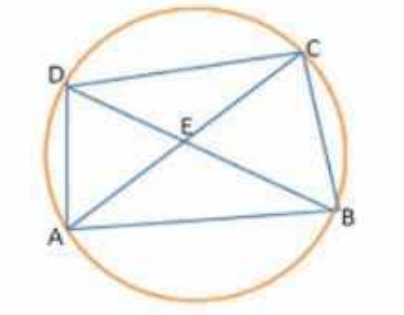
Q109. In a circle with centre O, AB is the diameter, P and Q are two points on the circle on the same side of the diameter AB, AQ and BP intersect at C. If ∠POQ = 54°, then the measure of ∠PCA is:
केंद्र O के साथ एक वृत्त में, AB व्यास है, P और Q, व्यास AB के एक तरफ वृत्त पर दो बिंदु हैं AQ और BP, C पर परिछेदित करती है। यदि ∠POQ = 54° है, तो ∠PCA का माप है
CGL 2019 Tier-II (16-11-2020)
(a) 54°
(b) 63°
(c) 72°
(d) 56°

Q110. In ΔPQR, PS is the internal bisector of ∠P meeting QR at S, PQ =16cm, PR = 22.4 cm and QR = 9.6cm. The length of SR(in cm) is:
ΔPQR में, PS, ∠P, का आंतरिक द्विभाजक है जो QR से S पर मिलता है ।यदि PQ = 16cm, PR = 22.4 cm और QR = 9.6cm तो SR (सेमी में) की लंबाई है
CGL 2019 Tier-II (16-11-2020)
(a) 5.6
(b) 4.4
(c) 4
(d) 6

Q111. In ΔABC, O is the incentre and ∠BOC = 135°. The measure of ∠BAC is :
ΔABC में, O अंतःकेंद्र और ∠BOC = 135° है। तो ∠BAC का मान क्या है
CGL 2019 Tier-II (16-11-2020)
(a) 90°
(b) 45°
(c) 80°
(d) 55°

Q112. In a triangle ABC, D is a point on BC such that $\frac{AB}{AC} = \frac{BD}{DC}$. If ∠B=68° and ∠C = 52°, then measure of ∠BAD is equal to:
त्रिभुज ABC में, D, BC पर एक बिंदु है जैसे $\frac{AB}{AC} = \frac{BD}{DC}$. If ∠B = 68° और ∠C = 52° of, तो ∠BAD का माप बराबर है:
CGL 2019 Tier-II (18-11-2020)
(a) 60°
(b) 30°
(c) 50°
(d) 40°

Q113. In the given figure, ∠DBC = 65°, ∠BAC = 35° and AB = BC then the measure of ∠ECD is equal to :
दिए गए चित्र में, ∠DBC = 65°,∠BAC = 35° और AB = BC तो ∠ECD का माप ज्ञात करे



CGL 2019 Tier-II (18-11-2020)
(a) 65°
(b) 45°
(c) 50°
(d) 55°

Q114. In a triangle ABC, P and Q are points on AB and AC, respectively, such that AP=1cm, PB=3cm, AQ=1.5cm and CQ=4.5. If the area of ΔAPQ is $12\,cm^2$, then find the area BPQC.

एक त्रिभुज ABC में, P और Q क्रमशः AB और AC पर बिंदु हैं, जैसे कि AP = 1cm, PB = 3cm, AQ = 1.5cm और CQ = 4.5। यदि Δ APQ का क्षेत्रफल 12 cm^2, है, तो BPQC क्षेत्रफल ज्ञात करे
CGL 2019 Tier-II (18-11-2020)
(a) 180 cm^2
(b) 192 cm^2
(c) 190 cm^2
(d) 182 cm^2

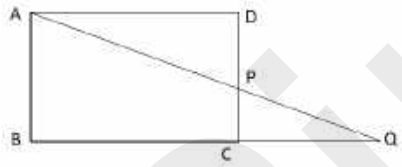
Q.115. The exterior angles obtained on producing the base of a triangle both the ways are 121° and 104°. What is the measure of the largest angle of the triangle?
त्रिभुज के आधार को दोनों तरफ से बढ़ाने पर प्राप्त बाहरी कोण 121°और 104° हैं। त्रिभुज के सबसे बड़े कोण का माप क्या है?
CGL 2019 Tier-II (18-11-2020)
(a) 74°
(b) 75°
(c) 66°
(d) 76°

Q.116 ABC is an equilateral triangle with side 12cm and AD is the median. Find the length of GD if G is the centroid of Δ ABC.
ABCएक समबाहु त्रिभुज है जिसके भुजा 12cm और AD मध्यिका है। GD की लंबाई ज्ञात करें यदि G, Δ ABC का केन्द्रक है।
CGL 2019 Tier-II (18-11-2020)
(a) $6\sqrt{3}$
(b) $4\sqrt{3}$
(c) $2\sqrt{3}$

(d) $3\sqrt{3}$

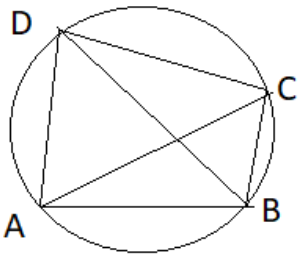
Q117. In a triangle ABC, AB=6 $\sqrt{3}$ cm, AC = 12 cm and BC = 6cm . Then measure of ∠B is equal to :
एक त्रिभुज ABC में, AB=6 $\sqrt{3}$ cm, AC = 12 cm और BC = 6cm | $\angle B$ का माप ज्ञात करे
CGL 2019 Tier-II (18-11-2020)
(a) 90°
(b) 60°
(c) 70°
(d) 45°

Q.118. In the given figure, ABCD is a rectangle and P is a point on DC such that BC=24 cm, DP =10 cm, and CD =15 cm. If AP produced intersects BC produced at Q. Find the length of AQ.
दी गयी आकृति में, ABCD एक आयत है और P, DC पर एक बिंदु इस प्रकार है कि BC = 24 सेमी, DP = 10 सेमी, और CD = 15 सेमी। यदि AP और BC को बढ़ाया जाता है जो Q पर प्रतिच्छेदित करते है तो AQ की लंबाई ज्ञात कीजिए



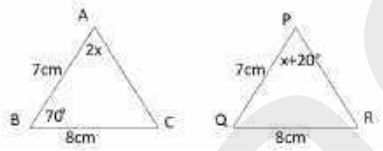
CGL 2019 Tier-II (18-11-2020)
(a) 35cm
(b) 24cm
(c) 39cm
(d) 26cm

Q.119 A cyclic Quadrilateral ABCD is such that AB=BC, AD=DC and AC and BD intersect at O. If ∠CAD=46° , then the measure of ∠AOB is equal to:
एक चक्रीय चतुर्भुज ABCD इस प्रकार है की AB = BC, AD = DC और AC और BD पर O पर प्रतिच्छेदित करती है । यदि ∠CAD = 46° है, तो ∠AOB का माप है:



CGL 2019 Tier-II (18-11-2020)
(a) 84°
(b) 86°
(c) 90°
(d) 80°

Q.120.In the given figure, the measure of ∠A is:
दिए गए आकृति में ∠A का मान ज्ञात करे |



CGL 2019 Tier-II (18-11-2020)
(a) 40°
(b) 20°
(c) 60°
(d) 50°

Q.121.The interior angle of a regular polygon exceeds its exterior angle be 90°. The number of side of the polygon is:
एक नियमित बहुभुज का आंतरिक कोण इसके बाहरी कोण से 90° से अधिक है। बहुभुज के भुजाओ की संख्या ज्ञात करे
CGL 2019 Tier-II (18-11-2020)
(a) 6
(b) 12
(c)10
(d)8

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Q122. A circle is inscribed in a triangle ABC, It touches side AB, BC and AC at points R, P and Q, respectively. If AQ= 3.5cm, PC = 4.5cm and BR = 7cm, then the perimeter (in cm) of the triangle ABC is:
एक वृत्त, त्रिभुज ABC में अन्तर्निहित है, यह क्रमशः AB, BC और AC को R, P और Q के बिंदुओं पर स्पर्श करता है। यदि AQ = 3.5cm, PC = 4.5cm और BR = 7cm है, तो त्रिभुज ABC की परिधि (सेमी में) है:
CPO 23-11-2020 (Morning shift)
(a) 45
(b) 28
(c) 15
(d) 30

Q123. PA and PB are two tangents from a point P outside the circle with centre O. If A and B are points on the circle such that ∠APB = 128°, then ∠OAB is equal to:
PA और PB, O केंद्र वाले वृत्त के बाहर एक बिंदु P से दो स्पर्शरेखा हैं। यदि A और B वृत्त पर बिंदु इस प्रकार है की हैं ∠APB = 128°, तो ∠OAB बराबर है:
CPO 23-11-2020 (Morning shift)
(a) 64°
(b) 72°
(c) 52°
(d) 38°

Q124. In ΔABC, BD ⊥ AC at D, E is a point on BC such that ∠BEA = x°, If ∠EAC = 46° and ∠EBD = 60°, then the value of x is:
ΔABC में, BD ⊥ AC, E, BC पर एक बिंदु इस प्रकार है की ∠BEA = x° , यदि ∠EAC = 46° और ∠EBD = 60° , तो x का मान ज्ञात करे |
CPO 23-11-2020 (Morning shift)
(a) 76°
(b) 68°
(c) 78°
(d) 72°

Q125. In a ΔABC, the bisector of $\angle$B and $\angle$C meet at O. If $\angle$BOC = 142°, then the measure of $\angle$A is :
ΔABC में, $\angle$B और $\angle$C के द्विभाजक O पर मिलते हैं। यदि BOC = 142° है, तो $\angle$A का माप ज्ञात करे |
CPO 23-11-2020 (Morning shift)
(a) 52°
(b) 68°
(c) 116°
(d) 104°

Q126. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and $\angle$ADC = 148°. what is the measure of the $\angle$BAC ?
ABCD एक चक्रीय चतुर्भुज है, इस प्रकार की AB इसके अंदर वृत्त का व्यास है और $\angle$ADC = 148° है। $\angle$BAC का माप क्या है
CPO 23-11-2020 (Evening shift)
(a) 45°
(b) 58°
(c) 60°
(d) 32°

Q127. PA and PB are two tangents from a point P outside the circle with centre O. If A and B are points on the circle such that $\angle$APB = 100°, then $\angle$OAB is equal to :
PA और PB, केंद्र O वाले वृत्त के बाहर एक बिंदु P से, दो स्पर्शरेखा हैं। यदि A और B वृत्त पर ऐसे बिंदु हैं जैसे $\angle$APB = 100°, तो $\angle$OAB का मान ज्ञात करे :
CPO 23-11-2020 (Evening shift)
(a) 70°
(b) 35°
(c) 45°
(d) 50°

Q128. In ΔABC, $\angle$A = 66°, AB and AC are produced to points D and E respectively. If the bisector of angle $\angle$CBD and $\angle$BCE meet at the point O, then $\angle$BOC is equal to :
ΔABC में, $\angle$A = 66°, AB और AC क्रमशः D और E तक बढ़ाये जाते हैं। यदि कोण $\angle$CBD और $\angle$BCE के सम द्विभाजक बिंदु O पर मिलते हैं, तो $\angle$BOC के ज्ञात करे
CPO 23-11-2020 (Evening shift)
(a) 93°
(b) 114°
(c) 57°
(d) 66°

Q129. Let $\Delta ABC \sim \Delta RPQ$ and $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{9}$ If, AB = 3cm, BC = 4cm and AC = 5cm, then PQ (in cm) is equal to :
माना $\Delta ABC \sim \Delta RPQ$ और $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{9}$ है यदि AB = 3cm, BC = 4 cm और AC = 5 cm है तो PQ का मान ज्ञात करे |
CPO 23-11-2020 (Evening shift)
(a) 6
(b) 5
(c) 4.5
(d) 12

Q130. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 118°$ What is the measure of $\angle$ BAC?
ABCD एक चक्रीय चतुर्भुज इस प्रकार है की AB इस वृत्त का व्यास है और $\angle$ ADC = 118° तो $\angle$ BAC का मान क्या है?
CPO 24-11-2020 (Morning shift)
(a) 32°
(b) 28°
(c) 45°
(d) 30°

Q131. Let $\Delta ABC \sim \Delta RPQ$ and $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{9}$ If, AB = 3cm, BC = 4cm and AC = 5cm, then RP (in cm) is equal to :
माना $\Delta ABC \sim \Delta RPQ$ और $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{9}$ है यदि AB = 3cm, BC = 4 cm और AC = 5 cm है तो RP का मान ज्ञात करे
CPO 24-11-2020 (Morning shift)
(a) 6
(b) 5
(c) 4.5
(d) 12

Q132. In ΔABC , AB and AC are produced to points D and E respectively. If the bisector of $\angle$CBD and $\angle$BCE meet at a point O and $\angle$BOC = 57°, then $\angle$A is equal to :
ΔABC में, AB और AC क्रमशः D और E तक बढ़ाये जाते हैं। यदि कोण $\angle$CBD और $\angle$BCE के सम द्विभाजक बिंदु O पर मिलते हैं, और $\angle$BOC=57° तो $\angle$A बराबर है
CPO 24-11-2020 (Morning shift)
(a) 114°
(b) 66°
(c) 57°
(d) 93°

Q133. PA and PB are two tangents from a point P outside the circle with centre O. If A and B are points on the circle such that $\angle$APB = 130°, then $\angle$OAB is equal to :
PA और PB, O केंद्र वाले वृत्त के बाहर एक बिंदु P से, दो स्पर्शरेखा हैं। यदि A और B वृत्त पर ऐसे बिंदु हैं जैसे $\angle$APB = 130°, तो $\angle$OAB का मान ज्ञात करे
CPO 24-11-2020 (Morning shift)
(a) 65°
(b) 50°
(c) 45°

(d) 35°

Q134. PQRS is a cyclic quadrilateral. If ∠P is 4 times ∠R, and ∠S is 3 times ∠Q, then the average of ∠Q and ∠R is:
PQRS एक चक्रीय चतुर्भुज है। यदि ∠P, ∠R का 4 गुना है, और ∠S, ∠Q का 3 गुना है, तो ∠Qऔर ∠R का औसत ज्ञात करे|
CPO 24-11-2020 (Evening shift)
(a) 40.5°
(b) 45.7°
(c) 90°
(d) 81°

Q135. Chord AB of a circle is produced to a point P, and C is a point on the circle such that PC= 12cm, and BP = 10cm, then the length of AB (in cm) is:
किसी वृत्त का जीवा AB को एक बिंदु P तक बढ़ाया जाता है, और C वृत्त पर एक बिंदु इस प्रकार है की PC = 12cm, और BP = 10cm, फिर AB की लंबाई (सेमी में) है
CPO 24-11-2020 (Evening shift)
(a) 4.4
(b) 5
(c) 6
(d) 5.4

Q136. In Δ ABC, D is a median from A to BC, AB = 6cm , AC = 8cm and BC = 10cm The length of median AD (in cm) is :
Δ ABC में, D, A से BC पर एक पर स्थित माध्यिका है।, AB = 6 सेमी, AC = 8 सेमी और BC = 10 सेमी है। माध्यिका AD की लंबाई (सेमी में) है
CPO 24-11-2020 (Evening shift)
(a) 3
(b) 4.5
(c) 4
(d) 5

Q137. PA and PB are two tangents from a point P outside the circle with centre O. If A and B are points on the circle such that ∠APB = 142°, then ∠OAB is equal to :
PA और PB, O केंद्र वाले वृत्त के बाहर, एक बिंदु P से दो स्पर्शरिखा हैं। यदि A और B वृत्त पर बिंदु इस प्रकार है की ∠APB = 142° , तो ∠OAB का मान ज्ञात करे
CPO 25-11-2020 (Morning shift)
(a) 31°
(b) 71°
(c) 64°
(d) 58°

Q138. A circle is inscribed in a triangle ABC. It touches side AB, BC and AC at points R, P and Q, respectively. If AQ = 2.6cm, PC = 2.7cm and BR = 3cm, then the perimeter (in cm) of the triangle ABC is :
एक वृत्त त्रिभुज ABC में अन्तर्निहित है। यह क्रमशः R, P और Q के बिंदु AB, BC और AC को स्पर्श करता है। यदि AQ = 2.6 cm, PC = 2.7 cm और BR = 3 cm है, तो त्रिभुज ABC की परिधि (cm में) है
CPO 25-11-2020 (Morning shift)
(a) 33.2
(b) 16.6
(c) 28
(d) 30

Q139. In a triangle ABC, the bisector of ∠B and ∠C meet at O in the triangle. If ∠BOC = 134°, then the measure of ∠A is:
एक त्रिभुज ABC में, B और C का द्विभाजक त्रिभुज में O से मिलता है। यदि ∠BOC = 134° है, तो ∠A का माप क्या है ?
CPO 25-11-2020 (Morning shift)
(a) 104°
(b) 52°
(c) 88°
(d) 116°

Q140. In ΔABC, BD ⊥ AC at D, E is a point on BC such that ∠BEA=x°. If ∠EAC = 62° and ∠EBD = 60°, then the value of x is :
Δ ABC में, BD ⊥ AC पर D, E, BC पर एक बिंदु है जैसे कि ∠BEA = x° यदि ∠EAC = 62° और ∠EBD = 60° है, तो x का मान है :
CPO 25-11-2020 (Morning shift)
(a) 68°
(b) 92°
(c) 78°
(d) 76°

Q141. The sides PQ and PR od Δ PQR are produced to point S and T, respectively. The bisector of ∠SQR and ∠TRQ, meet at U. If ∠QUR= 59°, then the measure of ∠P is:
Δ PQR की भुजाएँ PQ और PR क्रमशः बिंदु S और T तक बढ़ाया जाता हैं। ∠SQR और ∠TRQ के द्विभाजक, U पर मिलते हैं। यदि ∠QUR = 59° है, तो ∠P का माप है :
CPO 25-11-2020 (Evening shift)
(a) 49°
(b) 41°
(c) 62°
(d) 31°

Q142. Two circles of radii 15cm and 10cm intersect each other and the length of their common chord is 16cm. What is the distance between their centers?
त्रिज्या 15 सेमी और 10 सेमी के दो वृत्त एक दूसरे को प्रतिच्छेदित करते हैं और उनके कॉमन जीवा की लंबाई 16 सेमी है। उनके केंद्रों के बीच की दूरी क्या है |
CPO 25-11-2020 (Evening shift)
(a) $12 + 3\sqrt{7}$

(b) $6 + \sqrt{161}$
(c) $15 + 2\sqrt{161}$
(d) $10 + \sqrt{161}$

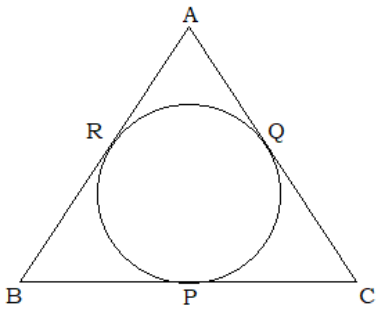
Q143. In ΔABC, $\angle A = 54°$. If I is the incentre of the triangle, then the measure of $\angle BIC$ is;
ΔABC में, $\angle A = 54°$ यदि I त्रिभुज का अंतःकेंद्र है, तो $\angle BIC$ का माप है
CPO 25-11-2020 (Evening shift)
(a) 148°
(b) 68°
(c) 117°
(d) 54°

Q144. In a circle with centre O, AD is a diameter and AC is a chord. Point B on AC such that OB = 7cm and $\angle OBA = 60°$. If $\angle DOC = 60°$, then what is the length of BC?
केंद्र वाले एक वृत्त में, AD एक व्यास है और AC एक जीवा है। AC पर एक बिंदु B इस प्रकार है की OB = 7 सेमी और $\angle OBA = 60°$ । यदि $\angle DOC = 60°$ है, तो BC की लंबाई क्या है ?
CPO 25-11-2020 (Evening shift)
(a) 7cm
(b) $3\sqrt{7}$ cm
(c) 3.5cm
(d) $5\sqrt{7}$ cm

Pinnacle

SOLUTION:

Sol 1. (c)

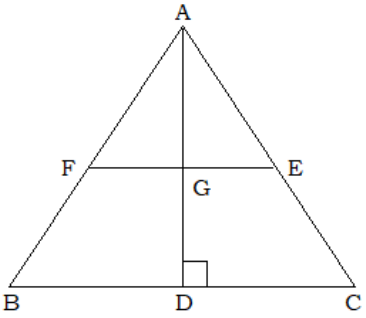


AQ = AR = 4.5 cm, QC = PC = 5.5 cm, BR = BP = 6 cm

…….(Tangents)

Perimeter of the triangle=AQ+AR+QC+PC+BR+BP =4.5+4.5+5.5+5.5+6+6 = 32 cm

Sol 2. (b)



Since FE | | BC

$\sqrt{\frac{area\ of\ \Delta AFE}{area\ of\ \Delta ABC}} = \frac{AG}{AD}$

…….....(Property)

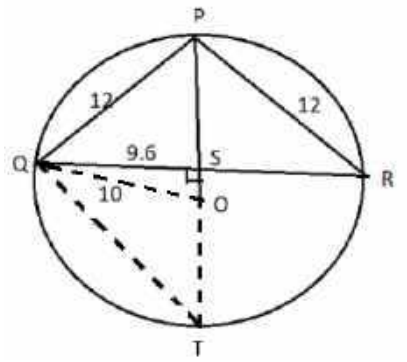
Let area of $\Delta ABC = 2\ unit$, ⇒ area of ΔAFE = 1 unit

$\Rightarrow \frac{AG}{AD} = \frac{1}{\sqrt{2}}$

GD = $\sqrt{2}$ -1

GD : AG = $\sqrt{2}$ -1 : 1

Sol 3. (a)



In $\triangle PQS$

PQ = 12 cm and PT (diameter) = 20 cm

∠PQS = 90°

……. (angle of semicircle)

⇒ QT = $\sqrt{PT^2 - PQ^2}$

= $\sqrt{20^2 - 12^2}$

= 16 cm

QS = $\frac{PQ \times QT}{PT} = \frac{12 \times 16}{20}$ = 9.6 cm

In $\triangle QSO$

$OQ^2 = QS^2 + OS^2$

⇒ $10^2 = 9.6^2 + OS^2$

⇒ $OS = \sqrt{(10 + 9.6)(10 - 9.6)}$

= 2.8 cm

Sol 4. (a)

In $\triangle ABC$

∠BOC = 90° + $\frac{\angle A}{2}$

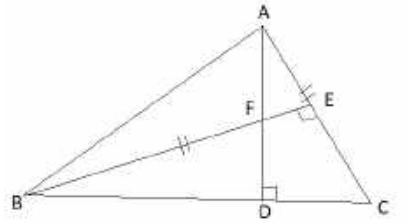
(In centre property)

122° = 90° + $\frac{\angle A}{2}$

32° = $\frac{\angle A}{2}$

∠A = 64°

Sol5. (a)



In ΔBDF and ΔAEF

$\angle BDF = \angle AEF$

$\angle BFD = \angle AFE$

⇒ $\Delta BDF \sim \Delta AEF$

$\angle DBF = \angle FAE$

In ΔBDF and ΔADC

$\angle DBF = \angle DAC$

BF = AC

$\angle BFD = \angle ACD$

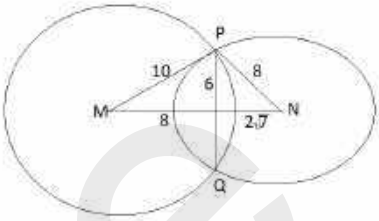
By ASA congruence, $\Delta BDF \simeq \Delta ADC$

Hence, BD = AD

Therefore, $\angle ABD = \angle BAD$

∠ ABC = 45°

Sol6. (c)



Distance between centre = $8 + 2\sqrt{7} = 8 + 5.28 = 13.28 = 13.3$

Sol7. (d)

ATQ: $\sqrt{\frac{100}{49}} = \frac{5}{Alt.}$

⇒ $Alt. = \frac{7}{2} = 3.5\ cm$

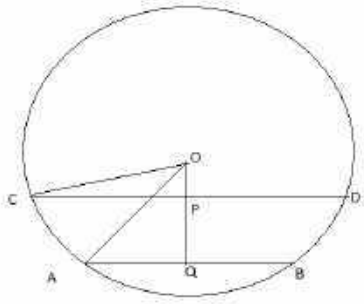
Sol 8. (a)

Given,

AB = 6 cm

⇒ CD = 12 cm

Let OP = x, PQ = $\frac{CD}{4} = \frac{12}{4} = 3$ cm



Radius of the circle = $\sqrt{6^2 + x^2}$ = $\sqrt{3^2 + (x+3)^2}$ ……(1)

$36 + x^2 = 9 + 9 + 6x + x^2$

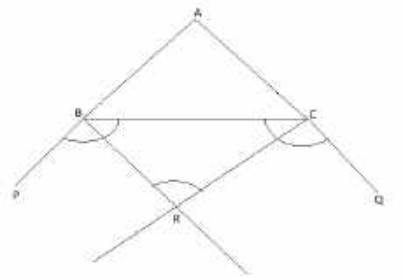
6x = 18

x = 3

From equation (1)

Radius of the circle = $\sqrt{6^2 + 3^2}$ = $\sqrt{3^2 + (3+3)^2} = \sqrt{45} = 3\sqrt{5}$

Sol 9. (c)



We know that

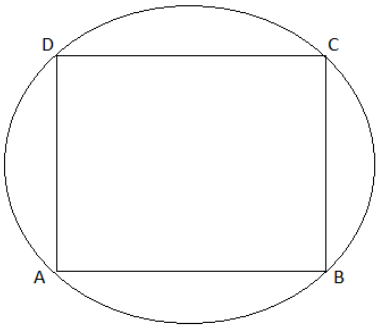
$90^\circ - \frac{\angle A}{2} = \angle BRC$

$90^\circ - \frac{\angle A}{2} = 66$

$\frac{\angle A}{2} = 24$

$\angle A = 48^\circ$

Sol 10. (d)



$\angle DAB + \angle BCD = 180$

(opposite angles of a cyclic quadrilateral)

$67 + \angle BCD = 180$

$\angle BCD = 113$

$\angle ABC + \angle CDA = 180$

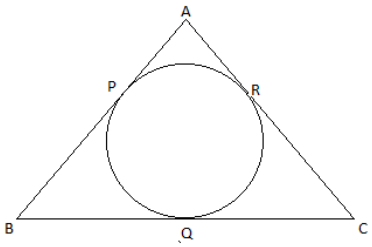
(opposite angles of a cyclic quadrilateral)

$92 + \angle CDA = 180$

$\angle CDA = 88$

Required difference = 113-88 = 25°

Sol 11. (d)



AR=AP = 5cm

….(tangents of same circle)

RC=CQ = 6 cm

….(tangents of same circle)

AB-AP = PB

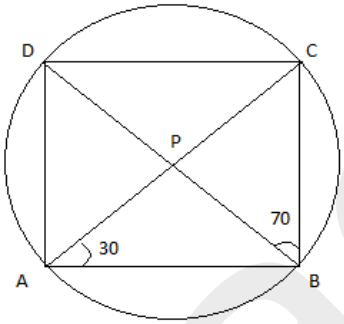
12-5 = PB

BQ=PB = 7cm

….(tangents of same circle)

Perimeter of the triangle = 2(7+6+5) = 36 cm

Sol 12. (b)



$\angle DBC = \angle DAC = 70^\circ$

(made by same chord)

$\angle DAB = 70+30 = 100^\circ$

$\angle DAB + \angle DCB = 180^\circ$

(opposite angles of cyclic quadrilateral)

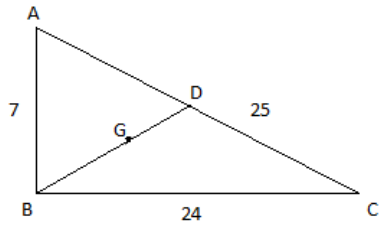
$\angle DCB = 180\text{-}100 = 80^\circ$

$\angle BAC = \angle BCA = 30^\circ$

(AB=BC)

$\angle PCD = \angle DCB - \angle BCA = 80^\circ - 30^\circ = 50^\circ$

Sol 13. (b)



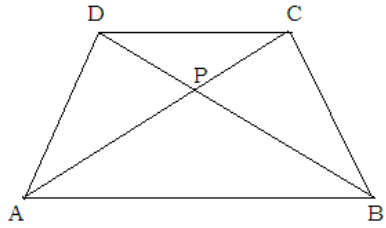
Here, $7^2 + 24^2 = 25^2$

Clearly, it is an right angle triangle.

So, BD = $\frac{AC}{2} = 12.5$

BG = BD × $\frac{2}{3} = 12.5 \times \frac{2}{3} = 8\frac{1}{3}$

Sol 14. (b)



We know that

$\Rightarrow \frac{AP}{PC} = \frac{PB}{PD}$

$\Rightarrow \frac{3x-1}{5x-3} = \frac{2x+1}{6x-5}$

$\Rightarrow 18x^2 - 6x - 15x + 5 = 10x^2 + 5x - 6x - 3$

$\Rightarrow 8x^2 - 20x + 8 = 0$

$\Rightarrow 8x^2 - 16x - 4x + 8 = 0$

$\Rightarrow 8x\ (x-2) - 4(x-2) = 0$

$\Rightarrow x = \frac{1}{2}$ or 2

Now,

BD = BP+PD

$\Rightarrow$ 2x+1+6x-5

$\Rightarrow$ 8x-4

Put the values of x

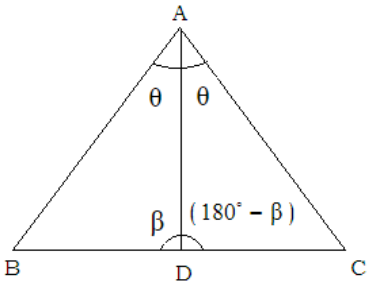
For x= $\frac{1}{2}$

8x-4 $\Rightarrow 8(\frac{1}{2}) - 4 = 0$ (not possible)

For x = 2

8x-4 $\Rightarrow$ 8(2)-4 = 12 cm ans

Sol 15. (c)



Largest angle will be in front of the largest side. Let BC be the largest side, AB = 6cm and AC = 7 cm

Given AD is the angle bisector of Angle A.

$\Rightarrow \frac{AB}{AC} = \frac{BD}{CD}$

$\Rightarrow \frac{6}{7} = \frac{BD}{8-BD}$

$\Rightarrow$ 48-6BD = 7BD

$\Rightarrow$ BD = $\frac{48}{13}$, So DC = $\frac{56}{13}$

Pinnacle

Clearly BD is the shorter segment.

Alternate :

In ΔABD

$\frac{BD}{sin\theta} = \frac{AB}{Sin\beta}$

$\text{Sin}\,\theta = \frac{BD\ sin\beta}{6}$ ….(1)

In ΔADC

$\frac{DC}{sin\theta} = \frac{AC}{Sin(180-\beta)}$

$\frac{DC}{sin\theta} = \frac{7}{Sin\beta}$

….[sin(180-x) = sinx]

$\text{Sin}\,\theta = \frac{(8-BD)\ sin\beta}{7}$ ….(2)

From (1) and (2)

$\frac{BD\ sin\beta}{6} = \frac{8-BD\ sin\beta}{7}$

7.BD = 6(8-BD)

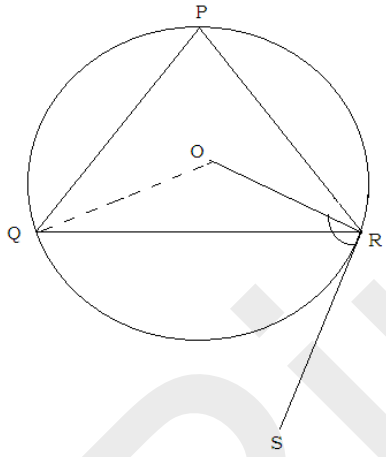
7BD = 48 - 6BD

BD = $\frac{48}{13}$

$\Rightarrow$ DC = $\frac{56}{13}$

Clearly BD is the shorter segment.

Sol 16. (b)



$\angle ORS = 90^\circ$ ...(Angle made by radius on tangent)

$\angle ORQ = \angle QRS = \frac{\angle QRS}{2} = 45^\circ$

$\angle OQR = \angle QRS = 45^\circ$

$\angle QOR = 180^\circ - 45^\circ - 45^\circ = 90^\circ$

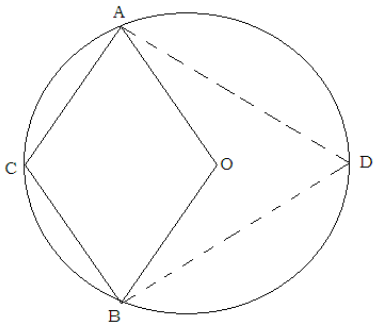
$\angle QPR = \frac{\angle QOR}{2} = \frac{90^\circ}{2} = 45^\circ$

Sol 17. (d)

Let $\angle ACB$ = x and $\angle CBO$ = y

$\Rightarrow \angle ADB = 180^\circ$ -x

$\Rightarrow \angle AOB = 2(180^\circ - x)$



x+y = 180° …..(AC $||$ OB)

y = 180° -x

$\angle AOB + \angle OBC = 180^\circ$

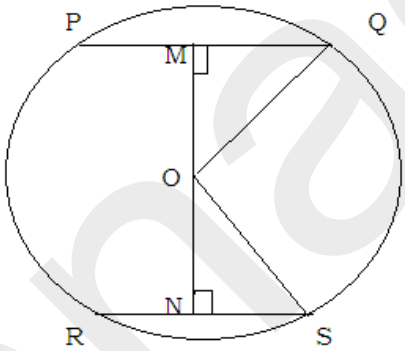
…..(AC $||$ OB)

$2(180^\circ - x) + 180^\circ - x = 180^\circ$

$360^\circ = 3x$

x= 120°

Sol 18.(a)



Draw OM $\perp$ PQ and ON $\perp$ RS

RN = NS = $\frac{RS}{2}$ =6

….(ON $\perp$ RS)

In Δ ONS

OS = 10 cm

NS = 6 cm

ON = $\sqrt{OS^2 - NS^2}$

= $\sqrt{10^2 - 6^2} = 8$

MN = 14 cm …….(given)

In Δ OMQ

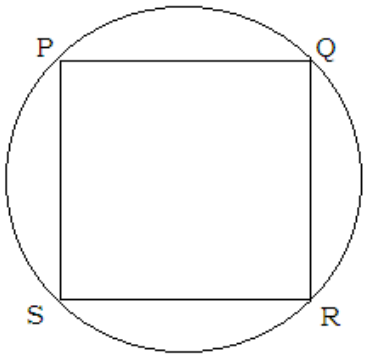
OM = 14-8 = 6 cm

MQ = $\sqrt{OQ^2 - OM^2}$

= $\sqrt{10^2 - 6^2} = 8$

PQ = 2 × MQ = 2 × 8 = 16 cm

Sol 19. (c)



Given,

$\angle P = 3\angle R$

$\angle P + \angle R = 180^\circ$

(cyclic quadrilateral)

$\Rightarrow 3\angle R + \angle R = 180^\circ$

$\Rightarrow \angle R = \frac{180^\circ}{4} = 45^\circ$

Also, $\angle S = 5\angle Q$

$\angle S + \angle Q = 180^\circ$

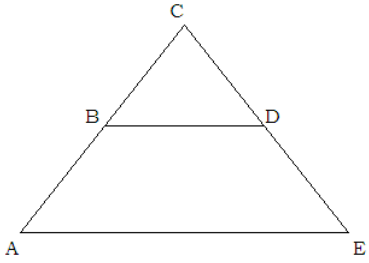
(cyclic quadrilateral)

$\Rightarrow 5\angle Q + \angle Q = 180^\circ$

$\Rightarrow \angle Q = \frac{180^\circ}{6} = 30^\circ$

$\angle Q + \angle R = 45^\circ + 30^\circ = 75^\circ$

Sol 20. (a)



Given, BD $||$ AE

$\angle B = \angle A$ and $\angle D = \angle E$

(corresponding angles)

$\Rightarrow \Delta$CBD ~ ΔCAE

$\frac{AE}{BD} = \frac{8}{3}$

$\frac{area\ of\ \Delta CBD}{area\ of\ \Delta CAE} = (\frac{BD}{AE})^2 = (\frac{3}{8})^2 = \frac{9}{64}$

Sol 21. (d)

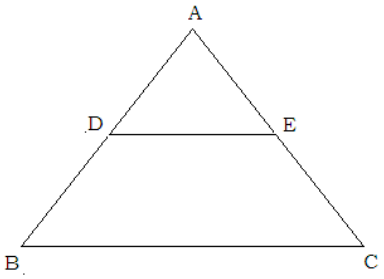
Area is directly proportional to square of the radius.

Clearly, Required ratio =(5^2 - 4^2) :(7^2 - 5^2)

= 9 : 24

= 3 : 8

Sol 22. (b)



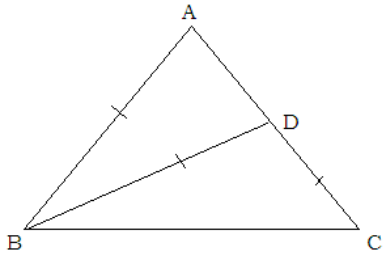
AD : DB = 1 : 6

⇒ AD : AB = 1 : 1+6

= 1 : 7

$\frac{area\ of\ \Delta ADE}{area\ of\ \Delta ABC} = (\frac{AD}{AB})^2 = (\frac{1}{7})^2 = \frac{1}{49}$

Sol 23. (a)



In Δ ABD

$\angle BAD = \angle BDA = 70^\circ$

(AB = BD)

$\angle ABD = 180^\circ - 70^\circ - 70^\circ = 40^\circ$

In Δ BDC

$\angle BDC = 180^\circ - \angle BDA$

$= 180^\circ - 70^\circ$

$= 110^\circ$

$\angle DBC = \angle DCB$

(BD=DC)

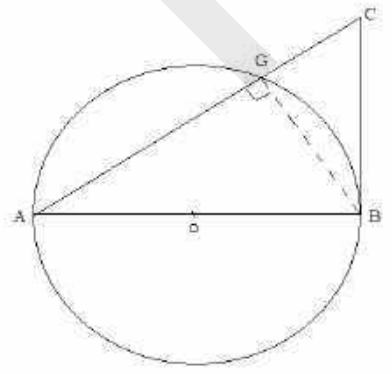
$\angle DBC + \angle DCB = 180^\circ - 110^\circ$

$2\angle DBC = 70^\circ$

$\angle DBC = 35^\circ$

$\angle ABC = \angle DBC + \angle ABD = 40^\circ + 35^\circ = 75^\circ$

Sol 24. (d)



In Δ AGB

AG = 8 cm and AB = 12 cm (given)

$\angle AGB = 90^\circ$ (Angle made by Diagonal)

$\Rightarrow BG^2 = \sqrt{AB^2 - AG^2}$ ….(Pythagoras Theorem)

$\Rightarrow \sqrt{12^2 - 8^2} = 4\sqrt{5}$

In Δ ABG and Δ ABC

$\angle BAG = \angle BAC$ (same angle)

$\angle BGA = \angle ABC$ (Both 90°)

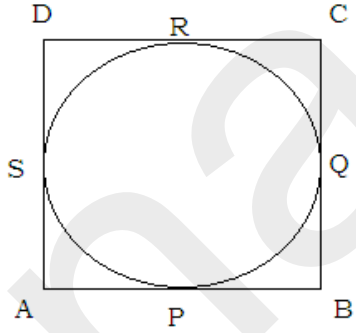
$\Rightarrow \Delta ABG \sim \Delta ABC$

$\Rightarrow \frac{BG}{BC} = \frac{AG}{AB}$

$\Rightarrow \frac{4\sqrt{5}}{BC} = \frac{8}{12}$

$\Rightarrow BC = 6\sqrt{5}$ cm

Sol 25. (b)



Given, SD = 6 cm, BP = 4 cm

SD = DR = 6 cm (Tangent of same circle)

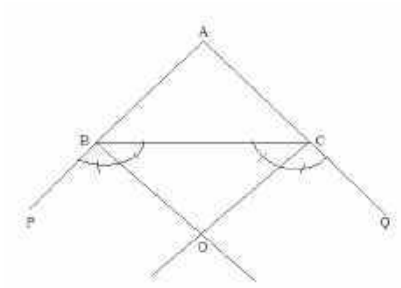
BP = BQ = 4 cm (Tangent of same circle)

QC = BC - BQ = 7-4 = 3 cm

QC = RC = 3 cm (Tangent of same circle)

DC = DR+RC = 6+3 = 9 cm

Sol 26. (a)



Given,

$\angle BAC = 92^\circ$

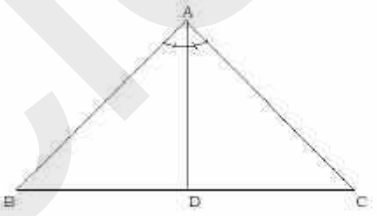
We know that

$90 - \angle BOC = \frac{\angle BAC}{2}$

$90 - \frac{92}{2} = \angle BOC$

$\Rightarrow \angle BOC = 44^\circ$

Sol 27. (a)



Given, AD is the bisector of angle $\angle BAC$.

$\Rightarrow \frac{AB}{AC} = \frac{BD}{DC}$

Let BD = x, DC = a-x

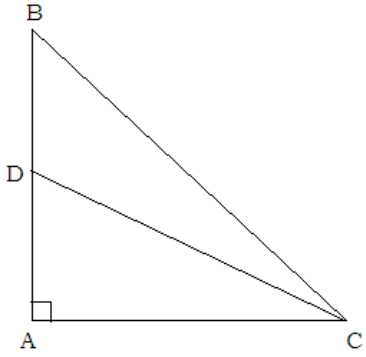
$\Rightarrow \frac{c}{b} = \frac{x}{a-x}$

$\Rightarrow$ ac-cx = bx

$\Rightarrow$ ac = cx + bx

$\Rightarrow x = \frac{ac}{b+c}$

Sol 28. (a)



In ΔABC

$AB^2 + AC^2 = BC^2$

…(Pythagoras Theorem)

$\Rightarrow AB^2 + 6^2 = 10^2$

$\Rightarrow AB = \sqrt{10^2 - 6^2} = 8$

AD = AB-BD

Pinnacle

= 8-4 = 4cm

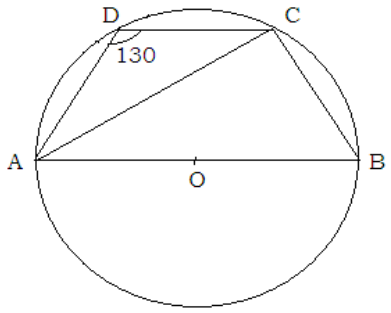
In ΔADC

$AD^2 + AC^2 = DC^2$

$\Rightarrow 4^2 + 6^2 = DC^2$

$\Rightarrow$ DC = $\sqrt{52} = 2\sqrt{13}$

Sol 29. (a)



$\angle ADC + \angle ABC = 180^\circ$

…..(cyclic quadrilateral)

$\Rightarrow \angle ABC = 180^\circ - 130^\circ = 50^\circ$

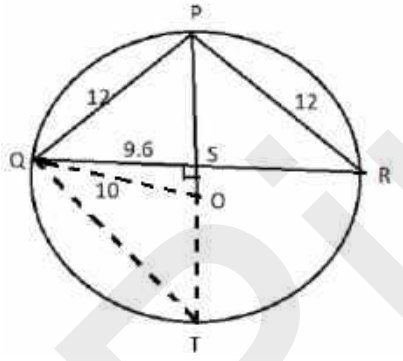
$\Rightarrow \angle ACB = 90^\circ$

…….(Angle of semicircle)

$\angle BAC = 180^\circ - \angle ABC - \angle ACB$

$= 180^\circ - 90^\circ - 50^\circ = 40^\circ$

Sol 30. (d)



In $\triangle PQS$

PQ = 12 cm and PT (diameter) = 20 cm

$\angle PQS = 90^\circ$

……. (angle of semicircle)

$\Rightarrow$ QT = $\sqrt{PT^2 - PQ^2}$

$= \sqrt{20^2 - 12^2}$

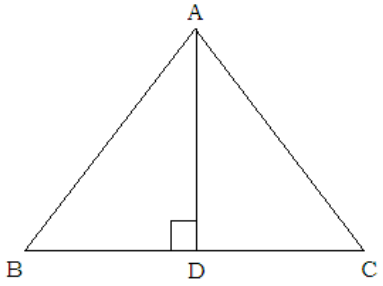
= 16 cm

QS = $\frac{PQ \times QT}{PT} = \frac{12 \times 16}{20} = 9.6$ cm

QR = $2 \times 9.6 = 19.2$ cm

Sol 31. (d) Let ΔABC be the given triangle

AD = 12 cm and BC = 10 cm



We know that altitude of an isosceles triangle divides base in two equal parts.

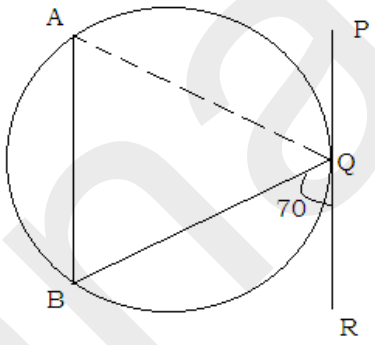
$\Rightarrow$ BD = DC = $\frac{BC}{2} = 5$ cm

In ΔABD

$AD^2 + BD^2 = AB^2$

AB = $\sqrt{12^2 + 5^2}$ =13 cm

Sol 32. (a)



$\angle BQR = 70^\circ$ …..(given)

$\Rightarrow \angle BQR = \angle ABQ = 70^\circ$

(Alternate Angles)

$\Rightarrow \angle BQR = \angle BAQ = 70^\circ$

...(Alternate segment theorem)

$\Rightarrow \angle AQB =$ $180^\circ - 70^\circ - 70^\circ = 40^\circ$

Sol 33. (b)

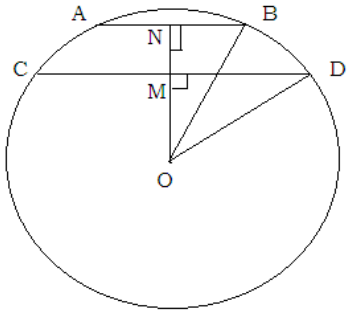
Draw OM $\perp CD$ and ON $\perp AB$

$\Rightarrow$ NB = $\frac{AB}{2} = 2.5$ cm

$\Rightarrow$ MD = $\frac{CD}{2} = 5.5$ cm

Let OM = x, and radius of the circle = r

$\Rightarrow$ ON = x+3



In ΔOMD

$OD^2 = OM^2 + MD^2$

$\Rightarrow r^2 = x^2 + 5.5^2$

……(1)

In ΔONB

$OB^2 = ON^2 + NB^2$

$\Rightarrow r^2 = (x+3)^2 + 2.5^2$

……(2)

From (1) and (2)

$x^2 + 5.5^2 = (x+3)^2 + 2.5^2$

$\Rightarrow 5.5^2 - 2.5^2 = x^2 + 9 + 6x - x^2$

$\Rightarrow (5.5+2.5)(5.5-2.5) = 9 + 6x$

$\Rightarrow 15 = 6x$

$\Rightarrow$ x=2.5 cm

Put this value in either of the equations

i.e. from equation 1

r = $\sqrt{2.5^2 + 5.5^2}$

= $\sqrt{6.25 + 30.25}$

= $\sqrt{36.50}$

D = 2r

= $2\sqrt{36.50}$

= $\sqrt{4 \times 36.50} = \sqrt{146}$ cm

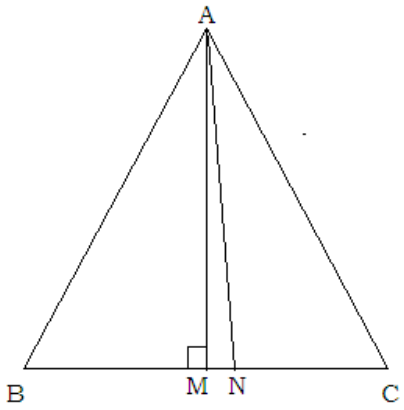
Sol 34. (a)

Given, AM $\perp BC$, AN is angle bisector of $\angle BAC$

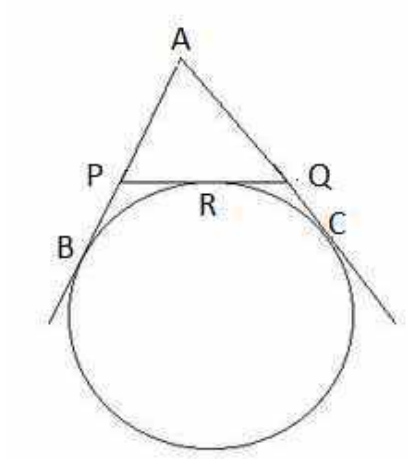
Trick :

$\angle MAN = \frac{1}{2}(\angle B - \angle C)$

$= \frac{1}{2}(\angle 55 - \angle 35) =$ 10°



Sol 35. (d)



AB = AC

…..(tangents to the circle)

BP=PR and RQ=QC

…..(tangents to the circle)

According to the question

AP + PQ + AQ = 30

⇒ (AB-PB)+(PR+RQ)+(AC-QC) = 30

⇒ AB+AC -PR+PR+RQ-RQ = 30 ….(AB=PR and RQ=QC)

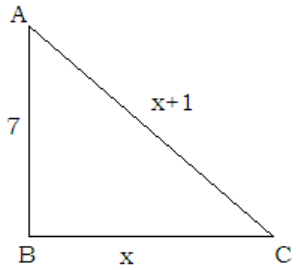
⇒ AB+AC = 30

⇒ 2AB = 30

……(AB=AC)

⇒ AB = 15

Sol 36. (b)



$\Rightarrow 7^2 + x^2 = (x+1)^2$

$\Rightarrow 49 + x^2 = (x^2 + 1 + 2x)$

$\Rightarrow x = 24$

Trick :

We know that 7,24 and 25 are triplets. And 25-24 = 1, both conditions satisfied. We can directly put the other two sides as 24 cm and 25 cm.

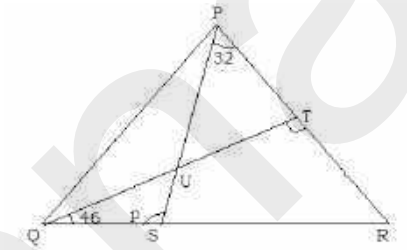
Sec C = $\frac{AC}{BC} = \frac{25}{24}$

Cot A = $\frac{AB}{BC} = \frac{7}{24}$

(secC + cotA) = $\frac{25}{24} + \frac{7}{24}$

$\Rightarrow \frac{32}{24} = \frac{4}{3}$

Sol 37. (c)



In ΔPTU

$\angle TPU = 32^\circ$ and $\angle PTU = 90^\circ$

$\Rightarrow \angle PUT = 180^\circ - \angle PTU - \angle TPU$

$= 180^\circ - 90^\circ - 32^\circ$

$= 58^\circ$

$\angle PUT = \angle QUS$

(Vertically opposite angles)

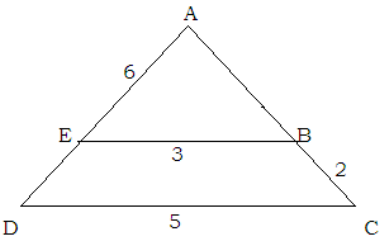
In ΔSUQ

$\angle USQ = 180^\circ - \angle UQS - \angle QUS$

$\Rightarrow p = 180^\circ - 46^\circ - 58^\circ$

$= 76^\circ$

Sol 38. (d)



∠ABE = ∠ADC

…...(given)

∠EAB = ∠DAC

……(same angle)

$\Delta ABE \sim \Delta ADC$

$\Rightarrow \frac{AE}{AB+BC} = \frac{BE}{DC}$

$\Rightarrow \frac{6}{AB+2} = \frac{3}{5}$

⇒ 30 = 3AB + 6

⇒ AB = 8 cm

Also,

$\Rightarrow \frac{AB}{AE+DE} = \frac{BE}{DC}$

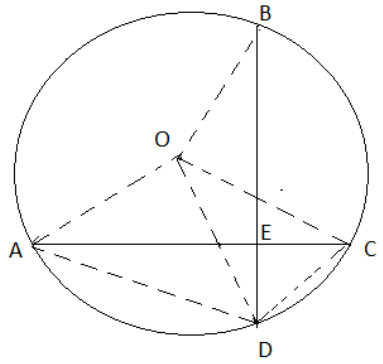
$\Rightarrow \frac{8}{6+DE} = \frac{3}{5}$

⇒ 40 = 18 + 3DE

$\Rightarrow DE = \frac{22}{3}$

$AB+DE = 8 + \frac{22}{3} = \frac{46}{3}$ cm

Sol 39. (a)



∠BOC = 50° and ∠AOD = 110° ...(given)

We know that

$\angle BDC = \frac{1}{2} \times \angle BOC = \frac{50^\circ}{2} = 25^\circ$

$\angle ACD = \frac{1}{2} \times \angle AOD = \frac{110^\circ}{2} = 55^\circ$

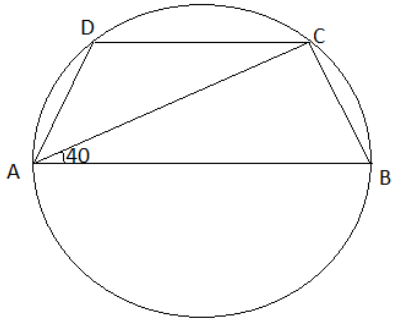
⇒ ∠BEC = ∠BDC +∠ACD (external opposite angle)

= 25° + 55°

= 80°

Sol 40. (d)

Pinnacle



∠ACB = 90°

……...(angle of semicircle)

∠DCA = ∠CAB = 40°

…….(Alternate Angle)

∠DCB = ∠ACB + ∠DCA = 90° + 40° = 130°

∠DAB = 180°-∠DCB

= 180°-130° = 50°

∠CAD = ∠DAB - ∠CAB = 50°-40° = 10°

Sol 41. (c)

△ABC ~ △RQP and ar(△ABC) : ar(△PQR) = 9 : 4 (given)

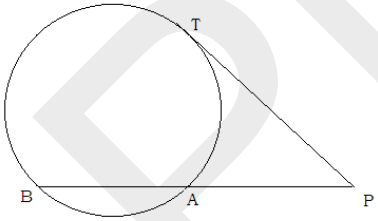
$\Rightarrow \frac{ar\triangle ABC}{ar\triangle PQR} = (\frac{BC}{PQ})^2$

$\Rightarrow \frac{9}{4} = (\frac{BC}{PQ})^2$

$\Rightarrow \sqrt{\frac{9}{4}} = (\frac{6}{PQ})$

$\Rightarrow PQ = \frac{6\times2}{3} = 4$ cm

Sol 42. (a)



We know that

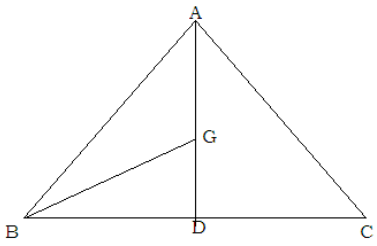
$PT^2 = PA \times PB$

$5^2 = 4 \times (4 + x)$

25-16 = 4x

x= $\frac{9}{4}$ = 2.25

Sol 43. (c)



Given, AG : GD = 2 : 1

Let AG = 2 unit

And GD = 1 unit

Height of triangles ABG and BDG will be same as both the triangles are formed on the same base line and have common vertex B. Let the height is h.

$\frac{ar\triangle ABG}{ar\triangle BDG} = \frac{\frac{1}{2}\times h\times AG}{\frac{1}{2}\times h\times DG}$

$\Rightarrow \frac{\frac{1}{2}\times h\times 2}{\frac{1}{2}\times h\times 1} = \frac{2}{1}$

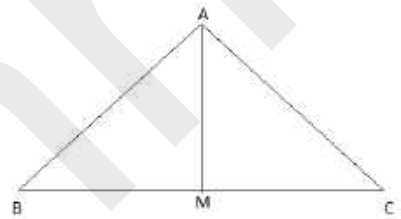
Area of $\Delta ABD = ar\Delta ABG + ar\Delta BDG$ = 2+1 = 3 unit

Area of ΔABC = 2 × Area of ΔABD (AD is median)

= 2 × 3 = 6 unit

ar(Δ BDG) : (Δ ABC) = 1 : 6

Sol 44. (a)



We know that

$AB^2 + AC^2 = 2(AM^2 + BM^2)$

…..(Apollonius Theorem)

$\Rightarrow 16^2 + 63^2 = 2[AM^2 + (\frac{65}{2})^2]$

$\Rightarrow 256 + 3969 = 2\,[AM^2 + (\frac{65}{2})^2]$

$\Rightarrow 2112.5 = AM^2 + 1056.25$

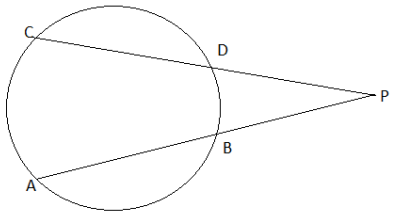
$\Rightarrow AM^2 = 1056.25$

$\Rightarrow AM = \sqrt{1056.25} = 32.5$

Sol 45. (d)

CD = 3 , PD = 5 and AB = 6 given

⇒ PC = PD + CD = 5+3 = 8



Let PB = x

Then,

PA = x+6

We know that

PB × PA = PD × PC

x(x+6) = 5 × 8

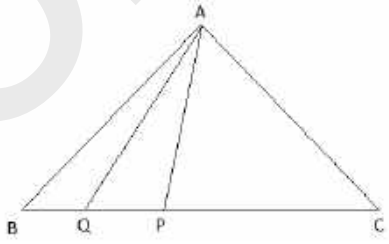
⇒ x(x+6) = 40

Put x = 4

x(x+6) = 40 ⇒ 4(4+6) = 40

Condition satisfied clearly x = 4 cm is the correct answer.

Sol 46. (b)



BP:PC = 2:3

Let BP = 2 unit and PC = 3 unit

So, BQ = $\frac{2}{2}$ = 1 unit and BC = 2+3 = 5 unit

Height of triangles ABQ and ABC will be same as both the triangles are formed on the same base line and have common vertex A. Let the height is h.

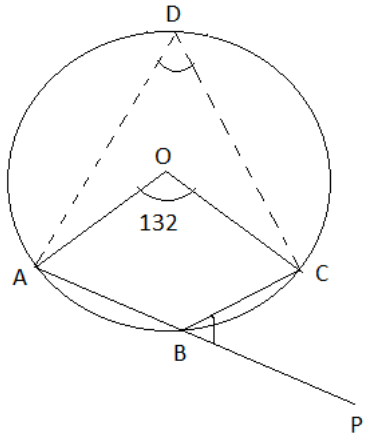
$\frac{ar\triangle ABQ}{ar\triangle ABC} = \frac{\frac{1}{2}\times h\times BQ}{\frac{1}{2}\times h\times BC}$

$\Rightarrow \frac{\frac{1}{2}\times h\times 1}{\frac{1}{2}\times h\times 5} = \frac{1}{5}$

Sol 47.(c)

Draw AD and CD as shown in the figure given below

Pinnacle



We know that

$\angle ADC = \frac{1}{2} \times \angle AOC$

$= \frac{1}{2} \times 132^\circ = 66^\circ$

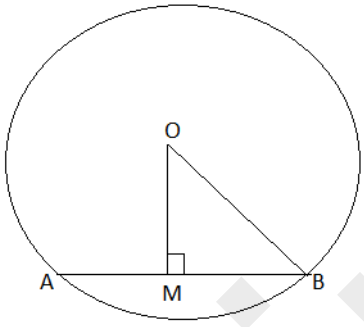
$\angle ADC = \angle CBP$

……(Vertically opposite angle of cyclic quadrilateral)

$\Rightarrow \angle CBP = 66^\circ$

Sol 48.(d)

Let AB be the given chord.



$OM \perp AB$

OM = 5 cm and OB = 13 cm

……(given)

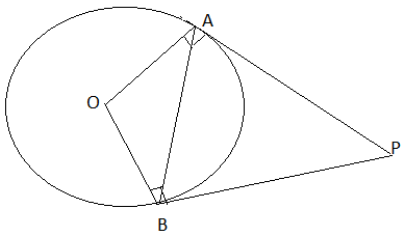
$OB^2 = OM^2 + MB^2$

$\Rightarrow 13^2 = 5^2 + MB^2$

$\Rightarrow MB = \sqrt{13^2 - 5^2} = 12$ cm

AB = 2 × 12 = 24 cm

Sol 49. (b)



$\angle APB = 40^\circ$

$OA \perp AP$ and $OB \perp PB$

…(Angle made by radius on tangent)

In OAPB

$\angle APB + \angle PBO + \angle BOA + \angle OAP = 360^\circ$

$\Rightarrow 40^\circ + 90^\circ + \angle BOA + 90^\circ = 360^\circ$

$\Rightarrow \angle BOA = 360^\circ - 220^\circ = 140^\circ$

In ΔOAB

$\angle OAB = \angle OBA$

(OB = OA = radius)

$\Rightarrow \angle BOA + \angle OAB + \angle OBA = 180^\circ$

$\Rightarrow 140^\circ + 2\angle OAB = 180^\circ$

$\Rightarrow \angle OAB = 20^\circ$

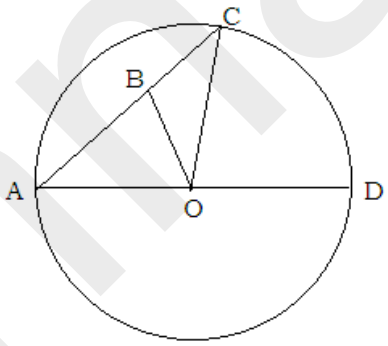
Sol 50. (d)

We know that

Circum radius of an equilateral triangle = 2 × In-radius of that equilateral triangle

Inradius of given triangle = $\frac{8}{2} = 4$ cm

Sol 51.(d)



$\angle OCA = \angle OAC$

(OA=OC=radius)

$\angle DOC = 60^\circ$

$\angle OCA + \angle OAC = \angle DOC$

(external opposite angle)

$2\angle OCA = 60^\circ$

$\angle OCA = 30^\circ$

In ΔOBC

$\angle OCB = 30^\circ$

$\angle OBC = 180^\circ - \angle OBA$

$= 180^\circ - 60^\circ$

$= 120^\circ$

$\angle BOC = 180^\circ - \angle OCB - \angle OBC$

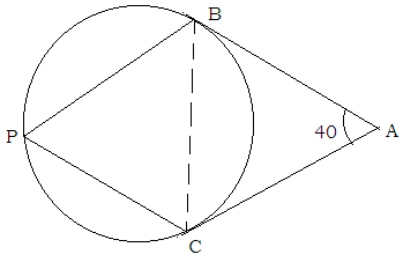
$= 180^\circ - 30^\circ - 120^\circ$

$= 30^\circ$

$\Rightarrow$ OB = BC = 5 cm

……($\angle OCB = \angle BOC$)

Sol 52. (d)



In ΔABC

AB = AC

…..(tangent to the circle)

$\angle ABC = \angle ACB$

….(AB=AC)

$\angle ABC + \angle ACB + \angle BAC = 180^\circ$

$2\angle ABC + 40^\circ = 180^\circ$

$\angle ABC = 70^\circ$

$\angle BPC = 90^\circ - \frac{\angle BAC}{2}$

$= 90^\circ - \frac{40}{2} = 70^\circ$

$\angle ABP + \angle BPC = 180^\circ$

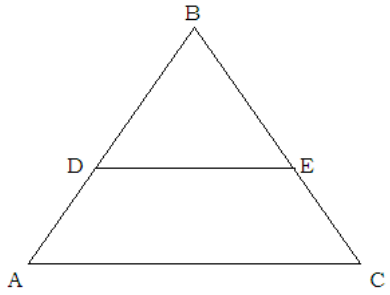
…...(CP | | AB)

$\Rightarrow \angle ABP = 180^\circ - 70^\circ = 110^\circ$

$\Rightarrow \angle CBP = \angle ABP - \angle ABC$

$= 110^\circ - 70^\circ = 40^\circ$

Sol 53. (a)



Given, DE | | AC

$\Rightarrow \Delta BDE \sim \Delta BAC$

So,

$\frac{ar\Delta BDE}{ar\Delta BAC} = \left(\frac{BD}{BA}\right)^2$

$\Rightarrow \frac{ar\Delta BDE}{ar\Delta BAC} = \left(\frac{BD}{BD+DA}\right)^2$

$\Rightarrow \frac{ar\Delta BDE}{ar\Delta BAC} = \left(\frac{2}{2+3}\right)^2 = \frac{4}{25}$

Let Area of ΔBDE = 4 unit and Area of ΔBAC = 25 unit

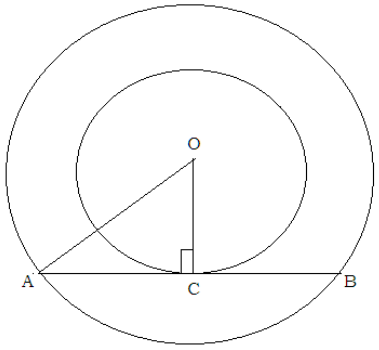
Area of ACED = 25-4 = 21 unit

$\Rightarrow$ (Area of ΔBDE) : (Area of trapezium ACED) = 4:21

Pinnacle

Sol 54. (a)

Let OA be the radius of bigger circle and OC be the radius of smaller circle. And AB be the chord of bigger circle.



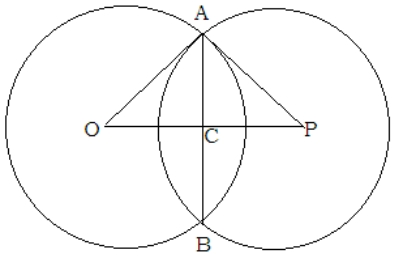
$OA^2 = OC^2 + AC^2$

AC = $\sqrt{15^2 - 9^2}$ = 12 cm

AB = 2 × AC

= 2 × 12 = 24 cm

Sol 55. (d)



Let OA = 15 cm and AP = 12 cm

So, AC = $\frac{AB}{2}$ = $\frac{18}{2}$ = 9 cm

ΔOAC

$OA^2 = AC^2 + OC^2$

$\Rightarrow 15^2 = 9^2 + OC^2$

$\Rightarrow$ OC = $\sqrt{15^2 - 9^2}$ = 12 cm

ΔACP

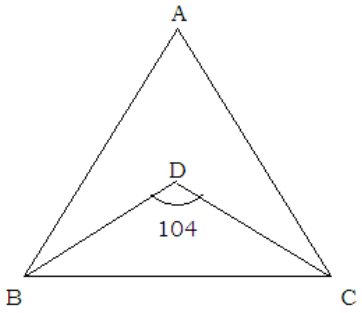
$AP^2 = AC^2 + PC^2$

$\Rightarrow 12^2 = 9^2 + OC^2$

$\Rightarrow$ OC = $\sqrt{12^2 - 9^2}$ = $3\sqrt{7}$ cm

OP = OC + CP = 12 + $3\sqrt{7}$ cm

Sol 56. (a)



We know that

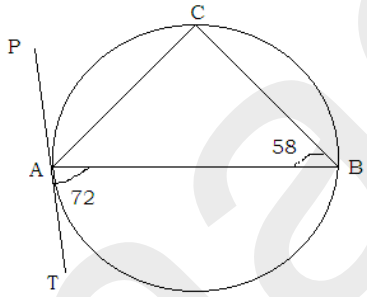
$\angle BDC = 90^\circ + \frac{\angle BAC}{2}$

$\Rightarrow 104^\circ = 90^\circ + \frac{\angle BAC}{2}$

$\Rightarrow \angle BAC = 2(104^\circ - 90^\circ) = 28^\circ$

Sol 57. (a)

Given, $\angle CBA = 58^\circ$ and $\angle BAT = 72^\circ$



$\angle CAP = \angle CBA = 58^\circ$ (Alternate segment theorem)

$\angle CAB = 180^\circ - \angle CAP - \angle BAT$

$= 180^\circ - 58^\circ - 72^\circ = 50^\circ$

Sol 58. (a)

$\angle A + \angle C = 180^\circ$ (opposite angles of a cyclic quadrilateral)

$3\angle C + \angle C = 180^\circ$

$(\angle A = 3\angle C)$

$\angle C = \frac{180^\circ}{4} = 45^\circ$

$\angle B + \angle D = 180^\circ$ (opposite angles of a cyclic quadrilateral)

$\angle B + 2\angle B = 180^\circ$

$(\angle D = 2\angle B)$

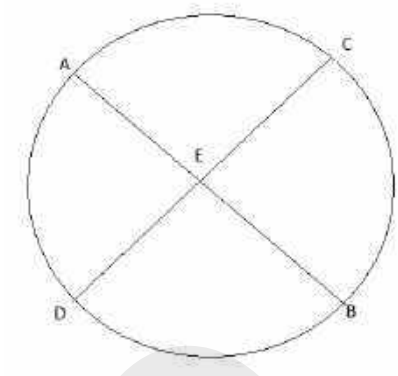
$\angle C = \frac{180^\circ}{3} = 60^\circ$

$\angle B - \angle C = 60^\circ - 45^\circ = 15^\circ$

Sol 59. (d)

Given, CD = 18 cm, DE = 6 cm and AE = 18 cm

$\Rightarrow$ CE = CD-DE = 18-6 = 12 cm



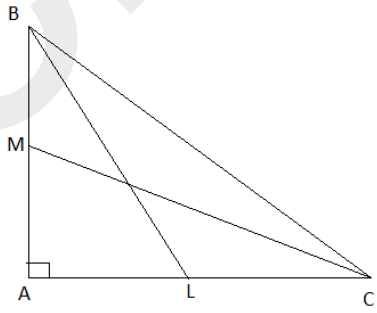
We know that

AE × EB = CE × ED

18 × EB = 12 × 6

EB = 4 cm

Sol 60. (b)



In ΔABL

$BL^2 = AB^2 + AL^2$

$\Rightarrow BL^2 = AB^2 + (\frac{AC}{2})^2$

$\Rightarrow 4BL^2 = 4AB^2 + (AC)^2$ ……(1)

In ΔCBM

$CM^2 = AC^2 + AM^2$

$\Rightarrow CM^2 = AC^2 + (\frac{AB}{2})^2$

$\Rightarrow 4CM^2 = 4AC^2 + (AB)^2$ ……(2)

Adding (1) and (2)

$\Rightarrow 4BL^2 + 4CM^2 = 4AB^2 + (AC)^2 + 4AC^2 + (AB)^2$

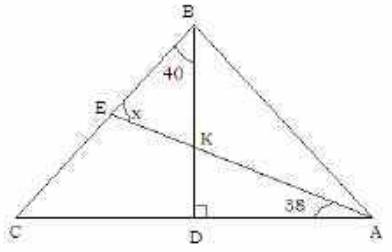
$\Rightarrow 4BL^2 + 4CM^2 = 5AB^2 + 5AC^2$

$\Rightarrow 4(BL^2 + CM^2) = 5(AB^2 + AC^2)$

$\Rightarrow 4(BL^2 + CM^2) = 5(BC^2)$

Sol 61.(a)

Pinnacle



Given, $BD \perp AC$, $\angle EAC = 38^\circ$ and $\angle EBD = 40^\circ$

In ΔADK

$\angle DKA = 180^\circ - \angle KDA - \angle DAK$

$= 180^\circ - 90^\circ - 38^\circ$

$= 52^\circ$

$\angle DKA = \angle BKE$

(Vertically opposite angles)

In ΔBEK

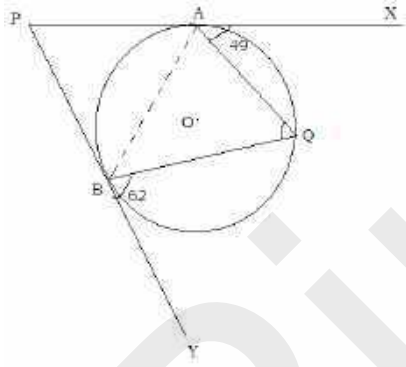
$\angle BEK = 180^\circ - \angle BKE - \angle EBK$

$= 180^\circ - 52^\circ - 40^\circ$

$= 88^\circ$

Sol 62. (c)

Given, $\angle XAQ = 49^\circ$ and $\angle YBQ = 62^\circ$



$\angle XAQ = \angle ABQ = 49^\circ$

(Alternate Segment Theorem)

$\angle YBQ = \angle BAQ = 62^\circ$

(Alternate Segment Theorem)

$\angle AQB = 180^\circ - \angle ABQ - \angle BAQ$

$= 180^\circ - 49^\circ - 62^\circ$

$= 69^\circ$

Sol 63. (b)

BC = 12 cm

Let BD= x, DC = x+2

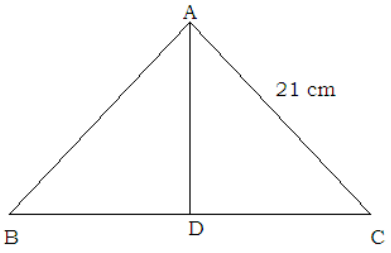
According to the question

x+x+2 = 12

2x+2 = 12

x = 5 cm

$\Rightarrow$ BD = 5 cm and DC = 7cm



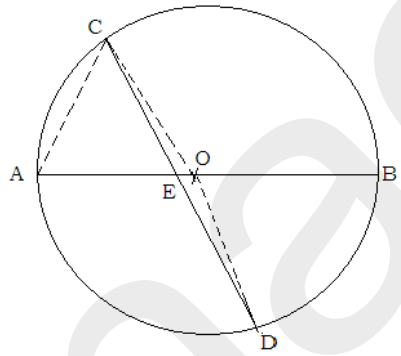
We know that, if AD is bisector of $\angle BAC$ then,

$\frac{AB}{AC} = \frac{BD}{DC} \Rightarrow \frac{AB}{21} = \frac{5}{7}$

$\Rightarrow$ AB = 15 cm

Sol 64. (b)

$\angle BOC = 48^\circ$ and $\angle AOD = 100^\circ$



$\angle BAC = \frac{1}{2} \times \angle BOC$

$\angle BAC = \frac{1}{2} \times 48 = 24^\circ$

$\angle ACE = \frac{1}{2} \times \angle AOD$

$\angle ACE = \frac{1}{2} \times 100 = 50^\circ$

$\angle CEB = \angle BAC + \angle ACE$

(external opposite angle)

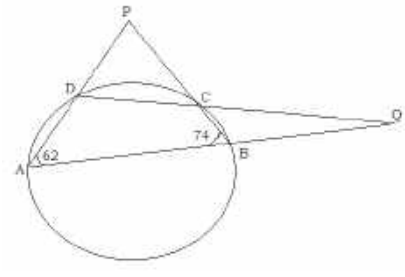
$= 24^\circ + 50^\circ$

$= 74^\circ$

Sol 65. (c)

Given,

$\angle DAB = 62^\circ$ and $\angle ABC = 74^\circ$



In ΔPAB

$\angle P = 180^\circ - \angle PAB - \angle PBC$

$= 180^\circ - 62^\circ - 74^\circ$

$= 44^\circ$

In ΔQCB

$\angle QCB = \angle DAB$

..(external opposite angle of a cyclic quadrilateral)

$\angle QBC = 180^\circ - \angle CBA$

..(external opposite angle of a cyclic quadrilateral)

$\angle QBC = 180^\circ - 74^\circ$

$= 106^\circ$

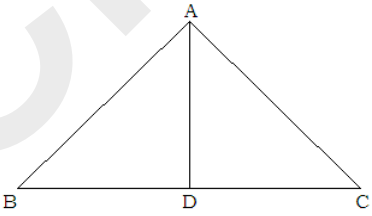
$\angle Q = 180^\circ - \angle QCB - \angle CBQ$

$= 180^\circ - 62^\circ - 10\,6^\circ$

$= 12^\circ$

$\Rightarrow \angle P - \angle Q = 44^\circ - 12^\circ = 32^\circ$

Sol 66. (d)



Given, $\angle BAD = \frac{1}{2} \times \angle ADC$, $\angle BAC = 87^\circ$ and $\angle C = 42^\circ$

$\angle B = 180^\circ - \angle BAC - \angle C$

$= 180^\circ - 87^\circ - 42^\circ$

$= 51^\circ$

$\angle BAD + \angle B = \angle ADC$

(external opposite angle)

$\angle BAD + 51^\circ = 102^\circ$

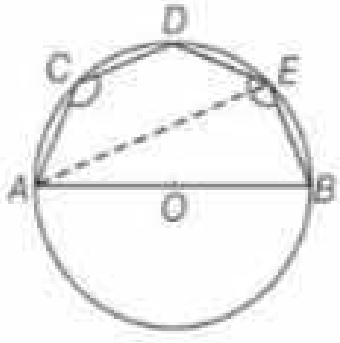
$\angle BAD = 51^\circ$

$\angle ADB = 180^\circ - \angle BAD - \angle ABD$

$= 180^\circ - 51^\circ - 51^\circ$

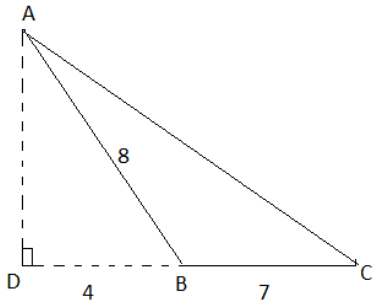
$= 78^\circ$

Sol 67. (c)



Here, ACDE is a cyclic quadrilateral.
$\angle ACD + \angle DEA = 180^\circ$
…(opposite angles of cyclic quadrilateral)
$\angle AEB = 90^\circ$
…..(angle of semicircle)
$\angle ACD + \angle DEB \Rightarrow \angle ACD + \angle DEA + \angle AEB$
$= 180^\circ + 90^\circ = 270^\circ$

Sol 68.(b)

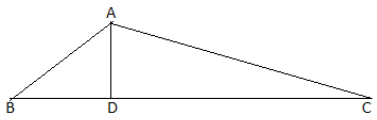


In ΔADB
$AD^2 + BD^2 = AB^2$
AD = $\sqrt{8^2 - 4^2} = 4\sqrt{3}$
In ΔADC
$AD^2 + DC^2 = AC^2$
AC = $\sqrt{(4\sqrt{3})^2 + 11^2} = 13$

Sol 69. (c)
$\frac{ar\Delta ABC}{ar\Delta PQR} = \frac{\frac{1}{2}\times b_1 \times h_1}{\frac{1}{2}\times b_2 \times h_2}$
Here, b_1 = base of triangle Δ ABC , h_1 = height of triangle Δ ABC
b_2 = base of triangle Δ PQR , h_2 = height of triangle Δ PQR
$\frac{3}{5} = \frac{\frac{1}{2}\times b_1 \times 5}{\frac{1}{2}\times b_2 \times 3}$
$b_1 : b_2 = 9 : 25$

Sol 70. (a)
Required number of triangles = $11C_3$
We know that
$nC_r = \frac{n!}{r!(n-r)!}$
$\Rightarrow \frac{11!}{3!(11-3)!} = \frac{11\times10\times9\times8!}{(3\times2\times1)8!}$
$\Rightarrow \frac{11\times10\times9}{6}$
$= 165$

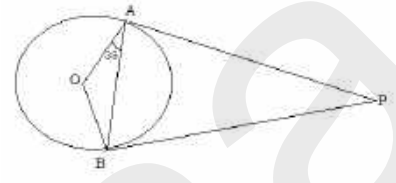
Sol 71. (b)



In Δ ADC
$\angle ADC = 90$
$DC^2 = AC^2 - AD^2$
$= 20^2 - 10^2$
DC = $10\sqrt{3}$
In Δ ADB

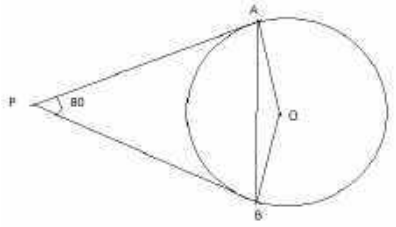
$\angle ABD = \angle DAB = 45$
Clearly
AD = BD = 10
BC = BD + DC = $10 + 10\sqrt{3} = 10(1+\sqrt{3}) = 27.32$

Sol 72. (a)



$\angle OAB = \angle OBA = 35^\circ$
……(OA=OB=radius)
In Δ OAB
$\angle AOB = 180^\circ - 35^\circ - 35^\circ = 110^\circ$
In quadrilateral OAPB
$\angle AOB = 110^\circ$
$\angle OAP = \angle OBP = 90^\circ$ (Angle made by the radius on the tangent)
So, $\angle APB = 360^\circ - 90^\circ - 90^\circ - 110^\circ = 70^\circ$

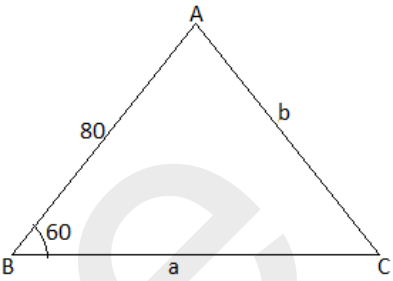
Sol73. (d)



$\angle APB = 80^\circ$
So, $\angle AOB = 180^\circ - 80^\circ = 100^\circ$
Then, $\angle OAB = \frac{180^\circ - 100^\circ}{2} = 40^\circ$

Sol74. (a) ∠AXB = 180 - (40+30) = 110

Sol 75. (a)
a+b+80 = 170
a+b = 90



From cosine rule

Cos60 = $\frac{a^2+80^2-b^2}{2\times80\times a}$
$80(90-b) = (90-b)^2 + 80^2 - b^2$
7200 - 80b = 8100 - 180b + 6400
100b = 7300
b = 73
a=90-73 = 17

Sol 76. (b) To draw a unique circle it is always required to have three non-collinear points.

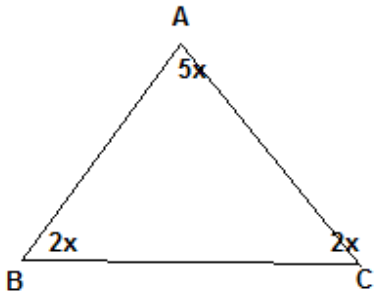
Sol 77. (b) Cone has only two faces. Rest have more than two faces each.

Sol 78. (b) ATQ,
$2x - 3 + x + 12 + x - 1 = 180$
$\Rightarrow 4x = 180 - 8$
$\Rightarrow x = 43$
Therefore, Biggest angle = 2x-3 = 83

Sol 79. (c) BC = 4 x DE = 4x2.4 = 9.6 cm

Sol 80. (c)

Pinnacle

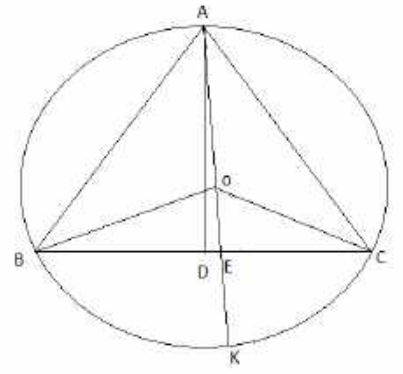


ATQ, 5x+2x+2x=180

9x=180 x=20

Therefore, ∠A = 5x20 = 100

Sol 81. (b)



$\angle BAC = 180^\circ - 80^\circ - 64^\circ = 36^\circ$

$\angle BOC = 2 \times \angle BAC$

$= 2 \times 36^\circ = 72^\circ$

$\angle AOC = 2 \times \angle ABC$

$= 2 \times 80^\circ = 160^\circ$

$\angle OAC = \angle OCA$

……...(OA=OC)

$\angle OAC = \frac{1}{2}(180^\circ - \angle AOC)$

…..($\angle OAC = \angle OCA$)

$\angle OAC = 10^\circ$

$\angle DAB = 180^\circ - \angle ADB - \angle ABD$

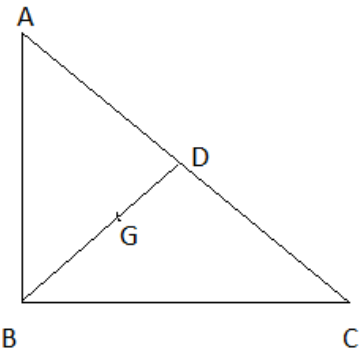
$= 180^\circ - 90^\circ - 80^\circ$

$= 10^\circ$

$\angle DAK = \angle BAC - \angle OAC - \angle DAB$

$= 36^\circ - 10^\circ - 10^\circ = 16^\circ$

Sol 82. (b)



Let BD be the median. AB,BC and AC forms triplet pairs so, ABC must be a right angle triangle.

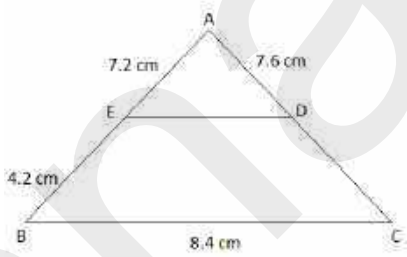
We know that median in a right angle triangle is half of the Hypotenuse.

$\Rightarrow BD = \frac{AC}{2} = \frac{25}{2}$

And $BG = \frac{2}{3} \times BD$

$= \frac{25}{2} \times \frac{2}{3} = \frac{25}{3} = 8\frac{1}{3}$

Sol 83. (d)



$\angle ADE = \angle B$

$\angle EAD = \angle BAC$

$\Rightarrow \triangle ABC \sim \triangle AED$

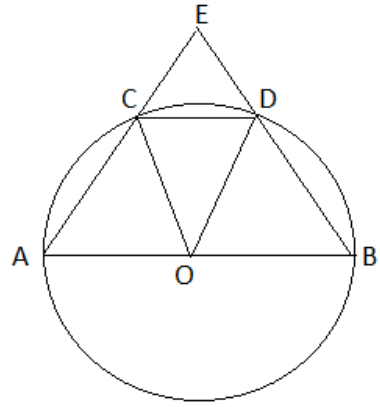
$\Rightarrow \frac{AD}{AB} = \frac{DE}{BC}$

$\Rightarrow \frac{AD}{AE+EB} = \frac{DE}{BC}$

$\Rightarrow \frac{7.6}{7.2+4.2} = \frac{DE}{8.4}$

$\Rightarrow DE = 5.6$

Sol 84. (d)



Given, ∠CED = 70°

In ΔAEB

∠EAB + ∠EBA =180°-∠CED

= 180°- 70°

= 110°

In ΔAOC

∠OAC = ∠OCA

…..(OC=OA=radius)

∠COA = 180°-(∠OAC + ∠OCA)

= 180°-2∠OAC

In ΔBOD

∠OBD = ∠ODB

…..(OD=OB=radius)

∠BOD = 180°-(∠OBD + ∠ODB)

= 180°-2∠OBD

∠AOB = ∠COA+∠BOD+∠COD = 180°

⇒ ∠COA+∠BOD+∠COD = 180°

⇒ 180°-2∠OAC +180°-2∠OBD +∠COD = 180°

⇒ 180°-2∠OAC +180°-2∠OBD +∠COD = 180°

⇒ 180°-(2∠OAC+∠OBD) +∠COD = 0

⇒ 180°-2(110°)+∠COD = 0

⇒ -40°+∠COD = 0

⇒ ∠COD = 40°

Sol 85. (b)

We know that,

Transverse common tangent = $\sqrt{D^2 - (R+r)^2}$

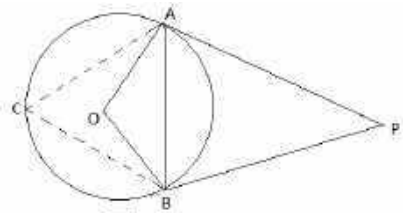
Where D = distance between the centres

R,r = radius of the circles

Pinnacle

Transverse common tangent = $\sqrt{10^2-(5+3)^2}=6$

Sol 86. (d)



$\angle ACB = 90^\circ - \frac{A}{2}$

$= 90^\circ - \frac{72}{2} = 54^\circ$

$\angle AOB = 2 \times \angle ACB$

$= 2 \times 54^\circ = 108^\circ$

ΔOAB

$\angle OBA = \angle OAB$

(OA=OB=radius)

$\angle AOB + \angle OBA + \angle OAB = 180^\circ$

$2\angle OAB = 180^\circ - 108^\circ$

$\angle OAB = 36^\circ$

Sol 87. (d) Equilateral Triangle

Sol 88. (b) The centroid

Sol 89. (a)

We know that circum radius of a hexagon is equal to the side of the hexagon.

Let side of the hexagon =radius of the circle = a

$\Rightarrow$ Area of the circle = πa^2

$\Rightarrow$ Area of hexagon = $6 \times \frac{\sqrt{3}}{4} \times a^2$

Required ratio = $\pi a^2 : \pi a^2 - 6 \times \frac{\sqrt{3}}{4} \times a^2$

$= 2\pi : 2\pi - 3\sqrt{3}$

Sol 90. (a)

Since the tangent doesn't intersect the line joining the centre of the two circles, It must be the direct common tangent.

We know that,

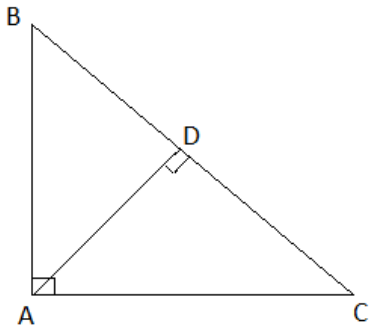
Direct common tangent = $\sqrt{D^2-(R-r)^2}$

Where D = distance between the centres

R,r = radius of the circles

Direct common tangent = $\sqrt{6.5^2-(4-2.4)^2}=6.3$ cm

Sol 91. (d)



Given, $\angle BAC = 90^\circ$ and $AD \perp BC$

$\Rightarrow AB^2 = BD \times BC$

$\Rightarrow AC^2 = CD \times BC$

$\Rightarrow \frac{AB^2}{AC^2} = \frac{BD \times BC}{CD \times BC}$

$\Rightarrow AB^2 : AC^2 = BD : CD$

Sol 92. (b)

Since given triangle is right angle isosceles triangle

$\Rightarrow$ perpendicular : base : hypotenuse = $1 : 1 : \sqrt{2}$

Area of the triangle drawn on perpendicular(A) = $\frac{\sqrt{3}}{4} \times a^2$

$= \frac{\sqrt{3}}{4} \times 1^2 = \frac{\sqrt{3}}{4}$

Area of the triangle drawn on hypotenuse(H) = $\frac{\sqrt{3}}{4} \times a^2$

$= \frac{\sqrt{3}}{4} \times \sqrt{2}^2 = \frac{\sqrt{3}}{2}$

$\Rightarrow \frac{A}{H} = \frac{\frac{\sqrt{3}}{4}}{\frac{\sqrt{3}}{2}} = \frac{1}{2}$

Sol 93. (b)

We know that

Inradius of triangle = $\frac{Area}{Semiperimeter}$

$\Rightarrow r = \frac{A}{\frac{p}{2}}$

$\Rightarrow A:p = r:2$

Sol 94. (c)

We know that

Circumference of a circle = $2 \times \pi \times r$

$C = \times 2 \times \pi \times r$

$r = \frac{c}{2\pi}$

Area of the sector = $\frac{\theta}{360} \times \pi \times r^2$

$\Rightarrow A = \frac{60}{360} \times \pi \times \frac{c}{2\pi} \times \frac{c}{2\pi}$

$= \frac{c^2}{24\pi}$

Sol 95. (a)

Given, $\Delta ABC \sim \Delta PRQ$ and Area ABC : Area PRQ = 16 : 169

$\Rightarrow \frac{ar\ ABC}{ar\ PRQ} = (\frac{AC}{PQ})^2$

$\Rightarrow \frac{16}{169} = (\frac{y}{PQ})^2$

$\Rightarrow \sqrt{\frac{16}{169}} = \frac{y}{PQ}$

$\Rightarrow \frac{y}{PQ} = \frac{4}{13}$

$\Rightarrow PQ = \frac{13y}{4}$

Sol 96. **(c) O, G, I and H**

Sol 97. (c)

Given, $\Delta ABC \sim \Delta DEF$ and DE = 9 cm

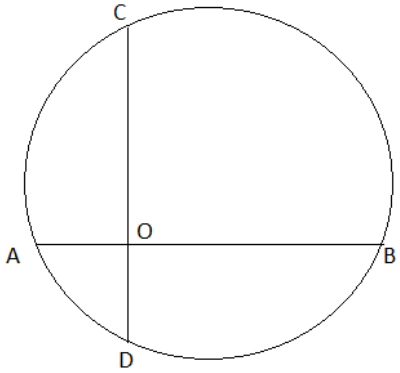
We know that

$\frac{perimeter\ ABC}{perimeter\ DEF} = \frac{AB}{DE}$

$\Rightarrow \frac{64}{48} = \frac{AB}{9}$

$\Rightarrow$ AB = 12 cm

Sol 98. (c)



Given, AB = 10 cm, CO = 1.5 cm and DO = 12.5 cm

Let AO = x cm

We know that,

$AO \times OB = CO \times OD$

$\Rightarrow x(10-x) = 1.5 \times 12.5$

$\Rightarrow x(10-x) = \frac{15 \times 125}{10 \times 10}$

Pinnacle

$\Rightarrow x(10-x) = \frac{15\times5}{2\times2}$

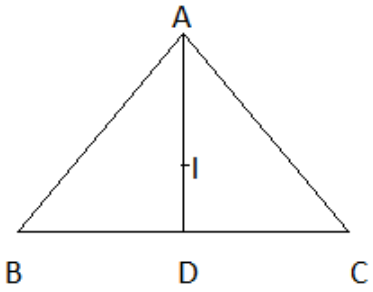
$\Rightarrow x(10-x) = 7.5 \times 2.5$

Clearly x = 2.5 cm

$\Rightarrow$ AO:BO = 7.5:2.5

= 3 : 1

Sol 99. (d)



Given, I is the incentre of ΔABC, Perimeter of ΔABC = 24 cm and BC = 9 cm

$\Rightarrow$ AB+AC+BC = 24 cm

$\Rightarrow$ AB+AC = 24 -BC

= 15 cm

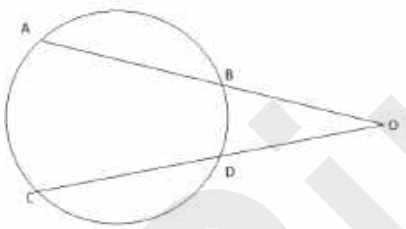
$\Rightarrow \frac{AB+AC}{BC} = \frac{AI}{ID}$

$\Rightarrow \frac{15}{9} = \frac{AI}{ID}$

$\Rightarrow \frac{AI}{ID} = \frac{5}{3}$

Sol 100. (b)

Let OD = x cm



We know that

OB × OA = OD × OC

5 × (5+7)= x × (x+4)

60 = x (x+4)

Using hit and trial method

Put x = 6

$\Rightarrow$ 40 = 6 (6+4)

$\Rightarrow$ 60=60, condition satisfied clearly option B is the correct answer.

Sol 101. (d)

Here, Diameter of the circle = Diagonal of the square

Let side of the square = a

$\Rightarrow$ diagonal of the square = diameter of circle = $a\sqrt{2}$

Radius of the circle = $\frac{a\sqrt{2}}{2} = \frac{a}{\sqrt{2}}$

Required ratio = a : $\frac{a}{\sqrt{2}}$

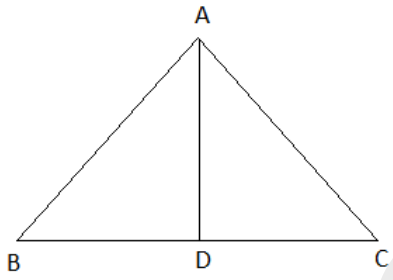
= $\sqrt{2}$:1

Sol 102. (a)

Given, BD : BC = 2 : 5

Let BC = 5 unit and BD = 2 unit

So, DC = 5-2 = 3 unit

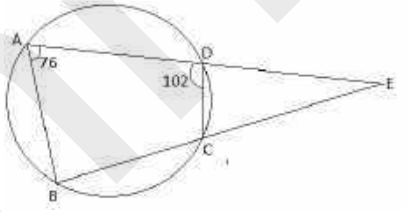


Area of triangle ABD and ADC will be the ratio of their bases as both the triangles share same base and same vertex A.

$\Rightarrow$ area ABD : area ADC = BD : DC

= 2 : 3

Sol 103. (d)



$\angle EDC = 180^\circ - ADC$

$= 180^\circ - 102^\circ$

$= 78^\circ$

$\angle ECD = \angle BAD = 76^\circ$

(external opposite angle of a cyclic quadrilateral)

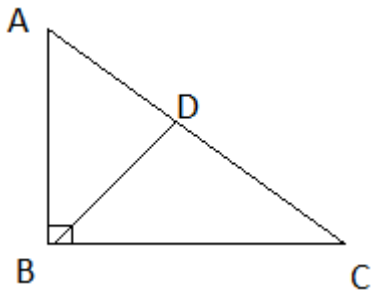
In ΔADC

$\angle EDC + \angle ECD + \angle DEC = 180^\circ$

$\angle DEC = 180^\circ - \angle EDC - \angle ECD$

$= 180^\circ - 78^\circ - 76^\circ = 26^\circ$

Sol 104. (a)



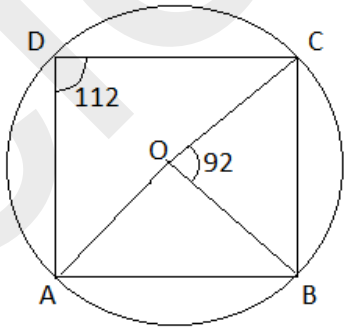
Given,

$\angle ABC = 90^\circ$, $BD \perp AC$, AD = 4cm and CD = 5cm

$\Rightarrow BD^2 = AD \times DC$

$\Rightarrow$ BD = $\sqrt{4\times5} = 2\sqrt{5}$

Sol 105. (b)



$\angle ABC + \angle ADC = 180^\circ$

$\Rightarrow \angle ABC = 180^\circ - \angle ADC$

$= 180^\circ - 112^\circ$

$= 68^\circ$

In ΔOBC

$\angle OBC = \angle OCB$

(OB=OC=radius)

$\angle OBC + \angle OCB + \angle COB = 180^\circ$

$2\angle OBC = 180^\circ - 92^\circ$

$(\angle OBC = \angle OCB)$

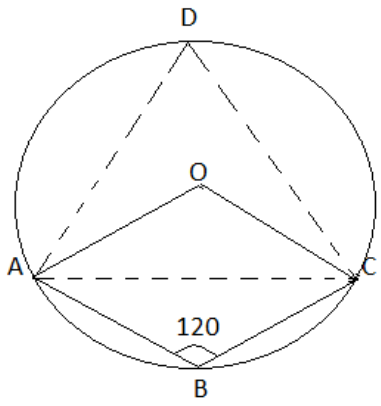
$\angle OBC = 44^\circ$

$\angle ABO = \angle ABC - \angle OBC$

$= 68^\circ - 44^\circ = 24^\circ$

Sol 106. (b)

Pinnacle



$\angle ADC = 180^\circ - \angle ABC$ (opposite angles of cyclic quadrilateral)

$= 180^\circ - 120^\circ$

$= 60^\circ$

$\angle AOC = 2 \times \angle ADC$

$= 2 \times 60^\circ$

$= 120^\circ$

In ΔOAC

OA=OC ….(radius of the circle)

$\angle OAC = \angle OCA$ (OA=OC)

$\angle OAC + \angle OCA + \angle AOC = 180^\circ$

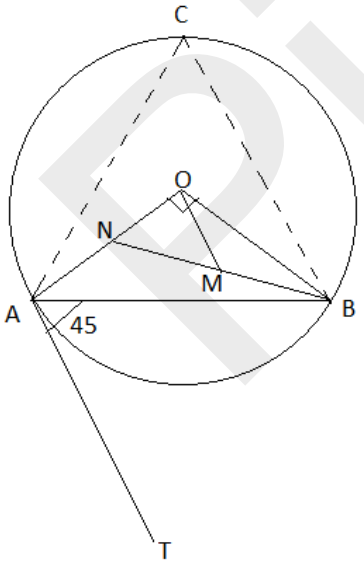
$2\angle OAC = 180^\circ - 120^\circ$

$\angle OAC = 30^\circ$

$\angle AOC : \angle OAC = 120^\circ : 30^\circ$

$= 4 : 1$

Sol 107. (d)



Given, OM is the median and $\angle BAT = 45^\circ$

$\angle BCA = \angle BAT$ (alternate segment theorem)

$\angle BOA = 2\angle BCA$

$= 2 \times 45^\circ = 90^\circ$

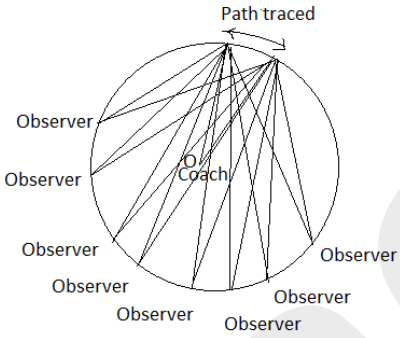
$\Rightarrow \Delta ONB$ is a right angle triangle.

$\Rightarrow$ OM=NM=MB = circum radius

$\Rightarrow OM = \frac{NB}{2}$

$= \frac{10}{2} = 5$ cm

Sol 108. (a)

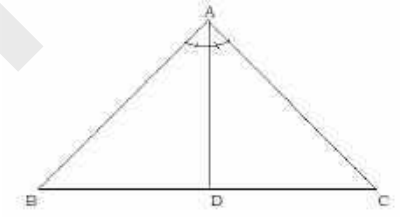


Whatever be the position of the observer angle formed from him will be the half of the angle formed by the coach from the centre.

$\theta = \frac{1}{2} \times 10 = 5^\circ$

Practice Question

Sol 1. (a)



Given, AD is the bisector of angle $\angle BAC$.

$\Rightarrow \frac{AB}{AC} = \frac{BD}{DC}$

Let DC = x, BD = a-x

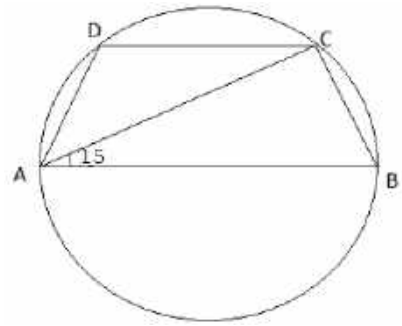
$\Rightarrow \frac{c}{b} = \frac{a-x}{x}$

$\Rightarrow cx = ab - bx$

$\Rightarrow ab = cx + bx$

$\Rightarrow x = \frac{ab}{b+c}$

Sol 2. (b)



$\angle ACB = 90^\circ$

……..(angle of semicircle)

$\angle DCA = \angle CAB = 15^\circ$

…….(Alternate Angle)

$\angle DCB = \angle ACB + \angle DCA = 90^\circ + 15^\circ = 105^\circ$

$\angle DAB = 180^\circ - \angle DCB$

$= 180^\circ - 105^\circ = 75^\circ$

$\angle CAD = \angle DAB - \angle CAB = 75^\circ - 15^\circ = 60^\circ$

Sol 3. (d)

$\triangle ABC \sim \triangle EDF$ and ar($\triangle ABC$) : ar($\triangle DEF$) = 9 : 4 (given)

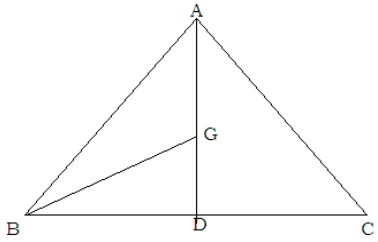
$\Rightarrow \frac{ar\triangle ABC}{ar\triangle DEF} = (\frac{BC}{DF})^2$

$\Rightarrow \frac{9}{4} = (\frac{BC}{DF})^2$

$\Rightarrow \sqrt{\frac{9}{4}} = (\frac{8}{DF})$

$\Rightarrow PQ = \frac{8\times2}{3} = \frac{16}{3}$ cm

Sol 4. (d)



Given, AG : GD = 2 : 1

Let AG = 2 unit

And GD = 1 unit

Height of triangles ABG and BDG will be the same as both the triangles are formed on the same base line and have common vertex B. Let the height is h.

$\frac{ar\triangle ABG}{ar\triangle BDG} = \frac{\frac{1}{2}\times h\times AG}{\frac{1}{2}\times h\times DG}$

$\Rightarrow \frac{\frac{1}{2}\times h\times 2}{\frac{1}{2}\times h\times 1} = \frac{2}{1}$

Pinnacle

Area of $\Delta ABD = ar\Delta ABG + ar\Delta BDG = 2+1 = 3$ unit

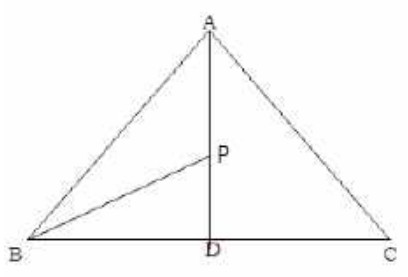
Area of $\Delta ABC = 2 \times$ Area of ΔABD (AD is median)

$= 2 \times 3 = 6$ unit

ar(△ ABG) : (△ ABC) = 2 : 6

= 1 : 3

Sol 5. (d)



Given, AP : PD = 3 : 4

Let AP = 3 unit

And PD = 4 unit

Height of triangles ABP and BPD will be same as both the triangles are formed on the same base line and have common vertex B. Let the height is h.

$\frac{ar\triangle ABP}{ar\Delta BDP} = \frac{\frac{1}{2}\times h\times AP}{\frac{1}{2}\times h\times DP}$

$\Rightarrow \frac{\frac{1}{2}\times h\times 3}{\frac{1}{2}\times h\times 4} = \frac{3}{4}$

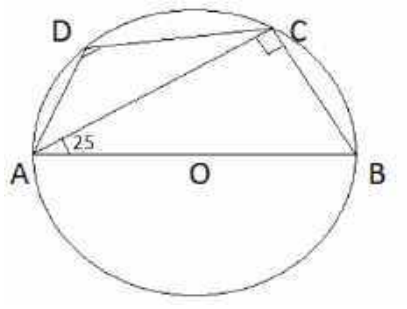
Area of $\Delta ABD = ar\Delta ABP + ar\Delta BDP = 3+4 = 7$ unit

Area of $\Delta ABC = 2 \times$ Area of ΔABD (AD is median)

$= 2 \times 7 = 14$ unit

ar(△ ABP) : (△ ABC) = 3 : 14

Sol 6. (c)



∠BAC = ∠DCA = 25°

….(Alternate angle)

∠BCA = 90°

….(Angle made by diameter)

∠DCB = ∠DCA + ∠BCA

= 25° + 90°

= 115°

∠DCB + ∠DAB = 180°

⇒ ∠DAB = 180° -∠DCB

= 180° - 115°

= 65°

∠DAC = ∠DAB - ∠BAC

= 65° - 25°

= 40°

Sol 7. (d)

△ABC ~ △QRP and ar(△ABC) : ar(△QRP) = 1 : 4

…..(given)

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle QRP} = (\frac{AB}{QR})^2$

$\Rightarrow \frac{1}{4} = (\frac{AB}{QR})^2$

$\Rightarrow \sqrt{\frac{1}{4}} = (\frac{AB}{QR})$

$\Rightarrow$ AB = $\frac{8\times 1}{2}$ = 4 cm

Sol 8. (d)

△ABC ~ △PRQ and ar(△ABC) : ar(△PRQ) = 1 : 4

…..(given)

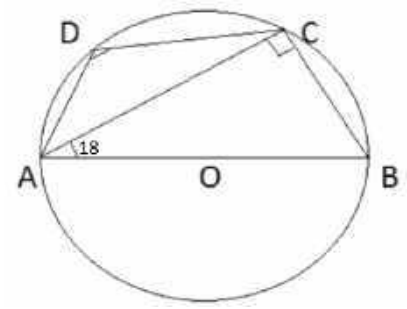
$\Rightarrow \frac{ar\triangle ABC}{ar\triangle PRQ} = (\frac{AC}{PQ})^2$

$\Rightarrow \frac{1}{4} = (\frac{AC}{4})^2$

$\Rightarrow \sqrt{\frac{1}{4}} = (\frac{AC}{QR})$

$\Rightarrow$ AC = $\frac{4\times 1}{2}$ = 2 cm

Sol 9. (c)



∠BAC = ∠DCA = 18°

….(Alternate angle)

∠BCA = 90°

….(Angle made by diameter)

∠DCB = ∠DCA + ∠BCA

= 18° + 90°

= 108°

∠DCB + ∠DAB = 180°

⇒ ∠DAB = 180° -∠DCB

= 180° - 108°

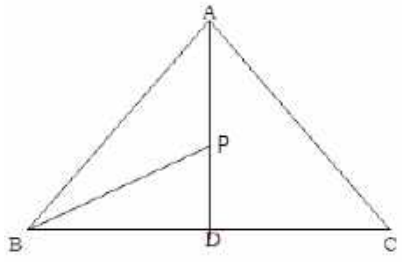
= 72°

∠DAC = ∠DAB - ∠BAC

= 72° - 18°

= 54°

Sol 10. (b)



Given, AP : PD = 3 : 4

Let AP = 3 unit

And PD = 4 unit

Height of triangles ABP and BPD will be the same as both the triangles are formed on the same base line and have common vertex B. Let the height is h.

$\frac{ar\triangle ABP}{ar\Delta BDP} = \frac{\frac{1}{2}\times h\times AP}{\frac{1}{2}\times h\times DP}$

$\Rightarrow \frac{\frac{1}{2}\times h\times 3}{\frac{1}{2}\times h\times 4} = \frac{3}{4}$

Area of $\Delta ABD = ar\Delta ABP + ar\Delta BDP = 3+4 = 7$ unit

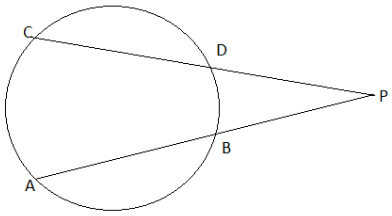
Area of $\Delta ABC = 2 \times$ Area of ΔABD (AD is median)

Pinnacle

$= 2 \times 7 = 14$ unit

ar(△ BPD) : (△ ABC) = 4 : 14
$= 2 : 7$

Sol 11. (c)
Given, PB = 5 cm , PD = 4 cm and AB = 6 cm
⇒ PA = PB + AB = 5+6 = 11 cm



Let CD = x
Then,
PC = x+4
We know that
PB × PA = PD × PC
5 × 11 = 4(x+4)
⇒ 4(x+4) = 55
Put x = 9.75 cm

Sol 12. (d)
△ABC ~ △QPR and ar(△ABC) : ar(△QPR) = 16 : 25 …..(given)

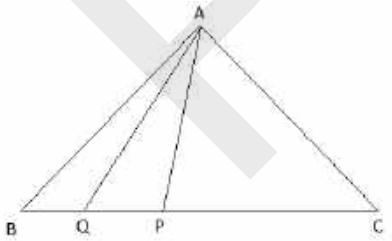
$\Rightarrow \frac{ar\triangle ABC}{ar\triangle QPR} = (\frac{AC}{RQ})^2$

$\Rightarrow \frac{16}{25} = (\frac{6}{RQ})^2$

$\Rightarrow \sqrt{\frac{16}{25}} = (\frac{6}{RQ})$

$\Rightarrow RQ = \frac{6\times5}{4} = 7.5$ cm

Sol 13. (b)

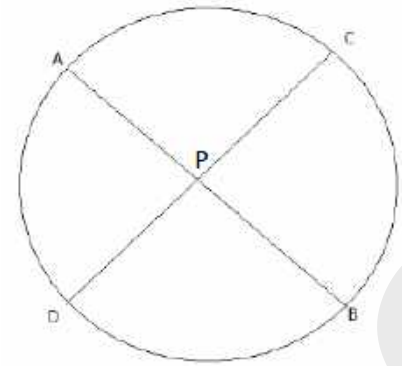


BP:PC = 1:2
Let BP = 1 unit and PC = 3 unit
So, BQ = $\frac{1}{2} = \frac{1}{2}$ unit and BC = 1+2 = 3 unit
Height of triangles ABQ and ABC will be the same as both the triangles are formed on the same base line and have common vertex A. Let the height is h.

$\frac{ar\triangle ABQ}{ar\triangle ABC} = \frac{\frac{1}{2}\times h\times\frac{1}{2}}{\frac{1}{2}\times h\times 3}$

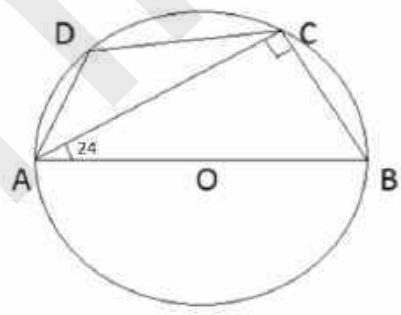
$\Rightarrow \frac{\frac{1}{2}\times h\times\frac{1}{2}}{\frac{1}{2}\times h\times 3} = \frac{1}{6}$

Sol 14. (b)
Given, AB = 7 cm, PC = 2 cm and AP = 4 cm
⇒ PB = AB-AP = 7-4 = 3 cm



We know that
AP × PB = CP × PD
4 × 3 = 2 × PD
PD = 6 cm
CD = PC+PD
= 2+6 = 8 cm

Sol 15. (b)



∠BAC = ∠DCA = 24°
….(Alternate angle)
∠BCA = 90°
….(Angle made by diameter)
∠DCB = ∠DCA + ∠BCA
$= 24^\circ + 90^\circ$
$= 114^\circ$
∠DCB + ∠DAB = 180°
⇒ ∠DAB = 180° -∠DCB
$= 180^\circ - 114^\circ$
$= 66^\circ$
∠DAC = ∠DAB - ∠BAC
$= 66^\circ - 24^\circ$
$= 42^\circ$

Sol 16. (a)
△ABC ~ △RQP and ar(△PQR) : ar(△ABC) = 9 : 4 …..(given)

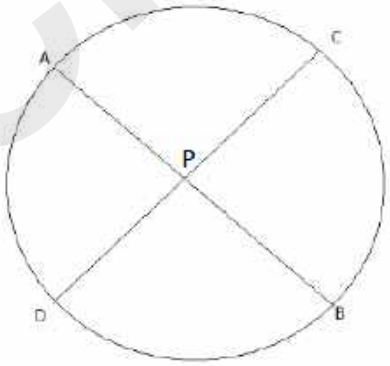
$\Rightarrow \frac{ar\triangle PQR}{ar\triangle ABC} = (\frac{PQ}{BC})^2$

$\Rightarrow \frac{9}{4} = (\frac{PQ}{BC})^2$

$\Rightarrow \sqrt{\frac{9}{4}} = (\frac{10}{BC})$

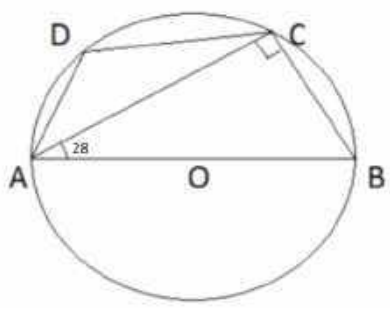
$\Rightarrow BC = \frac{10\times2}{3} = \frac{20}{3}$ cm

Sol 17. (c)
Given, AB = 10 cm, PC = 5 cm and AP = 4 cm
⇒ PB = AB-AP = 10-4 = 6 cm



We know that
AP × PB = CP × PD
4 × 6 = 5 × PD
PD = 4.8 cm
CD = PC+PD
= 5+4.8 = 9.8 cm

Sol 18. (a)

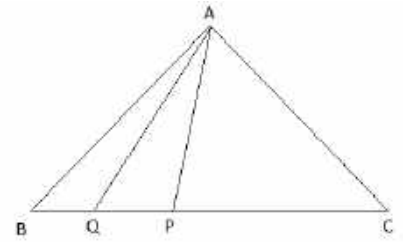


∠BAC = ∠DCA = 28°
….(Alternate angle)
∠BCA = 90°
….(Angle made by diameter)

Pinnacle

$\angle DCB = \angle DCA + \angle BCA$
$= 28^\circ + 90^\circ$
$= 118^\circ$
$\angle DCB + \angle DAB = 180^\circ$
$\Rightarrow \angle DAB = 118^\circ - \angle DCB$
$= 180^\circ - 118^\circ$
$= 62^\circ$
$\angle DAC = \angle DAB - \angle BAC$
$= 62^\circ - 28^\circ$
$= 34^\circ$

Sol 19. (d)



BP:PC = 3:4
Let BP = 3 unit and PC = 4 unit
So, BQ = $\frac{3}{2}$ = $\frac{3}{2}$ unit and BC = 3+4 = 7 unit
Height of triangles ABQ and ABC will be same as both the triangles are formed on the same base line and have common vertex A. Let the height is h.

$\frac{ar\triangle ABQ}{ar\triangle ABC} = \frac{\frac{1}{2}\times h\times\frac{3}{2}}{\frac{1}{2}\times h\times 7}$

$\Rightarrow \frac{\frac{1}{2}\times h\times\frac{3}{2}}{\frac{1}{2}\times h\times 7} = \frac{3}{14}$

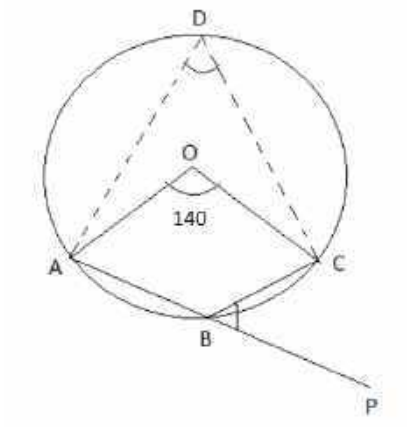
Sol 20. (a)
$\triangle ABC \sim \triangle RQP$ and ar($\triangle ABC$) : ar($\triangle PQR$) = 4 : 9 .....(given)

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle PQR} = \left(\frac{AB}{RQ}\right)^2$
$\Rightarrow \frac{4}{9} = \left(\frac{AB}{RQ}\right)^2$
$\Rightarrow \sqrt{\frac{4}{9}} = \left(\frac{4B}{12}\right)$
$\Rightarrow BC = \frac{12\times 2}{3} = 8$ cm

Sol 21. (d)
$\triangle ABC \sim \triangle EDF$ and ar($\triangle ABC$) : ar($\triangle EDF$) = 4 : 9 .....(given)

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle DEF} = \left(\frac{BC}{DF}\right)^2$
$\Rightarrow \frac{4}{9} = \left(\frac{BC}{DF}\right)^2$
$\Rightarrow \sqrt{\frac{4}{9}} = \left(\frac{8}{DF}\right)$
$\Rightarrow DF = \frac{8\times 3}{2} = 12$ cm

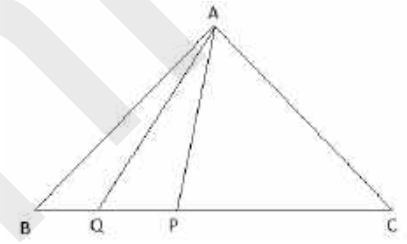
Sol 22.(b)
Draw AD and CD as shown in the figure given below



We know that
$\angle ADC = \frac{1}{2} \times \angle AOC$
$= \frac{1}{2} \times 140^\circ = 70^\circ$
$\angle ADC = \angle CBP$

……(Vertically opposite angle of cyclic quadrilateral)
$\Rightarrow \angle CBP = 70^\circ$

Sol 23. (b)

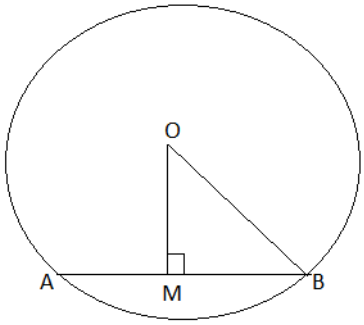


BP:PC = 4:3
Let BP = 4 unit and PC = 3 unit
So, BQ = $\frac{4}{2}$ = 2 unit and BC = 4+3 = 7 unit
Height of triangles ABQ and ABC will be same as both the triangles are formed on the same base line and have common vertex A. Let the height is h.

$\frac{ar\triangle ABQ}{ar\triangle ABC} = \frac{\frac{1}{2}\times h\times 2}{\frac{1}{2}\times h\times 7}$

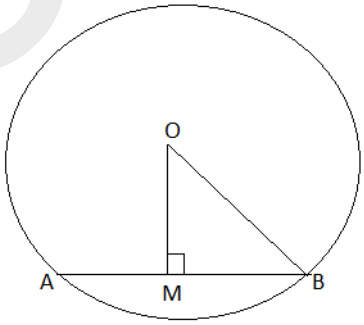
$\Rightarrow \frac{\frac{1}{2}\times h\times 2}{\frac{1}{2}\times h\times 7} = \frac{2}{7}$

Sol 24. (d)
Let AB be the given chord.



$OM \perp AB$
OM = 12 cm and OB = 13 cm .....(given)
$OB^2 = OM^2 + MB^2$
$\Rightarrow 13^2 = 12^2 + MB^2$
$\Rightarrow MB = \sqrt{13^2 - 12^2} = 5$ cm
AB = 2 × 5 = 10 cm

Sol 25. (d)
Let AB be the given chord.

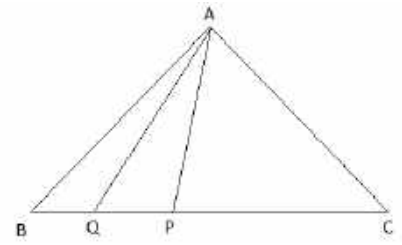


$OM \perp AB$
OM = 15 cm and OB = 17 cm .....(given)
$OB^2 = OM^2 + MB^2$
$\Rightarrow 17^2 = 15^2 + MB^2$
$\Rightarrow MB = \sqrt{17^2 - 15^2} = 8$ cm
AB = 2 × 8 = 16 cm

Sol 26. (b)
$\triangle ABC \sim \triangle EDF$ and ar($\triangle ABC$) : ar($\triangle EDF$) = 1 : 4 .....(given)

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle DEF} = \left(\frac{BC}{DF}\right)^2$
$\Rightarrow \frac{1}{4} = \left(\frac{BC}{DF}\right)^2$
$\Rightarrow \sqrt{\frac{1}{4}} = \left(\frac{8}{DF}\right)$
$\Rightarrow DF = \frac{8\times 2}{1} = 16$ cm

Sol 27. (c)



BP:PC = 4:5

Let BP = 4 unit and PC = 5 unit

So, BQ = $\frac{4}{2}$ = 2 unit and BC = 4+5 = 9 unit

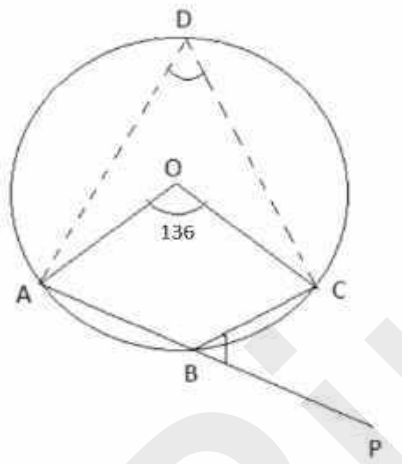
Height of triangles ABQ and ABC will be same as both the triangles are formed on the same base line and have common vertex A. Let the height is h.

$\frac{ar\bigtriangleup ABQ}{ar\Delta ABC} = \frac{\frac{1}{2}\times h\times 2}{\frac{1}{2}\times h\times 9}$

$\Rightarrow \frac{\frac{1}{2}\times h\times 2}{\frac{1}{2}\times h\times 9} = \frac{2}{9}$

Sol 28. (c)

Draw AD and CD as shown in the figure given below



We know that

$\angle ADC = \frac{1}{2}\times \angle AOC$

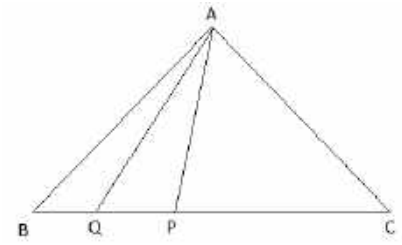
$= \frac{1}{2}\times 136^\circ = 68^\circ$

$\angle ADC = \angle CBP$

……(Vertically opposite angle of cyclic quadrilateral)

$\Rightarrow \angle CBP = 68^\circ$

Sol 29. (b)



BP:PC = 4:11

Let BP = 4 unit and PC = 11 unit

So, BQ = $\frac{4}{2}$ = 2 unit and BC = 4+11 = 15 unit

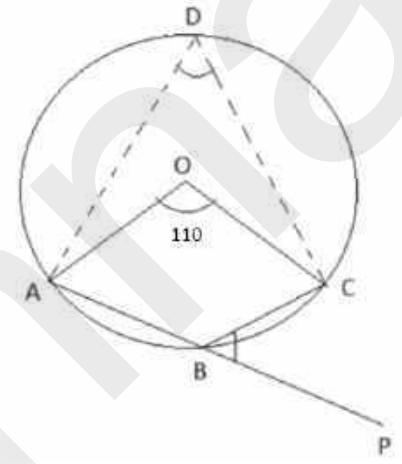
Height of triangles ABQ and ABC will be same as both the triangles are formed on the same base line and have common vertex A. Let the height is h.

$\frac{ar\bigtriangleup ABQ}{ar\Delta ABC} = \frac{\frac{1}{2}\times h\times 2}{\frac{1}{2}\times h\times 15}$

$\Rightarrow \frac{\frac{1}{2}\times h\times 2}{\frac{1}{2}\times h\times 15} = \frac{2}{15}$

Sol 30. (b)

Draw AD and CD as shown in the figure given below



We know that

$\angle ADC = \frac{1}{2}\times \angle AOC$

$= \frac{1}{2}\times 110^\circ = 55^\circ$

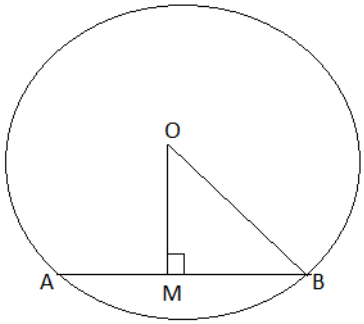
$\angle ADC = \angle CBP$

……(Vertically opposite angle of cyclic quadrilateral)

$\Rightarrow \angle CBP = 55^\circ$

Sol 31. (d)

Let AB be the given chord.



$OM \perp AB$

OM = 8 cm and OB = 17 cm

…...(given)

$OB^2 = OM^2 + MB^2$

$\Rightarrow 17^2 = 8^2 + MB^2$

$\Rightarrow MB = \sqrt{17^2 - 8^2} = 15$ cm

AB = 2 × 15 = 30 cm

Sol 32. (d)

△ABC ~ △NLM and ar(△ABC) : ar(△LMN) = 4 : 9

…..(given)

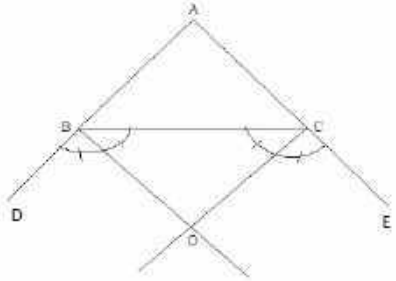
$\Rightarrow \frac{ar\Delta ABC}{ar\Delta LMN} = \left(\frac{BC}{LM}\right)^2$

$\Rightarrow \frac{4}{9} = \left(\frac{BC}{LM}\right)^2$

$\Rightarrow \sqrt{\frac{4}{9}} = \left(\frac{8}{LM}\right)$

$\Rightarrow$ LM = $\frac{8\times 3}{2}$ = 12 cm

Sol 33. (a)



Given,

$\angle BAC = 50^\circ$

We know that

$90 - \angle BOC = \frac{\angle BAC}{2}$

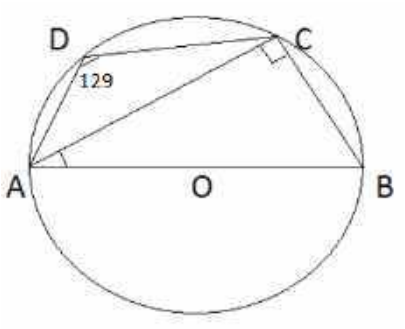
$90 - \frac{50}{2} = \angle BOC$

$\Rightarrow \angle BOC = 65^\circ$

Sol 34. (d)

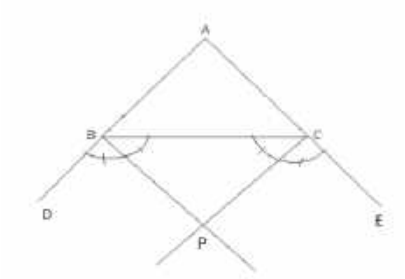
In the given figure $\angle ABC = 180^\circ - 129^\circ = 51^\circ$

Pinnacle



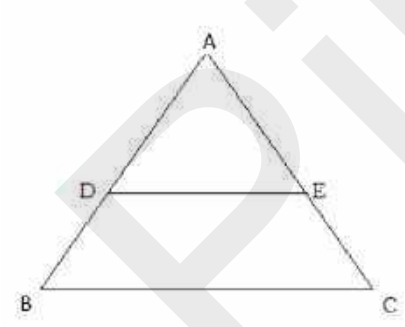
In triangle ABC, $\angle ACB = 90^\circ$
Therefore, $\angle BAC = 90^\circ - 51^\circ = 39^\circ$

Sol 35. (d)



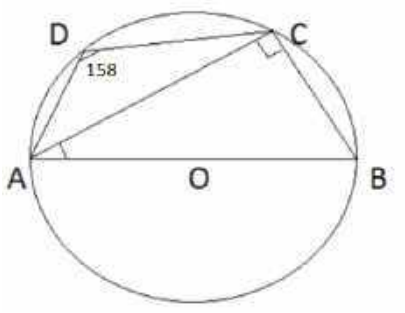
Given,
$\angle BAC = 72^\circ$
We know that
$90 - \angle BPC = \frac{\angle BAC}{2}$
$90 - \frac{72}{2} = \angle BPC$
$\Rightarrow \angle BPC = 54^\circ$

Sol 36. (a)



Given, DE | | BC
$\Rightarrow \Delta ADE \sim \Delta ABC$
So,
$\frac{ar\Delta ADE}{ar\Delta ABC} = (\frac{DE}{BC})^2$
$\Rightarrow \frac{ar\Delta ADE}{ar\Delta ABC} = (\frac{3}{5})^2 = \frac{9}{25}$
Let Area of ΔADE = 9 unit and
Area of ΔABC = 25 unit
Area of BCED = 25-9 = 16 unit
$\Rightarrow$ (Area of $\triangle ADE$) : (Area of trapezium BCED) = 9:16

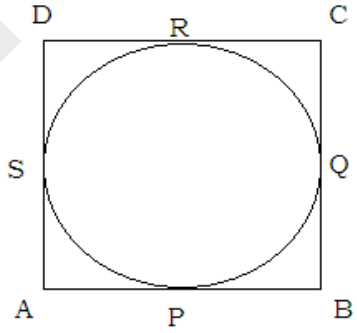
Sol 37. (c)
In the given figure $\angle ABC = 180^\circ - 158^\circ = 22^\circ$



In triangle ABC, $\angle ACB = 90^\circ$
Therefore, $\angle BAC = 90^\circ - 22^\circ = 68^\circ$

Sol 38. (a)
$\triangle ABC \sim \triangle QPR$ and ar($\triangle ABC$) : ar($\triangle QPR$) = 9 : 16
…..(given)
$\Rightarrow \frac{ar\triangle ABC}{ar\triangle QPR} = (\frac{AB}{QP})^2$
$\Rightarrow \frac{9}{16} = (\frac{AB}{QP})^2$
$\Rightarrow \sqrt{\frac{9}{16}} = (\frac{12}{QP})$
$\Rightarrow$ LM = $\frac{12\times4}{3}$ = 16 cm

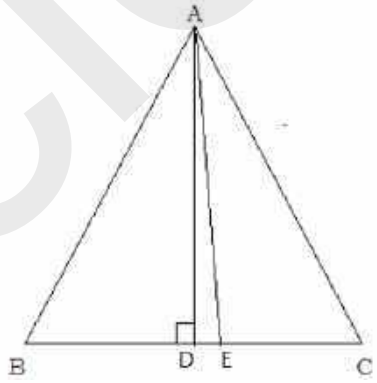
Sol 39. (d)



Given, AS = 8 cm, BC = 11 cm and CR = 5 cm
AS = AP = 8 cm
(Tangent of same circle)
CQ = RC = 5 cm
(Tangent of same circle)
BQ = BC - QC = 11-5 = 6 cm
BP = BQ = 6 cm
(Tangent of same circle)

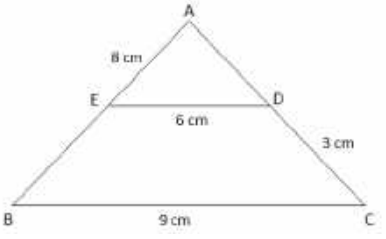
AB = AP+BP = 8+6 = 14 cm

Sol 40. (a)
Given, $AD \perp BC$, AE is angle bisector of $\angle BAC$
Trick :
$\angle DAE = \frac{1}{2}(\angle B - \angle C)$
$= \frac{1}{2}(\angle 72 - \angle 26) = 23^\circ$



Sol 41. (c)
$\angle P + \angle R = 180^\circ$ (opposite angles of a cyclic quadrilateral)
$4\angle R + \angle R = 180^\circ$
($\angle P = 4\angle R$)
$\angle R = \frac{180^\circ}{5} = 36^\circ$
$\angle Q + \angle S = 180^\circ$ (opposite angles of a cyclic quadrilateral)
$\angle Q + 3\angle Q = 180^\circ$
($\angle S = 3\angle Q$)
$\angle Q = \frac{180^\circ}{4} = 45^\circ$
$\angle Q + \angle R = 45^\circ + 36^\circ = 81^\circ$

Sol 42. (c)



Pinnacle

$\angle ADE = \angle B$

$\angle EAD = \angle BAC$

$\Rightarrow \triangle ABC \sim \triangle AED$

$\Rightarrow \frac{AE}{AC} = \frac{DE}{BC}$

$\Rightarrow \frac{AE}{AD+DC} = \frac{DE}{BC}$

$\Rightarrow \frac{8}{AD+3} = \frac{6}{9}$

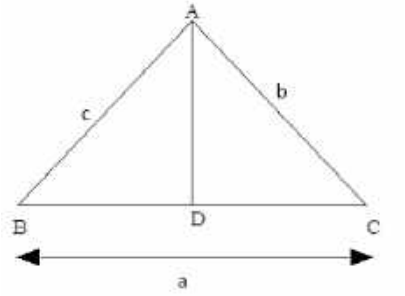
$\Rightarrow 6AD + 18 = 72$

$\Rightarrow AD = 9$ cm

Sol 43. (c)

BC = a cm

Let BD= x, DC = a-x



We know that, if AD is bisector of ∠BAC then,

$\frac{AB}{AC} = \frac{BD}{DC}$

$\Rightarrow \frac{c}{b} = \frac{x}{a-x}$

$\Rightarrow$ ac-cx=bx

$\Rightarrow x = \frac{ac}{b+c}$

$\Rightarrow$ DC = a-x

$\Rightarrow DC = a - \frac{ac}{b+c}$

$= \frac{ab}{b+c}$

$BD - DC = \frac{ac}{b+c} - \frac{ab}{b+c}$

$= \frac{a(c-b)}{c+b}$

Sol 44.(a)

△ABC ~ △QPR and ar(△ABC) : ar(△QPR) = 9 : 16

…..(given)

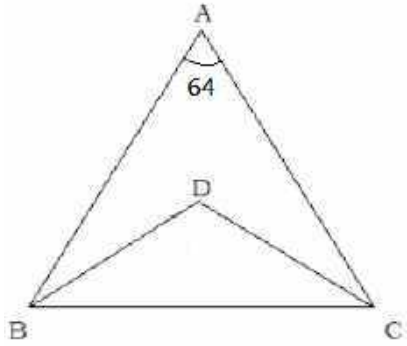
$\Rightarrow \frac{ar\triangle ABC}{ar\triangle QPR} = (\frac{AC}{QR})^2$

$\Rightarrow \frac{9}{16} = (\frac{AC}{QR})^2$

$\Rightarrow \sqrt{\frac{9}{16}} = (\frac{9}{QR})$

$\Rightarrow QR = \frac{9\times4}{3} = 12$ cm

Sol 45. (b)



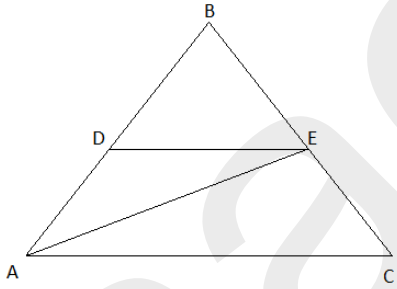
We know that

$\angle BDC = 90^\circ + \frac{\angle BAC}{2}$

$\Rightarrow \angle BDC = 90^\circ + \frac{64}{2}$

$\Rightarrow \angle BDC = (90^\circ + 32^\circ) = 122^\circ$

Sol 46. (b)



Given,

AD:DB = 2:3

DE ∥ AC

Area of triangle BDE and ADE will be in the ratio of their bases as both the triangles are formed on same base line and have common vertex.

$ar\triangle BDE : ar\triangle ADE = 3 : 2$

Let the area of triangle BDE = 3 unit and area of the triangle ADE = 2 unit.

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle BDE} = (\frac{AB}{BD})^2$

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle BDE} = (\frac{5}{3})^2 = \frac{25}{9}$

Balancing the ratio for $ar\triangle BDE$

$ar\triangle BDE : ar\triangle ADE : ar\triangle ABC$

9 : 6 : 25

According to the question

6 unit = 18

1 unit = 3

25 unit = 75 cm^2

Sol 47. (c)

△ABC ~ △QPR and ar(△ABC) : ar(△QPR) = 9 : 4

…..(given)

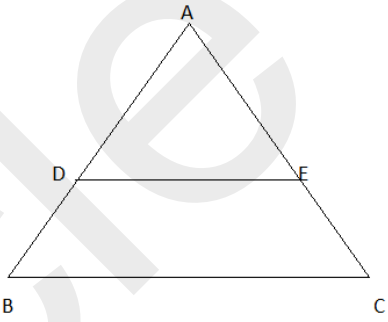
$\Rightarrow \frac{ar\triangle ABC}{ar\triangle QPR} = (\frac{AC}{QR})^2$

$\Rightarrow \frac{9}{4} = (\frac{AC}{QR})^2$

$\Rightarrow \sqrt{\frac{9}{4}} = (\frac{9}{QR})$

$\Rightarrow QR = \frac{9\times2}{3} = 6$ cm

Sol 48. (c)



Given, DE | | BC and AD /BD =¾

$\Rightarrow \triangle ABC \sim \triangle ADE$

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle ADE} = (\frac{AB}{AD})^2$

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle ADE} = (\frac{3+4}{3})^2$

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle ADE} = \frac{49}{9}$

$\Rightarrow$ area of BCED = 49-9 = 40 unit

area of BCED : ar△ABC = 40 : 49

Sol 49. (a)

△ABC ~ △QPR and ar(△ABC) : ar(△QPR) = 9 : 4

…..(given)

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle QPR} = (\frac{AC}{QR})^2$

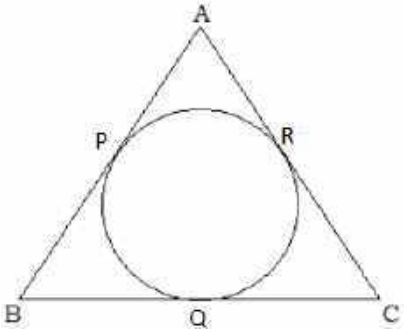
$\Rightarrow \frac{9}{4} = (\frac{AC}{QR})^2$

$\Rightarrow \sqrt{\frac{9}{4}} = (\frac{12}{QR})$

$\Rightarrow QR = \frac{12\times2}{3} = 8$ cm

Sol 50. (c)

Pinnacle

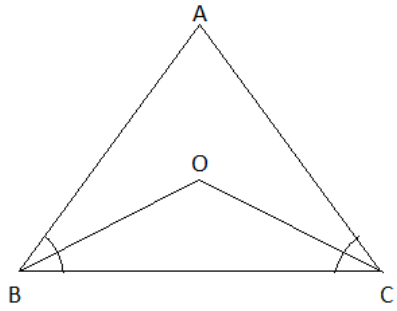


AP = AR = 5.5 cm, QC = RC = 4.5 cm, BQ = BP = 6.5 cm

…….(Tangents)

Perimeter of the triangle=AP+PB+BQ+QC+CR+RA =5.5+6.5+6.5+4.5+4.5+5.5 = 33 cm

Sol 51. (a)



Let $\angle ABC = 2\theta$ and $\angle ACB = 2\varphi$

In ΔABC

$\angle A+\angle B+\angle C = 180^\circ$

$\angle A+2\theta+2\varphi = 180^\circ$

$\theta+\varphi = 90^\circ - (\angle A/2)$

In ΔOBC

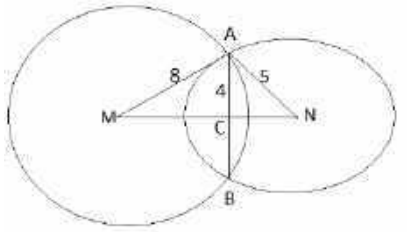
$\angle BOC+\angle OBC+\angle OCB = 180^\circ$

$\angle BOC+\theta+\varphi = 180^\circ$

$\angle BOC = 180^\circ - [90^\circ - (\angle A/2)]$

$= 90^\circ + (\angle A/2)$

Sol 52.(b)



In ΔAMC

$\angle ACM = 90^\circ$

$\Rightarrow AM^2 = AC^2 + CM^2$

$\Rightarrow 8^2 = 4^2 + CM^2$

$\Rightarrow CM = \sqrt{8^2 - 4^2}$

$\Rightarrow CM = 4\sqrt{3} = 4 \times 1.732 = 6.928$

In ΔANC

$\angle ACN = 90^\circ$

$\Rightarrow AN^2 = AC^2 + CN^2$

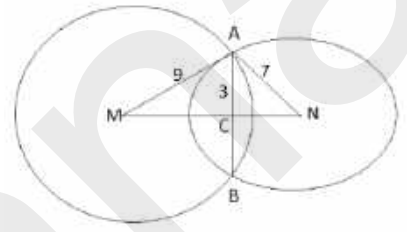
$\Rightarrow 5^2 = 4^2 + CN^2$

$\Rightarrow CN = \sqrt{5^2 - 4^2}$

$\Rightarrow CN = 3$

MN = MC+CN = 6.928+3 ≈ 10 cm

Sol 53.(b)



In ΔAMC

$\angle ACM = 90^\circ$

$\Rightarrow AM^2 = AC^2 + CM^2$

$\Rightarrow 9^2 = 3^2 + CM^2$

$\Rightarrow CM = \sqrt{9^2 - 3^2}$

$\Rightarrow CM = 6\sqrt{2} = 6 \times 1.414 = 8.484$

In ΔANC

$\angle ACN = 90^\circ$

$\Rightarrow AN^2 = AC^2 + CN^2$

$\Rightarrow 7^2 = 3^2 + CN^2$

$\Rightarrow CN = \sqrt{7^2 - 3^2}$

$\Rightarrow CN = 2\sqrt{10} = 6.32$

MN = MC+CN = 8.484+6.32 ≈ 15 cm

Sol 54. (d)

$\Delta ABC \sim \Delta QPR$ and ar(ΔABC) : ar(ΔQPR) = 1 : 16 …..(given)

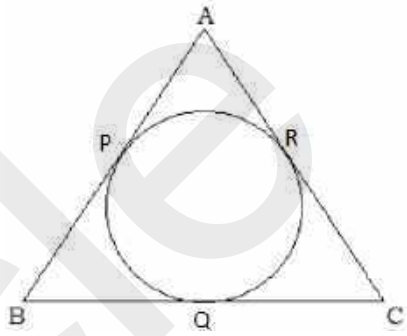
$\Rightarrow \frac{ar\Delta ABC}{ar\Delta QPR} = (\frac{BC}{PR})^2$

$\Rightarrow \frac{1}{16} = (\frac{BC}{PR})^2$

$\Rightarrow \sqrt{\frac{1}{16}} = (\frac{6}{PR})$

$\Rightarrow PR = \frac{6\times4}{1} = 24$ cm

Sol 55. (c)

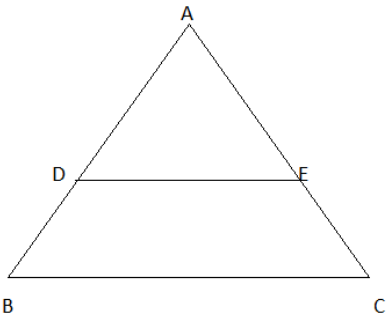


AP = AR = 4.5 cm, QC = RC = 6.5 cm, BQ = BP = 8.5 cm

…….(Tangents)

Perimeter of the triangle=AP+PB+BQ+QC+CR+RA =4.5+8.5+8.5+6.5+6.5+4.5 = 39 cm

Sol 56. (b)



Given, DE | | BC and AD /BD =¾

$\Rightarrow \Delta ABC \sim \Delta ADE$

$\Rightarrow \frac{ar\Delta ABC}{ar\Delta ADE} = (\frac{AB}{AD})^2$

$\Rightarrow \frac{ar\Delta ABC}{ar\Delta ADE} = (\frac{3+4}{3})^2$

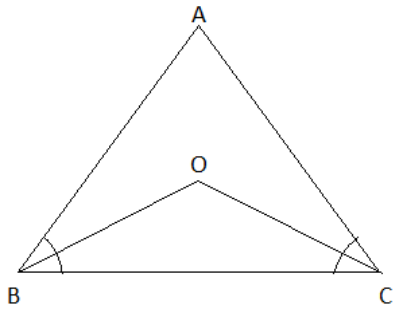
$\Rightarrow \frac{ar\Delta ABC}{ar\Delta ADE} = \frac{49}{9}$

$\Rightarrow$ area of BCED = 49-9 = 40 unit

arΔABC : area of BCED = 49 : 40

Sol 57. (d)

Pinnacle



Let $\angle ABC = 2\theta$ and $\angle ACB = 2\varphi$

In ΔABC

$\angle A+\angle B+\angle C = 180^\circ$

$\angle A+2\theta+2\varphi = 180^\circ$

$\theta+\varphi = 90^\circ - (\angle A/2)$

In ΔOBC

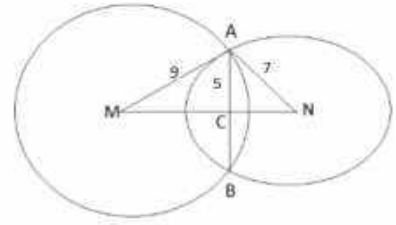
$\angle BOC+\angle OBC+\angle OCB = 180^\circ$

$\angle BOC+\theta+\varphi = 180^\circ$

$[90^\circ - (\angle A/2)] = 180^\circ - \angle BOC$

$\angle A = 2(\angle BOC - 90^\circ)$

Sol 58. (d)



In ΔAMC

$\angle ACM = 90^\circ$

$\Rightarrow AM^2 = AC^2 + CM^2$

$\Rightarrow 9^2 = 5^2 + CM^2$

$\Rightarrow CM = \sqrt{9^2 - 5^2}$

$\Rightarrow CM = 2\sqrt{14}$

In ΔANC

$\angle ACN = 90^\circ$

$\Rightarrow AN^2 = AC^2 + CN^2$

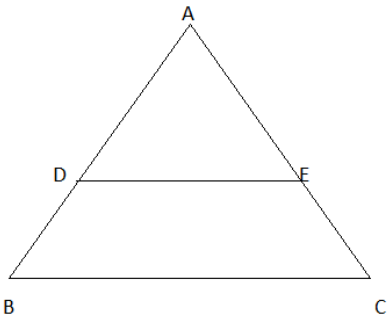
$\Rightarrow 7^2 = 5^2 + CN^2$

$\Rightarrow CN = \sqrt{7^2 - 5^2}$

$\Rightarrow CN = 2\sqrt{6}$

$MN = MC+CN = 2\sqrt{14}+2\sqrt{6} = 2(\sqrt{14}+\sqrt{6})$ cm

Sol 59. (b)



Given, DE | | BC and AD /BD =¾

$\Rightarrow \Delta ABC \sim \Delta ADE$

$\Rightarrow \frac{ar\Delta ABC}{ar\Delta ADE} = (\frac{AB}{AD})^2$

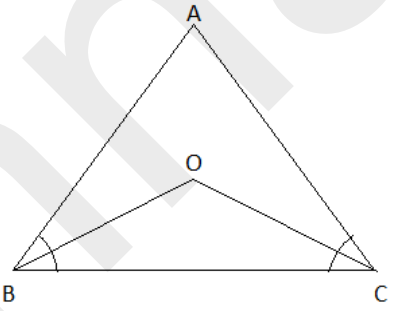
$\Rightarrow \frac{ar\Delta ABC}{ar\Delta ADE} = (\frac{5+6}{5})^2$

$\Rightarrow \frac{ar\Delta ABC}{ar\Delta ADE} = \frac{121}{25}$

$\Rightarrow$ area of BCED = 121-25 = 96 unit

arΔABC : area of BCED = 121 : 96

Sol 60. (d)



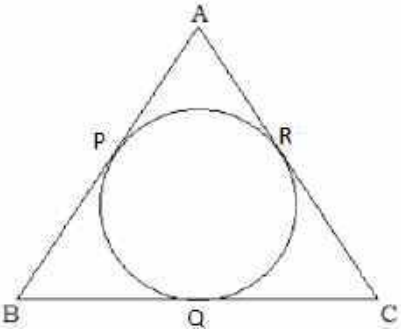
We know that

$\angle BOC = 90^\circ + \frac{\angle BAC}{2}$

$\Rightarrow 148 = 90^\circ + \frac{A}{2}$

$\Rightarrow \angle A = 2(148^\circ - 90^\circ) = 116^\circ$

Sol 61. (c)

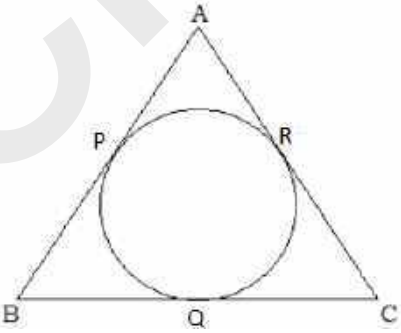


AP = AR = 11 cm, QC = RC = 10 cm, BQ = BP = 9 cm

…….(Tangents)

Perimeter of the triangle=AP+PB+BQ+QC+CR+RA =11+9+9+10+10+11 = 60 cm

Sol 62. (c)



AP = AR = 6 cm, QC = RC = 7 cm, BQ = BP = 5 cm

…….(Tangents)

Perimeter of the triangle=AP+PB+BQ+QC+CR+RA =6+5+5+7+7+6 = 36 cm

Sol 63. (d)

Let, length of AB = x cm

BC = 2x-2 cm

AC = x + 10

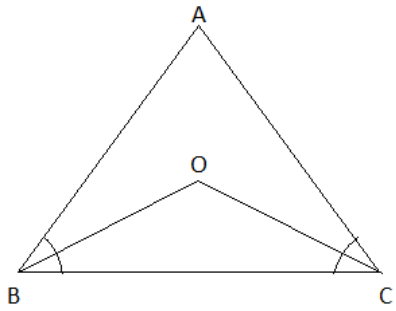
According to the question

x+2x-2+x+10 = 32

4x = 32-8

x = 6 cm

Sol 64. (d)



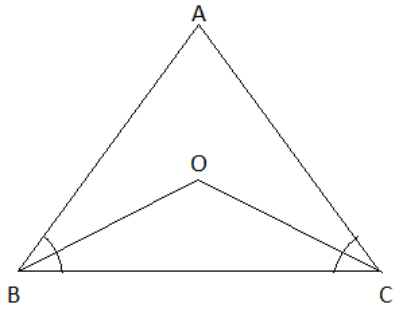
We know that

$\angle BOC = 90^\circ + \frac{A}{2}$

$\Rightarrow \angle BOC = 90^\circ + \frac{116^\circ}{2}$

$\Rightarrow \angle BOC = 90^\circ + 58^\circ = 148^\circ$

Sol 65.(d)



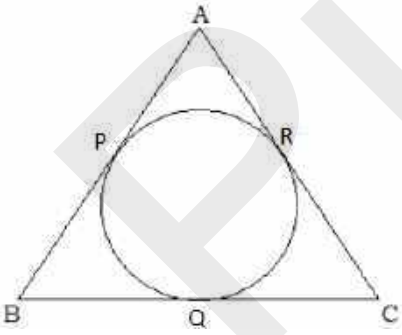
We know that

$\angle BOC = 90^\circ + \frac{A}{2}$

$\Rightarrow \angle BOC = 90^\circ + \frac{132^\circ}{2}$

$\Rightarrow \angle BOC = 90^\circ + 66^\circ = 156^\circ$

Sol 66. (b)



AP = AR = 6.1 cm, QC = RC = 7.3 cm, BQ = BP = 5.4 cm

…….(Tangents)

Perimeter of the triangle=AP+PB+BQ+QC+CR+RA =6.1+5.4+5.4+7.3+7.3+6.1 = 37.6 cm

Sol 67. (c)

Let, length of AB = x cm

BC = 2x-3 cm

AC = x + 9

According to the question

x+2x-3+x+9 = 32

4x = 34-6

x = 7 cm

Sol 68. (a)

We know that area of a triangle = $\frac{1}{2} \times Base \times Height$

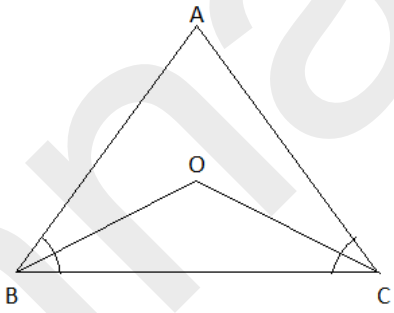
Let height of the triangle ABC = H and base of triangle ABC = B and height of the triangle PQR = h and base of the triangle PQR = b.

$\frac{ar\triangle ABC}{ar\triangle PQR} = \frac{\frac{1}{2}\times H\times B}{\frac{1}{2}\times h\times b}$

$\Rightarrow \frac{4}{5} = \frac{\frac{1}{2}\times 5\times B}{\frac{1}{2}\times 3\times b}$

$\Rightarrow \frac{B}{b} = \frac{12}{25}$

Sol 69. (c)



We know that

$\angle BOC = 90^\circ + \frac{A}{2}$

$\Rightarrow \angle BOC = 90^\circ + \frac{110^\circ}{2}$

$\Rightarrow \angle BOC = 90^\circ + 55^\circ = 145^\circ$

Sol 70. (d)

Let, length of AB = x cm

BC = 2x-3 cm

AC = x + 1

According to the question

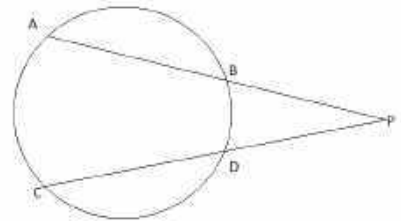
x+2x-3+x+1 = 34

4x = 34+2

x = 9 cm

Sol 71. (a)

Let PD = x cm



We know that

PB × PA = PD × PC

4 × (4+6)= x × (x+3)

40 = x (x+3)

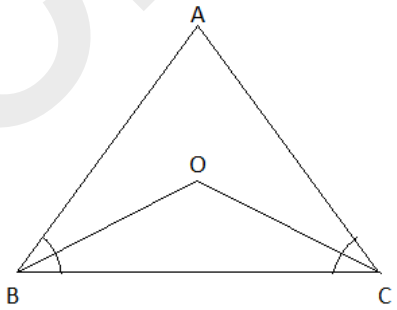
Using hit and trial method

Put x = 5

⇒ 40 = 5 (5+3)

⇒ 40=40, condition satisfied clearly option A is the correct answer.

Sol 72. (b)



We know that

$\angle BOC = 90^\circ + \frac{A}{2}$

$\Rightarrow 156^\circ = 90^\circ + \frac{A}{2}$

$\Rightarrow \angle A = 2(156^\circ - 90^\circ) = 132^\circ$

Sol 73. (c)

We know that,

Transverse common tangent = $\sqrt{D^2 - (R+r)^2}$

Where D = distance between the centres

R,r = radius of the circles

Transverse common tangent = $\sqrt{10^2 - (4+2)^2} = 8$

Sol 74. (c)

We know that,

Transverse common tangent = $\sqrt{D^2 - (R+r)^2}$

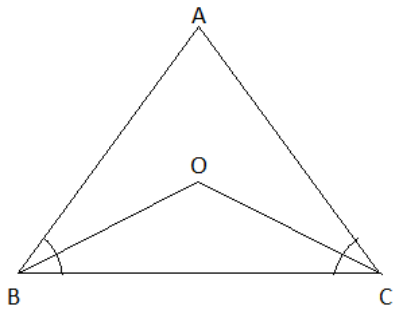
Pinnacle

Where D = distance between the centres

R,r = radius of the circles

Transverse common tangent = $\sqrt{13^2-(3+2)^2}=12$

Sol 75. (c)



We know that

$\angle BOC = 90^\circ + \frac{A}{2}$

$\Rightarrow 106^\circ = 90^\circ + \frac{A}{2}$

$\Rightarrow \angle A = 2(106^\circ - 90^\circ) = 32^\circ$

Sol 76. (b)

$\triangle ABC \sim \triangle QPR$ and ar($\triangle ABC$) : ar($\triangle QPR$) = 4 : 25 .....(given)

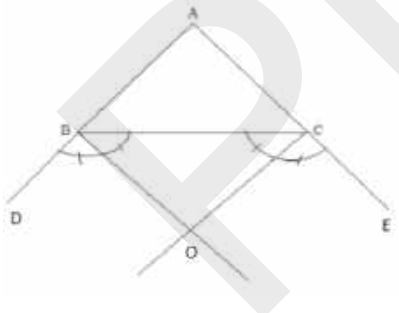
$\Rightarrow \frac{ar\triangle ABC}{ar\triangle QPR} = (\frac{BC}{PR})^2$

$\Rightarrow \frac{4}{25} = (\frac{8}{PR})^2$

$\Rightarrow \sqrt{\frac{4}{25}} = (\frac{8}{PR})$

$\Rightarrow PR = \frac{8\times5}{2} = 20$ cm

Sol 77. (d)



Given,

$\angle BOC = 52^\circ$

We know that

$90 - \angle BOC = \frac{\angle BAC}{2}$

$90 - \frac{52}{2} = \angle BOC$

$\Rightarrow \angle BOC = 64^\circ$

Sol 78. (d)

$\triangle ABC \sim \triangle QPR$ and ar($\triangle ABC$) : ar($\triangle QPR$) = 4 : 25 .....(given)

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle QPR} = (\frac{AC}{QR})^2$

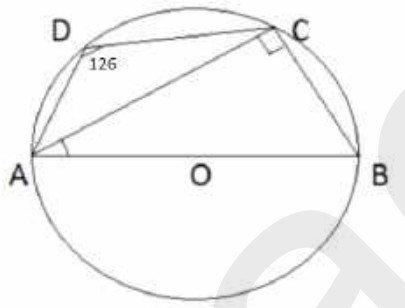
$\Rightarrow \frac{4}{25} = (\frac{10}{QR})^2$

$\Rightarrow \sqrt{\frac{4}{25}} = (\frac{10}{QR})$

$\Rightarrow QR = \frac{10\times5}{2} = 25$ cm

Sol 79. (c)

In the given figure $\angle ABC = 180^\circ - 126^\circ = 54^\circ$



In triangle ABC, $\angle ACB = 90^\circ$

Therefore, $\angle BAC = 90^\circ - 54^\circ = 36^\circ$

Sol 80. (b)

We know that,

Transverse common tangent = $\sqrt{D^2-(R+r)^2}$

Where D = distance between the centres

R,r = radius of the circles

Transverse common tangent = $\sqrt{13^2-(2.5+2.5)^2}=12$

Sol 81. (c)

We know that,

Transverse common tangent = $\sqrt{D^2-(R+r)^2}$

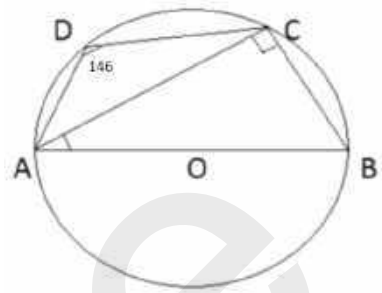
Where D = distance between the centres

R,r = radius of the circles

Transverse common tangent = $\sqrt{13^2-(6+6)^2}=5$

Sol 82. (a)

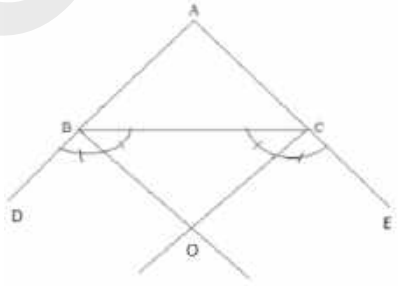
In the given figure $\angle ABC = 180^\circ - 146^\circ = 34^\circ$



In triangle ABC, $\angle ACB = 90^\circ$

Therefore, $\angle BAC = 90^\circ - 34^\circ = 56^\circ$

Sol 83.(d)



Given,

$\angle BOC = 72^\circ$

We know that

$90 - \angle BOC = \frac{\angle BAC}{2}$

$90 - \frac{72}{2} = \angle BOC$

$\Rightarrow \angle BOC = 54^\circ$

Sol 84. (d)

$\triangle ABC \sim \triangle QPR$ and ar($\triangle ABC$) : ar($\triangle QPR$) = 4 : 25 .....(given)

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle QPR} = (\frac{AB}{QP})^2$

$\Rightarrow \frac{4}{25} = (\frac{12}{QP})^2$

$\Rightarrow \sqrt{\frac{4}{25}} = (\frac{12}{QP})$

$\Rightarrow QP = \frac{12\times5}{2} = 30$ cm

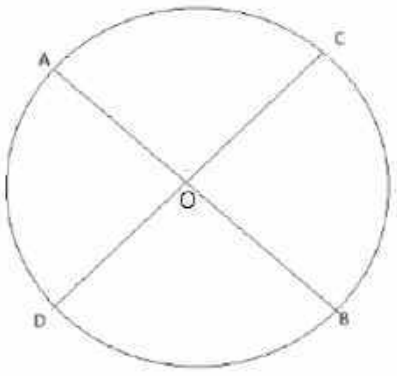
Sol 85. (c)

Pinnacle

Given, AB = 13 cm, CD = 8 cm and AO = 1 cm

⇒ OB = AB-AO = 13-1 = 12 cm

Let CO = x



We know that

AO × OB = CO × OD

1 × 12 = x × (8-x)

12 = x(8-x)

Using hit and trial put x = 6 cm

⇒ 12 = 6(8-6)

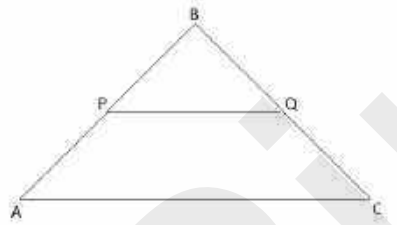
⇒ 12 = 12, condition satisfied.

So, CO = 6 cm and OD = 8-6 = 2 cm

Required Ratio ⇒ CO : OD = 6 : 2

= 3 : 1

Sol 86. (a)



PQ | | AC

△BAC ~ △BQP

Given, ar(△BAC) : ar(△BQP) = 3 : 1

$\Rightarrow \frac{ar\triangle ABC}{ar\triangle BQP} = (\frac{CB}{BQ})^2$

$\Rightarrow \frac{3}{1} = (\frac{CB}{BQ})^2$

$\Rightarrow \sqrt{\frac{3}{1}} = (\frac{CB}{BQ})$

$\Rightarrow \frac{\sqrt{3}}{1} = (\frac{CB}{BQ})$

⇒ CQ = $\sqrt{3}$ -1 unit

$(\frac{CB}{CQ}) = \frac{\sqrt{3}}{\sqrt{3}-1}$

$= \frac{\sqrt{3}}{\sqrt{3}-1} \times \frac{\sqrt{3}+1}{\sqrt{3}+1}$

$= \frac{\sqrt{3}}{2}\sqrt{3}+1$

Sol 87. (c)

Since the tangent doesn't intersect the line joining the centre of the two circles, It must be the direct common tangent.

We know that,

Direct common tangent = $\sqrt{D^2-(R-r)^2}$

Where D = distance between the centres

R,r = radius of the circles

Transverse common tangent = $\sqrt{8.2^2-(2.8-1)^2}$ = 8 cm

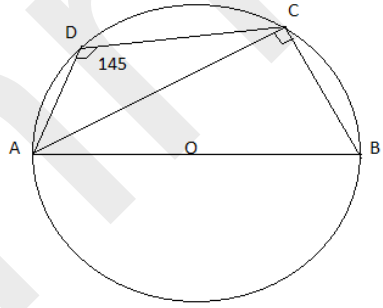
Sol 88. (a)

In the given figure $\angle ADC = 180^\circ - 142^\circ = 38^\circ$

In triangle ABC, $\angle ACB = 90^\circ$

Therefore, $\angle BAC = 90^\circ - 38^\circ = 52^\circ$

Sol 89. (d)



In the given figure $\angle ADC = 180^\circ - 145^\circ = 35^\circ$

In triangle ABC, $\angle ACB = 90^\circ$

Therefore, $\angle BAC = 90^\circ - 35^\circ = 55^\circ$

Sol 90. (d)

$\frac{BC}{PR} = \sqrt{\frac{9}{16}} \Rightarrow \frac{6}{x} = \frac{3}{4}$

Therefore, x=8

Sol 91. (a)

$\angle BOC = 90^\circ + \frac{30^\circ}{2} = 105^\circ$

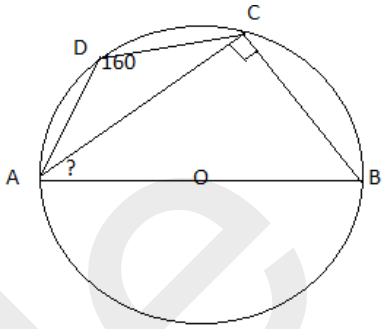
Sol 92. (c) Let side PQ be x cm.

Therefore, ATQ:

$\frac{BC}{PQ} = \sqrt{\frac{1}{9}} \Rightarrow \frac{4}{x} = \frac{1}{3}$

$\Rightarrow x = 12\ cm$

Sol 93. (c)

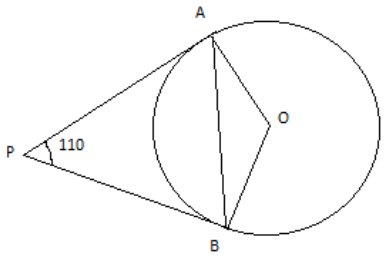


In the given figure, ∠ABC = 180°-160° = 20°

Now, in ΔABC, ∠BAC = 180° - (90°+20°) = 180° - 110° = 70°

Sol 94. (c) Angle formed on ex-center = 90°- $\frac{A}{2}$ =90°- $\frac{70^\circ}{2}$ =55°

Sol 95. (b) From the figure given below:



∠AOB = 180° -110° = 70°

Therefore, ∠OAB = $\frac{180^\circ-70^\circ}{2}$ = 55°

Sol 96. (b) ∠OAB = $\frac{180^\circ-140^\circ}{2}$ = 20°

Sol 97. (d) ATQ: $\frac{15}{x} = \sqrt{\frac{9}{4}}$

$\Rightarrow x = 10cm$

Sol 98. (b) ∠BOC = 90° - $\frac{A}{2}$ = 90°-25° = 65°

Sol 99. (c) ∠BAC = 90° - 40° = 50°

Pinnacle

Sol 100. (c)
$\angle BAC = 90° - 25° = 65°$

Sol 101. (a) $\angle OAB = \frac{70°}{2} = 35°$

Sol 102. (c) ATQ: $\frac{x}{6} = \sqrt{\frac{1}{4}}$
$\Rightarrow \frac{x}{6} = \frac{1}{2}$ $\Rightarrow x = 3$

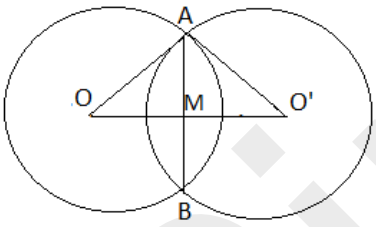
Sol 103. (d) $\angle BOC = 90° + \frac{\angle A}{2} = 110°$

Sol 104. (d) Since, ∠BAC=50
So, ∠ABC=180-(90+50)=40
Therefore, ∠ADC = 180-40 = 140

Sol 105. (d) When, ∠OAB = 20 °
Then, ∠AOB = 140 °
Therefore, ∠APB = 180 °-140 ° = 40°

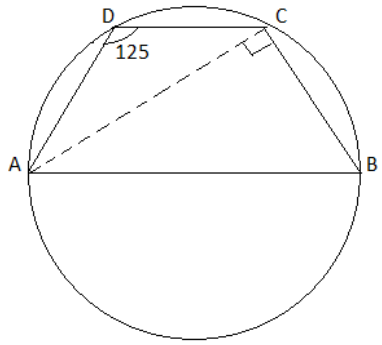
Sol 106. (b) Applying pythagoras theorem
$6^2 + x^2 = 10^2 \Rightarrow x = 8$

Sol 107. (b)



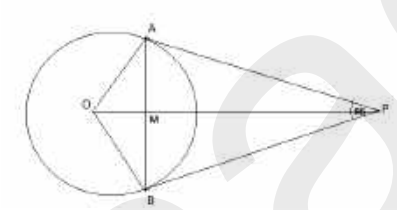
In Δ AMO
AM = $\frac{AB}{2} = \frac{16}{2} = 8$
OA = O'A (given)
∠ AMO = ∠ AMO'=90
So,
$(AM)^2 + (MO)^2 =$
$(AM)^2 + (MO')^2$
MO = MO' = $\frac{OO'}{2} = 6$
OA = $\sqrt{8^2 + 6^2} = 10$

Sol 108. (d)



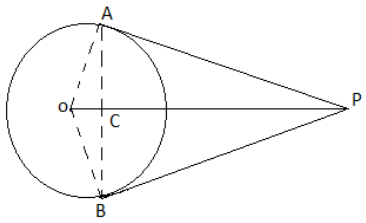
∠ACB = 90 (angle of semicircle)
∠ADC + ∠ABC = 180
∠ABC = 180-125 = 55
Δ ABC
∠ACB + ∠ABC + ∠CAB = 180
90 + 55 + ∠CAB = 180
∠CAB = 35

Sol 109. (a)



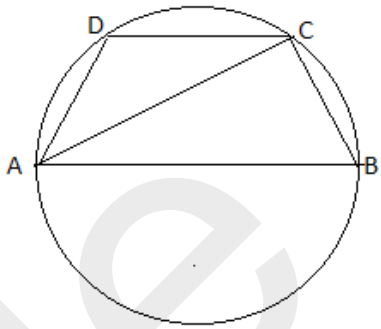
∠APO = $\frac{\angle APB}{2} = 43$
∠OAP = 90
∠OAB+∠APO+∠AOP = 180
∠AOP = 180 -90-43 = 47
ΔOAM
∠OAM + ∠AMO + ∠AOM = 180
∠OAM + 90 + 47 = 180
∠OAM = 43

Sol 110. (d)



ΔACO
∠OAC = 38°
∠ACO = 90°
∠AOC = 180 - 90° - 38° = 52°
ΔAOP
∠OAP = 90°
∠AOP = 52°
∠APO = 180- 90° - 52° = 38°
∠APB =2 × APO =2 × 38° = 76°

Sol 111. (c)



∠ADC + ∠ABC = 180
144 + ∠ABC = 180
∠ABC = 36
In Δ ABC
∠ABC + ∠ACB + ∠CAB = 180
36+90+∠CAB = 180
∠CAB = 54

Sol 112. (d) ∠ABC = 180-130 = 50
Therefore, ∠BAC = 180 - (90+50) = 180 - 140 = 40

Sol 113. (b) Short trick: In such a case,
$\angle OAB = \frac{1}{2} \times \angle APB = 35$

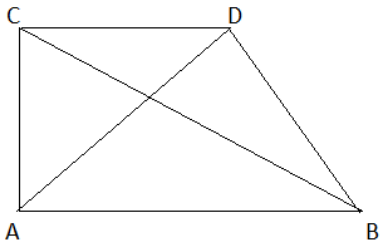
Sol 114. (a) In the given solid figures. Cuboid has the maximum no. of vertex i.e. 8.

Sol 115. (b) ∠BAC = 180-(90+32) = 58

Sol 116. (c) ∠OAB = $\frac{1}{2} \times$∠APB = 50

Sol 117.(b)
Given, AB ||CD

Pinnacle

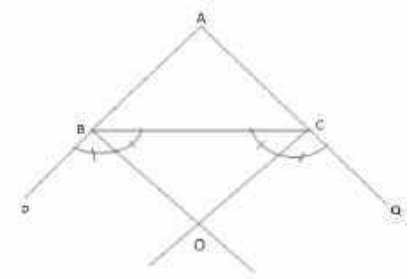


Geometric property : Area of the triangles formed on same base between two parallel lines is same and equal to half of the area of the parallelogram.

Clearly option B is the correct answer.

SSC CGL TIER II

Sol 1. (c)



Given,

$\angle BAC = 44^\circ$

We know that

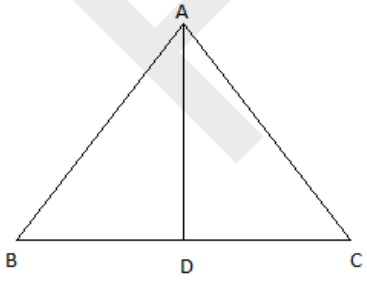
$90 - \frac{\angle BAC}{2} = \angle BOC$

$90 - \frac{44}{2} = \angle BOC$

$\angle BOC = 68^\circ$

$\Rightarrow \frac{1}{2}\angle BOC = 34^\circ$

Sol 2. (c)



In ΔABC *and* ΔADC

$\angle ADC = \angle BAC$

….(Given)

$\angle ACD = \angle ACB$

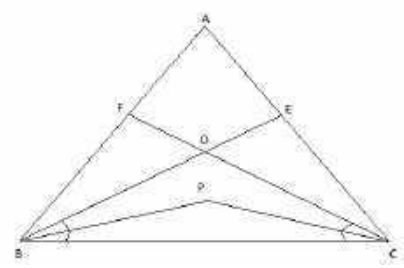
…..(Same angle)

$\Rightarrow \Delta ABC \sim \Delta ADC$

$\Rightarrow \frac{BC}{AC} = \frac{AC}{CD}$

$\Rightarrow CD = \frac{12\times12}{8} = 18$ cm

Sol 3.(d)



Given, $\angle A = 52^\circ$

$\Rightarrow \angle BOC = 180^\circ - 52^\circ = 128^\circ$

In ΔBOC

$\angle OBC + \angle OCB = 180^\circ - \angle BOC$

$= 180^\circ - 128^\circ = 52^\circ$

$\Rightarrow \angle PBC + \angle PCB = \frac{1}{2}(\angle OBC + \angle OCB)$

$= \frac{1}{2} \times 52^\circ = 26^\circ$

In ΔBPC

$\angle P = 180^\circ - (\angle PBC + \angle PCB)$

$= 180^\circ - 26^\circ = 154^\circ$

Sol 4. (b)

$AD = \frac{\sqrt{2AB^2+2AC^2-BC^2}}{2}$

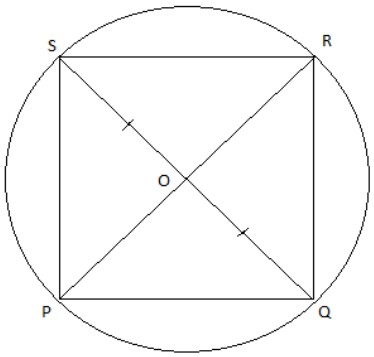
…...(Apollonius's theorem)

$\Rightarrow AD = \frac{\sqrt{2(6)^2+2(8)^2-(9)^2}}{2}$

$= \frac{\sqrt{119}}{2}$

Sol 5. (d)

Given, PQ = 14.4 cm, QR = 12.8 cm and SR= 9.6 cm



In ΔPOS *and* ΔROQ

$\angle ORQ = \angle OSP$

(angle made by same chord PQ)

$\angle POS = \angle ROQ$

(Vertically opposite angles)

$\Rightarrow \Delta POS \sim \Delta ROQ$

$\Rightarrow \frac{PS}{RQ} = \frac{QP}{OQ}$ ……..(1)

In ΔPOQ *and* ΔSOR

$\angle OPQ = \angle OSR$

(angle made by same chord)

$\angle POQ = \angle ROS$

(Vertically opposite angles)

$\Rightarrow \Delta POQ \sim \Delta SOR$

$\Rightarrow \frac{PQ}{SR} = \frac{QP}{OS}$

$\Rightarrow \frac{PQ}{SR} = \frac{QP}{OS}$ ……(2)

(OS=OQ)

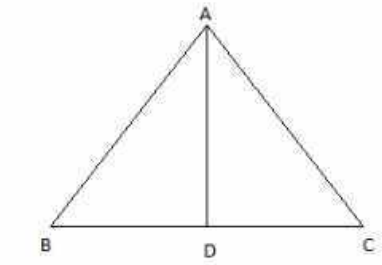
From (1) and (2)

$\frac{PS}{RQ} = \frac{PQ}{SR}$

$\Rightarrow \frac{PS}{12.8} = \frac{14.4}{9.6}$

$\Rightarrow PS = \frac{12.8\times14.4}{9.6} = 19.2$ cm

Sol 6. (c)



Given, AB = 7 cm, BC = 10cm, and AC = 8 cm

In ΔABC

$\frac{AB}{AC} = \frac{BD}{DC}$

……..(AD is angle bisector)

Let BD = x

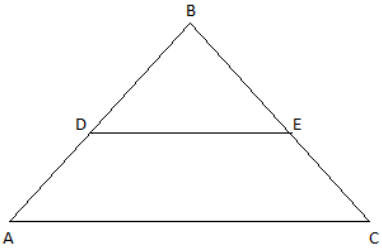
$\Rightarrow \frac{7}{8} = \frac{x}{10-x}$

$\Rightarrow 70-7x = 8x$

$\Rightarrow x = \frac{14}{3}$

Sol 7. (b)

Pinnacle



Given, DE | | AC and AD : DB = 5:3

Let AD = 5 unit and DB = 3 unit

$\Rightarrow$ AB =AD+DB = 8 unit

$\frac{BD^2}{AB^2} = \frac{area\ of\ \Delta BDE}{area\ of\ \Delta ABC}$

.....(DE | | AC)

$\frac{area\ of\ \Delta BDE}{area\ of\ \Delta ABC} = \frac{3^2}{8^2} = \frac{9}{64}$

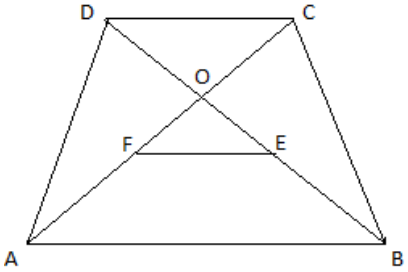
Area of trapezium ACED = $area\ of\ \Delta ABC$ - $area\ of\ \Delta BDE$

= 64 - 9

= 55 unit

Required ratio = 9 : 55

Sol 8. (c)



Given, DC | | AB, AB = 12 cm and DC=7.2 cm

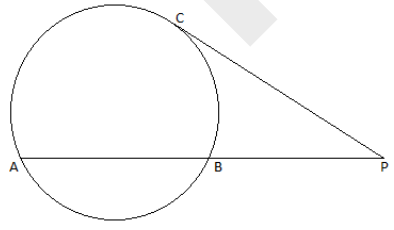
Let E and F be the points joining the mid points of BD and AC.

$\Rightarrow$ EF = $\frac{1}{2}$ (AB-CD)

= $\frac{1}{2}$ (12-7.2)

= 2.4 cm

Sol 9. (c)



Let AB = x

We know that

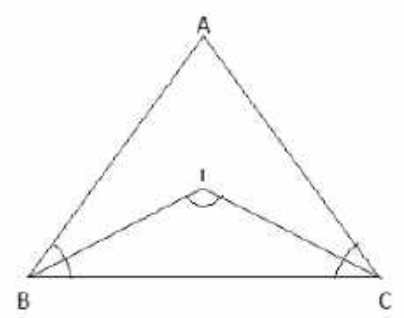
$PC^2 = PB \times PA$

$18^2 = 15 \times (15 + x)$

$\Rightarrow$ 15x = 324-225

$\Rightarrow$ x = 6.6 cm

Sol 10. (d)



Given, $\angle A = 58^\circ$

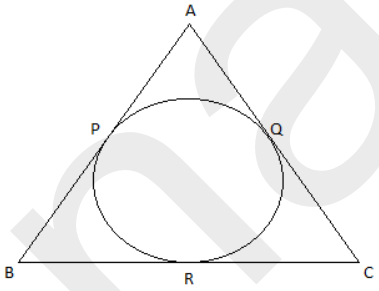
We know that

$\angle BIC = 90^\circ + \frac{A}{2}$

$\Rightarrow \angle BIC = 90^\circ + \frac{58}{2}$

$\Rightarrow \angle BIC = 90^\circ + 29^\circ = 119^\circ$

Sol 11. (d)



Given, perimeter of ΔABC = 32 cm

AB-BC = 4cm .....(1)

AB-AC = 2cm .....(2)

Add (1) and (2)

2AB-BC-AC = 4+2 = 6 cm .....(3)

AB+BC+CA = 32 cm.....(4) .....(perimeter)

Add (3) and (4)

(2AB-BC-AC) + (AB+BC+CA) = 32+6

$\Rightarrow$ 3AB = 38 cm

$\Rightarrow$ AB = $\frac{38}{3}$ cm

Sol 12. (d)

interior angle of a regular polygon = $\frac{(n-2) \times 180}{n}$

Where n is the number of sides

$\Rightarrow (128\frac{4}{7})^\circ = \frac{(n-2) \times 180}{n}$

$\Rightarrow \frac{900}{7} = \frac{(n-2) \times 180}{n}$

$\Rightarrow$ 5n = 7n-14

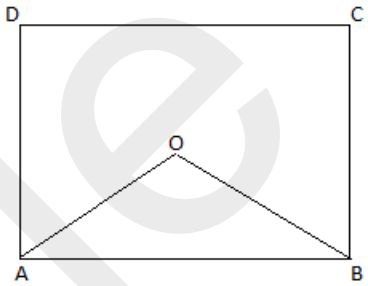
$\Rightarrow$ n=7

Number of diagonals = $\frac{n(n-3)}{2}$

= $\frac{7(7-3)}{2}$ = 14

Desired sum = 7+14 = 21

Sol 13.(b)



Given, $\angle AOB = 64^\circ$

In ΔOAB

$\angle OAB + \angle OBA = 180^\circ - \angle AOB$

= $180^\circ - 64^\circ = 116^\circ$

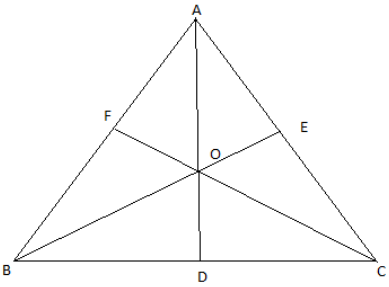
Now, $\angle A + \angle B = 2(\angle OAB + \angle OBA)$

= $2 \times 116^\circ = 232^\circ$

$\angle C + \angle D = 360^\circ - (\angle A + \angle B)$

= $360^\circ - 232^\circ = 128^\circ$

Sol 14.(b)



$\frac{1}{2}$ of the area of the ΔABC = Area of ΔABD ...(O is centroid)

$\frac{1}{6}$ of the area of the ΔABC = Area of ΔAOE ...(O is centroid)

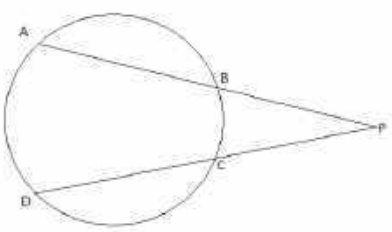
Pinnacle

Required ratio = $\frac{1}{2}$ of the area of the ΔABC : $\frac{1}{6}$ of the area of the ΔABC

$= 3 : 1$

Sol 15. (c)

Let PD = x cm



We know that

$PB \times PA = PC \times PD$

$6.3 \times (7.7+6.3) = 5.6 \times (x+5.6)$

$14 \times 6.3 = 5.6 (x+5.6)$

$\Rightarrow \frac{126}{8} = (x + 5.6)$

$\Rightarrow x = 10.15$

Sol 16. (b)

sum of the interior angles of a regular polygon = $(n-2) \times 180$

$1260 = (n-2) \times 180$

$n = 9$

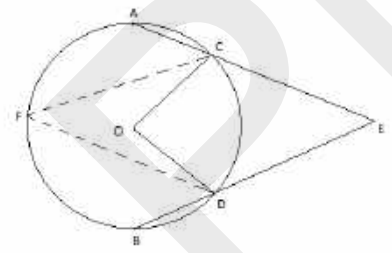
$\Rightarrow$ Exterior angle = $\frac{360}{n}$

$= \frac{360}{9} = 40^\circ$

$\Rightarrow$ Interior angle = $\frac{1260}{9} = 140^\circ$

Required difference = $140^\circ - 40^\circ = 100^\circ$

Sol 17. (d)



Given, $\angle AEB = 68^\circ$

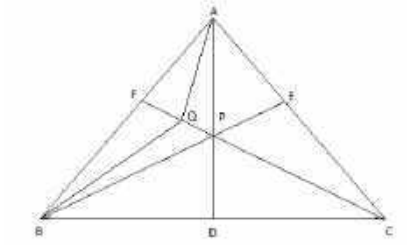
$\angle DFC = 90^\circ - \angle AEB$

$= 90^\circ - 68^\circ = 22^\circ$

$\angle DOC = 2 \times \angle DFC$

$= 2 \times 22^\circ = 44^\circ$

Sol 18.(b)



Given, $\angle EPD = 116^\circ$

$\angle PEC = \angle PDC = 90^\circ$ ...(perpendiculars)

$\angle ECD = 360^\circ - \angle EPD - \angle PEC - \angle PDC$

$= 360^\circ - 116^\circ - 90^\circ - 90^\circ$

$= 64^\circ$

$\Rightarrow \angle BAC + \angle ABC = 180^\circ - \angle ECD$

$= 180^\circ - 64^\circ = 116^\circ$

Now,

$\angle ABQ + \angle BAQ = \frac{1}{2} \times (\angle BAC + \angle ABC)$

$= \frac{1}{2} \times 116^\circ = 58^\circ$

$\Rightarrow \angle AQB = 180^\circ - (\angle ABQ + \angle BAQ)$

$= 180^\circ - 58^\circ = 122^\circ$

Sol 19. (a)

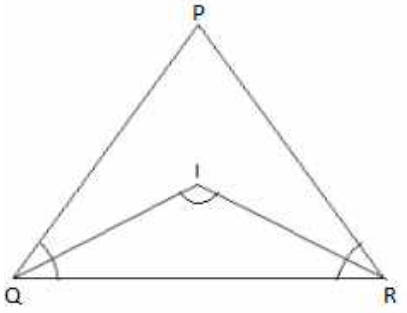
Given, $\Delta ABC \sim \Delta PQR$

$\Rightarrow \frac{perimeter\ of\ \Delta ABC}{perimeter\ of\ \Delta PQR} = \frac{AB}{PQ}$

$\Rightarrow \frac{78}{46.8} = \frac{AB}{11.7}$

$\Rightarrow AB = 19.5$ cm

Sol 20. (d)



Given, $\angle QIR = 107^\circ$

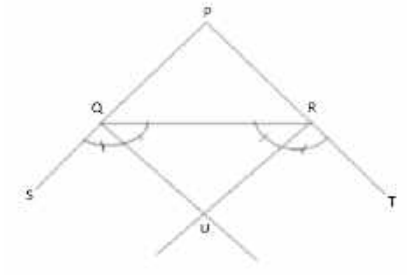
We know that

$\angle QIR = 90^\circ + \frac{\angle P}{2}$

$\Rightarrow 107^\circ = 90^\circ + \frac{\angle P}{2}$

$\Rightarrow \angle P = 34^\circ$

Sol 21. (c)



Given,

$\angle QUR = 79^\circ$

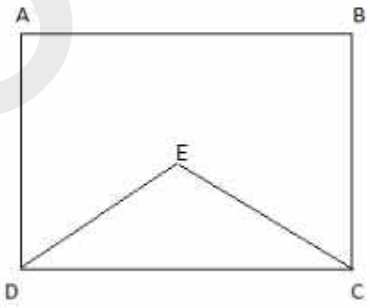
We know that

$90 - \frac{\angle QPR}{2} = \angle QUR$

$90 - \frac{\angle QPR}{2} = 79^\circ$

$\angle QPR = 22^\circ$

Sol 22. (c)



Given, $\angle CED = 56^\circ$

In ΔEDC

$\angle EDC + \angle ECD = 180^\circ - \angle DEC$

$= 180^\circ - 56^\circ = 124^\circ$

Now, $\angle C + \angle D = 2(\angle EDC + \angle ECD) = 2 \times 124^\circ = 248^\circ$

$\angle A + \angle B = 360^\circ - (\angle C + \angle D)$

$= 360^\circ - 248^\circ = 112^\circ$

$\angle B = 112^\circ - \angle A$

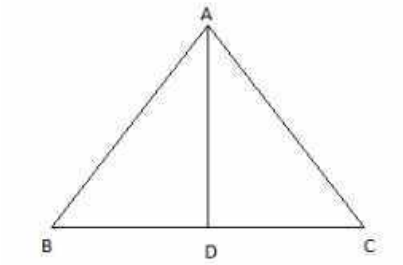
$= 112^\circ - 49^\circ = 63^\circ$

Sol 23. (c) Given, AB=BC, BD = 5cm, AB = 12cm and AD = 8 cm

$\Rightarrow \angle ABC = \angle ACB$ (AB=BC)

Let $\angle ABC = \angle ACB = \theta$

Pinnacle



In ΔABD

$AD^2 = AB^2 + BD^2 - 2 \times AB \times BD \times Cos\theta$

$8^2 =$

$12^2 + 5^2 - 2 \times 12 \times 5 \times Cos\theta$

$\Rightarrow Cos\theta = \frac{7}{8}$

In ΔADC

$AD^2 = AC^2 + CD^2 - 2 \times AC \times CD \times Cos\theta$

$8^2 =$

$12^2 + CD^2 - 2 \times 12 \times CD \times \frac{7}{8}$

$\Rightarrow CD^2 - 21CD + 80 = 0$

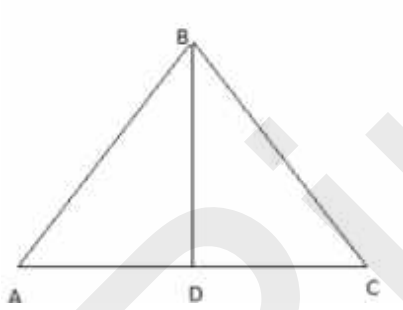
$\Rightarrow CD^2 - 16CD - 5CD + 80 = 0$

$\Rightarrow$ CD(CD-16)-5(CD-16) = 0

$\Rightarrow$ CD = 16 or 5

Clearly among the given options option C is the right answer.

Sol 24. (d)



Given, AB = 10 cm, BC = 11 cm, and AC = 14 cm

In ΔABC

$\frac{AB}{BC} = \frac{AD}{DC}$

……..(AD is angle bisector)

Let AD = x

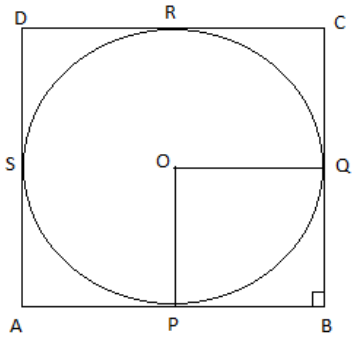
$\Rightarrow \frac{10}{11} = \frac{x}{14-x}$

$\Rightarrow$ 140-10x = 11x

$\Rightarrow x = \frac{20}{3}$

Sol 25. (b)

Given, $\angle B = 90^\circ$. If AD = 24 cm, AB=27 cm and DR = 6cm



DR=DS = 6 cm …..(tangents)

AS = AD-DS

= 24-6 = 18cm

AS=AP = 18 cm …..(tangents)

PB = AB - AP

= 27-18 = 9 cm

$OP \perp AB$, $OQ \perp BC$

……(angle made by radius on tangent)

In quadrilateral OPQB

$\angle B = 90^\circ$, $\angle OQB = 90^\circ$, $\angle OPB = 90^\circ$

$\Rightarrow \angle POQ = 90^\circ$

PB=BQ …..(tangents)

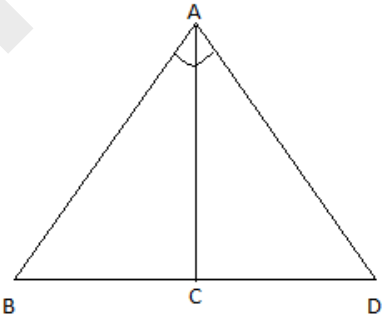
$\Rightarrow$ OPBQ is a square

PB=BQ=OP=OQ = 9 cm

Perimeter of the circle = $2\pi r$

$= 2 \times \pi \times 9 = 18\pi$

Sol 26. (a)



Given, C is the midpoint of BD

$\Rightarrow$ AC is the median

$AC = \frac{\sqrt{2AB^2+2AD^2-BD^2}}{2}$

……(Apollonius's theorem)

$\Rightarrow 9 = \frac{\sqrt{2(10)^2+2(12)^2-(BD)^2}}{2}$

$BD^2 = (200+288)-324$

BD = $\sqrt{164} = 2\sqrt{41}$

Sol 27. (d)

Given, $\angle PSR = 125^\circ$

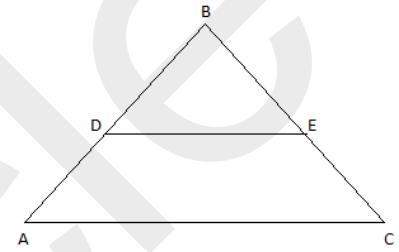
We know that

$\angle PSR = 90^\circ + \frac{\angle PQR}{2}$

$\Rightarrow 125^\circ = 90^\circ + \frac{\angle PQR}{2}$

$\Rightarrow \angle PQR = 70^\circ$

Sol 28.(d)



Given, DE | | AC and AD : AB = 3:8

Let AD = 3 unit and AB = 8 unit

$\Rightarrow$ DB =AB-AD = 5 unit

$\frac{BD^2}{AB^2} = \frac{area\ of\ \Delta BDE}{area\ of\ \Delta ABC}$

……...(DE | | AC)

$\frac{area\ of\ \Delta BDE}{area\ of\ \Delta ABC} = \frac{5^2}{8^2} = \frac{25}{64}$

Area of trapezium ACED = $area\ of\ \Delta ABC$ - $area\ of\ \Delta BDE$

= 64 - 25 = 39 unit

Required ratio = 25 : 39

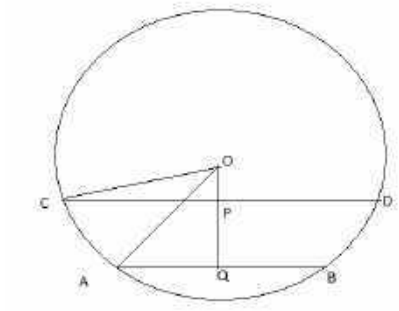
Sol 29. (a)

Given,

AB = 12 cm

$\Rightarrow$ CD = 20 cm

OC=OA = $5\sqrt{13}$



Pinnacle

OP $= \sqrt{OC^2 - CP^2} = \sqrt{(5\sqrt{13})^2 - (10)^2}$

OP= $\sqrt{325 - 100} = 15$

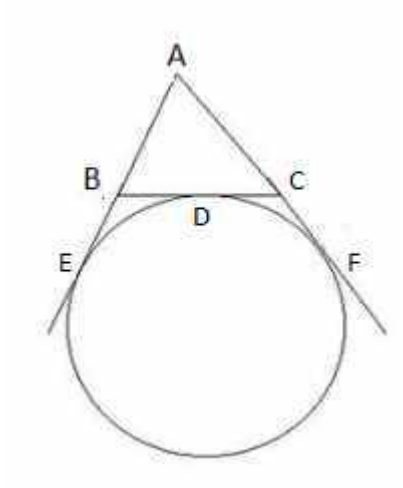
OQ $= \sqrt{OA^2 - AQ^2} = \sqrt{(5\sqrt{13})^2 - (6)^2}$

OP= $\sqrt{325 - 36} = 17$

Distance between the chords (PQ) = OQ-OP

= 17-15 = 2 cm

Sol 30. (d)



AE = AF

…..(tangents to the circle)

BE=BD and CD=CF

…..(tangents to the circle)

⇒ AB+BC+AC = 10+8.6+6.4 = 25

⇒ (AE-BE)+(AF-FC)+(BD+DC) = 25

⇒ AE-BD+AF-CD+BD+CD = 25

….(BE=BD and CD=CF)

⇒ AE+AF = 25

⇒ 2AE = 25

……(AE=AF)

⇒ AE = 15

⇒ BE = AE-AB = 12.5-10 = 2.5 cm

Sol 31.(d)

Exterior angle = $\frac{360}{n}$

Where n is the number of sides

⇒ $51\frac{3}{7} = \frac{360}{n} =$

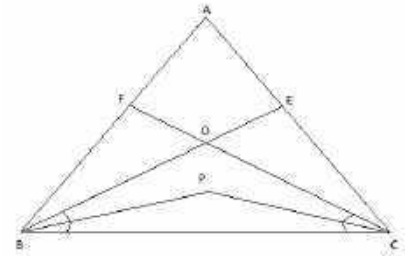
⇒ n = $\frac{360 \times 7}{360}$

Number of diagonals = $\frac{n(n-3)}{2} = \frac{7(7-3)}{2} = 14$

Desired ratio = 14 : 7

= 2 : 1

Sol 32. (d)



Given, ∠BPC = 148°

In ΔBPC

∠P = 180° -(∠PBC + ∠PCB)

(∠PBC + ∠PCB)= 180° - 148° = 32°

Now, ∠PBC + ∠PCB = $\frac{1}{2}$(∠OBC + ∠OCB)

$32^\circ = \frac{1}{2} \times (\angle OBC + \angle OCB)$

$\Rightarrow (\angle OBC + \angle OCB) = 64^\circ$

In ΔBOC

∠OBC + ∠OCB = $180^\circ - \angle BOC$

⇒ ∠BOC = 180° – 64° = 116°

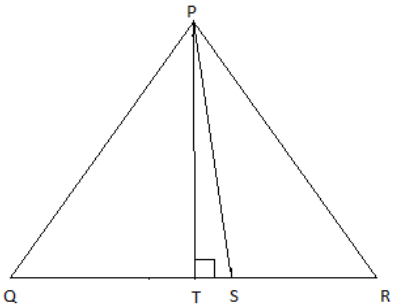
∠A = 180° - ∠BOC

…..(Orthocentre)

= 180° – 116° = 64°

Sol 33. (b)

Note : Question Statement was wrong in the given question. "PT ⊥ PR" was given in the question which is not possible.

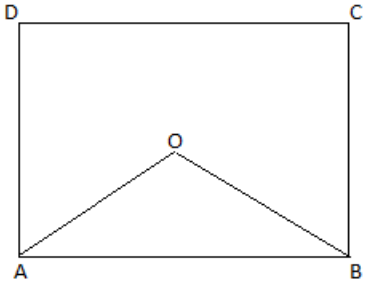


∠SPT = $\frac{1}{2}$(∠PQR-∠PRQ)

28 = $\frac{1}{2}$(∠PQR-23)

∠PQR = 56+23 = 79

Sol 34. (c)



Given, ∠C= 72° and ∠D = 28°

∠A + ∠B = 360° -(∠C +∠D)

= 360° - 100° = 260°

Now, ∠A + ∠B = 2(∠OAB + ∠OBA)

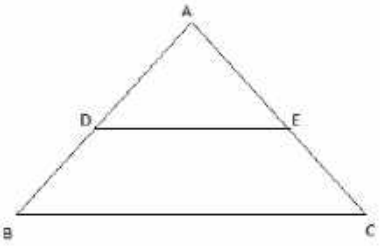
(∠OAB + ∠OBA) = $\frac{260}{2}$ = 130°

In ΔOAB

$\angle AOB = 180^\circ - \angle OAB + \angle OBA$

= 180° – 130° = 50°

Sol 35. (b)



Given, AD × AC = AB × AE and ∠ADE = ∠ACB + 30° and ∠ABC = 78°

⇒ $\frac{AD}{AB} = \frac{AE}{AC}$

⇒ AB | | AC

$\angle ADE = \angle ABC =$ 78° and $\angle AED = \angle ACB$

….(corresponding angle)

∠ADE = ∠ACB + 30°

78° = ∠ACB + 30°

⇒ ∠ACB = 48°

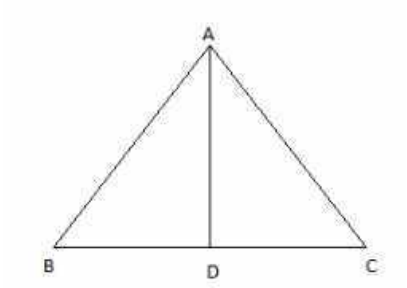
⇒ ∠A = $180^\circ - (\angle ABC + \angle ACB)$

= 180° – 78° - 48°

= 54°

Pinnacle

Sol 36. (c)



Given, AB = 15 cm, BC = 14 cm, and AC =13 cm

In ΔABC

$\frac{AB}{AC} = \frac{BD}{DC}$

…….(AD is angle bisector)

Let BD = x

$\Rightarrow \frac{15}{13} = \frac{x}{14-x}$

$\Rightarrow$ 210-15x = 13x

$\Rightarrow x = \frac{15}{2} = 7.5$ cm

CD = BC-BD

= 14-7.5 = 6.5 cm

Sol 37. (d) Let n be the number of sides.

$\frac{(n-2)\times 180}{n} = \frac{900}{7}$

7(n-2) = 5n

$\Rightarrow n = 7$

Number of diagonals of a polygon = $\frac{n(n-3)}{2} = \frac{7\times(7-3)}{2} = 14$

Required sum = 7+14 = 21

Sol 38.

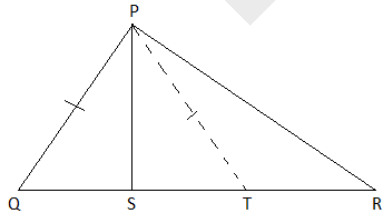
Given, $\angle P = 120^\circ$, PS $\perp$ QR and PQ+QS=SR.

Draw PT=PQ. Let PQ = y and QT = 2x, $\angle PQS = \theta$ and $\angle PRQ = \varphi$

In ΔPQR

$\angle PQR + \angle PRQ + \angle QPR = 180$

$\Rightarrow \theta + \varphi = 180 - 120 = 60$ …..(1)



$\Rightarrow$ PQT is an isosceles triangle and PS $\perp$ QR

$\Rightarrow$ QS = ST=x

$\Rightarrow \angle PTQ = \theta$ ..(PQ=PT)

And $\angle QPT = 180 - 2\theta$

Now,

PQ+QS=SR …(given)

$\Rightarrow$ y + x = x + TR

$\Rightarrow$ TR = y

$\Rightarrow$ PT = TR ……(Both are equal to y)

$\Rightarrow \angle PRT = \angle TPR = \varphi$ ..(PT = TR)

According to the question

$\angle QPT + \angle TPR = 120$

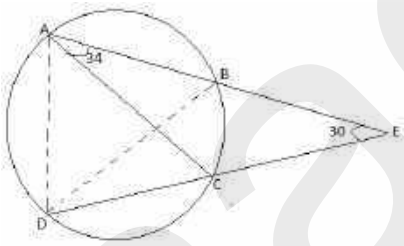
$\Rightarrow$ 180- 2θ + φ = 120

$\Rightarrow$ 2θ - φ = 60 ……(2)

Add eq (1) and (2)

$\Rightarrow \theta = 40^\circ$

Sol 39. (b)



$\angle ADC = 90^\circ$

In ΔADE

$\angle ADC + \angle DAE + \angle AED = 180^\circ$

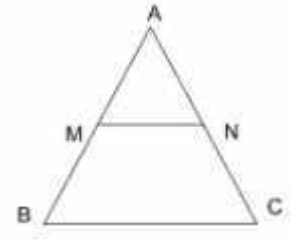
$\Rightarrow 90^\circ + \angle DAC + 34^\circ + 30^\circ = 180^\circ$

$\Rightarrow \angle DAC = 180^\circ - (90^\circ + 34^\circ + 30^\circ) = 26^\circ$

$\angle DAC = \angle DBC = 26^\circ$ …(angle made by same chord)

SSC CGL 2019 TIER 1

Sol 1. (d) In the given diagram, AN:NC= 4:5



Or we can say, AN:AC = 4: 9

We know that area $\propto$ side^2

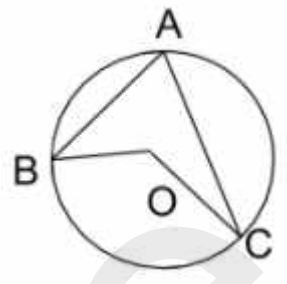
$\frac{area(\Delta AMN)}{area\ (\Delta ABC)} = \frac{16}{81}$

area(MBCN) = 65 units = 130 cm^2

So,

area(ΔAMN) = 16 units = 32 cm^2

Sol 2. (c)



∠ AOB =110°

∠ AOC = 130°

∠ AOB + ∠ AOC = 240°

Sum of angles formed at the centre of the circle is 360°

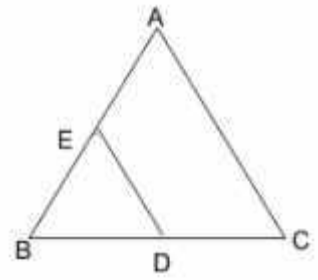
Thus,

∠ COB = 120°

We know, the angle formed at the centre is double the angle formed at the edge.

So, ∠ BAC = 60°

Sol 3. (d) E is the mid point of AB and D is the mid point of BC.



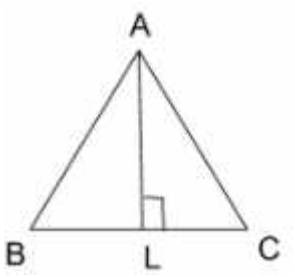
As per mid point theorem,

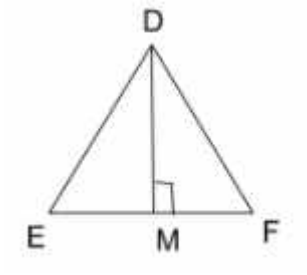
$\frac{area\ \Delta BDE}{area\ \Delta ABC} = \frac{1}{4}$

Area ΔABC = 44 cm^2

Then, Area ΔBDE = 11 cm^2.

Sol 4. (b)





$\frac{area(\Delta ABC)}{area(\Delta DEF)} = \frac{9}{25} = (\frac{AL}{DM})^2$

$\frac{AL}{DM} = \frac{3}{5}$

Then,

$\frac{DM+AL}{DM-AL} = \frac{8}{2}$ =4:1

Sol 5. (b) ΔABC is an equilateral triangle with side 'x' and AD $\perp BC$

Thus, AD bisects BC and D is the midpoint of BC

Using pythagoras formula:

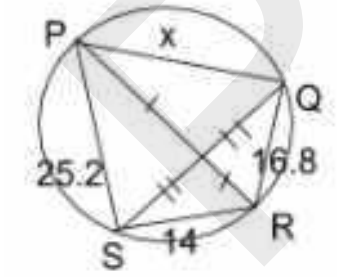
$x^2 = \frac{x^2}{4} + (4\sqrt{3})^2$

$\frac{3}{4}x^2 = 48$

X = 8

Perimeter of ΔABC = 24 cm

Sol 6. (b) As PR and SQ bisect each other



In ΔPOS and ΔROQ,

$\angle POS = \angle ROQ$

PO = RO

OS = QO

Thus, $\Delta POS \sim \Delta ROQ$

$\frac{PQ}{OR} = \frac{QS}{OQ} = \frac{PS}{QR} = \frac{25.2}{16.8} \Rightarrow \frac{3}{2}$

Similarly,

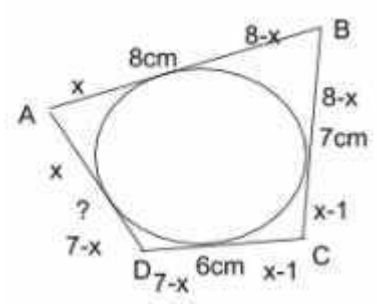
$\Delta PQO \sim \Delta ROS$

So: $\frac{PQ}{OR} = \frac{PQ}{SR}$

$\Rightarrow \frac{3}{2} = \frac{x}{14}$

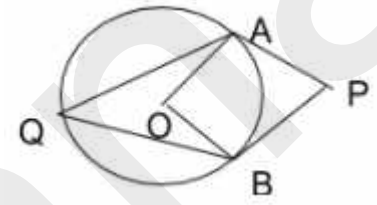
$\Rightarrow x = 21$

Sol 7. (c) We know that two tangents from a point outside the circle are equal in length.



From the diagram it is clear that AD = 7 cm.

Sol 8. (b) In the given diagram



AP and BP are tangents and $\angle APB$ =62°,

We know that:

sum of angles of a quadrilateral is 360° and Tangent is always perpendicular to the circle at the point of intersection

Hence,

$\angle APB + \angle AOB + \angle OBP + \angle OAP = 360°$

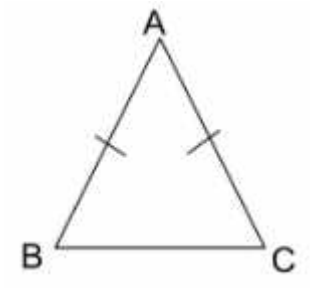
62°+ $\angle AOB$ +90°+90°= 360°

$\angle AOB = 118°$

Angle formed at the circumference of a circle is half the angle formed at the centre of the circle.

$\angle AQB = 59°$

Sol 9. (d) In the given diagram, AB= AC and ∠BAC= 40°



For an isosceles triangle, angles opposite to equal sides are equal in magnitude.

So,

∠B=∠C

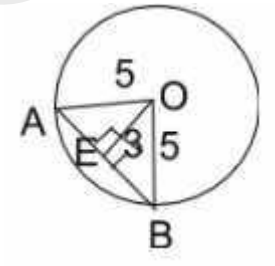
Sum of angles of triangle is 180°

∠A+∠B+∠C= 180°

40°+ 2∠B= 180°

∠B = 70°

Sol 10. (c) O is the centre of the circle and AB is the chord.



⊥ar from centre to chord bisect the chord.

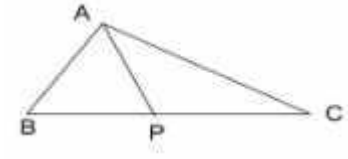
AE= EB

Using pythagoras theorem,

AE= 4 cm

And AB= 8 cm

Sol 11. (d) AP is the angle bisector of ∠BAC in ΔABC



Acc. to angle bisector theorem,

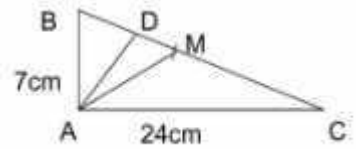
$\frac{AB}{AC} = \frac{BP}{CP}$

$\frac{4}{6} = \frac{3}{CP}$

CP= 4.5 cm

Pinnacle

Sol 12. (d) M is the mid point of BC and AD ⊥ BC.



Using pythagoras theorem: BC = 25 cm

M is the midpoint, BM=MC=AM 12.5 cm

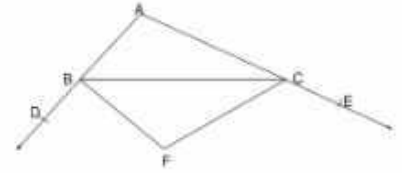
In ΔBAC ; BA × AC = AD × BC

7 × 24 = AD × 25

AD = $\frac{168}{25}$

Hence, $\frac{AD}{AM} = \frac{168\times2}{25\times25} = \frac{336}{625}$

Sol 13. (c) In $\Delta ABC, \angle B = 68°$ and $\angle C = 32°$. Therefore, $\angle A = 80°$.

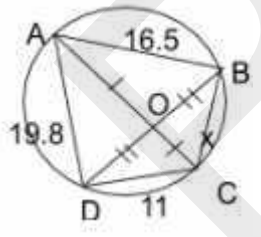


$\angle FBC = \frac{\angle DBC}{2} = \frac{(180-68)°}{2}$

$\angle FCB = \frac{\angle ECB}{2} = \frac{(180-32)°}{2}$

Thus, $\angle BFC = 180° - (\angle FBC + \angle FCB) = 50°$

Sol 14. (c) BD and AC bisect each other at O.



In Δ AOB and Δ DOC:

OB = OD

OA = OC

Thus Δ AOB ~ Δ DOC

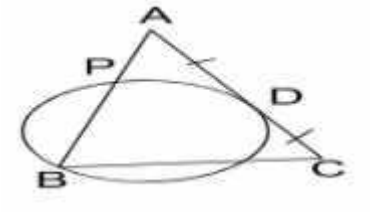
$\frac{AB}{CD} = \frac{AO}{OD} \Rightarrow \frac{AO}{OD} = \frac{16.5}{11} = 1.5 = \frac{AO}{OB}$

Similarly, Δ AOD ~ Δ BOC

$\frac{AO}{OB} = \frac{AD}{BC} \Rightarrow \frac{3}{2} = \frac{19.8}{x}$

x = 13.2 cm

Sol 15. (d) In Δ ABC, D is the mid point of AC and AB=AC.



Here, AD is the tangent.

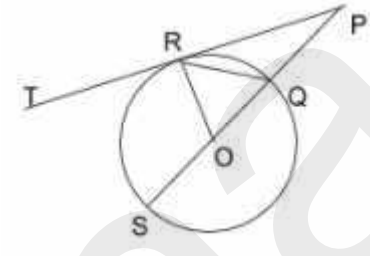
Thus, $AD^2 = AP \times AB$

$\frac{AB}{4}^2 = AP \times AB$

$\frac{AB}{4} = AP = 2.5$

AB = 10 cm

Sol 16. (b) In the given diagram, $\angle QRP = 28°$, Join OR.



We get OR ⊥ PR.

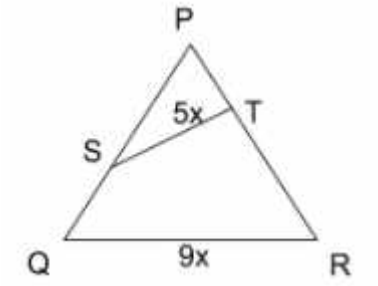
Then $\angle ORQ = \angle OQR = 90°-28° = 62°$

Then $\angle ROQ = 180° - 124° = 56°$.

In ΔORP : $\angle ORP = 90°$

Then $\angle RPO = 90°-56° = 34°$

Sol 17. (c) ∠ STR= 95° then ∠ STP =85°



Given: ∠ Q= 85° and ∠ R= 65° and QR:ST = 9:5 and PQ=21.6 cm

In Δ STP and Δ RQP:

∠ RQP= $\angle STP$ =85°

∠ P (common)

Hence, Δ STP ~ Δ RQP

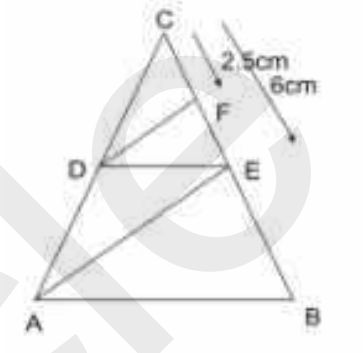
Thus

$\Rightarrow \frac{ST}{QR} = \frac{PT}{PQ}$

$\Rightarrow \frac{5}{9} = \frac{PT}{21.6}$

⇒ PT = 12 cm

Sol 18. (a) Here, DF∥AE, DE∥AB, CF = 2.5 cm and CE = 6 cm



In ΔDCF and Δ ACE

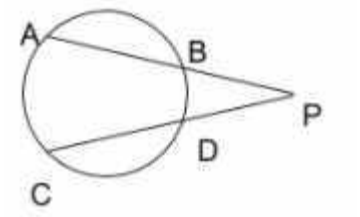
$\frac{CD}{AC} = \frac{CF}{CE} = \frac{2.5}{6} = \frac{5}{12}$

Similarly, In Δ DCE and Δ ACB

$\frac{CD}{AC} = \frac{CE}{BC} \Rightarrow \frac{5}{12} = \frac{6}{BC}$

BC = $\frac{72}{5}$ =14.4 cm

Sol 19. (d) In the given diagram, AB= 7cm, BP = 4.2 cm, PD = 2.8 cm



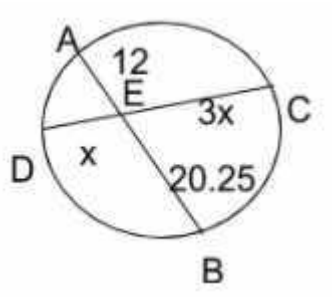
As, AP × BP = CP × DP

11.2 × 4.2 = CP × 2.8

CP = 16.8

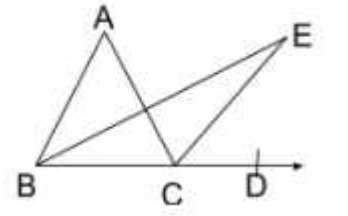
Then CD = 14 cm

Sol 20. (a) AB and CD are two chords in a circle.



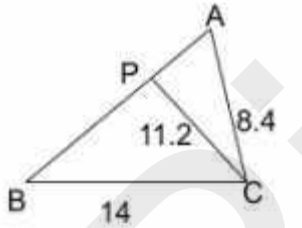
⇒ AE*BE = CE*DE
⇒ 12*20.25 = $3x^2$
⇒ $81 = x^2$
x = 9 cm
CE = 27 cm

Sol 21. (c) In ΔABC, $\angle B = 72°$ and $\angle C = 44°$



$\angle A = 64°$
Bisectors of $\angle B$ and $\angle ACD$ meet at E. Thus, $\angle BEC$ is half $\angle BAC$
Thus, $\angle E = 32°$.

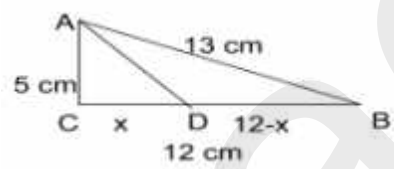
Sol 22. (c) In $\Delta ABC, \angle ACP = \angle B$



In ΔABC and ΔACP :
$\angle ACP = \angle B$,
$\angle A$ and side AC is common
Hence, $\frac{AB}{AC} = \frac{BC}{PC} = \frac{AC}{AP}$
⇒ $\frac{BC}{PC} = \frac{AC}{AP}$ ⇒ $\frac{14}{11.2} = \frac{8.4}{AP}$ ⇒ AP = 6.72
Similarly, in ΔABC *and* ΔCBP :
AB × PC = AC × BC
AB × 11.2 = 8.4 × 14
AB = 10.5
BP = 10.5 - 6.72 = 3.78 cm

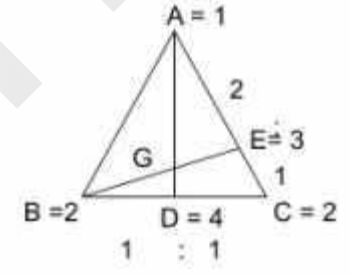
Sol 23. (b) As the radius of two circles be 7 cm and 5 cm and distance between their centres is 10 cm. Let AB and centre of two circles(c_1 and c_2) intersect of O. AB = 2x and and c_1O = a then c_2O = (10-a).
AO is common in ΔOc_1 and ΔOc_2. Applying pythagoras theorem in both triangles, AO = $\sqrt{7^2 - a^2} = \sqrt{5^2 - (10-a)^2}$
a = $\frac{31}{5}$
AO = $\sqrt{7^2 - \frac{31}{5}^2} = \frac{2\sqrt{66}}{5}$
AB = $\frac{4\sqrt{66}}{5}$

Sol 24. (a) AD is the angle bisector of $\angle A$



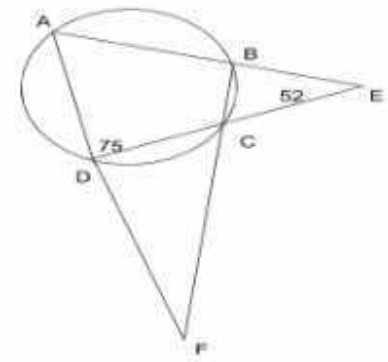
According to angle bisector theorem:
$\frac{AC}{AB} = \frac{CD}{BD} \Rightarrow \frac{5}{13} = \frac{x}{12-x} \Rightarrow x = \frac{10}{3}$
AD = $\sqrt{(5)^2 + (\frac{10}{3})^2} = \frac{5\sqrt{13}}{3}$ cm

Sol 25. (b) Apply mass point theorem in the following diagram:



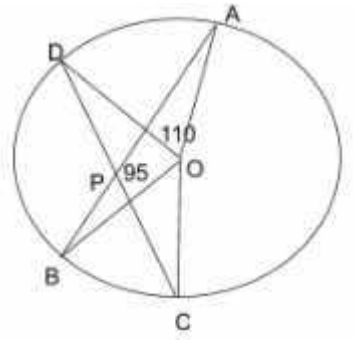
AG:GD = 4:1

Sol 26. (c) $\angle ADC = 75°$, $\angle BEC = 52°$



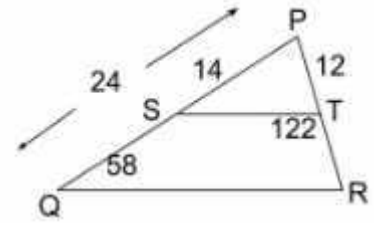
$\angle EBC = 75°$(in cyclic quadrilateral, exterior angle is equal to interior opposite angle)
$\angle BCE = \angle BAD = \angle FCD = 53°$ (sum of angles of triangle is 180°)
$\angle FDC = 105°$
Thus,
$\angle DFC = 22°$
$\angle BAD - \angle AFB = (53-22)° = 31°$

Sol 27. (c) $\angle APC = 95°$, $\angle AOD = 110°$. Join BD.



$\angle ABD = 55°$
$\angle BPD = 95°$
$\angle BDC = 180°-(95+55)° = 180°-(150)° = 30°$
$\angle BOC = 60°$ (angle formed at the centre is double the angle formed at the arc of circle).

Sol 28. (c) In ΔPQR, PQ=24 cm and $\angle Q = 58°$, $\angle STR = 122°$, PS= 14cm and PT= 12cm



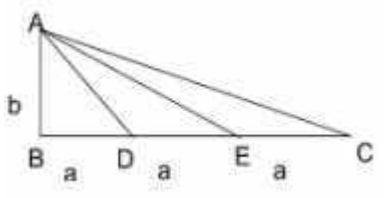
∠PTS=58° (180°-122°)

$\Delta PQR \sim \Delta PTS$ {∠PTS = ∠PQR = 58° and ∠P is common}

Thus, $\frac{PT}{PQ} = \frac{PS}{PR} \Rightarrow \frac{12}{24} = \frac{14}{PR} \Rightarrow$ PR = 28 cm

RT = 28 - 12 = 16 cm

Sol 29. (a) In $\Delta ABC, \angle B = 90°$. Let AB = 8 cm and BC = 6 cm. BD = BE =EC = 2 cm.



$AC^2 = b^2+9a^2 = 100$ cm

$AD^2 = b^2+a^2 = 68$ cm

$AE^2 = b^2+4a^2 = 80$ cm

Put values in options:

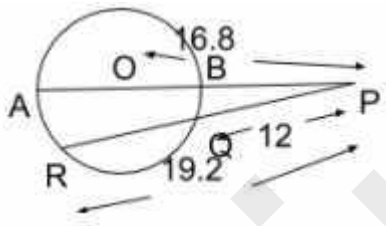
$8AE^2 = 3AC^2+5AD^2$

8(80)= 3(100) + 5(68)

640 = 300 + 340

Thus, option (a) is the answer.

Sol 30. (d) PO = 16.8 cm, PQ = 12 cm, PR = 19.2 cm



Let r be the radius of the circle.

PB × PA = PQ × PR

(16.8-r) × (16.8+r) = 12 × 19.2

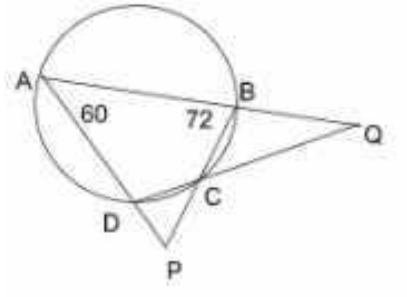
$(16.8)^2-r^2 = (4.8)^2$

$282.24 - 230.4 = r^2$

r = 7.2 cm

AB = 14.4 cm

Sol 31. (c) ∠A=60° and ∠ABC=72°.



In a cyclic quadrilateral, the exterior angle is equal to the interior opposite angle.

Therefore, ∠QCB = ∠PCD = 60°

And ∠PDC = 72°

∠QBC = 108° (linear pair)

In ΔQBC, ∠BQC = 12° and In ΔPDC, ∠DPC = 48° (sum of angles of a triangle is 180°)

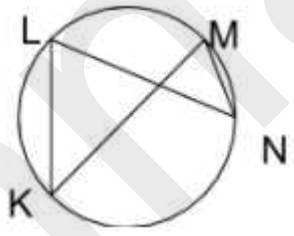
∠DPC - ∠BQC = 36°

Sol 32. (a) Angles of a triangle = 2x, 3x, 4x.

Sum of angles = 9x = 180°

Smallest angle = 40°

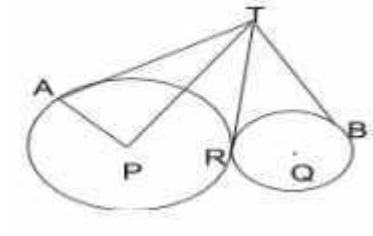
Sol 33. (a) ∠KLN = 58°



In a cyclic quadrilateral, angles formed on the same arc are equal in measurement.

Thus, ∠KMN = ∠KLN = 58°

Sol 34. (c) AP, radius of first circle = 6cm and PT = 10 cm



Tangent is perpendicular to the radius.

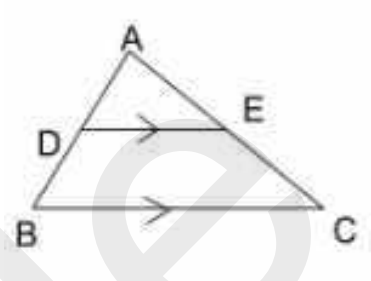
Apply pythagoras theorem in Δ TAP, $TP^2 = AP^2 + AT^2$

AT = 8 cm

Tangents to a circle from a point outside the circle are equal in length.

Thus, AT = TR = TB = 8 cm

Sol 35. (b) DE ∥ BC, AD = 2.5 cm, DB = 3.5 cm and EC = 4.2 cm. Let AE = x cm



$\Delta DAE \sim \Delta BAC : \frac{AD}{AB} = \frac{AE}{AC} \Rightarrow \frac{2.5}{6} = \frac{x}{x+4.2} \Rightarrow$ x = 3 cm

AC = 7.2 cm

Sol 36. (c) ABC is an equilateral triangle and ΔPQR is formed by joining midpoints of ΔABC. Thus, area of ΔPQR = $\frac{1}{4}$ *of area of* ΔABC

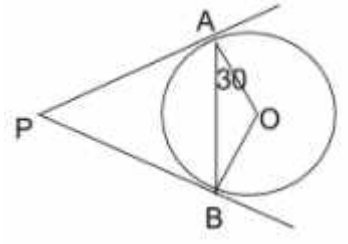
area of $\Delta PQR = \frac{1}{4} \times \frac{\sqrt{3}}{4} \times 64 = 4\sqrt{3}$

Sol 37. (c) Area of equilateral triangle = $36\sqrt{3}$ cm^2 = $\frac{\sqrt{3}}{4} \times side^2$

Side = 12 cm

Then, Perimeter of equilateral triangle = 36 cm

Sol 38. (b) ∠OAB = 30°

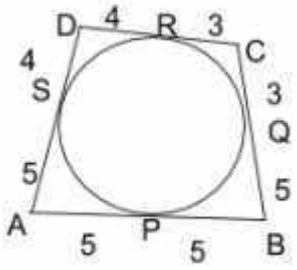


OA = OB = radius of circle

Pinnacle

In ΔAOB, $\angle OAB = \angle OBA = 30°$, thus, $\angle AOB = 120°$
In quadrilateral AOBP, $\angle OAP = \angle OBP = 90°$ and $\angle AOB = 120°$
Then, $\angle APB = 60°$ (sum of angles of quadrilateral is 360°)

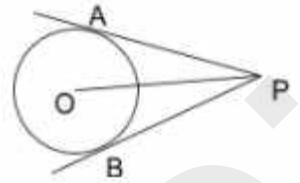
Sol 39. (b) AB = 10cm, CD = 7 cm, SD = 4 cm and AS = 5 cm
Two tangents from the same point to a circle are equal in length.



Thus, BC = 8 cm

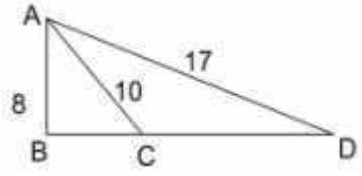
Sol 40. (d) For a triangle with sides: a,b and c
⇒ (a-b)<c<(a+b)
⇒ According to question: (3)<third side <(13)
Option d satisfies.

Sol 41. (b) ∠ APO = 35° , ∠ OAP = ∠ OBP = 90°



In quad. OAPB; OA=OB= radius
AP=BP (two tangents from a same point to a circle are equal in length)
OP common.
Thus, $\Delta OAP \cong \Delta OBP$
Therefore, $\angle APO = \angle BPO = 35°$

Sol 42. (a) AB = 8 cm, AC = 10 cm, ∠ABD = 90° and AD = 17 cm

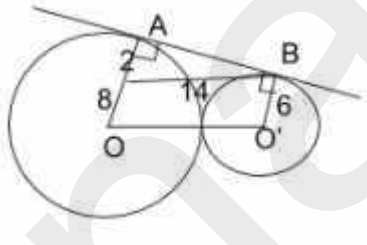


Using pythagoras theorem, BC = 6 cm and BD = 15 cm
Then CD = 9 cm

Sol 43. (a) $\frac{4D}{AB} = \frac{4E}{AC} \Rightarrow \frac{a}{2a+4} = \frac{2a+3}{9a+3}$
$\Rightarrow 9a^2+3a = 4a^2+14a+12$
$\Rightarrow 5a^2-11a-12 = 0$
$\Rightarrow a = 3$

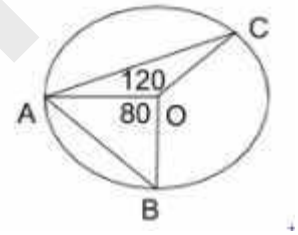
Sol 44. (c) Angles of triangle are in ratio = 3x:5x:4x
Sum of angle = 180° = 12x
x = 15°
Difference between smallest and biggest angle = 2x = 30°

Sol 45. (a) let O and O' be the centers of two circles. Tangent is perpendicular to the radius of the circle.



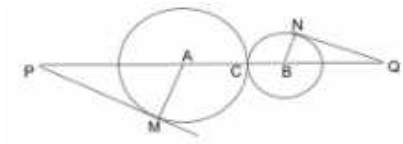
AB = $\sqrt{14^2 - 2^2} = \sqrt{192}$ = 13.86 cm

Sol 46. (b) ∠BOC = (360 - 80-120)° = 160°



Angle formed at the circumference of the circle is half the angle formed at its centre.
Therefore, ∠BAC = 80°

Sol 47. (c) MP = 15 cm, NQ = 8 cm, PA = 17 cm and BQ = 10 cm



AM = $\sqrt{17^2 - 15^2}$ = 8 cm
NB = $\sqrt{10^2 - 8^2}$ = 6 cm

AB = 8+6 = 14 cm

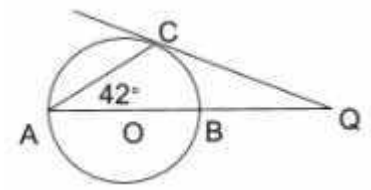
Sol 48. (c) Exterior angle is equal to sum of interior opposite angles.
∠ACD = ∠ABC+∠BAC
110° = 62° + ∠BAC
∠BAC = 48°

Sol 49. (c) Sum of opposite angles of a cyclic quadrilateral is 180°.
∠A = 100° then ∠C = 80°

Sol 50. (d) In an isosceles triangle, perpendicular from common vertex to opposite side acts as its bisector.
Therefore, D is the midpoint of BC. BD=DC = 3 cm
In Δ ABD, BD = 3 cm and AD = 4 cm
Thus, AB = 5 cm (using pythagoras theorem)

Sol 51. (c) Let two equal sides = x cm each.
2x + 18 = 50
x = 16 cm

Sol 52. (c) ∠CAB = 42° and AB is the diameter of a circle. Join OC.



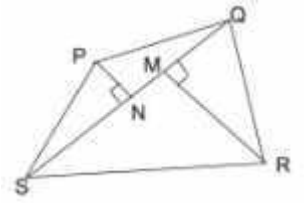
In ΔOCA, OC = OA = radius
Thus, $\angle CAB = \angle OCA = 42°$
$\angle COB = \angle CAB + \angle OCA = 84°$

Pinnacle

CQ is a tangent, therefore, OC is perpendicular to CQ.
In ΔOCQ, $\angle CQB = (90-84)° = 6°$

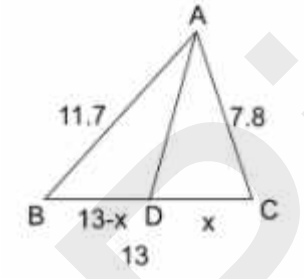
Sol 53. (b) Line formed by joining the midpoint of a triangle is half the length of its opposite side.
DE = $\frac{1}{2}$ AC, DF = $\frac{1}{2}$ BC and FE = $\frac{1}{2}$ AB
$\frac{1}{2}$ (DE+EF+DF) = $\frac{1}{2}$ ($\frac{1}{2}$ [AB + BC + AC]) = $\frac{1}{4}$ (12+20+15) = 11.75 cm

Sol 54. (b) SQ = 6 cm, PN = 2 cm and RM = 3 cm



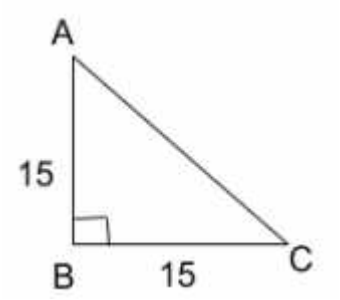
Area of quadrilateral PQRS = area(PQS) +area(RQS) = $\frac{1}{2} \times 6 \times 2 + \frac{1}{2} \times 6 \times 3 = 15$ cm^2

Sol 55. (a) In ΔABC, AB=11.7cm, AC = 7.8 cm and BC = 13 cm.



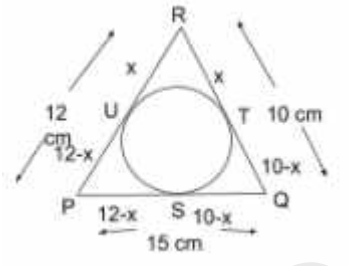
According to angle bisector theorem, $\frac{AB}{AC} = \frac{BD}{CD}$
$\Rightarrow \frac{11.7}{7.8} = \frac{13-x}{x}$
$\Rightarrow$ x = 5.2 cm

Sol 56. (a) ABC is an isosceles right angle triangle.



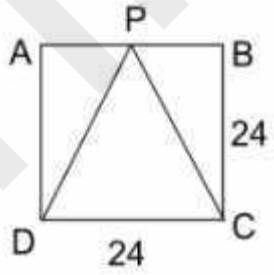
Thus, AC = $15\sqrt{2}$
Area of ΔABC = $\frac{1}{2} \times 15 \times 15 = \frac{225}{2}$ cm^2

Sol 57. (d) PQ = 15 cm, QR = 10 cm and PR = 12 cm



12-x+10-x = 15
x = 3.5 cm
PS = 12-x = 8.5 cm
QT = 10-x = 6.5 cm
RU = x = 3.5 cm

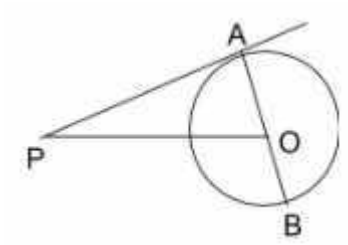
Sol 58. (c) ABCD is a square with side 24 cm.



Area of ΔPDC = $\frac{1}{2} \times 24 \times 24$ = 288 cm^2

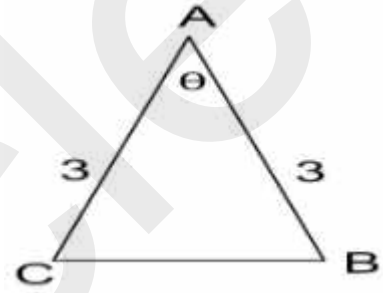
Sol 59. (b) Area of sector = $\Pi \times r^2 \times \frac{\theta}{360} = \frac{22}{7} \times 14^2 \times \frac{45}{360}$ = 77 cm^2

Sol 60. (d) $\angle$POB = 110°



Then, $\angle$POA = 70°
In ΔAPO, $\angle$PAO = 90° (radius $\perp$ tangent)
Thus, $\angle$APO = 20°

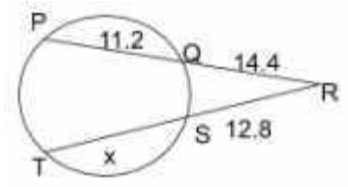
Sol 61. (d) given triangle is an isosceles triangle.



θ = 80° (given)
$\angle B = \angle C = \frac{180-80}{2} = 50°$

Sol 62. (a) Angle opposite to the greatest side in a triangle is largest.
Here, BC>AC>AB
Thus, $\angle A > \angle B > \angle C$

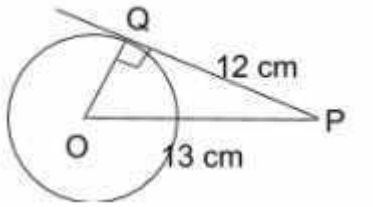
Sol 63. (b) QR × PR = SR × RT



14.4 × 25.6 = 12.8 × (12.8+x)
x = 16 cm

Sol 64. (d) O is the centre of the circle.

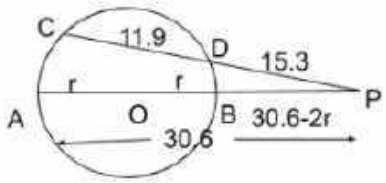
Pinnacle



PQ is a tangent. ∠OAB = ∠OBA = 32°
Thus, ∠AOB = 180°-(32+32)° = 116°
y = $\frac{116°}{2}$ = 58° (angle formed at the arc of the circle is half the angle formed at the centre.)
∠OAQ = 90°
x = ∠OAQ - ∠OAB = 90°-32° = 58°
x+y = 116°

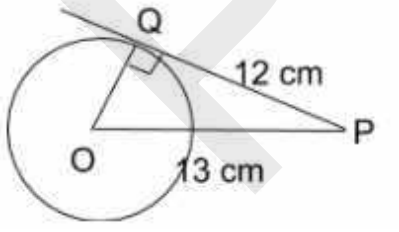
Sol 65. (a) ∠ABC = ∠ACB = 72° (AB=AC)
Thus, ∠BAC = (180-72-72)° = (180-144)° = 36°

Sol 66. (b) O is the centre of the circle.



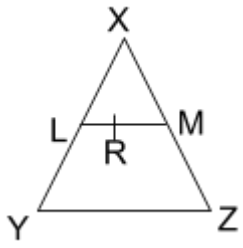
PD × PC = PB × AP
15.3 × 27.2 = (30.6-2r) × 30.6
r = 8.5 cm

Sol 67. (b) O is the centre of the circle.



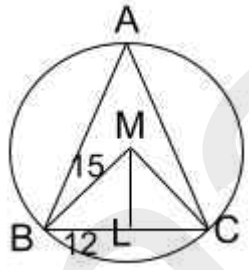
Radius is perpendicular to the tangent.
Thus, OQ = 5 cm

SSC CHSL 2019
1.Sol. (a)
L and M are mid points of XY and XZ.



Therefore, LM = ½ (YZ)
LR : MR = 1:2
Let LR = x units and MR = 2x units
Thus, ML = x + 2x = 3x units
x = 3 cm (Given)
Thus, ML = 3 × 3 = 9 units

2.Sol. (a)
BC = 24 cm.



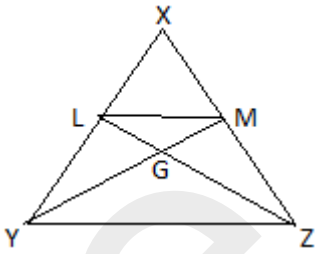
ML is perpendicular to BC.
We know, ⊥ ar from centre to chord bisect the chord.
Therefore, BL = ½ (BC) = 12 cm
Using pythagoras theorem in ΔABC, we get:
$BM^2 = BL^2 + ML^2$
$(15)^2 = (12)^2 + ML^2$
ML = 9 cm

3.Sol: (d)
∠AOC = 118°
∠ABC = $\frac{118}{2}$ = 59°
∠ACD = ∠ABC = 59° (Alternate segment theorem)

4.Sol: (a)
we know,
PL × LQ = RL × LS
9 × 4 = 6 × RL
RL = 6 cm

5.Sol: (b)
Use Intersecting Chord Theorem
AP × PB = CP × PD
6 × 9 = 3 × PD
PD = 18cm

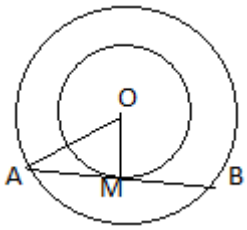
6.Sol: (b)



We know,
Area of Δ GLM : Area of Δ XYZ = 1 : 12

7.Sol:(a)
Hypotenuse = $\sqrt{21^2 + 20^2}$ = $\sqrt{841}$ = 29
we know,
Circumradius of the right angle triangle = $\frac{29}{2}$ = 14.5

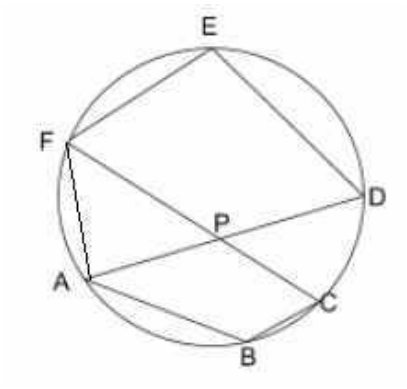
8.Sol: (a)



AM = $\sqrt{13^2 - 5^2}$ = 12
AB = 2 × 12 = 24 cm

9.Sol. ∠ADB = $\frac{1}{2}$ ∠ACB
∠ADB = $\frac{1}{2}$ × 34° = 17°

10.Sol.(b)



Construct FA

$\angle AFC = 180°-95° = 85°$ (ABCP is a cyclic quadrilateral)

$\angle FAD = 180° - 115° = 65°$(ADEF is a cyclic quadrilateral)

$\angle APC$ = exterior angle of $\angle FPA$ in triangle FAP.

$\angle FPA = 85° + 65° = 150°$

11.Sol.(c)

Sol:

$\angle CBD = 80°$ (exterior angle)

In quadrilateral BCDE

$\angle CED = 360° - (80° + 45° + 35°)$

$\angle CED = 200°$ (it ia a reflex angle)

Obtuse angle $\angle CED = 360° - 200° = 160°$

12.Sol:(c)

$\angle ACB = 135^\circ$

$\angle ADB = 180^\circ - 135^\circ = 45^\circ$

Let '0' be the centre

$\angle AOB = 2 \times 45^\circ = 90^\circ$

$AB^2 = (2\sqrt{2})^2 + (2\sqrt{2})^2$

AB=4 cm

13.Sol:(a)

Let $\angle AOB = \theta$

$\angle AEB = 2\theta$

$\theta + 2\theta = 180°$

$\theta = 60°$

$\angle COD = \frac{60}{2} = 30°$

14.Sol: (d)

Short trick:

Area of quadrilateral = $\frac{1}{4}(20^2 - 10^2)$

$= \frac{1}{4} \times 300$

$= 75\ cm^2$

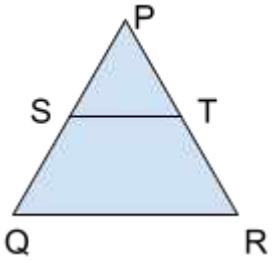
15.Sol:(a)

Short trick:

Radius of the circle = $\sqrt{(\frac{6}{2})^2 + (\frac{8}{2})^2}$

$= 5$

16.Sol:(d)



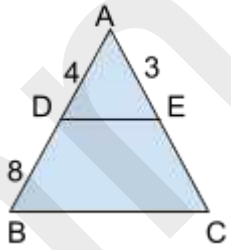
$\angle PQR = 180° - 75° - 40°$

$= 65°$

$\angle PQR = \angle PST = 65°$

$\angle QST = 180° - 65° = 115°$

17.Sol:(b)

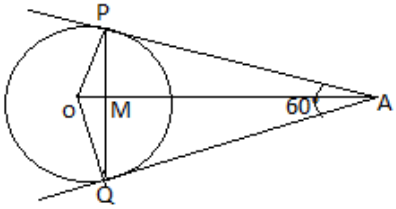


$\frac{4D}{DB} = \frac{4E}{EC}$

$\frac{4}{8} = \frac{3}{EC}$

EC = 6 cm

18.Sol: (a)



AP = 12 cm

$\angle PAO = 30°$

$\angle APO = 90°$, $\angle AOP = 60°$

$\tan 60° = \frac{4P}{OP}$

$\sqrt{3} = \frac{12}{OP}$

$OP = 4\sqrt{3}$, $AO = 8\sqrt{3}$

$\frac{1}{2} \times 12 \times 4\sqrt{3} = \frac{1}{2} \times 8\sqrt{3} \times PM$

PM = 6 cm

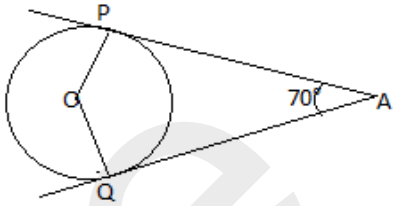
PO = 2 × 6 = 12 cm

19.Sol:(c)

$\angle PAO = \frac{70}{2} = 35^\circ$

$\angle AOP = 180^\circ - 90^\circ - 35^\circ = 55^\circ$

Sol: (c)



$\angle PAQ = 70°$

$\angle POQ = 180° - 70° = 110°$

$\angle AOP = \frac{110°}{2} = 55°$

20.Sol: (d)

Interior angle of equilateral triangle = 60°

Exterior angle of equilateral triangle = 180°-60° = 120°

21.Sol. (c)

$\angle ADC = 180° - 85° = 95°$

$\angle BCD = 180° - 94° = 86°$

Sum of all angles of a quadrilateral is 360°

$\angle ABF + \angle EAB = 360° - (95° - 86°) = 179°$

22.Sol: (d)

ABCDE is a pentagon, and each pentagon has 108° angle

$\angle DEG = 180° - 108° = 72°$

$\angle EDG = 180° - 108° = 72°$

$\angle DGE = 180° - 72° - 72° = 36°$

$\angle BAJ = 180° - 108° = 72°$

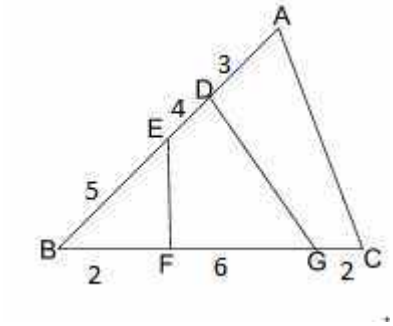
$\angle ABC = 108°$

$\frac{\angle ABC + 2\angle EGD + 3\angle BAJ}{6} = \frac{108° + 72° + 216}{6}$

$= 66°$

23.Sol: (a)

Pinnacle



Short trick:

By sin formula,

$\frac{area\ of\ triangle\ ABC}{area\ of\ quadrilateral\ DEFG} = \frac{12\times10}{(9\times8)-(2\times5)} = \frac{120}{62} = \frac{N}{M}$

$\frac{M}{N} = \frac{62}{120} = \frac{31}{60}$

24.Sol: (d)

Angles ratio = 1:2:1

x+2x+x = 180°

4x = 180°

x = 45°

Angles are = 45°, 90°, 45°

Ratio of sides = 1: $\sqrt{2}$:1

25.Sol: (d)

We know,

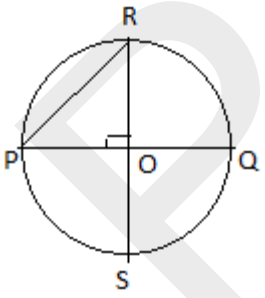
$(\frac{chord1}{2})^2 + (\frac{chord2}{2})^2 = R^2$

$(\frac{16}{2})^2 + (\frac{chord2}{2})^2 = 10^2$

$(\frac{chord2}{2})^2 = 36$

Chord2 = 12 cm

26.Sol: (d)



PO = OR = 45° (radius)

Cos 45° = $\frac{PQ}{PR}$

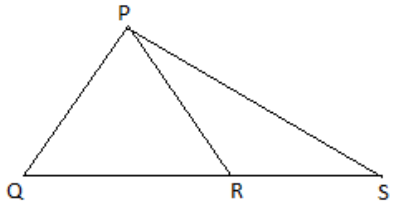
$\frac{1}{\sqrt{2}} = \frac{PQ}{PR}$

PO = $\frac{PR}{\sqrt{2}}$

PQ = 2 × $\frac{PR}{\sqrt{2}}$

PR = $\frac{PQ}{\sqrt{2}}$

27.Sol: (c)



RS = PR

∠QPS = 110°

∠PRQ = 70°

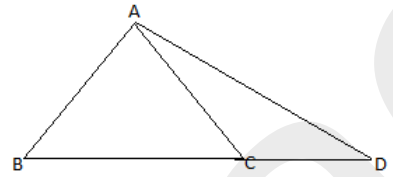
$\angle RSP + \angle RPS = \angle PRQ$

θ + θ = 70°

θ = 35°

∠PQR = 180°-110°-35° = 35°

28.Sol: (c)



∠ACB = 180°-126° = 54°

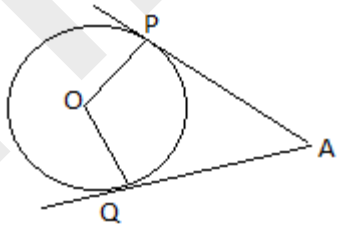
∠ABC = 2∠CAB

θ + 2θ = 126°

θ = 42°

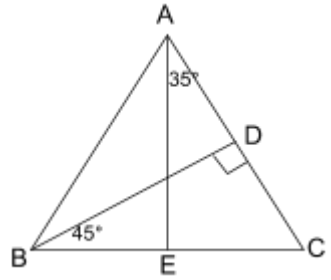
∠CAB = 42°

29.Sol: (b)



∠PAQ = 180°-118° = 62°

30.Sol: (a)



∠ACB = 180°-45°-90° = 45°

∠AEB = 35°+45° = 80°

31.Sol: (a)

∠PRQ = 64°

∠POQ = 2 × 64° = 128°

OP = OR

∠OPQ = $\frac{180°-128°}{2}$ = 26°

32.Sol: (c)

3x+4x+5x = 180°

x = 15°

3x = 45°

4x = 60°

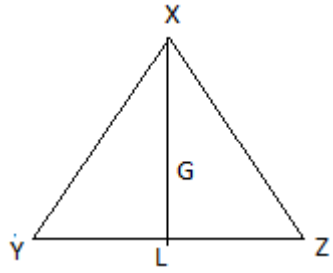
5x = 75°

All angels are less than 90°, it means triangle is Acute angle triangle.

33.Sol: (d)

∠AGB = $\frac{150°}{2}$ = 75°(angle subtended at the centre is twice the angle subtended at the circumference)

34.Sol: (c)



XG = 18 × $\frac{2}{3}$ = 12(centroid divides median in the ratio 2:1)

35.Sol: (a)

3x+2x+x = 180°

x = 30°

∠R = 30°

∠PRS = 90°

∠SRT = 180°-90°-30° = 60°

36.Sol: (b)

If the diameter of a circle bisects each of the two chords of the circle, the both chords will be parallel to each other.

37.Sol: (b)

∠BAP = 180°-60°-90° = 30°

Pinnacle

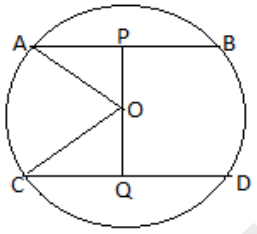
$\angle PAC = 180°-90°-30° = 60°$
$\angle PAQ = 60°-30° = 30$

38.Sol: (a)
$OQ = QR$
$\angle QOR = n°$
$\angle PQO = 2n°$ (by exterior angle)
$\angle QPO = 2n°$
$\angle PQO = 180°-4n°$
$m°+180°-4n°+n° = 180°$
$m = 3n°$

39.Sol: (d)
We know,
$\angle PAQ = \frac{1}{2}(\angle B - \angle C)$
$= \frac{1}{2}(60° - 30°)$
$= 15°$
$\angle PQA = 180°-90°-15° = 75°$

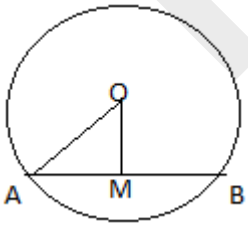
40.Sol: (b)
If PQ is parallel to SR then,
$\angle PQR = \angle SPQ = 110°$

41.Sol: (c)



$OC = OA = 10$ cm
$CQ = 8$ cm, $AP = 6$
$OQ = \sqrt{10^2 - 8^2} = 6$
$OP = \sqrt{10^2 - 6^2} = 8$
$PQ = OP+OQ = 6+8 = 14$

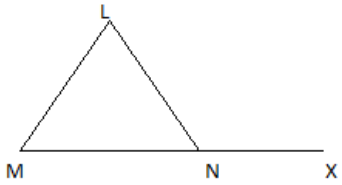
42.Sol: (a)



$AM = \frac{20}{2} = 10$ cm
$OM = \sqrt{15^2 - 10^2} = 5\sqrt{5}$

43.Sol: (a)
$x+3x+5x = 180°$
$9x = 180°$
$x = 20°$
Greatest angle $= 5x = 5 \times 20 = 100°$

44.Sol: (b)

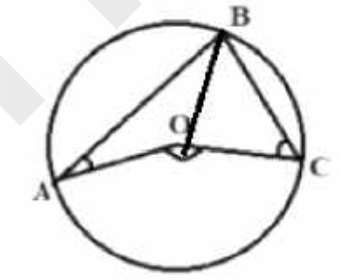


$\angle M = x°$ then $\angle L = 2x$
$2x+x = 117°$ (Exterior angle)
$3x = 117°$
$x = 39°$
$\angle L = 2 \times 39° = 78°$

45.Sol: (b)
Lines are collinear….so, there is no circle passing through it.

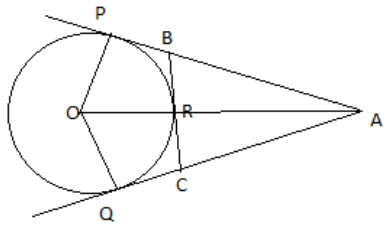
46.Sol: (c)
$3x+2x+x = 180$
$x = 30°$
so, angles are $= 90°, 60°, 30°$
Here, one angle is $90°$
so, The triangle is a right angle triangle.

47.Sol: (a)



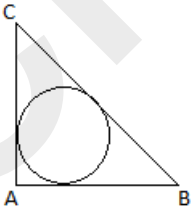
$\angle BAO = \angle OBA = 30°$ (radius)
$\angle BCO = \angle OBC = 50°$ (radius)
$\angle ABC = 50°+30° = 80°$
$\angle AOC = 2 \times 80° = 160°$

48.Sol: (b)



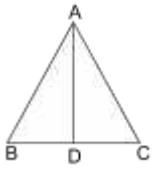
$AO = 26$ cm
$PO = OQ = 10$ cm
$AP = \sqrt{26^2 - 10^2} = 24$
$AP = AQ = 24$ cm
we know,
$AP+PQ = AB+BC+AC$
$24+24 = AB+BC+AC$
the perimeter of $\Delta ABC = 24+24 = 48$ cm

49.Sol: (b)



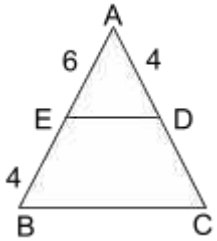
$BC = \sqrt{48^2 + 14^2} = 50$
Inradius $= \frac{48+14-50}{2} = 6$

50.Sol.(b)



$\angle A = 180° - 75° - 45° = 50°$
$\frac{AB}{AC} = \frac{BD}{DC}$ It means an AD is an angle bisector of $\angle A$.
$\angle BAD = \frac{60°}{2} = 30°$

51.Sol.(a)

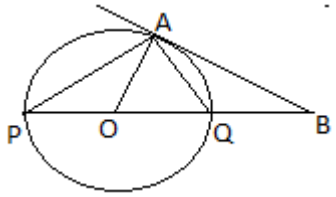


$\angle ABC = \angle ADE$
$\Delta ABC \sim \Delta ADE$
$\frac{AB}{AD} = \frac{AC}{AE}$
$\frac{10}{4} = \frac{4+x}{6}$

x=11

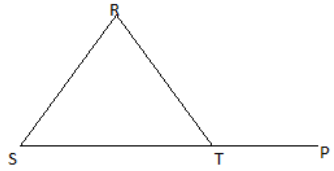
52.Sol.(d)
∠APB = 70°
∠AOB = 180°-70°=110°
∠OAB= $\frac{180°-110°}{2}$ =35°

53.Sol: (b)

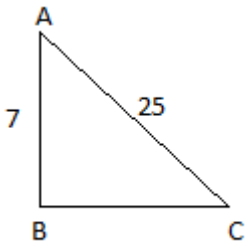


∠BAP = 125°
∠PAQ = 90° (diameter makes 90° at circumference)
∠BAQ = 125°-90° = 35°
∠OAQ = 90°-35° = 55°
OA= OQ = radius
∠AQP = 55°

54.Sol: (b)

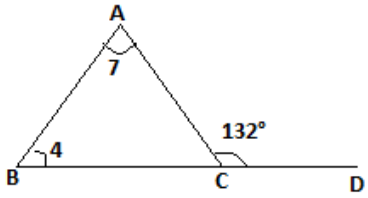


∠RTP= 115°
∠R = 3x, ∠P = 2x
3x+2x = 115° (By Exterior angle)
x = 23°
∠R = 69°
55.sol.(a)
∠ABC : ∠ACB : ∠BAC
6 : 1 : 5
Sum of all angles of a triangle = 180°,
Therefore, 6+1+5=12 units = 180°
1 unit = 15°
So, Here we can see that one angle is 90°(15° × 6 = 90°), it means this is a right angle



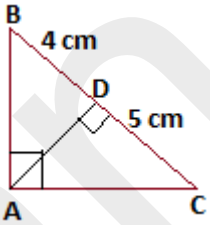
So, BC = 24 cm (by pythagoras theorem)

56.Sol (d)



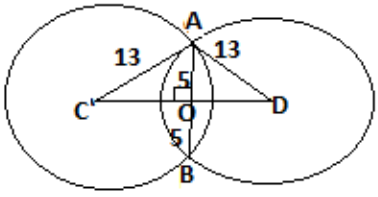
Exterior angle of ∠C is sum of ∠A and ∠B, so
(4+7)= 11 unit = 132°
1 unit = 12°
∠A = 7 × 12° = 84°

57.Sol (c) :



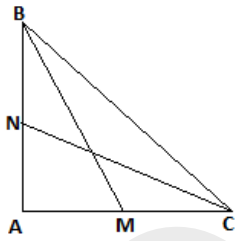
$AD^2 = BD \times CD$
$AD^2 = 4 \times 5$
$AD = 2\sqrt{5}\ cm$

58.Sol (c)



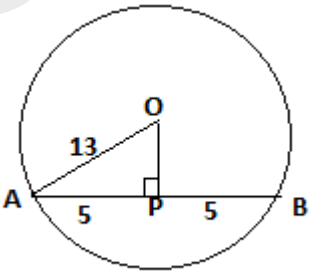
CD is the distance between their centres.
CD bisects AB and meets at O. (perpendicular line from the centre bisects the chord.) and CO = OD
AC = 13 cm, AO = 5cm therefore CO = 12 cm (by pythagoras theorem)
So, CD = 12 + 12 = 24 cm.

59.Sol (c)



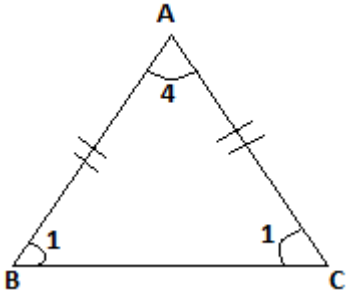
We know,
$4(BM^2 + CN^2) = 5BC^2$
$\frac{BM^2+CN^2}{BC^2} = 5/4$

60.Sol (a)
Perpendicular line from the centre on the chord, bisects the chord so AP = 10/2 = 5 cm



The perpendicular distance of the chord from the centre is:
OP = $\sqrt{13^2 - 5^2}$ = 12cm

61.Sol(b)
As AB = AC , so ∠B = ∠C
Let ∠B = 1 unit then ∠A = 4 units



Sum of all angles = 180°
(1+1+4) = 6 units = 180°
1 unit = 30°

Pinnacle

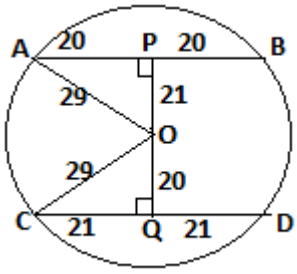
$\angle A = 4 \times 30° = 120°$

$\frac{1}{2}\angle A = 120°/2 = 60°$

62.Sol(c)

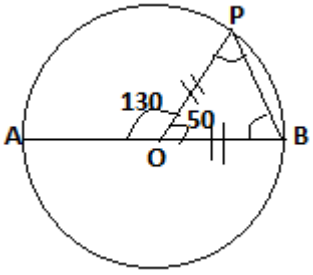
As OP ⊥ AB, OQ ⊥ CD, bisects the chord AB and CD respectively

Now we can get OP and OQ by Pythagoras Theorem



The length of PQ = OP+OQ = 21+20 = 41cm

63.Sol(c)



∠POA = 130°

∠P = ∠B (because OP = OB)

∠P + ∠B = 130°

So, $\angle PBO = \frac{130°}{2} = 65°$

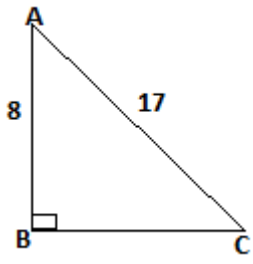
64.Sol (c)

$\angle B$: $\angle C$: $\angle A$

9 : 2 : 7

9+2+7= 18 units = 180°

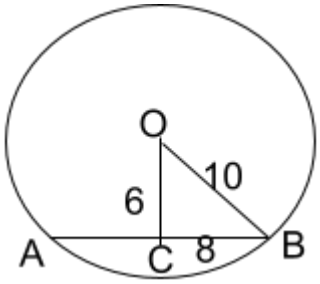
1 unit = 10°



Therefore $\angle B = 90°$, it is a right triangle

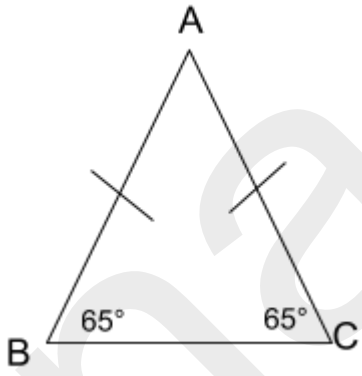
BC = $\sqrt{17^2 - 8^2} = 15$

Sol 65. (d)



Length of chord AB = 2 × BC = 2 × 8 = 16 cm

Sol 66. (a)



According to the property; angles equal to equal sides are equal,

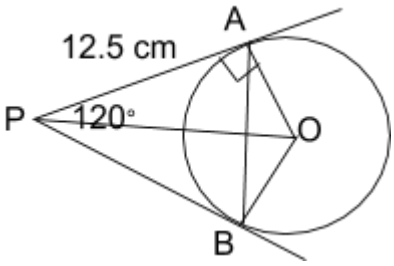
∠ACB = 65°

Sum of angles of a triangle = 180°

65° + 65° + ∠BAC = 180°

∠BAC = (180 - 130)° = 50°

Sol 67. (b)



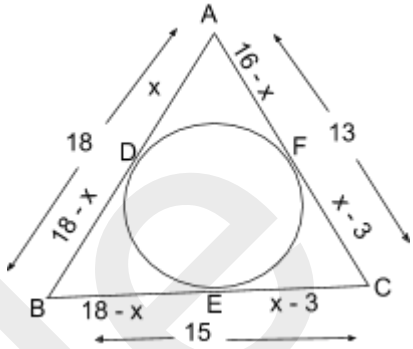
Δ PAO ≅ Δ PBO :- AO = BO; PO = common and AP = BP (tangents drawn from the same point to a circle are equal in length.

Therefore, ∠APO = ∠BPO = 60° each

In Δ PAO, cos 60° = $\frac{PA}{PO}$

⇒ $\frac{1}{2} = \frac{12.5}{PO}$ ⇒ PO = 2 × 12.5 = 25 cm

Sol 68. (c)



x = 16 - x

⇒ 2x = 16

⇒ AD = x = 8

BE = 18 - x = 10

CF = x - 3 = 8 - 3 = 5

⇒ AD + BE + CF = 8 + 10 + 5 = 23

Sol 69. (c)

We know the exterior angle is equal to the sum of interior opposite angles.

Here, exterior angle = 115° and Corresponding interior opposite angles = 2:3 or 2x and 3x

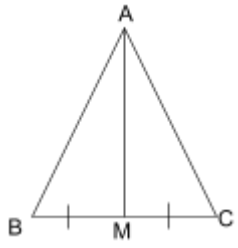
115 = 2x + 3x

⇒ 5x = 115°

⇒ x = 23°

Greatest angle = 3x = 3 × 23° = 69°

Sol 70. (c)



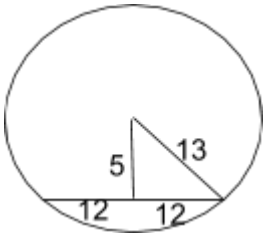
AM is the median of Δ ABC.

Area of Δ ABM = 18 cm^2

Pinnacle

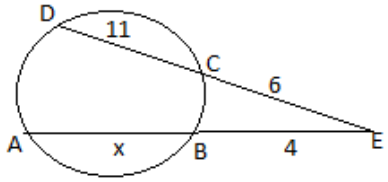
Therefore, area (Δ ABM) = area (Δ ACM) …. (Median divides the triangle into two equal areas).
$\Rightarrow$ area of Δ ABC = 2 $\times$ area of Δ ABM = 2 $\times$ 18 = 36 cm^2

Sol 71. (d)



Radius = 13 cm
Diameter = 2 $\times$ 13 = 26 cm

Sol 72. (b)

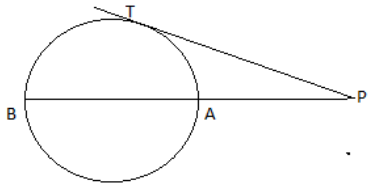


BE $\times$ AE = CE $\times$ DE
$\Rightarrow$ 4 $\times$ (4+x) = 6 $\times$ 17
$\Rightarrow$ 4 + x = $\frac{102}{4}$ = 25.5
$\Rightarrow$ x = 21.5 cm

73.Sol . (b)
For a triangle with sides a, b and c:-
b - a < c < a + b
Here, three sides of triangle are 3 cm, 8 cm and x cm
8 - 3 < x < 8 + 3
5 < x < 11

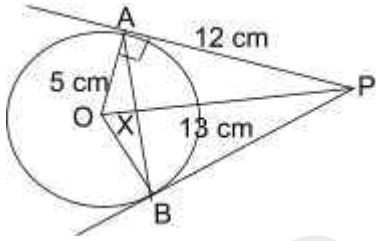
74.Sol . (b)
For a triangle to be right-angle triangle, it should follow pythagoras theorem;
(Largest side)^2 = sum of square of other two sides
Among the given options, Option (b) does not follow this rule.

Sol 75. (a)



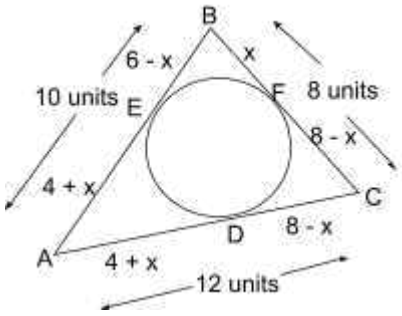
PT = 12 cm
radius = 5 cm, then AB = 10 cm
Let, AP = x
we know,
$PT^2 = PA \times PB$
$12^2 = x(x + 10)$
on solving, x = 8 cm

Sol 76. (b)



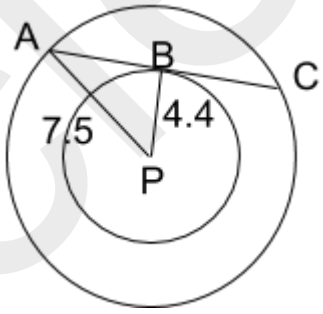
Area of Δ PAB , M = $\frac{1}{2} \times AB \times$ PX
Let OX = a and PX = 13 - a
Area of Δ PAO = $\frac{1}{2} \times AO \times$ PA = $\frac{1}{2} \times AX \times$ PO
$\Rightarrow$ $\frac{1}{2} \times 5 \times 12 = \frac{1}{2} \times AX \times 13$
$\Rightarrow$ AX = $\frac{60}{13}$
AB = 2 $\times$ AX = $\frac{120}{13}$
Use pythagoras theorem in Δ AXO;
$OX^2 = OA^2 - AX^2$
$\Rightarrow OX^2 = 5^2 - (\frac{60}{13})^2$
OX = $\frac{25}{13}$
PX = 13 - $\frac{25}{13}$ = $\frac{169-25}{13}$ = $\frac{144}{13}$
Area of Δ PAB , M = $\frac{1}{2} \times \frac{120}{13} \times \frac{144}{13}$
$\sqrt{\frac{M}{15}} = \sqrt{\frac{1}{15} \times \frac{1}{2} \times \frac{120}{13} \times \frac{144}{13}} = \frac{24}{13}$

Sol 77. (b)



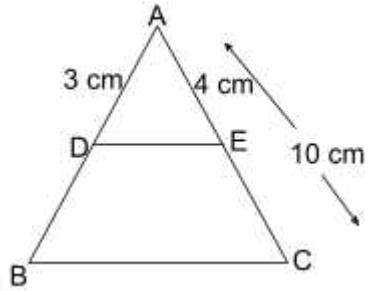
6 - x = x
$\Rightarrow$ 2x = 6
$\Rightarrow$ BF, x = 3
$\Rightarrow$ AD = 4 + x = 7
AD $\times$ BF = 7 $\times$ 3 = 21

78.Sol. (b)



We know, tangent is $\perp$ ar to the radius.
Using pythagoras theorem in Δ ABP, $AP^2 = BP^2 + AB^2$
$(7.5)^2 = (4.4)^2 + AB^2$
$AB^2 = (7.5)^2 - (4.4)^2$
$AB^2 = (7.5 - 4.4)(7.5 + 4.4) = (3.1)(11.9) \approx 6.07$
AC = 2 $\times$ AB = 2 $\times$ 6.07 = 12.14 cm

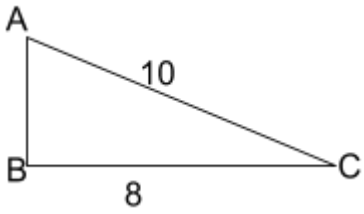
Sol 79. (c)



$\frac{3}{AB} = \frac{4}{10}$
$\Rightarrow$ AB = 7.5 cm
BD = 7.5 - 3 = 4.5 cm

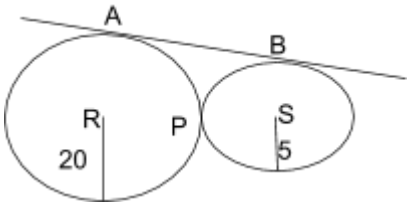
Sol 80. (d)

Pinnacle



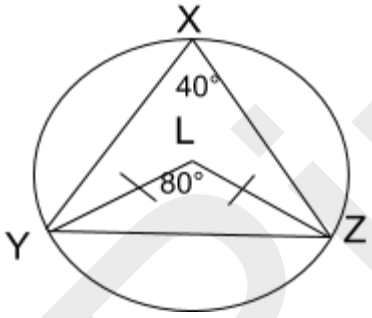
Using pythagoras theorem:
$AC^2 = AB^2 + BC^2$
$\Rightarrow 10^2 = AB^2 + 8^2$
$\Rightarrow AB = 6$ cm

81.Sol. (d)



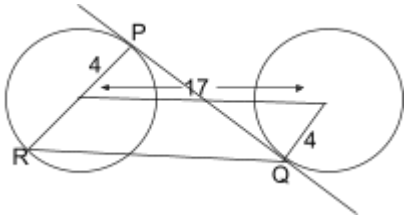
Direct Common Tangent, AB =
$\sqrt{(r_2 + r_1)^2 - (r_2 - r_1)^2}$ =
$\sqrt{(20+5)^2 - (20-5)^2}$ =
$\sqrt{(25)^2 - (15)^2}$ =
$\sqrt{(25+15)(25-15)} = \sqrt{(40)(10)}$
= 20 cm

Sol 82. (d)



L is the circumcenter of ΔXYZ, therefore, L is the centre of radius and LY and LZ is the radius of circle.
In ΔLYZ, $\angle LZY = \angle LYZ$
and $80° + \angle LZY + \angle LYZ = 180°$
$80° + \angle LZY + \angle YZL = 180°$
$2\angle LZY = 100°$
$\angle LZY = 50°$

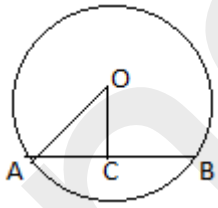
Sol 83.(a)



In ΔRPQ, use pythagoras theorem:
$RQ^2 = PQ^2 + RP^2$
$17^2 = PQ^2 + 8^2$
$PQ^2 = 17^2 - 8^2$
$PQ^2 = (17-8)(17+8) = (9)(25) = 15^2$
PQ = 15 cm

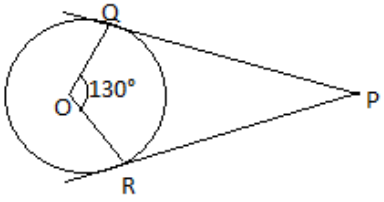
84. Sol .(d) the given case satisfies only if each angle of a triangle is equal to 60°
Hence the triangle will be an equilateral triangle.

85.Sol: (a)



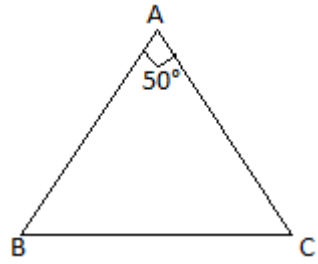
AC = $\frac{16}{2}$ = 8 cm
OC = 6 cm
AO = $\sqrt{8^2 + 6^2} = 10$
Radius = 10 cm

86.Sol: (a)



$\angle QOR = 130°$
$\angle QPR = 180° - 130° = 50°$

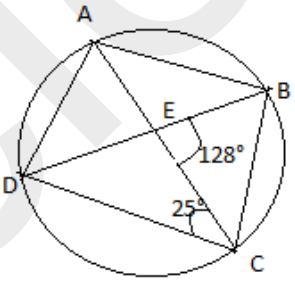
87.Sol: (b)



AB = AC
$\angle B = \angle C = x$ (let)
$50° + x° + x° = 180°$
$x° = 65°$
$\angle ABC = 65°, \angle BCA = 65°$

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88.Sol:(c)



$\angle BEA = 180° - 128° = 52°$
Linear pair
$\angle ABE = 25°$
angle on same base(AD)
$\angle BAC = 180° - (52° + 25°)$
In triangle AEB
$\angle BAC = 103°$

89.Sol:(d)
FORMULAE: $\frac{1}{2}$ (difference of two angle(other than the angle which is bisected))
$\angle P = 84° - 48°$
$= 48°$
$\angle SPT = \frac{1}{2}(84° - 48°)$
$= \frac{1}{2}(36°)$
$= 18°$

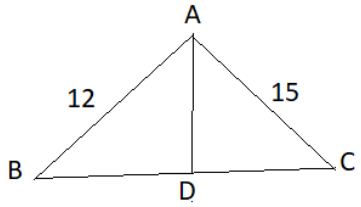
90.Sol: (d)
$\angle QOR = 90° + \frac{1}{2}\angle P$
$\angle QOR = 111°$

91.Sol:(b)
We know
$\angle A + \angle B + \angle C = 180°$
……(1)

Pinnacle

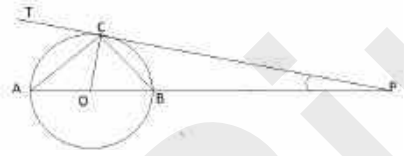
$\angle A - \angle B = 33°$
……(2)
On subtracting eq 2 from 1
$2\angle B + \angle C = 147°$
……..…(3)
$\angle B - \angle C = 18°$
……(4)
On adding eq 3 and 4
$3\angle B = 165°$
$\angle B = 55°$
$\angle A = 55° + 33° = 88°$
$\angle C = 55° - 18° = 37°$
Sum of smallest and largest angle
= 88° + 37° = 125°

92.Sol:(d)



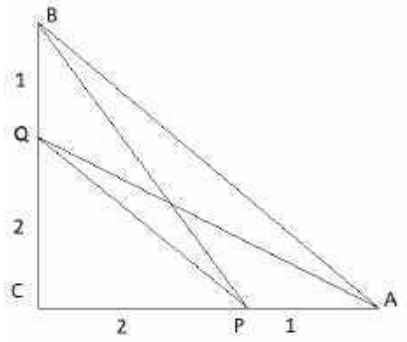
=> BD : DC = 12 : 15 =4 : 5
(bisector divide the opposite side in the same ratio as of adjacent side)
BD = $\frac{4}{9} \times 18 = 8$ cm

93.Sol:(c)



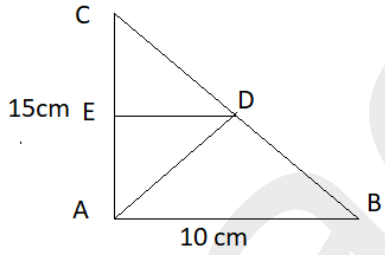
$\angle BPT = 36^\circ$
$\angle OCP = 90^\circ$
In triangle OCP
$\angle OCP + \angle COP + \angle OPC = 180^\circ$
$\angle COP = 54^\circ$
$\angle CAP = \frac{1}{2} \angle COP = 27^\circ$
$\angle BCP = 27^\circ$

94.Sol: (c)



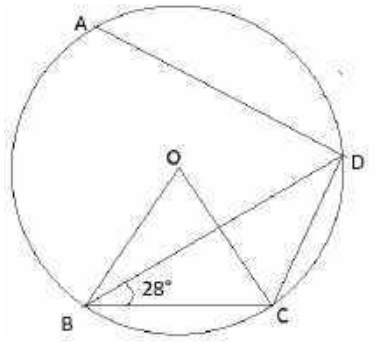
BA = $3\sqrt{2}$
AQ = $\sqrt{AC^2 + QC^2} = \sqrt{13}$
BP = $\sqrt{13}$
$\frac{AQ^2+BP^2}{AB^2} = \frac{13+13}{18} = \frac{13}{9}$

95.Sol:(c)



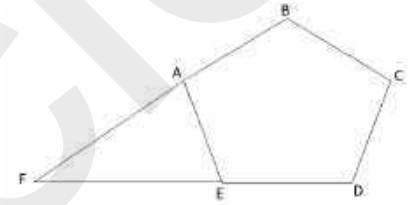
In triangle ABC
$BC^2 = AB^2 + AC^2$]
$BC^2 = 10^2 + 15^2$
BC= $5\sqrt{13}$
AD is the angle bisector of angle A ,so D divides BC in ratio of AC/AB
AC/AB=3:2
DC=3 $\sqrt{13}$
Let DE=x
$\angle EAD = \angle ADE = 45°$
AE=DE=x
EC=15-x
In right angles triangle DEC
$DC^2 = ED^2 + EC^2$
$(3\sqrt{13})^2 = (15 - x)^2 + X^2$
$117 = 225 + x^2 - 30x + x^2$
x=9,6 cm

96.Sol:(c)



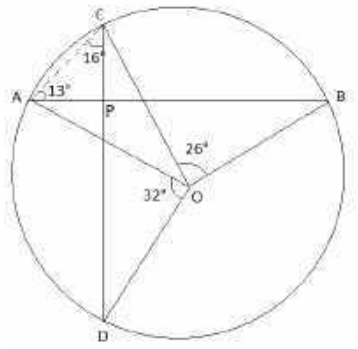
$\angle BCD = 28°$
$\angle BCD = 180° - (28° + 28°) = 124°$
$\angle BOC = 360° - 2\angle BDC$
angles on same base
$\angle BOC = 360° - 248° = 112°$

97.Sol:(b)



Total interior angle of pentagon = $(2n-4) \times 90° = 540°$
Interior angle = 108°
Exterior angle = $\frac{360}{5} = 72°$
$\angle AFE = 72°$
$\angle EAF = 180° - 108° = 72°$
In ΔAEF
$\angle EFA = 180° - (72° + 72°)$
$\angle EFA = 36°$

98.Sol:(a)

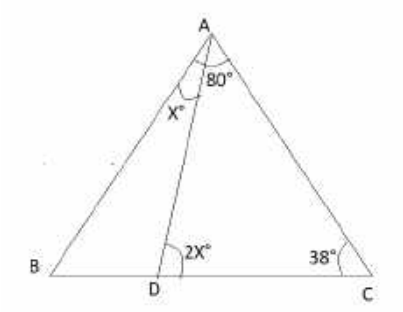


Angle subtended by the chord at the circumference is half of angle subtended at center by that chord.
$\angle ACD = (½) \times \angle AOD = 16°$

$\angle CAB = (½) \times \angle COB = 13°$

$\angle APD = 29°$

99.Sol:(b)



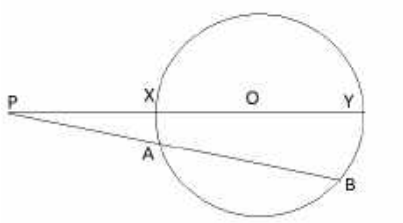
In ΔADC

$38° + (80 - x°) + 2x = 180$

$x = 62$

$\angle ADB = 180° - 2x = 180 - 124 = 56°$

100.Sol:(a)



$PX = 17-r$

$PY = 17+r$

According to the question

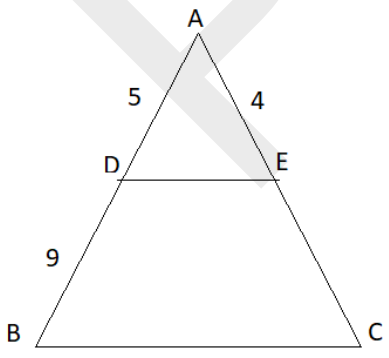
$(17-r)(17+r) = 12 \times 22.5$

$289 - r^2 = 270$

$r^2 = 19$

$r = \sqrt{19}$

101.Sol:(b)



$\Delta ADE \simeq \Delta ABC$

$\frac{AD}{BD} = \frac{AE}{EC}$

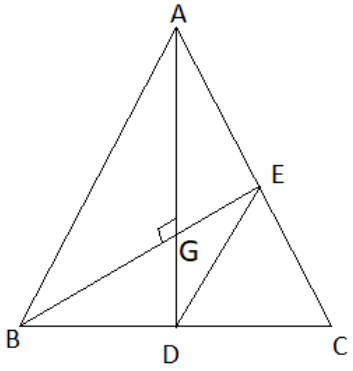
$EC = 4 \times \frac{5}{9} = 7.2$

$\frac{AD}{AB} = \frac{DE}{BC}$

$DE = \frac{5}{14} \times 15.4 = 5.5$

$EC + DE = 7.2 + 5.5 = 12.7cm$

102.Sol:(b)



$AD = 18cm$,$BE = 12cm$

G is the centroid of triangle ABC.

G divides the side AD and BE in 2:1 ratio.

$BG = (⅔) \times BE = 8cm$

$GD = (⅓) \times AD = 6cm$

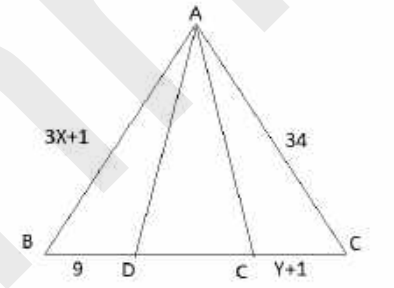
In right angled triangle BGD

$BD^2 = BG^2 + GD^2$

$BD^2 = 8^2 + 6^2$

$BD = 10$

103.Sol:(c)



$AD = AE$ (given)

$\angle ADE = \angle AED$ (opposite sides of equal angle)

$\angle ADB = \angle AEC$ (linear pair of above angle)

$\angle BAD = \angle EAC$ (Given)

So $\Delta ADB \sim \Delta AEC$

Then

$3x + 1 = 34$

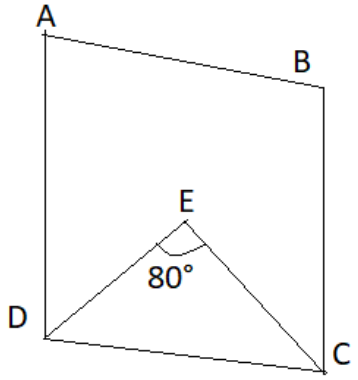
$x = 1$

$y + 1 = 9$

$y = 8$

$x + y = 19$

104.Sol:(b)



In ΔDEC

$80° + \frac{1}{2}(\angle D + \angle C) = 180°$

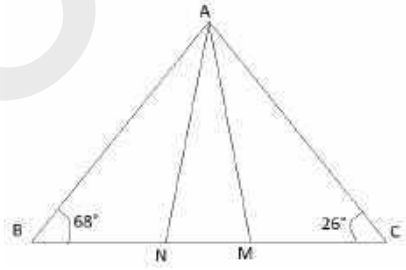
$\angle D + \angle C = 200°$

In quadrilateral

$\angle A + 80° + 200° = 360°$

$\angle A = 78°$

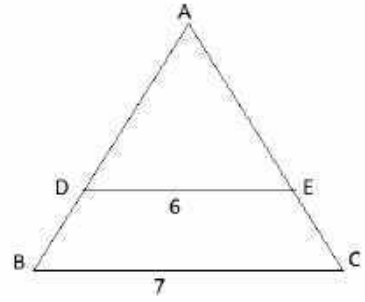
105.Sol:(d)



$\angle MAN = \frac{1}{2} (\angle B - \angle C)$

$\angle MAN = \frac{1}{2} \times 42 = 21°$

106.Sol:(b)



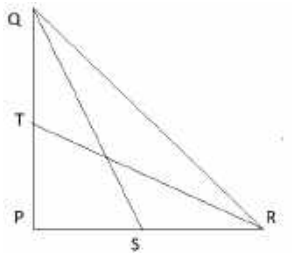
$\Delta ADE \simeq \Delta ABC$

Ratio of $\frac{area\ of\ \Delta ADE}{area\ of\ \Delta ABC} = \frac{DE^2}{BC^2} = \frac{36}{49}$

$\frac{area\ of\ \Delta ADE}{area\ of\ trapezium\ ABCD} = \frac{DE^2}{BC^2 - DE^2} = \frac{36}{49-36} = \frac{36}{13}$

107.Sol:(d)

Pinnacle



$QS^2 = PQ^2 + PS^2$

$4\,QS^2 = 4\,PQ^2 + PR^2$ ------eq (1)

$RT^2 = PT^2 + PR^2$

$4\,RT^2 = PQ^2 + 4\,PR^2$ ------eq(2)

Add eq (1) and (2)

$4(QS^2 + RT^2) = 5(PQ^2 + PR^2)$

$4(QS^2 + RT^2) = 5\,QR^2$

Put the value of QR^2 in given equation

$RQ^2/(QS^2 + RT^2) = 4(QS^2 + RT^2)/5\,(QS^2 + RT^2)$

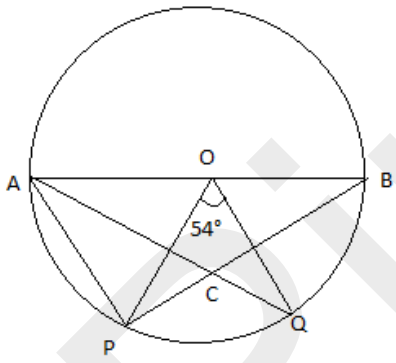
$= 4/5$

108.Sol:(b)

Sum of all exterior angle = $\frac{360}{16} = 22.5$

Interior angle = 180°- 22.5° = 157.5°

109.Sol:(b)



∠PAQ = 27° angle on same base PQ

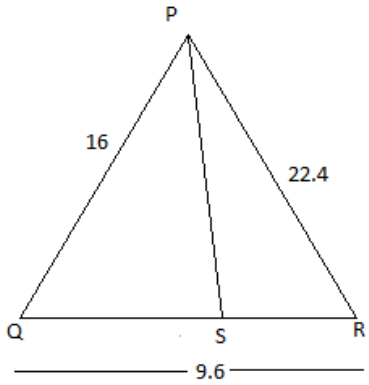
∠APB = 90° angle from a semi circle

In ΔAPC

∠PAQ + ∠PCA + ∠APB = 180°

∠PCA = 180 - 27- 90 = 63°

110.Sol:(a)



$\frac{PQ}{PR} = \frac{QS}{SR}$

$\frac{QS}{SR} = \frac{16}{22.4} = \frac{5}{7}$

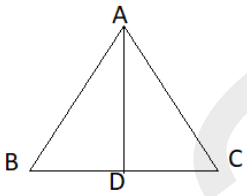
SR = $\frac{7}{12} \times 9.6 = 5.6$

111.Sol:(a)

∠BOC=90°+ $\frac{\angle BAC}{2}$ =135°

∠BAC=90°

112.Sol:(b)



$\frac{AB}{AC} = \frac{BD}{DC}$

This condition satisfy only when AD is the angle bisector of ∠A. (By internal angle bisector theorem)

∠A+∠B+∠C=180°

∠A+ 68°+52° =180°

∠A= 60°

∠BAD=∠A/2= 30°

113.Sol:(b) In ABC, AB=BC,

∠BCA =∠BAC =35°

∠BCA+∠BAC +∠ABC=180°

∠ABC= 180°-35°-35°=110°

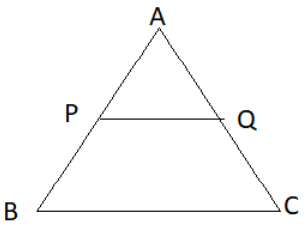
∠ABD+∠DBC=110°

∠ABD=45°

∠ECD=∠ABD=45°

Theorem:-Angles on the circumference of the circle by same chord are equal

114.Sol:(a)



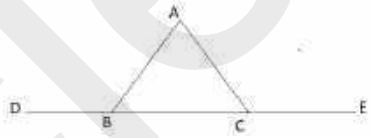
AP:PB=AQ:CQ=1:4

So, area of APQ: area of ABC=1:16

Area of APQ : area of BPQC=1:15

Area of BPQC= 12 × 15=180 cm^2

115.Sol:(d)



∠ABD= 121°, ∠ACE= 104°

∠ABC= 59°, ∠ACB= 76°

∠BAC= 45°

116.Sol:(c)

In equilateral triangle, Altitude and median are the same.

Altitude AD= $\frac{\sqrt{3}a}{2} = 6\sqrt{3}$

Centroid G divides the median in 2:1 ratio.

AG:GD=2:1

GD= $\frac{1}{3} \times 6\sqrt{3}$

GD= $2\sqrt{3}$

117.Sol:(a)

$b^2 + p^2 = h^2$ for right angle triangle

$(6\sqrt{3})^2 + 6^2 = 12^2$

144 = 144

So, it's a right angle triangle at B

118.Sol:(c)

$AP^2 = AD^2 + PD^2$

AP = $\sqrt{576 + 100} = 26$

$\Delta ADP \simeq \Delta QCP$

$\frac{AD}{CQ} = \frac{DP}{PC}$

CQ = 12

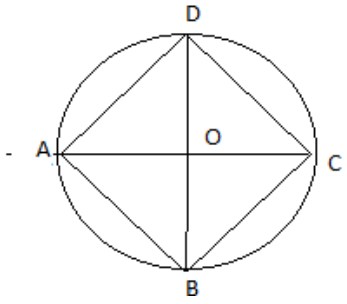
$PQ^2 = PC^2 + CQ^2$

PQ = 13

Pinnacle

AQ = 26+13 = 39

119..Sol(c)



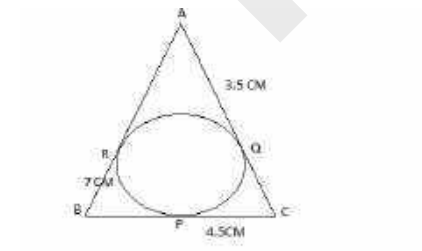
∠CAD=46° (given)
As AD=CD so ACD=46°
And A+C=180° (sum of opposite angles of a cyclic quadrilateral)
And AB=BC so
∠BAC=∠BCA=44° ($\frac{180°-46°-46°}{2}$)
And ∠ACD=∠DBA=46°
Now in triangle AOB ∠AOB + ∠OAB +∠OBA=180°
So ∠AOB=180°-46°-44°=90°

120.Sol:(a)
As both triangle are congruent
2x = x+20
x = 20
2x = 40°

121.Sol:(d)
I + E = 180°
I - E = 90°
E = 45°
Number of sides = $\frac{360}{E}$ = 8

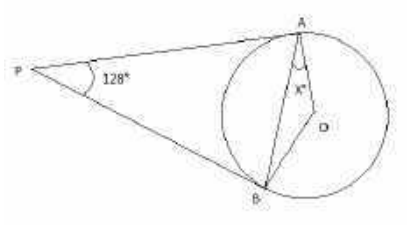
SSC CPO 2019

122. Sol:(d)



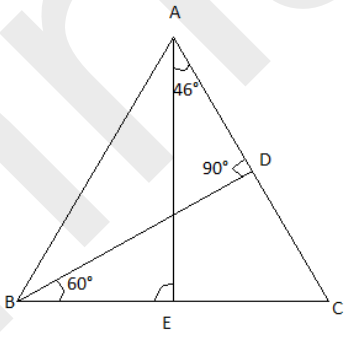
As we know that tangents drawn from a point to the circle are equal so PC=QC, AR=AQ,
BR=BP So the perimeter of triangle=2(4.5+3.5+7)=30

123.Sol:(a)



As we know that line joining centre to a point on the circle makes 90 degrees with the tangent.
So ∠ OAP=∠OBP=90°
So ∠AOB=180°-128°=52 °
Now in Triangle OAB, OA=OB (radius of circle)
So let ∠OAB=x degrees
So ∠OBA=x degrees
In triangle OAB
x+x+52=180
2x=128
So x=64°

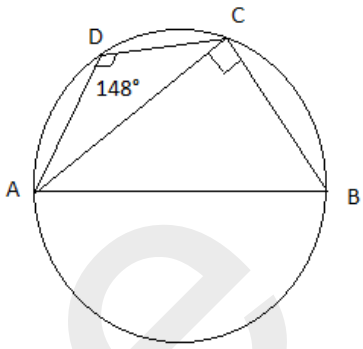
124.Sol:(a)



As we can see from the figure clearly that
In triangle BCD
∠BCD=90°-60°=30° (exterior angle theorem)
Now in triangle ACE again by exterior angle theorem we can see that
∠AEB=∠EAC+∠ACE
=46°+30°=76°

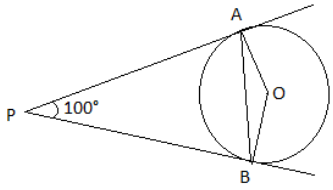
125.Sol:(d)
∠BOC=142° (GIven)
In triangle BOC, ∠OBC + ∠OCB+142°= 180°
∠OBC + ∠OCB= 38°
So ∠B+∠C= 76° (as OB and OC are angle bisectors)
So ∠A=180-76= 104°

Sol:126.(b)



∠ B = 180°-148° = 32°
In Δ ABC
∠C = 90° (angle in a semi-circle)
∠BAC = 180° - (90° + 32°)
∠BAC = 58°

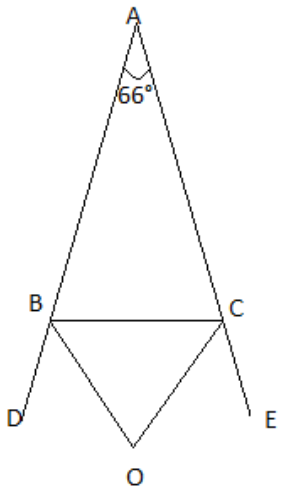
Sol:127.(d)



∠AOB = 80°
In, Δ AOB
∠OAB = ∠ABO (Angle opposite to equal sides are equal and AO and BO are radius of the circle)
∠OAB = $\frac{1}{2}$ (180° - 80°)
∠OAB = 50°

Sol:128.(c)

Pinnacle



$\angle O = 90 - \frac{1}{2}$ of $\angle A = 90° - 33° = 57°$

Sol:129.(a)

$\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{9}$

Ratio of sides =

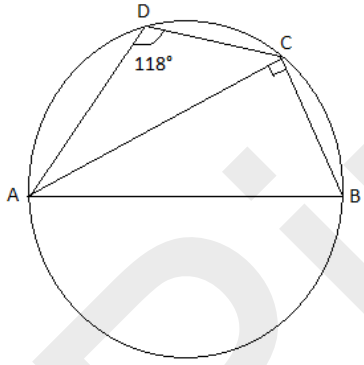
$\sqrt{4} : \sqrt{9} = 2 : 3$

As,

$\Delta ABC \sim \Delta RPQ$ then $\frac{BC}{PQ} : \frac{2}{3}$

PQ = $\frac{3}{2} \times 4 = 6$cm

Sol:130..(b)



$\angle B = 180° - 118° = 62°$

In ΔABC

$\angle C = 90°$ (angle in a semi-circle)

$\angle BAC = 180° - (90° + 62°)$

$\angle BAC = 28°$

131.Sol:.(c)

$\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{4}{9}$

Ratio of sides =

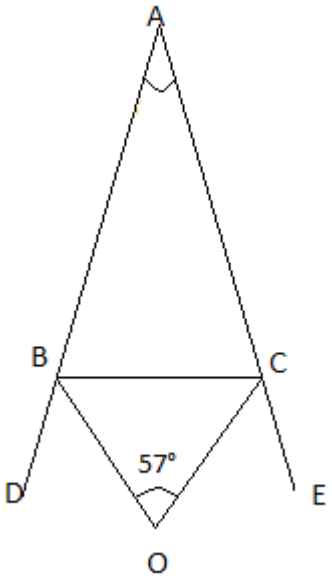
$\sqrt{4} : \sqrt{9} = 2 : 3$

As,

$\Delta ABC \sim \Delta RPQ$ then $\frac{BC}{RP} : \frac{2}{3}$

RP = $\frac{3}{2} \times 3 = 4.5$cm

132.Sol:.(b)

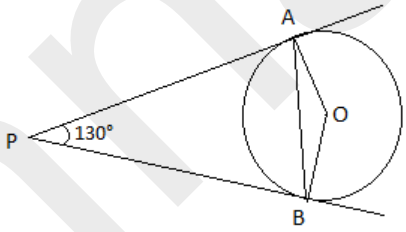


$\angle O = 90 - \frac{1}{2}$ of $\angle A$

$57° = 90° - \frac{1}{2}$ of $\angle A$

$\angle A = 180° - 114° = 66°$

133.Sol:.(a)



$\angle AOB = 50°$

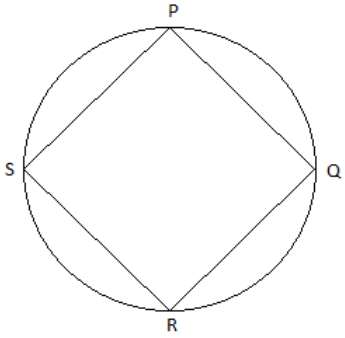
In, ΔAOB

$\angle OAB = \angle ABO$ (Angle opposite to equal sides are equal and AO and BO are radius of the circle)

$\angle OAB = \frac{1}{2}(180° - 50°)$

$\angle OAB = 65°$

134.Sol(a)



As we know sum of opposite angles of a cyclic quadrilateral=180

So $\angle P + \angle R = 180°$

$4\angle R + \angle R = 180°$

$5\angle R = 180°$

$\angle R = 36°$

$\angle S + \angle Q = 180°$

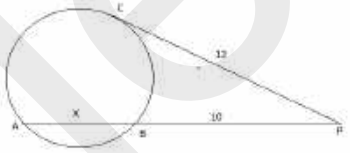
$4\angle Q = 180°$

$\angle Q = 45°$

$\angle Q + \angle R = 45° + 36° = 81°$

Average =40.5°

135.Sol:(A)

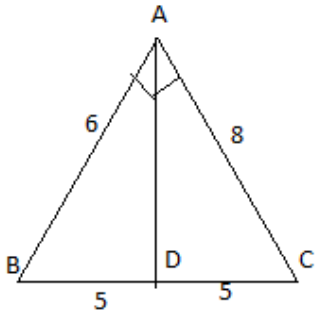


As we know from tangent secant theorem $PC^2 = PB \times PA$

$12^2 = 10 \times (10 + x)$

So x=4.4

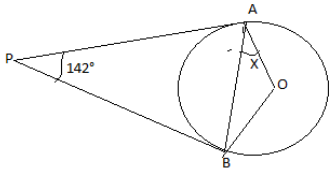
136.Sol:(D)



As we can see (6,8,10) is a pythagorean triplet so Triangle BAC is right angled at A so median AD drawn to BC will be equal to BD

AD=BD=DC(median theorem) always holds in a right angled triangle

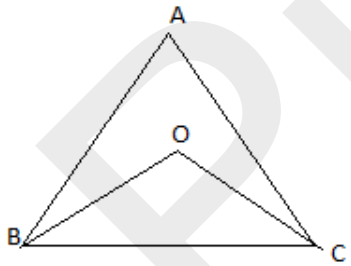
137.Sol:(b)



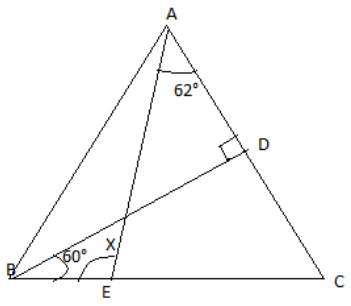
As we know that line joining centre to a point on the circle makes 90 degrees with the tangent.
So ∠OAP=∠OBP=90°
So ∠AOB=180°-142°=38°
Now in Triangle OAB, OA=OB (radius of circle)
So let ∠OAB=x degrees
So ∠OBA=x degrees
In triangle OAB
x+x+38=180
2x=142
So x=71°

138.Sol:(b)
Tangents drawn from external point are equal
In the given Figure AR=AQ, BR=BP, CP=CQ
Perimeter of Triangle = ab+bc+ac
= 2 × (2.6+2.7+3)
=16.6

139.Sol:(c)
∠BOC=134° (GIven)
In triangle BOC, ∠OBC + ∠OCB+134°= 180°
∠OBC + ∠OCB= 46°
So ∠B+∠C= 92° (as OB and OC are angle bisectors)
So ∠A=180-92= 88°

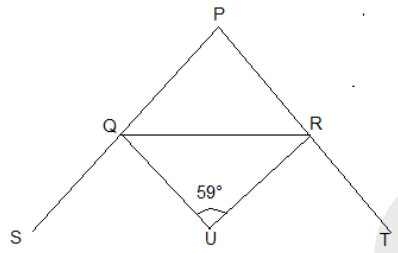


140.Sol:(B)



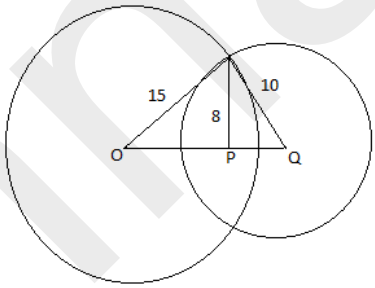
As we can see from the figure clearly that
In triangle BCD
∠BCD=90°-60°=30° (exterior angle theorem)
Now in triangle ACE again by exterior angle theorem we can see that
∠AEB=∠EAC+∠ACE
=62°+30°=92°

Sol:141.(c)



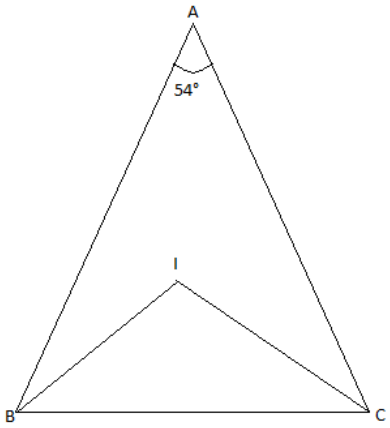
∠QUR = 90° - $\frac{1}{2}$ ∠QPR
59° = 90° - $\frac{1}{2}$ ∠QPR
∠QPR = 62°

Sol:142..(b)



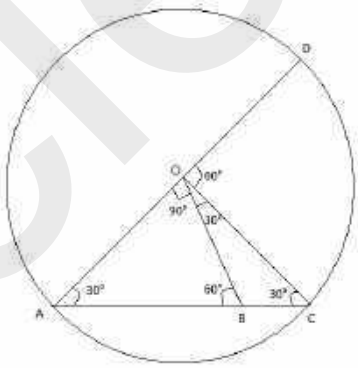
Applying pythagoras
Length of OP = $\sqrt{15^2 - 8^2}$ = $\sqrt{161}$
Length of QP = $\sqrt{10^2 - 8^2}$ = 6
Length of OQ = 6 + $\sqrt{161}$

Sol:143.(c)



∠BIC = 90° + $\frac{1}{2}$ of ∠A = 90° + 27° = 117°

144:Sol:.(a)



In triangle AOB, ∠OBA=60° (given)
And ∠COD=60° (given) so DAC=30°(angle made on circumference is half of angle made on centre)
OA=OC (radius of circle)
So ∠OCA=30°
And by exterior angle theorem in triangle OCB, ∠OCB + ∠BOC=60°
So ∠OCB=∠OBC=30°
And OB=OC=7 cm (side opposite to equal angle)

Pinnacle

Important Formulae:/ महत्वपूर्ण सूत्र

- $(a+b)^2+(a-b)^2 = a^2+b^2+2ab + a^2+b^2-2ab = 2(a^2+b^2)$
- $(a+b)^2-(a-b)^2 = 4ab$
- $(a+b)^2-4ab = (a-b)^2$
- $a^2-b^2 = (a+b)(a-b)$
- $a^4-b^4 = (a^2+b^2)(a+b)(a-b)$
- $a^2+\frac{1}{a^2} = \left(a+\frac{1}{a}\right)^2-2 = \left(a-\frac{1}{a}\right)^2+2$
- $a^2+b^2+c^2-ab-bc-ca = \frac{1}{2}\{(a-b)^2+(b-c)^2+(c-a)^2\}$
  If $a=b=c=k$ then, $a^2+b^2+c^2 = ab+bc+ca$,
- $(a+b)^3 = a^3+b^3+3ab(a+b)$
- $(a-b)^3 = a^3-b^3-3ab(a-b)$
- $a^3+b^3 = (a+b)(a^2+b^2-ab)$
- $a^3-b^3 = (a-b)(a^2+b^2+ab)$
- $a^3+\frac{1}{a^3} = \left(a+\frac{1}{a}\right)^3-3\left(a+\frac{1}{a}\right)$
- $a^3-\frac{1}{a^3} = \left(a-\frac{1}{a}\right)^3+3\left(a-\frac{1}{a}\right)$
- $a^3+b^3+c^3-3abc = (a+b+c)(a^2+b^2+c^2-ab-bc-ca)$
- $a^3+b^3+c^3-3abc = \frac{1}{2}(a+b+c)\{(a-b)^2+(b-c)^2+(c-a)^2\}$

  If $(a+b+c)=0$ *then*, $a^3+b^3+c^3 = 3abc$

- Dividendo – Componendo rule:
  If $\frac{a}{b}=\frac{c}{d}$ then, $\frac{a+b}{a-b}=\frac{c+d}{c-d}$
  If $\frac{a+b}{a-b}=\frac{c}{d}$ then $\frac{a}{b}=\frac{c+d}{c-d}$
- If $(x-a)^2+(y-b)^2+(z-c)^2=0$ then by putting $x=a,\ y=b,\ z=c$ in an expression we can find the value of the expression.

Variety Questions

Q1. If $5\sqrt{5}x^3-81\sqrt{3}y^3 \div \sqrt{5}x-3\sqrt{3}y = Ax^2+By^2+Cxy$, then the value of $(6A+B-\sqrt{15}C)$ is : यदि $(5\sqrt{5}x^3-81\sqrt{3}y^3) \div \sqrt{5}x-3\sqrt{3}y = Ax^2+By^2+Cxy$ है, तो $(6A+B-\sqrt{15}C)$ का मान ज्ञात करें |

SSC CGL 4 June 2019(Morning)

(a) 10
(b) 9
(c) 15
(d) 12

Q2. If x+y+z=19, $x^2+y^2+z^2=133$ and $xz=y^2$, then the difference between z and x is :
यदि x+y+z=19, $x^2+y^2+z^2=133$ तथा $xz=y^2$ है, तो z और x के बीच क्या अंतर है ?

SSC CGL 4 June 2019(Morning)

(a) 5
(b) 3
(c) 6
(d) 4

Q3. If $x^4+x^{-4}=194, x>0$ then the value of $(x-2)^2$ is :
यदि $x^4+x^{-4}=194, x>0$ है, तो $(x-2)^2$ का मान क्या होगा ?

SSC CGL 4 June 2019(Morning)

(a) 1
(b) 6
(c) 2
(d) 3

Q4. If $16x^2+9y^2+4z^2 = 24(x-y+z)-61$, then the value of (xy + 2z) is :
यदि $16x^2+9y^2+4z^2=24(x-y+z)-61$ है, तो (xy + 2z) का मान क्या होगा ?

SSC CGL 4 June 2019(Afternoon)

(a) 1
(b) 2
(c) 3
(d) 5

Q5. If x + y + z = 19, xy + yz + zx = 114, then the value of $\sqrt{x^3+y^3+z^3-3xyz}$ is :
यदि x + y + z = 19, xy + yz + zx = 114 है, तो $\sqrt{x^3+y^3+z^3-3xyz}$ का मान क्या होगा ?

SSC CGL 4 June 2019(Afternoon)

(a) 21
(b) 17
(c) 19
(d) 13

Q6. If $[8(x+y)^3-27(x-y)^3] \div (5y-x) = Ax^2+Cy^2+Bxy$, then the value of (A + B + C) is:
यदि $[8(x+y)^3-27(x-y)^3] \div (5y-x) = Ax^2+Cy^2+Bxy$ है, तो (A + B + C) का मान ज्ञात करें|

SSC CGL 4 June 2019(Afternoon)

(a) 26
(b) 19
(c) 16
(d) 13

Q7. If $a^2+b^2+64c^2+16c+3 = 2(a+b)$, then the value of $4a^7+b^7+8c^2$ is
यदि $a^2+b^2+64c^2+16c+3 = 2(a+b)$ है, तो $4a^7+b^7+8c^2$ का मान क्या होगा ?

SSC CGL 4 June 2019(Evening)

(a) $3\frac{7}{8}$
(b) $4\frac{7}{8}$
(c) $4\frac{1}{8}$
(d) $5\frac{1}{8}$

Q8. If x + y = 1 and xy(xy - 2) = 12, then the value of $x^4 + y^4$ is:
यदि x + y = 1 है और xy(xy - 2) = 12 है, तो $x^4 + y^4$ का मान क्या होगा ?
SSC CGL 4 June 2019(Evening)
(a) 19
(b) 25
(c) 20
(d) 23

Q9. If ab + bc + ca = 8 and $a^2 + b^2 + c^2 = 20$, then a possible value of $\frac{1}{2}(a + b + c)[(a - b)^2 + (b - c)^2 + (c - a)^2]$ is
यदि ab + bc + ca = 8 है और $a^2 + b^2 + c^2 = 20$ है, तो $\frac{1}{2}(a + b + c)[(a - b)^2 + (b - c)^2 + (c - a)^2]$ का संभावित मान है :
SSC CGL 6 June 2019(Morning)
(a) 72
(b) 56
(c) 84
(d) 80

Q10. If $x = a + \frac{1}{a}$ and $y = a - \frac{1}{a}$ then $\sqrt{x^4 + y^4 - 2x^2y^2}$ is equal to:
यदि $x=a + \frac{1}{a}$ और $y = a - \frac{1}{a}$ है, तो $\sqrt{x^4 + y^4 - 2x^2y^2}$ का मान किसके बराबर होगा?
SSC CGL 6 June 2019(Morning)
(a) $16a^2$
(b) 8
(c) $\frac{8}{a^2}$
(d) 4

Q11. If $2x^2 + y^2 + 6x - 2xy + 9 = 0$, then the value of $4x^3 - y^3 + x^2y^2$ is : यदि $2x^2 + y^2 + 6x - 2xy + 9 = 0$ है, तो $4x^3 - y^3 + x^2y^2$ का मान क्या होगा ?
SSC CGL 6 June 2019(Afternoon)
(a) 0
(b) 9
(c) -3
(d) -9

Q12. If x + y = 12 and xy = 27, x > y, then the value of $(x^3 - y^3)$ is:
यदि x + y = 12 है और xy = 27 है, जहाँ x > y, तो $(x^3 - y^3)$ का मान क्या होगा ?
SSC CGL 6 June 2019(Afternoon)
(a) 720
(b) 702
(c) 724
(d) 710

Q13. If $x^2 + y^2 + z^2 = 133$, xy + yz + zx = 114 and xyz = 216, then the value of $x^3 + y^3 + z^3$ is :
यदि $x^2 + y^2 + z^2 = 133$ है, xy + yz + zx = 114 है तथा xyz = 216 है, तो $x^3 + y^3 + z^3$ का मान क्या होगा ?
SSC CGL 6 June 2019(Afternoon)
(a) 948
(b) 999
(c) 942
(d) 1009

Q14. If $a + \frac{1}{a} = 3$, then $(a^4 + \frac{1}{a^4})$ is equal to :
यदि $a + \frac{1}{a} = 3$ है, तो $(a^4 + \frac{1}{a^4})$ का मान किसके बराबर है ?
SSC CGL 6 June 2019(Evening)
(a) 77
(b) 47
(c) 81
(d) 27

Q15. If $x^4 - 6x^2 - 1 = 0$, then the value of $x^6 - 5x^2 + \frac{5}{x^2} - \frac{1}{x^6} + 5 =$?
यदि $x^4 - 6x^2 - 1 = 0$ है, तो $x^6 - 5x^2 + \frac{5}{x^2} - \frac{1}{x^6} + 5 =$?
SSC CGL 7 June 2019(Morning)
(a) 219
(b) 209
(c) 204
(d) 239

Q16. If x = 2 - p , then $x^3 + 6xp + p^3$, is equal to :
यदि x = 2 - p है, तो $x^3 + 6xp + p^3$ का मान क्या होगा ?
SSC CGL 7 June 2019(Morning)
(a) 12
(b) 6
(c) 8
(d) 4

Q17. If $9a^2 + 4b^2 + c^2 + 21 = 4(3a + b - 2c)$, then the value of (9a + 4b - c) is :
यदि $9a^2 + 4b^2 + c^2 + 21 = 4(3a + b - 2c)$ है, तो (9a + 4b - c) का मान क्या होगा ?
SSC CGL 7 June 2019(Afternoon)
(a) 2
(b) 16
(c) 6
(d) 12

Q18. If x^2 -3x-1 = 0 , then the value of $(x^2 + 8x - 1)(x^3 + x^{-1})^{-1}$ is :
यदि x^2 -3x-1= 0 है, तो $(x^2 + 8x - 1)(x^3 + x^{-1})^{-1}$ का मान क्या होगा ?
SSC CGL 7 June 2019(Afternoon)
(a) $\frac{3}{8}$
(b) 8
(c) 1
(d) 3

Q19. If $\frac{6x}{2x^2+5x-2} = 1$, x > 0 , then the value of $x^3 + \frac{1}{x^3}$ is:
यदि $\frac{6x}{2x^2+5x-2} = 1$ है तथा x > 0 है, तो $x^3 + \frac{1}{x^3}$ का मान ज्ञात करें |
SSC CGL 7 June 2019(Evening)
(a) $\frac{3}{8}\sqrt{17}$
(b) $\frac{5}{8}\sqrt{17}$
(c) $\frac{5}{16}\sqrt{17}$
(d) $\frac{3}{4}\sqrt{17}$

Q20. If $4x^2 - 6x + 1 = 0$, then the value of $8x^3 + (8x^3)^{-1}$ is :
यदि $4x^2 - 6x + 1 = 0$ है, तो $8x^3 + (8x^3)^{-1}$ का मान ज्ञात करें |
SSC CGL 10 June 2019(Morning)
(a) 36
(b) 13
(c) 18
(d) 11

Q21. If x + y + z = 0 , then the value of $(x^2 + y^2 + z^2) \div (z^2 - xy)$ is :
यदि x + y + z = 0 है, तो $(x^2 + y^2 + z^2) \div (z^2 - xy)$ का मान क्या होगा ?
SSC CGL 10 June 2019(Morning)
(a) 1
(b) 2
(c) -2
(d) -1

Q22. If $\sqrt{x} - \frac{1}{\sqrt{x}} = 4$, then $x^2 + \frac{1}{x^2}$ is equal to :
यदि $\sqrt{x} - \frac{1}{\sqrt{x}} = 4$ है, तो $x^2 + \frac{1}{x^2}$ का मान क्या होगा ?
SSC CGL 10 June 2019 (Afternoon)
(a) 192
(b) 326
(c) 322
(d) 256

Q23. If $(3x-1)^3 + (4x-3)^3 + (2x+1)^3 = 3(3x - 1)(4x - 3)(2x + 1)$ and $x \neq \frac{1}{3}$ then x = ?
यदि $(3x-1)^3 + (4x-3)^3 + (2x+1)^3 = 3(3x - 1)(4x - 3)(2x + 1)$ है तथा $x \neq \frac{1}{3}$ है, तो x = ?
SSC CGL 10 June 2019(Evening)
(a) $\frac{1}{2}$
(b) 2
(c) $\frac{1}{4}$
(d) 1

Q24. If $x - 5\sqrt{x} - 1 = 0$, then $x^2 + \frac{1}{x^2}$ is equal to :
यदि $x - 5\sqrt{x} - 1 = 0$ है, तो $x^2 + \frac{1}{x^2}$ का मान क्या होगा ?
SSC CGL 10 June 2019(Evening)
(a) 625
(b) 731
(c) 729
(d) 727

Q25. If x + y = 7 and xy = 10, then the value of $\frac{1}{x^3} + \frac{1}{y^3}$ is:
यदि x +y =7 तथा xy= 10 है, तो $\frac{1}{x^3} + \frac{1}{y^3}$ का मान क्या होगा
SSC CHSL 1 July 2019(Evening)

(a) 0.543
(b) 0.131
(c) 0.133
(d) 0.453

Q26. If a + b + c = 5 , $a^2 + b^2 + c^2 =$ 27 and $a^3 + b^3 + c^3 = 125$, then the value of 4abc is:
यदि a + b + c = 5 , $a^2 + b^2 + c^2 =$ 27 और $a^3 + b^3 + c^3 = 125$ है, तो 4abc का मान ज्ञात करें |
SSC CHSL 2 July 2019(Morning)
(a) -20
(b) -15
(c) 15
(d) 20

Q27. If $x \neq -1,2$ and 5, then the simplified value of $\{\frac{2(x^3-8)}{x^2-x-2} \times \frac{x^2+2x+1}{x^2-4x-5}\} \div \frac{x^2+2x+4}{3x-15}$ is equal to :
यदि $x \neq -1,2$ और 5 है, तो $\{\frac{2(x^3-8)}{x^2-x-2} \times \frac{x^2+2x+1}{x^2-4x-5}\} \div \frac{x^2+2x+4}{3x-15}$ का सरलीकृत मान क्या होगा ?
SSC CHSL 3 July 2019(Afternoon)
(a) $\frac{1}{6}$
(b) 6
(c) $\frac{3}{2}$
(d) $\frac{2}{3}$

Q28. If $5^{\sqrt[3]{x}} + 12^{\sqrt[3]{x}} = 13^{\sqrt[3]{x}}$, then the value of x is :
यदि $5^{\sqrt[3]{x}} + 12^{\sqrt[3]{x}} = 13^{\sqrt[3]{x}}$ है, तो x का मान ज्ञात करें |
SSC CHSL 5 July 2019(Afternoon)
(a) 2
(b) 8
(c) 1
(d) 4

Q29. If $x=2-\sqrt{3}$ then the value of $x^3 - x^{-3}$ is :
यदि $x=2-\sqrt{3}$ है, तो $x^3 - x^{-3}$ का मान क्या होगा ?
SSC CHSL 5 July 2019(Evening)
(a) $-30\sqrt{3}$
(b) $30\sqrt{3}$
(c) $-30\sqrt{2}$
(d) $30\sqrt{2}$

Q30. The value of the expression $\frac{1}{4}\{(a+\frac{1}{a})^2 - (a-\frac{1}{a})^2\}$ is :
व्यंजक $\frac{1}{4}\{(a+\frac{1}{a})^2 - (a-\frac{1}{a})^2\}$ का मान क्या है ?

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SSC CHSL 9 July 2019(Evening)
(a) $\frac{1}{2}$
(b) $\frac{1}{4}$
(c) 1
(d) 4

Q31. $(x+y)^{\frac{1}{3}}+(z+y)^{\frac{1}{3}}=-(x+z)^{\frac{1}{3}}$, then $(x^3+y^3+z^3)$ can be expressed as :
यदि $(x+y)^{\frac{1}{3}}+(z+y)^{\frac{1}{3}}=-(x+z)^{\frac{1}{3}}$ है, तो $(x^3+y^3+z^3)$ को किस प्रकार अभिव्यक्त किया जा सकता है ?
SSC CHSL 10 July 2019(Morning)
(a) $\frac{1}{8}$ xyz
(b) (x+y)(y+z)(z+x)
(c) $\frac{3}{8}$ (x+y)(y+z)(z+x)
(d) 3xyz

Q32. If (a+b+4){ab+4(a+b)}-4ab = 0, a≠-4, b≠-4, then, $\{\frac{1}{(a+b+4)^{117}}-2^{-234}\}$ is equal to :
यदि (a+b+4){ab+4(a+b)}-4ab = 0 है, तथा a≠-4, b≠-4 है, तो $\{\frac{1}{(a+b+4)^{117}}-2^{-234}\}$ का मान क्या होगा ?
SSC CHSL 11 July 2019(Afternoon)
(a) $\frac{1}{4^{117}}$
(b) $\frac{1}{2^{117}}$
(c) $-\frac{1}{2^{234}}$
(d) 0

Q33. Given that x,y,z are positive real numbers, if $(x+y)^2-z^2=8$, $(z+y)^2-x^2=10$, and $(x+z)^2-y^2=7$, then (x+y+z) is equal to :
दिया गया है कि x, y और z धनात्मक वास्तविक संख्याएं हैं | यदि $(x+y)^2-z^2=8$ है, $(z+y)^2-x^2=10$ है और $(x+z)^2-y^2=7$ है, तो (x+y+z) का मान किसके बराबर है ?
SSC CHSL 11 July 2019(Evening)
(a) 5
(b) 7
(c) 8
(d) 6

Q34. If a= $\sqrt{8}-\sqrt{7}$ and a = $\frac{1}{b}$, then $\frac{a^2+b^2-3ab}{a^2+ab+b^2}$ is equal to
यदि a= $\sqrt{8}-\sqrt{7}$ और a = $\frac{1}{b}$ है, तो $\frac{a^2+b^2-3ab}{a^2+ab+b^2}$ का मान क्या होगा ?
SSC CHSL 11 July 2019(Evening)
(a) $\frac{27}{31}$
(b) $\frac{27}{32}$
(c) $\frac{29}{33}$
(d) $\frac{29}{31}$

Q35. If, $a^{\frac{1}{3}}+b^{\frac{1}{3}}+c^{\frac{1}{3}}=0$, then $(a+b+c)^6$ is equal to :
यदि $a^{\frac{1}{3}}+b^{\frac{1}{3}}+c^{\frac{1}{3}}=0$ है, तो $(a+b+c)^6$ का मान ज्ञात करें |
SSC CHSL 10 July 2019(Afternoon)
(a) 81 abc
(b) 729 $a^2b^2c^2$
(c) 729 abc
(d) 81 $a^2b^2c^2$

Q36. If a+b-c = 12 and $a^2+b^2+c^2=110$, then which among the following relations is true ?
यदि a+b-c = 12 और $a^2+b^2+c^2=110$ है, तो निम्न में से कौन सा संबंध सही है ?
(p) ab+bc+ca = 3
(q)ab+bc-ca = 17
(r) ab-bc+ca = 17
(s) ab-bc-ca = 17
SSC CHSL 10 July 2019(Afternoon)
(a) r
(b) q
(c) p
(d) s

Q37. If roots of x^2 - 4x + a = 0 are equal, then a =
यदि x^2 - 4x +a=0 के मूल बराबर हैं, तो a = ?
SSC CPO 16 March 2019 (Evening)
(a) -4
(b) 4
(c) 8
(d) -8

Q38. If a^3 - b^3 = 216 and a - b = 6, then $(a+b)^2$ - ab is equal to:
यदि a^3 - b^3 = 216 तथा a - b = 6, तो $(a+b)^2$ - ab का मान क्या होगा ?
SSC CPO 15 March 2019 (Evening)
(a)38
(b)42
(c)52
(d)36

Q39.If $a^3+b^3=432$ and a + b = 12, then $(a+b)^2$ - 3ab is equal to:
यदि $a^3+b^3=432$ तथा a + b = 12 है, तो $(a+b)^2$ - 3ab का मान क्या होगा ?
SSC CPO 16 March 2019 (Afternoon)
(a)42
(b)52
(c) 36
(d)38

Q40. If ab+bc+ca=8 and a+b+c=12 then $(a^2+b^2+c^2)$ is equal to:
यदि ab+bc+ca=8 तथा a+b+c=12 है, तो $(a^2+b^2+c^2)$ का मान ज्ञात करें |
SSC CPO 14 March 2019(Morning)
(a)160

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(b)144
(c)134
(d)128

Practice Questions

Q1. If $(27x^3 - 343y^3) \div (3x - 7y) = Ax^2 + By^2 + 7Cyx$, then the value of (4A - B + 5C) is:
यदि $(27x^3 - 343y^3) \div (3x - 7y) = Ax^2 + By^2 + 7Cyx$ है, तो (4A - B + 5C) का मान ज्ञात करें |
SSC CGL 4 June 2019(Evening)
(a) 0
(b) 3
(c) 2
(d) 1

Q2. If $a^2 + b^2 + c^2 = 21$, and a + b + c = 7, then (ab + bc + ca) is equal to :
यदि $a^2 + b^2 + c^2 = 21$ है तथा a + b + c = 7 है, तो (ab + bc + ca) का मान क्या होगा ?
SSC CGL 4 June 2019(Evening)
(a) 12
(b) 28
(c) 14
(d) 8

Q3. If $(8x^3 - 27y^3) \div (2x - 3y) = (Ax^2 + Bxy + Cy^2)$, then the value of (2A + B - C) is :
यदि $(8x^3 - 27y^3) \div (2x - 3y) = (Ax^2 + Bxy + Cy^2)$ है, तो (2A + B - C) का मान क्या होगा ?
SSC CGL 6 June 2019(Morning)
(a) 4
(b) 6
(c) 5
(d) 3

Q4. If $3\sqrt{3}x^3 - 2\sqrt{2}y^3 = (\sqrt{3}x - \sqrt{2}y)(Ax^2 + Cxy + By^2)$, then the value of (A × B) ÷ C is :
यदि $3\sqrt{3}x^3 - 2\sqrt{2}y^3 = (\sqrt{3}x - \sqrt{2}y)(Ax^2 + Cxy + By^2)$ है, तो (A × B) ÷ C का मान क्या होगा ?
SSC CGL 6 June 2019(Evening)
(a) $6\sqrt{6}$
(b) $6\sqrt{3}$
(c) $\sqrt{3}$
(d) $\sqrt{6}$

Q5. If (a + b + c) = 2 , $a^2 + b^2 + c^2 = 26$, then the value of $a^3 + b^3 + c^3 - 3abc$ is :
यदि (a + b + c) = 2 , $a^2 + b^2 + c^2 = 26$ है, तो $a^3 + b^3 + c^3 - 3abc$ का मान ज्ञात करें |
SSC CGL 6 June 2019 (Evening)
(a) 71
(b) 74
(c) 69
(d) 78

Q6. If $(x^3 - 2\sqrt{2}y^3) \div (x - \sqrt{2}y) = (Ax^2 + Bxy + Cy^2)$, then , (2A + $4\sqrt{2}$B - 4C) = ?
यदि $(x^3 - 2\sqrt{2}y^3) \div (x - \sqrt{2}y) = (Ax^2 + Bxy + Cy^2)$ है, तो (2A + $4\sqrt{2}$B - 4C) का मान ज्ञात करें |
SSC CGL 7 June 2019(Morning)
(a) 4
(b) 2
(c) 1
(d) 0

Q7. If $135\sqrt{5}x^3 - 2\sqrt{2}y^3 \div 3\sqrt{5}x - \sqrt{2}y = Ax^2 + By^2 + \sqrt{10}Cxy$, then the value of (A + B - 9C) is :
यदि $135\sqrt{5}x^3 - 2\sqrt{2}y^3 \div 3\sqrt{5}x - \sqrt{2}y = Ax^2 + By^2 + \sqrt{10}Cxy$ है, तो (A + B - 9C)का मान क्या होगा ?
SSC CGL 7 June 2019(Afternoon)
(a) 18
(b) 12
(c) 20
(d) 10

Q8. If $(8x^3 + 27y^3) \div (2x + 3y) = (Ax^2 + Bxy + Cy^2)$, then the value of (5A + 4B + 3C) is :
यदि $(8x^3 + 27y^3) \div (2x + 3y) = (Ax^2 + Bxy + Cy^2)$है, तो (5A + 4B + 3C) का मान क्या होगा ?
SSC CGL 7 June 2019(Evening)
(a) 26
(b) 23
(c) 24
(d) 27

Q9. If $a^2 + b^2 + c^2 + 27 = 6(a + b + c)$, then what is the value of $\sqrt[3]{a^3 + b^3 - c^3}$?
यदि $a^2 + b^2 + c^2 + 27 = 6(a + b + c)$ है, तो $\sqrt[3]{a^3 + b^3 - c^3}$ का मान ज्ञात करें |
SSC CGL 10 June 2019(Morning)
(a) 3
(b) 1
(c) 9
(d) 6

Q10. If $x + \frac{1}{x} = \sqrt{5}$, then $x^3 + \frac{1}{x^3}$ is equal to :
यदि $x + \frac{1}{x} = \sqrt{5}$ है, तो $x^3 + \frac{1}{x^3}$ का मान ज्ञात करें |
SSC CGL 10 June 2019(Evening)
(a) $3\sqrt{5}$
(b) $4\sqrt{5}$
(c) $2\sqrt{5}$
(d) $5\sqrt{5}$

Q11. If $x + \frac{1}{x} = 3$, then $x^3 + \frac{1}{x^3}$ is equal to:
यदि $x + \frac{1}{x} = 3$ है, तो $x^3 + \frac{1}{x^3}$ का मान क्या होगा ?
SSC CGL 10 June 2019 (Afternoon)
(a) 27

(b) 36
(c) 24
(d) 18

Q12. If a + b + c = 13 and ab + bc + ca = 54 and $a^3 + b^3 + c^3 - 3abc$ is equal to:
यदि a + b + c = 13 है और ab + bc + ca = 54 है, तो $a^3 + b^3 + c^3 - 3abc$ का मान क्या होगा ?
SSC CGL 10 June 2019 (Afternoon)
(a) 793
(b) 273
(c) 91
(d) 182

Q13. If a + b + c = 11 and ab + bc + ca = 38, then $a^3 + b^3 + c^3 - 3abc$ is equal to :
यदि a + b + c = 11 है और ab + bc + ca = 38 है, तो $a^3 + b^3 + c^3 - 3abc$ का मान किसके बराबर होगा ?
SSC CGL 10 June 2019(Evening)
(a) 44
(b) 77
(c) 55
(d) 66

Q14. If $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{6}$, then $x^2 + \frac{1}{x^2}$ is equal to :
यदि $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{6}$ है, तो $x^2 + \frac{1}{x^2}$ का मान क्या होगा ?
SSC CGL 11 June 2019(Morning)
(a) 62
(b) 14
(c) 16
(d) 36

Q15. If a + b + c = 8 and ab + bc + ca = 12, then $a^3 + b^3 + c^3 - 3abc$ is equal to :
यदि a + b + c = 8 और ab + bc + ca = 12 है, तो $a^3 + b^3 + c^3 - 3abc$ का मान क्या होगा ?
SSC CGL 11 June 2019(Morning)
(a) 192
(b) 224
(c) 144
(d) 400

Q16. If a + b = 5 and ab = 3, then ($a^3 + b^3$) is equal to:
यदि a + b = 5 और ab = 3 है, तो ($a^3 + b^3$) का मान ज्ञात करें |
SSC CGL 11 June 2019(Morning)
(a) 70
(b) 75
(c) 80
(d) 65

Q17. If a + b + c = 6 and ab + bc + ca = 4 , then $a^3 + b^3 + c^3$ - 3abc is equal to :
यदि a + b + c = 6 है तथा ab + bc + ca = 4 है, तो $a^3 + b^3 + c^3$ -3abc का मान किसके बराबर है ?
SSC CGL 11 June 2019(Afternoon)
(a) 148
(b) 154
(c) 160
(d) 144

Q18. If (a+ b) = 6 cm and ab = $\frac{16}{3}$, then $a^3 + b^3$ is equal to:
यदि (a+ b) = 6 सेमी है और ab = $\frac{16}{3}$ है, तो $a^3 + b^3$ का मान किसके बराबर है ?
SSC CGL 11 June 2019(Afternoon)
(a) 190
(b) 150
(c) 220
(d) 120

Q19. If $\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{6}$, then $x^2 + \frac{1}{x^2}$ is equal to:
यदि $\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{6}$ है, तो $x^2 + \frac{1}{x^2}$ का मान क्या होगा ?
SSC CGL 11 June 2019(Afternoon)
(a) 62
(b) 40
(c) 54
(d) 66

Q20. If (a + b) = 8 and ab = $\frac{32}{3}$, then $a^3 + b^3$ is equal to
यदि (a + b) = 8 है और ab = $\frac{32}{3}$ है, तो $a^3 + b^3$ किसके बराबर है ?
SSC CGL 11 June 2019(Evening)
(a) 256
(b) 128
(c) 320
(d) 384

Q21. If $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{7}$, then $x^3 + \frac{1}{x^3}$ is equal to:
यदि $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{7}$ है, तो $x^3 + \frac{1}{x^3}$ का मान किसके बराबर है ?
SSC CGL 11 June 2019(Evening)
(a) 140
(b) 130
(c) 120
(d) 110

Q22. If a + b + c = 4 and ab + bc + ca = 2 , then $a^3 + b^3 + c^3$ - 3abc is equal to:
यदि a + b + c = 4 है और ab + bc + ca = 2 है, तो $a^3 + b^3 + c^3$ - 3abc का मान क्या होगा ?
SSC CGL 11 June 2019(Evening)
(a) 36
(b) 32
(c) 48
(d) 40

Q23. If (a + b) = 6 and ab = 8, then ($a^3 + b^3$) is equal to:

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यदि (a + b) = 6 है और ab = 8 है, तो $(a^3 + b^3)$ का मान क्या होगा ?
SSC CGL 12 June 2019(Morning)
(a) 216
(b) 108
(c) 144
(d) 72

Q24. If a + b + c = 6 and ab + bc + ca = 5, then $a^3 + b^3 + c^3 - 3abc$ is equal to: / यदि a + b + c = 6 है और ab + bc + ca = 5 है, तो $a^3 + b^3 + c^3 - 3abc$ का मान क्या होगा ?
SSC CGL 12 June 2019(Morning)
(a) 116
(b) 126
(c) 98
(d) 108

Q25. If $\sqrt{x} + \frac{1}{\sqrt{x}} = 2\sqrt{2}$, then $x^2 + \frac{1}{x^2}$ is equal to:
यदि $\sqrt{x} + \frac{1}{\sqrt{x}} = 2\sqrt{2}$ है, तो $x^2 + \frac{1}{x^2}$ का मान क्या होगा ?
SSC CGL 12 June 2019(Morning)
(a) 34
(b) 64
(c) 36
(d) 32

Q26. If $\sqrt{x} - \frac{1}{\sqrt{x}} = 2\sqrt{2}$, then $x^2 + \frac{1}{x^2}$ is equal to :
यदि $\sqrt{x} - \frac{1}{\sqrt{x}} = 2\sqrt{2}$ है, तो $x^2 + \frac{1}{x^2}$ का मान किसके बराबर है ?
SSC CGL 12 June 2019 (Afternoon)
(a) 102
(b) 98
(c) 104
(d) 100

Q27. If a + b + c = 6 and $a^3 + b^3 + c^3 - 3abc = 126$, then ab + bc + ca is equal to :
यदि a + b + c = 6 है और $a^3 + b^3 + c^3 - 3abc = 126$ है, तो ab + bc + ca का मान क्या होगा ?
SSC CGL 12 June 2019 (Afternoon)
(a) 5
(b) 6
(c) 12
(d) 8

Q28. If a + b = 5 and ab = 3, then $(a^3 + b^3)$ is equal to:
यदि a + b = 5 है और ab = 3, है, तो $(a^3 + b^3)$ का मान क्या होगा ?
SSC CGL 12 June 2019 (Afternoon)
(a) 75
(b) 80
(c) 70
(d) 65

Q29. If a + b + c = 7 and ab + bc + ca = 1 , then $a^3 + b^3 + c^3$ - 3abc is equal to :
यदि a + b + c = 7 और ab + bc + ca = 1 है, तो $a^3 + b^3 + c^3$ -3abc का मान ज्ञात करें |
SSC CGL 12 June 2019(Evening)
(a) 322
(b) 325
(c) 412
(d) 422

Q30. If a - b = 5 and ab = 2 , then $(a^3 - b^3)$ is equal to :
यदि a - b = 5 और ab = 2 है, तो $(a^3 - b^3)$ किसके बराबर है ?
SSC CGL 12 June 2019(Evening)
(a) 95
(b) 155
(c) 145
(d) 125

Q31. If $\sqrt{x} - \frac{1}{\sqrt{x}} = 3\sqrt{2}$, then $x^2 + \frac{1}{x^2}$ is equal to :
यदि $\sqrt{x} - \frac{1}{\sqrt{x}} = 3\sqrt{2}$ है, तो $x^2 + \frac{1}{x^2}$ का मान क्या होगा ?
SSC CGL 12 June 2019(Evening)
(a) 402
(b) 324
(c) 326
(d) 398

Q32. If (a - b) = 4 and ab = 2, then $(a^3 - b^3)$ is equal to:
यदि (a - b) = 4 और ab = 2 है, तो $(a^3 - b^3)$ का मान ज्ञात करें |
SSC CGL 13 June 2019(Morning)
(a)92
(b)88
(c)84
(d)80

Q33. If $\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{5}$, then $x^2 + \frac{1}{x^2}$ is equal to:
यदि $\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{5}$ है, तो $x^2 + \frac{1}{x^2}$ का मान क्या होगा ?
SSC CGL 13 June 2019(Morning)
(a)45
(b)49
(c)47
(d)51

Q34. If a + b +c = 8 and ab + bc + ca = 20, then $a^3 + b^3 + c^3$ - 3abc is equal to:
यदि a + b +c = 8 है तथा ab + bc + ca = 20 है, तो $a^3 + b^3 + c^3$ - 3abc का मान क्या होगा ?
SSC CGL 13 June 2019(Morning)
(a)30
(b)24
(c)32
(d)36

Q35. If $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{6}$, then $x^2 + \frac{1}{x^2}$ is equal to:

यदि $\sqrt{x}+\frac{1}{\sqrt{x}}=\sqrt{6}$ है, तो $x^2+\frac{1}{x^2}$ का मान क्या होगा ?
SSC CGL 13 June 2019 (Afternoon)
(a)18
(b)14
(c)16
(d)12

Q36. If a + b + c = 10 and ab + bc + ca = 32 then $a^3+b^3+c^3-3abc$ is equal to:
यदि a + b + c = 10 है और ab + bc + ca = 32 है, तो $a^3+b^3+c^3-3abc$ किसके बराबर है ?
SSC CGL 13 June 2019 (Afternoon)
(a)50
(b)40
(c)60
(d)70

Q37. If a - b = 5 and ab = 6, then (a^3-b^3) is equal to:
यदि a-b = 5 और ab= 6 है, तो (a^3-b^3) का मान क्या होगा ?
SSC CGL 13 June 2019 (Afternoon)
(a)225
(b)155
(c)90
(d)215

Q38.If $x+\frac{1}{x}=5$, then $x^3+\frac{1}{x^3}$ is equal to:
यदि $x+\frac{1}{x}=5$, है, तो $x^3+\frac{1}{x^3}$ का मान ज्ञात करें |
SSC CGL 13 June 2019(Evening)
(a)110
(b)130
(c)125
(d)145

Q39. If $(x-5)^3+(x-6)^3+(x-7)^3=3(x-5)(x-6)(x-7)$, then what is the value of x?
यदि $(x-5)^3+(x-6)^3+(x-7)^3=3(x-5)(x-6)(x-7)$ है, तो x का मान क्या होगा ?
SSC CGL 13 June 2019(Evening)
(a)18
(b)6
(c)5
(d)7

Q40. If $a^3-b^3=208$ and a-b = 4, then $(a+b)^2-ab$ is equal to:
यदि $a^3-b^3=208$ तथा a-b = 4 है, तो $(a+b)^2-ab$ का मान किसके बराबर है ?
SSC CGL 13 June 2019(Evening)
(a)32
(b)38
(c)52
(d)42

Q41. If $8x^2+y^2-12x-4xy+9=0$, then the value of (14x - 5y) is:
यदि $8x^2+y^2-12x-4xy+9=0$ है, तो (14x - 5y) का मान ज्ञात करें |
SSC CHSL 1 July 2019(Evening)
(a) 9
(b) 6
(c) 5
(d) 3

Q42. If x + y + z = 19 , xyz = 216 and xy + yz + zx = 114, then the value of $\sqrt{x^3+y^3+z^3+xyz}$ is:
यदि x + y + z = 19 , xyz = 216 और xy + yz + zx = 114 है, तो $\sqrt{x^3+y^3+z^3+xyz}$ का मान क्या होगा ?
SSC CHSL 1 July 2019(Evening)
(a) 32
(b) 30
(c) 28
(d) 35

Q43. If $a^2+4b^2+49c^2+18=2(2b+28c-a)$, then the value of (3a + 2b + 7c) is:
यदि $a^2+4b^2+49c^2+18=2(2b+28c-a)$ है, तो (3a + 2b + 7c) का मान क्या होगा ?
SSC CHSL 2 July 2019(Morning)
(a) 0
(b) 2
(c) 1
(d) 3

Q44. If $3\sqrt{3}x^3-2\sqrt{2}y^3=(\sqrt{3}x-\sqrt{2}y)(Ax^2-Bxy+Cy^2)$, then the value of $(A^2-B^2+C^2)$ is: यदि $3\sqrt{3}x^3-2\sqrt{2}y^3=(\sqrt{3}x-\sqrt{2}y)(Ax^2-Bxy+Cy^2)$ है, तो $(A^2-B^2+C^2)$ का मान क्या होगा ?
SSC CHSL 2 July 2019(Morning)
(a) 10
(b) 17
(c) 7
(d) 1

Q45. If $24\sqrt{3}x^3+2\sqrt{2}y^3=(2\sqrt{3}x+\sqrt{2}y)(Ax^2+Bxy+Cy^2)$, then the value of $(2A+\sqrt{6}B-C)$ is : यदि $24\sqrt{3}x^3+2\sqrt{2}y^3=(2\sqrt{3}x+\sqrt{2}y)(Ax^2+Bxy+Cy^2)$ है, तो $(2A+\sqrt{6}B-C)$ का मान ज्ञात करें |**SSC CHSL 2 July 2019 (Afternoon)**
(a) 10
(b) 14
(c) 6
(d) 8

Q46. If a+b+c = 4 and ab + bc + ca = 1, then the value of $a^3+b^3+c^3-3abc$ is :
यदि a+b+c = 4 और ab + bc + ca = 1 है, तो $a^3+b^3+c^3-3abc$ का मान क्या होगा ?

SSC CHSL 2 July 2019(Afternoon)
(a) 50
(b) 60
(c) 52
(d) 47

Q47. If $a^3 + b^3 = 110$ and a+b=5, then $(a+b)^2 - 3ab$ is equal to :
यदि $a^3 + b^3 = 110$ और a+b=5 है, तो $(a+b)^2 - 3ab$ का मान क्या है ?
SSC CHSL 2 July 2019(Evening)
(a) 52
(b) 32
(c) 42
(d) 22

Q48. If a + b + c = 5 , $a^2 + b^2 + c^2 = 33$, then what is the value of $a^3 + b^3 + c^3 - 3abc$?
यदि a + b + c = 5 , $a^2 + b^2 + c^2 =$ 33 है, तो $a^3 + b^3 + c^3 - 3abc$ का मान क्या होगा ?
SSC CHSL 2 July 2019(Evening)
(a) 195
(b) 180
(c) 192
(d) 185

Q49. If $40\sqrt{5}x^3 - 3\sqrt{3}y^3 = (2\sqrt{5}x - \sqrt{3}y)(Ax^2 + Cy^2 + Bxy)$, then the value of $\sqrt{(B^2 + C^2 - A)}$ is :
यदि $40\sqrt{5}x^3 - 3\sqrt{3}y^3 = (2\sqrt{5}x - \sqrt{3}y)(Ax^2 + Cy^2 + Bxy)$ है, तो $\sqrt{(B^2 + C^2 - A)}$ का मान ज्ञात करें |
SSC CHSL 2 July 2019(Evening)
(a) 11
(b) 7
(c) 8
(d) 9

Q50. If $x^2 + 1 = 3x$, then the value of $\frac{x^4+x^{-2}}{x^2+5x+1}$ is :
यदि $x^2 + 1 = 3x$ है, तो $\frac{x^4+x^{-2}}{x^2+5x+1}$ का मान ज्ञात करें |
SSC CHSL 2 July 2019(Evening)
(a) $2\frac{1}{3}$
(b) $2\frac{1}{4}$
(c) $4\frac{1}{2}$
(d) $3\frac{1}{2}$

Q51. If x is real, and $x^4 - 5x^2 - 1 = 0$, then the value of $(x^6 - 3x^2 + \frac{3}{x^2} - \frac{1}{x^6} + 1)$ is :
यदि x वास्तविक है तथा $x^4 - 5x^2 - 1 = 0$, है, तो $(x^6 - 3x^2 + \frac{3}{x^2} - \frac{1}{x^6} + 1)$ का मान क्या होगा ?
SSC CHSL 3 July 2019(Morning)
(a) 126
(b) 110
(c) 116
(d) 96

Q52. If $24\sqrt{3}x^3 + 5\sqrt{5}y^3 = (2\sqrt{3}x + \sqrt{5}y)(Ax^2 + Cy^2 + Bxy)$, then the value of $(A^2 - B^2 + C^2)$ is : यदि $24\sqrt{3}x^3 + 5\sqrt{5}y^3 = (2\sqrt{3}x + \sqrt{5}y)(Ax^2 + Cy^2 + Bxy)$ है, तो $(A^2 - B^2 + C^2)$ का मान ज्ञात करें |
SSC CHSL 3 July 2019(Morning)
(a) 108
(b) 128
(c) 109
(d) 139

Q53. If x+y+z=2, xy+yz+zx=-11, then the value of $x^3 + y^3 + z^3 - 3xyz$ is :
यदि x+y+z=2, xy+yz+zx=-11 है, तो $x^3 + y^3 + z^3 - 3xyz$ का मान ज्ञात करें |
SSC CHSL 3 July 2019(Morning)
(a) 152
(b) 70
(c) 148
(d) 74

Q54. If $x + \frac{1}{x} = 7$, then $x^3 + \frac{1}{x^3}$ is equal to :
यदि $x + \frac{1}{x} = 7$ है, तो $x^3 + \frac{1}{x^3}$ का मान क्या होगा ?
SSC CHSL 3 July 2019(Afternoon)
(a) 300
(b) 322
(c) 364
(d) 343

Q55. If $250\sqrt{2}x^3 - 5\sqrt{5}y^3 = (5\sqrt{2}x - \sqrt{5}y)(Ax^2 + Cy^2 + Bxy)$, then the value of $(A+C-\sqrt{10B})$ is : यदि $250\sqrt{2}x^3 - 5\sqrt{5}y^3 = (5\sqrt{2}x - \sqrt{5}y)(Ax^2 + Cy^2 + Bxy)$ है, तो $(A+C-\sqrt{10B})$ का मान ज्ञात करें |**SSC CHSL 3 July 2019 (Afternoon)**
(a) 10
(b) 5
(c) $5\sqrt{2}$
(d) $2\sqrt{5}$

Q56. If x+y+z = 19, $x^2 + y^2 + z^2 = 133$, then the value of $x^3 + y^3 + z^3 - 3xyz$ is :
यदि x+y+z = 19, $x^2 + y^2 + z^2 = 133$ है, तो $x^3 + y^3 + z^3 - 3xyz$ का मान क्या होगा ?
SSC CHSL 3 July 2019(Evening)
(a) 361
(b) 342
(c) 380
(d) 352

Pinnacle

Q57. If $8(x+y)^3-(x-y)^3=(x+3y)(Ax^2+Cy^2+Bxy)$, then the value of (A-B-C) is :
यदि $8(x+y)^3-(x-y)^3=(x+3y)(Ax^2+Cy^2+Bxy)$ है, तो (A-B-C) का मान ज्ञात करें |
SSC CHSL 3 July 2019(Evening)
(a) -2
(b) -6
(c) 10
(d) 14

Q58. If $9a^2+16b^2+c^2+25=24(a+b)$, then the value of (3a+4b+5c) is :
यदि $9a^2+16b^2+c^2+25=24(a+b)$ है, तो (3a+4b+5c) का मान ज्ञात करें |
SSC CHSL 3 July 2019(Evening)
(a) 9
(b) 6
(c) 7
(d) 10

Q59. If $x^2-6x+1=0$, then the value of $(x^4+\frac{1}{x^2})\div(x^2+1)$ is :
यदि $x^2-6x+1=0$, है, तो $(x^4+\frac{1}{x^2})\div(x^2+1)$ का मान क्या होगा ?
SSC CHSL 4 July 2019(Morning)
(a) 39
(b) 33
(c) 35
(d) 36

Q60. If x+y+z=3 and xy+yz+zx = -18, then what is the value of $x^3+y^3+z^3-3xyz=?$
यदि x+y+z=3 और xy+yz+zx = -18 है, तो $x^3+y^3+z^3-3xyz=?$
SSC CHSL 4 July 2019(Morning)
(a) 187
(b) 217
(c) 191
(d) 189

Q61. If $8(a+b)^3+(a-b)^3=(3a+b)(Aa^2+Cb^2+Bab)$, then the value of (A+B-C) is :
यदि $8(a+b)^3+(a-b)^3=(3a+b)(Aa^2+Cb^2+Bab)$ है, तो (A+B-C) का मान ज्ञात करें |
SSC CHSL 4 July 2019(Morning)
(a) 2
(b) 4
(c) 10
(d) 11

Q62. If $(x-7)^3+(x-8)^3+(x+6)^3=3(x-7)(x-8)(x+6)$, then what is the value of x ?
यदि $(x-7)^3+(x-8)^3+(x+6)^3=3(x-7)(x-8)(x+6)$ है, तो x का मान ज्ञात करें |
SSC CHSL 4 July 2019(Afternoon)
(a) 6
(b) 8
(c) 10
(d) 3

Q63. If $x-\frac{1}{x}=10$, then $x^3-\frac{1}{x^3}$ is equal to :
यदि $x-\frac{1}{x}=10$ है, तो $x^3-\frac{1}{x^3}$ का मान ज्ञात करें |
SSC CHSL 4 July 2019(Afternoon)
(a) 970
(b) 1000
(c) 1030
(d) 1100

Q64. If $a^2+b^2=88$ and ab=6, $(a>0, b>0)$ then what is the value of (a^3+b^3) ?
यदि $a^2+b^2=88$ है और ab=6, जहाँ $(a>0, b>0)$ है, तो (a^3+b^3) का मान क्या होगा ?
SSC CHSL 4 July 2019(Afternoon)
(a) 980
(b) 1180
(c) 820
(d) 1000

Q65. If $x^4+x^{-4}=2207$, $(x>0)$ then the value of $x+x^{-1}$ is:
यदि $x^4+x^{-4}=2207$ है और $(x>0)$ है, तो $x+x^{-1}$ का मान ज्ञात करें |
SSC CHSL 4 July 2019(Afternoon)
(a) 19
(b) 7
(c) 11
(d) 9

Q66. If $(3x-7)^3+(3x-8)^3+(3x+6)^3=3(3x-7)(3x-8)(3x+6)$, then what is the value of x ?
यदि $(3x-7)^3+(3x-8)^3+(3x+6)^3=3(3x-7)(3x-8)(3x+6)$ है, तो x का मान क्या होगा ?
SSC CHSL 4 July 2019(Evening)
(a) 3
(b) 1
(c) 4
(d) 2

Q67. If $x^4+x^{-4}=1442, (x>0)$ then the value of $x-x^{-1}$ is :
यदि $x^4+x^{-4}=1442$ है, जहाँ $(x>0)$ है, तो $x-x^{-1}$ का मान क्या होगा ?
SSC CHSL 4 July 2019(Evening)
(a) 7
(b) 8
(c) 6
(d) 15

Q68. $x+\frac{1}{x}=10$, then $x^3+\frac{1}{x^3}$ is equal to :
$x+\frac{1}{x}=10$ है, तो $x^3+\frac{1}{x^3}$ का मान ज्ञात करें |

Pinnacle

SSC CHSL 4 July 2019(Evening)
(a) 970
(b) 1030
(c) 1000
(d) 1100

Q69. If $a^2 + b^2 = 99$ and ab = 11, (a ≻ 0, $b \succ 0$) then the value of ($a^3 + b^3$) is :
यदि $a^2 + b^2 = 99$ और ab = 11 है, जहाँ (a ≻ 0, $b \succ 0$) है, तो ($a^3 + b^3$) का मान ज्ञात करें |
SSC CHSL 4 July 2019(Evening)
(a) 1250
(b) 968
(c) 1100
(d) 1080

Q70. If $a^2 + b^2 = 135$ and ab = 7, (a ≻ 0, $b \succ 0$) then the value of ($a^3 - b^3$) is :
यदि $a^2 + b^2 = 135$ और ab = 7 है, जहाँ (a ≻ 0, $b \succ 0$) है, तो ($a^3 - b^3$) का मान ज्ञात करें |
SSC CHSL 5 July 2019(Morning)
(a) 1562
(b) 1600
(c) 1680
(d) 1350

Q71. If $(2x-7)^3 + (2x-8)^3 + (2x-3)^3 = 3(2x-7)(2x-8)(2x-3)$, then what is the value of x?/ यदि $(2x-7)^3 + (2x-8)^3 + (2x-3)^3 = 3(2x-7)(2x-8)(2x-3)$ है, तो x का मान ज्ञात करें |
SSC CHSL 5 July 2019(Morning)
(a) 4
(b) 2
(c) 1
(d) 3

Q72. If x = $\sqrt{3} - \sqrt{2}$, then the value of $x^3 - x^{-3}$ is :
यदि x = $\sqrt{3} - \sqrt{2}$ है, तो $x^3 - x^{-3}$ का मान क्या होगा ?
SSC CHSL 5 July 2019(Afternoon)
(a) 22 $\sqrt{3}$
(b) -22 $\sqrt{2}$
(c) 22 $\sqrt{2}$
(d) -22 $\sqrt{3}$

Q73. If $(2x+7)^3 + (2x+8)^3 + (2x+3)^3 = 3(2x+7)(2x+8)(2x+3)$, then what is the value of x ? / यदि $(2x+7)^3 + (2x+8)^3 + (2x+3)^3 = 3(2x+7)(2x+8)(2x+3)$ है, तो x का मान क्या होगा ?
SSC CHSL 5 July 2019(Afternoon)
(a) -2
(b) 3
(c) 2
(d) -3

Q74. If $(x+7)^3 + (2x+8)^3 + (2x+7)^3 = 3(x+7)(2x+8)(2x+3)$, then what is the value of x ?
यदि $(x+7)^3 + (2x+8)^3 + (2x+7)^3 = 3(x+7)(2x+8)(2x+3)$ है, तो x का मान ज्ञात करें |
SSC CHSL 5 July 2019(Evening)
(a) -3.6
(b) 3.6
(c) 2.4
(d) -2.4

Q75. If $(x-8)^3 + (2x+16)^3 + (2x-13)^3 = 3[(x-8)(2x+16)(2x-13)]$ then what is the value of x ?
यदि $(x-8)^3 + (2x+16)^3 + (2x-13)^3 = 3(x-8)(2x+16)(2x-13)$ है, तो x का मान ज्ञात करें |
SSC CHSL 8 July 2019(Morning)
(a) 0.7
(b) -1
(c) 1
(d) 0

Q76. If $3^{\sqrt[4]{x}} + 4^{\sqrt[4]{x}} = 5^{\sqrt[4]{x}}$, then the value of x is :
यदि $3^{\sqrt[4]{x}} + 4^{\sqrt[4]{x}} = 5^{\sqrt[4]{x}}$ है, तो x का मान क्या होगा ?
SSC CHSL 8 July 2019(Morning)
(a) 4
(b) 2
(c) 8
(d) 16

Q77. If x = 2+ $\sqrt{3}$ then the value of $x^3 - x^{-3}$ is
यदि x = 2+ $\sqrt{3}$ है, तो $x^3 - x^{-3}$ का मान ज्ञात करें |
SSC CHSL 8 July 2019(Afternoon)
(a) -52
(b) -30 $\sqrt{3}$
(c) 30 $\sqrt{3}$
(d) 52

Q78. If $6^{\sqrt[4]{x}} + 8^{\sqrt[4]{x}} = 10^{\sqrt[4]{x}}$, then the value of x is : /
यदि $6^{\sqrt[4]{x}} + 8^{\sqrt[4]{x}} = 10^{\sqrt[4]{x}}$ है, तो x का मान ज्ञात करें |
SSC CHSL 8 July 2019(Afternoon)
(a) 2
(b) 16
(c) 4
(d) 8

Q79. If $(x-7)^3 + (2x+8)^3 + + (2x-3)^3 = 3(x-7)(2x+8)(2x-3)$, then what is the value of x?
यदि $(x-7)^3 + (2x+8)^3 + (2x-3)^3 =$

$3(x-7)(2x+8)(2x-3)$ है, तो x का मान क्या होगा ?
SSC CHSL 8 July 2019(Afternoon)
(a) 1.6
(b) 2.4
(c) 1.2
(d) 0.4

Q80. If $a^3+b^3=1344$ and a+b= 28, then $(a+b)^2-3ab$ is equal to :
यदि $a^3+b^3=1344$ है तथा a+b= 28 है, तो $(a+b)^2-3ab$ का मान किसके बराबर होगा ?
SSC CHSL 8 July 2019(Evening)
(a) 24
(b) 16
(c) 32
(d) 48

Q81. If x = $2+\sqrt{5}$ then the value of x^3-x^{-3} is
यदि x = $2+\sqrt{5}$ है, तो x^3-x^{-3} का मान क्या होगा ?
SSC CHSL 8 July 2019(Evening)
(a) -52
(b) 52
(c) 76
(d) -76

Q82. If $x^4+x^{-4}=47, (x\succ 0)$ then the value of $(2x-3)^2$ is :
यदि $x^4+x^{-4}=47$ है, तथा $(x\succ 0)$ है, तो $(2x-3)^2$ का मान क्या होगा ?
SSC CHSL 8 July 2019(Evening)
(a) 2
(b) 3
(c) 5
(d) 4

Q83. If x = $2+\sqrt{5}$ then the value of x^3+x^{-3} is
यदि x = $2+\sqrt{5}$ है, तो x^3+x^{-3} का मान ज्ञात करें |
SSC CHSL 9 July 2019(Morning)
(a) $40\sqrt{5}$
(b) $34\sqrt{5}$
(c) $46\sqrt{5}$
(d) $36\sqrt{5}$

Q84. If $a^3-b^3=899$ and a-b= 31, then $(a-b)^2+3ab$ is equal to :
यदि $a^3-b^3=899$ है और a-b= 31 है, तो $(a-b)^2+3ab$ का मान क्या होगा ?
SSC CHSL 9 July 2019(Morning)
(a) 35
(b) 31
(c) 16
(d) 29

Q85. If $x^4+x^{-4}=194, (x\succ 0)$ then the value of $(2x-4)^2$ is :
यदि $x^4+x^{-4}=194$ है तथा $(x\succ 0)$ है, तो $(2x-4)^2$ का मान ज्ञात करें |
SSC CHSL 9 July 2019(Morning)
(a) 15
(b) 20
(c) 12
(d) 16

Q86. $x-\frac{1}{x}=7$, then $x^3-\frac{1}{x^3}$ is equal to :
यदि $x-\frac{1}{x}=7$ है, तो $x^3-\frac{1}{x^3}$ का मान क्या होगा ?
SSC CHSL 9 July 2019(Afternoon)
(a) 480
(b) 364
(c) 376
(d) 500

Q87. If $x^4+x^{-4}=1154, (x\succ 0)$ then the value of $2(x-3)^2$ is :
यदि $x^4+x^{-4}=1154$ तथा $(x\succ 0)$ है, तो $2(x-3)^2$ का मान क्या होगा ?
SSC CHSL 9 July 2019(Afternoon)
(a) 16
(b) 12
(c) 20
(d) 15

Q88. If $a^3-b^3=899$ and a-b= 29, then $(a-b)^2+3ab$ is equal to :
यदि $a^3-b^3=899$ है और a-b= 29 है, तो $(a-b)^2+3ab$ का मान ज्ञात करें |
SSC CHSL 9 July 2019(Afternoon)
(a) 35
(b) 29
(c) 16
(d) 31

Q89. If $(3x+1)^3+(x-3)^3+(2x-4)^3=6(3x+1)(x-3)(x-2)$, then what is the value of x? /
यदि $(3x+1)^3+(x-3)^3+(2x-4)^3=6(3x+1)(x-3)(x-2)$ है, तो x का मान क्या होगा ?
SSC CHSL 9 July 2019(Evening)
(a) 3
(b) 1
(c) 2
(d) $-\frac{1}{3}$

Q90. a,b,c are three positive numbers, such that, (a+b+c) = 20, $a^2+b^2+c^2=152$. The value of (ab+bc+ca) is equal to
दिया गया है कि a, b और c धनात्मक वास्तविक संख्याएं हैं | यदि $(a+b+c)=20$ है, $a^2+b^2+c^2=152$ है, तो (ab+bc+ca) का मान किसके बराबर है ?
SSC CHSL 10 July 2019(Morning)
(a) 124

(b) 110
(c) 112
(d) 102

Q91. a $+\frac{1}{a}=2$, then $a^4-\frac{1}{a^4}$ is equal to :
यदि a $+\frac{1}{a}=2$ है, तो $a^4-\frac{1}{a^4}$ का मान क्या होगा ?
SSC CHSL 10 July 2019(Morning)
(a) 0
(b) $\frac{1}{4}$
(c) 1
(d) 4

Q92.If a $+\frac{1}{a}=3$, then $a^6+\frac{1}{a^6}$ is equal to :
यदि a $+\frac{1}{a}=3$ है, तो $a^6+\frac{1}{a^6}$ का मान क्या होगा ?
SSC CHSL 10 July 2019 (Afternoon)
(a) 319
(b) 322
(c) 780
(d) 730

Q93. If $a^2+b^2=169$ and ab= 60, $(a \succ b)$, then (a^2-b^2) is equal to :
यदि $a^2+b^2=169$ और ab= 60, (a $\succ b$)है, तो (a^2-b^2) का मान क्या होगा ?
SSC CHSL 10 July 2019(Evening)
(a) 149
(b) 129
(c) 119
(d) 139

Q94. If $(3x+1)^3+(x-3)^3+(4-2x)^3+6(3x+1)(x-3)(x-2)=0$, then what is the value of x?
यदि $(3x+1)^3+(x-3)^3+(4-2x)^3+6(3x+1)(x-3)(x-2)=0$ है, तो x का मान क्या होगा ?
SSC CHSL 11 July 2019(Morning)
(a) -1
(b) $-\frac{1}{2}$
(c) 1
(d) $\frac{1}{2}$

Q95. Given, a+ $\frac{1}{a}=2$, what is the value of $(a^{118}+\frac{1}{a^{117}})$?
यदि a+ $\frac{1}{a}=2$ है, तो $(a^{118}+\frac{1}{a^{117}})$ का मान क्या होगा ?
SSC CHSL 11 July 2019(Afternoon)
(a) 118
(b) 1
(c) 2
(d) 117

Q96. If a+b+c = 5 and ab+bc+ca = 4, then $a^3+b^3+c^3-3abc$ is equal to : यदि a+b+c = 5 है और ab+bc+ca = 4, तो $a^3+b^3+c^3-3abc$ का मान क्या होगा ?
SSC CHSL 11 July 2019(Evening)
(a) 62
(b) 72
(c) 68
(d) 65

Q97. If a^3-b^3 =208 and a-b = 8, then $(a+b)^2-ab$ is equal to:
यदि a^3-b^3 =208 और a-b = 8, तो $(a+b)^2-ab$ का मान क्या होगा?
SSC CPO 16 March 2019(Morning)
(a) 42
(b) 38
(c) 52
(d) 26

Q98. If x- $\frac{1}{x}=3\sqrt{2}$ then $x^2+\frac{1}{x^2}$ is equal to:
यदि x- $\frac{1}{x}=3\sqrt{2}$ तो $x^2+\frac{1}{x^2}$ का मान ज्ञात कीजिये?
SSC CPO 16 March 2019(Morning)
(a) 52
(b) 56
(c) 20
(d) 46

Q99. If $(2x-5)^3+(x+2)^3+(3x-9)^3=(2x-5)(3x-9)(3x+6)$, Then what is the value of x? /
यदि $(2x-5)^3+(x+2)^3+(3x-9)^3=(2x-5)(3x-9)(3x+6)$, तो x का मान ज्ञात कीजिये ?
SSC CPO 16 March 2019(Morning)
(a) 7
(b) 5
(c) 2
(d) 18

Q100. If $(2x+3)^3+(x-8)^3+(x+13)^3=(2x+3)(3x-24)(x+13)$, then what is the value of x?
यदि $(2x+3)^3+(x-8)^3+(x+13)^3=(2x+3)(3x-24)(x+13)$ है, तो x का मान क्या होगा ?
SSC CPO 12 March 2019(Evening)
(a) -1.5
(b) -2.5
(c) -2
(d) -1

Q101. If a^3+b^3 =5824 and a + b = 28, then $(a-b)^2+ab$ is equal to: यदि a^3+b^3 =5824 तथा a +b = 28 है, तो $(a-b)^2+ab$ किसके बराबर है ?
SSC CPO 12 March 2019(Evening)
(a) 208
(b) 152
(c) 180
(d) 236

Q102. If x- $\frac{1}{x}$ =6, then $x^3-\frac{1}{x^3}$ = ?

Pinnacle

यदि $x-\frac{1}{x}=6$ है, तो $x^3-\frac{1}{x^3}$ का मान क्या होगा ?
SSC CPO 12 March 2019(Evening)
(a) 216
(b) 176
(c) 234
(d) 198

Q103. $x+\frac{1}{x}=7$, then $x^3+\frac{1}{x^3}$ is equal to:
$x+\frac{1}{x}=7$ है, तो $x^3+\frac{1}{x^3}$ किसके बराबर है ?
SSC CPO 13 March 2019(Evening)
(a)364
(b)385
(c)343
(d)322

Q104. If $a^3-b^3=3552$ and (a-b)=6, then $(a+b)^2$ -ab is equal to:
यदि $a^3-b^3=3552$ तथा (a-b)=6 है, तो $(a+b)^2$ -ab किसके बराबर है ?
SSC CPO 13 March 2019(Evening)
(a)618
(b)636
(c)592
(d)568

Q105. If $(x-3)^3+(2x-5)^3+(x-4)^3=(3x-9)(2x-5)(x-4)$, then what is the value of x?
यदि $(x-3)^2+(2x-5)^3+(x-4)^3=(3x-9)(2x-5)(x-4)$ है, तो x का मान क्या है ?
SSC CPO 13 March 2019(Evening)
(a) 4
(b) 5
(c) 2
(d) 3

Q106 If $a^3-b^3=208$ and a - b = 4, then $(a+b)^2$ - ab is equal to:
यदि $a^3-b^3=208$ है तथा a - b = 4 है, तो $(a+b)^2$ - ab किसके बराबर होगा ?
SSC CPO 12 March 2019(Evening)
(a) 52
(b) 38
(c) 32
(d) 42

Q107. If $x+\frac{1}{x}=5$, then $x^3+\frac{1}{x^3}$ is equal to
यदि $x+\frac{1}{x}=5$ है, तो $x^3+\frac{1}{x^3}$ का मान किसके बराबर होगा ?
SSC CPO 12 March 2019 (Evening)
(a) 110
(b) 130
(c) 145
(d) 125

Q108 If $(x-5)^3+(x-6)^3+(x-7)^3=3(x-5)(x-6)(x-7)$, then what is the value of x ?
यदि $(x-5)^3+(x-6)^3+(x-7)^3=3(x-5)(x-6)(x-7)$ है, तो x का मान ज्ञात करें |
SSC CPO 12 March 2019 (Evening)
(a) 6
(b) 7
(c) 5
(d) 18

Q109. If $a^3-b^3=1603$ and (a - b) = 7, then $(a+b)^2-ab$ is equal to :
यदि $a^3-b^3=1603$ तथा (a - b) = 7 है, तो $(a+b)^2-ab$ का मान किसके बराबर होगा ?
SSC CPO 13 March 2019 (Morning)
(a) 458
(b) 338
(c) 229
(d) 648

Q110. If $(x+4)^3+(2x+1)^3+(2x+5)^3=(3x+12)(2x+1)(2x+5)$, then what is the value of x?
यदि $(x+4)^3+(2x+1)^3+(2x+5)^3=(3x+12)(2x+1)(2x+5)$ है, तो x का मान ज्ञात करें |
SSC CPO 13 March 2019 (Morning)
(a) -3
(b) -2
(c) 2
(d) 3

Q111. If $x+\frac{1}{x}=8$, then $x^2+\frac{1}{x^2}$ is equal to :
यदि $x+\frac{1}{x}=8$ है, तो $x^2+\frac{1}{x^2}$ का मान किसके बराबर होगा ?
SSC CPO 13 March 2019 (Morning)
(a) 62
(b) 68
(c) 64
(d) 66

Q112. If $x^2+\frac{1}{x^2}=11$, then $x-\frac{1}{x}$ is equal to:
यदि $x^2+\frac{1}{x^2}=11$ है, तो $x-\frac{1}{x}$ का मान किसके बराबर होगा ?
SSC CPO 14 March 2019 (Morning)
(a)2
(b)3
(c)5
(d)4

Q113. If $x-\frac{1}{x}=4$, then $x^3-\frac{1}{x^3}$ is equal to:
यदि $x-\frac{1}{x}=4$ है, तो $x^3-\frac{1}{x^3}$ का मान ज्ञात करें |
SSC CPO 14 March 2019 (Morning)
(a)72
(b)68
(c)76
(d)64

Pinnacle

Q114. If a+b-c=7, ab-bc-ca=21, then $a^3+b^3-c^3+3abc=$?
यदि a+b-c=7, ab-bc-ca=21 है, तो $a^3+b^3-c^3+3abc=$?
SSC CPO 16 March 2019(Evening)
(a)117
(b)98
(c)124
(d)-98

Q115. If a+b=8, ab= -12, then $a^3+b^3=$?
यदि a+b=8, ab= -12 है, तो $a^3+b^3=$?
SSC CPO 16 March 2019 (Evening)
(a)833
(b)-244
(c)800
(d)-833

Q116. If $x+x^{-1}=2$, then the value of x^3+x^{-3} is:
यदि $x+x^{-1}=2$ है, तो x^3+x^{-3} का मान ज्ञात करें |
SSC CPO 16 March 2019 (Evening)
(a)1
(b) $\frac{1}{2}$
(c)2
(d)3

Q117. If $x+\frac{1}{x}=2\sqrt{3}$, then $x^2+\frac{1}{x^2}$ is equal to:
यदि $x+\frac{1}{x}=2\sqrt{3}$ है, तो $x^2+\frac{1}{x^2}$ का मान किसके बराबर है ?
SSC CPO 15 March 2019 (Morning)
(a) 8
(b) 16
(c) 10
(d) 12

Q118. If $(2x-1)^3+(3x-4)^3+(x-7)^3=$ (6x-3) (3x-4)(x-7), then what is the value of x ?
यदि $(2x-1)^3+(3x-4)^3+(x-7)^3=$ (6x-3) (3x-4)(x-7) है, तो x का मान ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a)5
(b)8
(c) 2
(d)3

Q119.If $a^3+b^3=416$ and a + b = 16, then $(a-b)^2+ab$ is equal to:
यदि $a^3+b^3=416$ तथा a+b = 16 है, तो $(a-b)^2+ab$ का मान ज्ञात करें |
SSC CPO 15 March 2019 (Morning)
(a)32
(b)22
(c) 24
(d)26

Q120. If $x-\frac{1}{x}=2\sqrt{2}$, then $x^2+\frac{1}{x^2}$ is equal to
यदि $x-\frac{1}{x}=2\sqrt{2}$ है, तो $x^2+\frac{1}{x^2}$ का मान क्या होगा ?
SSC CPO 16 March 2019 (Afternoon)
(a)16
(b)12
(c) 11
(d)10

Q121. If $(x-2)^3+(x-3)^3+(x-10)^3=$ (x - 2) (x - 3) (3x - 30), then what is the value of x?
यदि $(x-2)^3+(x-3)^3+(x-10)^3=$ (x - 2) (x - 3) (3x - 30) है, तो x का मान ज्ञात करें |
SSC CPO 16 March 2019 (Afternoon)
(a)7
(b)5
(c)18
(d)3

Q122. If $(2x-5)^3+(x-4)^3+(x-11)^3=3$ (2x-5) (x-4) (x-11), then find the value of x ?
यदि $(2x-5)^3+(x-4)^3+(x-11)^3=3$ (2x-5) (x-4) (x-11), तो x का मान क्या है ?
SSC CPO 14 March 2019 (Evening)
(a) 3
(b) 5
(c) 7
(d) 18

Q123. If $a^3-b^3=416$ and a-b=8, then find the value of $(a+b)^2-ab$?
यदि $a^3-b^3=416$ तथा a-b=8, तो $(a+b)^2-ab$ का मान क्या है ?
SSC CPO 14 March 2019 (Evening)
(a) 52
(b) 42
(c) 38
(d) 32

Q124. If $x+\frac{1}{x}=4\sqrt{3}$, then find the value of $x^2+\frac{1}{x^2}$?
यदि $x+\frac{1}{x}=4\sqrt{3}$ तो $x^2+\frac{1}{x^2}$ का मान क्या है ?
SSC CPO 14 March 2019 (Evening)
(a) 46
(b) 44
(c) 56
(d) 52

Q125. If $(x-6)^3+(x-4)^3+(x-5)^3=$(3x-15)(x-4)(x-6), then find the value of x ?
यदि $(x-6)^3+(x-4)^3+(x-5)^3=$(3x-15)(x-4)(x-6) , तो x का मान क्या होगा ?
SSC CPO 15 March 2019 (Evening)
(a)3
(b)5
(c)7

(d)18

Q126. If $x+\frac{1}{x}=3\sqrt{2}$, then $x^2+\frac{1}{x^2}$ is equal to:
यदि $x+\frac{1}{x}=3\sqrt{2}$, तो $x^2+\frac{1}{x^2}$ का मान क्या होगा ?
SSC CPO 15 March 2019 (Evening)
(a)22
(b)26
(c)16
(d)14

Q127. $x^4+x^{-4}=1442,\ (x>0)$ then the value of $x+x^{-1}$ is :
$x^4+x^{-4}=1442,\ (x>0)$ है, तो $x+x^{-1}$ का मान क्या होगा ?
SSC CHSL 5 July 2019 (Morning)
(a) $2\sqrt[2]{10}$
(b) $\sqrt[3]{10}$
(c) $\sqrt[4]{10}$
(d) 15

Q128. If $x=2+\sqrt{3}$ then the value of x^3+x^{-3} is :
यदि $x=2+\sqrt{3}$ है, तो x^3+x^{-3} का मान क्या होगा ?
SSC CHSL 8 July 2019 (Morning)
(a) 52
(b) -52
(c) $-52\sqrt{3}$
(d) $52\sqrt{3}$

SSC CGL TIER II QUESTIONS

Q1. If $x^8-1442x^4+1=0$, then a possible value of $x-\frac{1}{x}$ is :
यदि $x^8-1442x^4+1=0$ है, तो $x-\frac{1}{x}$ का संभावित मान है :
SSC CGL TIER II (11 September 2019)
(a) 5
(b) 8
(c) 4
(d) 6

Q2. If $\sqrt{86-60\sqrt{2}}=a-b\sqrt{2}$, then what will be the value of $\sqrt{a^2+b^2}$, correct to one decimal place ?
यदि $\sqrt{86-60\sqrt{2}}=a-b\sqrt{2}$ है, तो एक दशमलव स्थान तक $\sqrt{a^2+b^2}$ का मान ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 8.4
(b) 8.2
(c) 7.8
(d) 7.2

Q3. If $a^2+b^2+c^2+96=8(a+b-2c)$, then $\sqrt{ab-bc+ca}$ is equal to :
यदि $a^2+b^2+c^2+96=8(a+b-2c)$ है, तो $\sqrt{ab-bc+ca}$ का मान किसके बराबर होगा ?
SSC CGL TIER II (11 September 2019)
(a) 6
(b) $2\sqrt{2}$
(c) 4
(d) $2\sqrt{3}$

Q4. If x+y+z=11, $x^2+y^2+z^2=33$ and $x^3+y^3+z^3=881$, then the value of $\sqrt[3]{xyz}$ is :
यदि x+y+z=11, $x^2+y^2+z^2=133$ तथा $x^3+y^3+z^3=881$ है, तो $\sqrt[3]{xyz}$ का मान क्या होगा ?
SSC CGL TIER II (11 September 2019)
(a) -6
(b) 6
(c) -8
(d) 8

Q5. Let a,b and c be the fractions such that $a<b<c$. If c is divided by a, the result is $\frac{5}{2}$, which exceeds b by $\frac{7}{4}$. If a+b+c = $1\frac{11}{12}$, then (c-a) will be equal to :
मान लीजिये कि a, b और c ऐसे भिन्न हैं कि $a<b<c$ है | यदि c को a से विभाजित किया जाए, तो परिणाम 5/2 आता है जो b से $\frac{7}{4}$ अधिक है | यदि a+b+c = $1\frac{11}{12}$ है, तो (c-a) का मान किसके बराबर होगा ?
SSC CGL TIER II (11 September 2019)
(a) $\frac{1}{3}$
(b) $\frac{2}{3}$
(c) $\frac{1}{6}$
(d) $\frac{1}{2}$

Q6. If $x=\sqrt{1+\frac{\sqrt{3}}{2}}-\sqrt{1-\frac{\sqrt{3}}{2}}$, then the value of $\frac{\sqrt{2}-x}{\sqrt{2}+x}$ will be closest to :
यदि $x=\sqrt{1+\frac{\sqrt{3}}{2}}-\sqrt{1-\frac{\sqrt{3}}{2}}$ है, तो $\frac{\sqrt{2}-x}{\sqrt{2}+x}$ का मान (लगभग) क्या होगा ?
SSC CGL TIER II (11 September 2019)
(a) 0.17
(b) 0.12
(c) 1.4
(d) 1.2

Q7. If $a^3+b^3=218$ and a+b = 2, then the value of ab is :
यदि $a^3+b^3=218$ और a+b = 2 है, तो ab का मान ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) 34
(b) -35
(c) -31
(d) 32

Pinnacle

Q8. If $2\sqrt{2}x^3 - 3\sqrt{3}y^3 = (\sqrt{2}x - \sqrt{3}y)(Ax^2 + By^2 + Cxy)$, then the value of $A^2 + B^2 - C^2$ is :
यदि $2\sqrt{2}x^3 - 3\sqrt{3}y^3 = (\sqrt{2}x - \sqrt{3}y)(Ax^2 + By^2 + Cxy)$ है, तो $A^2 + B^2 - C^2$ का मान क्या होगा ?
SSC CGL TIER II (11 September 2019)
(a) 11
(b) 7
(c) 19
(d) 10

Q9. Three fractions, x,y and z, are such that $x > y > z$. When the smallest of them is divided by the greatest, the result is $\frac{9}{16}$, which exceeds y by 0.0625. If x+y+z = $1\frac{13}{24}$, then the value of x+z is :
तीन भिन्न x, y और z इस प्रकार हैं कि $x > y > z$ है | जब इनमें से सबसे छोटे को सबसे बड़े से विभाजित किया जाता है, तो परिणाम $\frac{9}{16}$ आता है जो y से 0.0625 अधिक है | यदि x+y+z = $1\frac{13}{24}$ है, तो x+z का मान ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) $\frac{7}{8}$
(b) 1
(c) $\frac{25}{24}$
(d) $\frac{7}{6}$

Q10. If $x + \frac{1}{16x} = 3$, then the value of $16x^3 + \frac{1}{256x^3}$ is :
यदि $x + \frac{1}{16x} = 3$ है, तो $16x^3 + \frac{1}{256x^3}$ का मान क्या होगा ?
SSC CGL TIER II (12 September 2019)
(a) 423
(b) 441
(c) 432
(d) 414

Q11. If x+y+z = 2, xy+yz+zx = -11 and xyz = -12, then what is the value of $\sqrt{x^3 + y^3 + z^3 - 2} = ?$
यदि x+y+z = 2, xy+yz+zx = -11 है तथा xyz = -12 है, तो $\sqrt{x^3 + y^3 + z^3 - 2}$ का मान क्या होगा ?
SSC CGL TIER II (12 September 2019)
(a) 6
(b) 12
(c) 9
(d) 8

Q12. If $x^4 - 83x^2 + 1 = 0$, then a value of $x^3 - x^{-3}$ can be :
यदि $x^4 - 83x^2 + 1 = 0$ है, तो $x^3 - x^{-3}$ का एक मान हो सकता है :
SSC CGL TIER II (12 September 2019)
(a) 758
(b) 756
(c) 739
(d) 737

Q13. If $(5x+1)^3 + (x-3)^3 + 8(3x-4)^3 = 6(5x+1)(x-3)(3x-4)$, then x is equal to :
यदि $(5x+1)^3 + (x-3)^3 + 8(3x-4)^3 = 6(5x+1)(x-3)(3x-4)$ है, तो x का मान किसके बराबर होगा ?
SSC CGL TIER II (12 September 2019)
(a) $\frac{5}{6}$
(b) $\frac{1}{3}$
(c) $\frac{2}{3}$
(d) $\frac{3}{4}$

Q14. If $8x^3 - 27y^3 = (Ax+By)(Cx^2 - Dy^2 + 6xy)$, then (A+B+C-D) is equal to :
यदि $8x^3 - 27y^3 = (Ax+By)(Cx^2 - Dy^2 + 6xy)$ है, तो (A+B+C-D) का मान ज्ञात करें|
SSC CGL TIER II (12 September 2019)
(a) -12
(b) 12
(c) 15
(d) 9

Q15. If $x = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$ and y is the reciprocal of x, then what is the value of $(x^3 + y^3)$?
यदि $x = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$ है तथा y, x का पारस्परिक है, तो $(x^3 + y^3)$ का मान ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 488
(b) 504
(c) 472
(d) 476

Q16. If $\sqrt{10 - 2\sqrt{21}} + \sqrt{8 + 2\sqrt{15}} = \sqrt{a} + \sqrt{b}$, where a and b are positive integers, then the value of $\sqrt{ab}$ is closest to :
यदि $\sqrt{10 - 2\sqrt{21}} + \sqrt{8 + 2\sqrt{15}} = \sqrt{a} + \sqrt{b}$ है, जहाँ a और b धनात्मक पूर्णांक हैं, तो $\sqrt{ab}$ का मान (लगभग) ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 4.6
(b) 5.9
(c) 6.8
(d) 7.2

Q17. ab(a-b)+bc(b-c)+ca(c-a) is equal to :
ab(a-b)+bc(b-c)+ca(c-a) किसके बराबर है ?
SSC CGL TIER II (13 September 2019)
(a) (a+b)(b-c)(c-a)
(b) (a-b)(b+c)(c-a)
(c) (a-b)(b-c)(c-a)
(d) (b-a)(b-c)(c-a)

Pinnacle

Q18. Given that $(5x-3)^3+(2x+5)^3+27(4-3x)^3=9(3-5x)(2x+5)(3x-4)$, then the value of (2x+1) is :
दिया गया है कि $(5x-3)^3+(2x+5)^3+27(4-3x)^3==9(3-5x)(2x+5)(3x-4)$ है, तो (2x+1) का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) -13
(b) 15
(c) -15
(d) 13

Q19. If $5\sqrt{5}x^3+2\sqrt{2}y^3=(Ax+\sqrt{2}y)(Bx^2+2y^2+Cxy)$, then the value of $(A^2+B^2-C^2)$ is :
यदि $5\sqrt{5}x^3+2\sqrt{2}y^3=(Ax+\sqrt{2}y)(Bx^2+2y^2+Cxy)$ है, तो $(A^2+B^2-C^2)$ का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 15
(b) 20
(c) 30
(d) 40

Q20. If $\frac{3(x^2+1)-7x}{3x}=6,\ x\neq 0$ then the value of $\sqrt{x}+\frac{1}{\sqrt{x}}$ is :
यदि $\frac{3(x^2+1)-7x}{3x}=6,\ x\neq 0$ है, तो $\sqrt{x}+\frac{1}{\sqrt{x}}$ का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) $\sqrt{\frac{25}{3}}$
(b) $\frac{\sqrt{11}}{3}$
(c) $\sqrt{\frac{35}{3}}$
(d) $\sqrt{\frac{31}{3}}$

Q21. Let a,b and c be the fractions such that $a<b<c$. If c is divided by a, the result is $\frac{9}{2}$, which exceeds b by $\frac{23}{6}$. If a+b+c $=\frac{19}{12}$, then (2a+b-c) will be equal to :
मान लीजिये कि a, b और c ऐसे भिन्न हैं कि $a<b<c$ है | यदि c को a से विभाजित किया जाए, तो परिणाम $\frac{9}{2}$ आता है, जो b से $\frac{23}{6}$ अधिक है | यदि a+b+c $=\frac{19}{12}$ है, तो (2a+b-c) का मान क्या होगा ?
SSC CGL TIER II (13 September 2019)
(a) $\frac{1}{2}$
(b) $\frac{1}{3}$
(c) $\frac{1}{12}$
(d) $\frac{1}{4}$

Q22. Let $x=\sqrt[6]{27}-\sqrt{6\frac{3}{4}}$ and $y=\frac{\sqrt{45}+\sqrt{605}+\sqrt{245}}{\sqrt{80}+\sqrt{125}}$, then the value of x^2+y^2 is :
मान लीजिये कि $x=\sqrt[6]{27}-\sqrt{6\frac{3}{4}}$ और $y=\frac{\sqrt{45}+\sqrt{605}+\sqrt{245}}{\sqrt{80}+\sqrt{125}}$ है, तो x^2+y^2 का मन ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) $\frac{223}{36}$
(b) $\frac{221}{36}$
(c) $\frac{221}{9}$
(d) $\frac{227}{9}$

Q23. If x+y+z=6, xyz=-10 and $x^2+y^2+z^2=30$, then what is the value of $(x^3+y^3+z^3)$?
यदि x+y+z=6, xyz=-10 और $x^2+y^2+z^2=30$ है, तो $(x^3+y^3+z^3)$ का मान क्या होगा ?
SSC CGL TIER II (13 September 2019)
(a) 132
(b) 135
(c) 130
(d) 127

SSC CGL 2019 TIER I

Q1. If $x^{2a}=y^{2b}=z^{2c}\neq 0$ and $x^2=yz$, then the value of $\frac{ab+bc+ca}{bc}$ is:
यदि $x^{2a}=y^{2b}=z^{2c}\neq 0$ तथा $x^2=yz$ है, तो $\frac{ab+bc+ca}{bc}$ का मान ज्ञात करें |
SSC CGL 3 March 2020 (Morning)
(a) 3
(b) 3ac
(c) 3bc
(d) 3ab

Q2. If x - y = 4 and xy = 45, then the value of x^3-y^3 is:
यदि x - y = 4 तथा xy = 45 है, तो x^3-y^3 का मान होगा :
SSC CGL 3 March 2020 (Morning)
(a) 822
(b) 604
(c) 82
(d) 151

Q3. If x, y and z are three integers such that x + y = 8, y + z = 13 and z + x = 17, then the value of $\frac{x^2}{yz}$ is: / यदि x, y और z तीन ऐसे पूर्णांक हैं कि x + y = 8, y + z = 13 तथा z + x = 17 है, तो $\frac{x^2}{yz}$ का मान क्या होगा ?
SSC CGL 3 March 2020 (Morning)
(a) 1
(b) 0
(c) $\frac{18}{11}$
(d) $\frac{7}{5}$

Q4. The expression $(a+b-c)^3+(a-b+c)^3-8a^3$ is equal to:
व्यंजक $(a+b-c)^3+(a-b+c)^3-8a^3$ का मान किसके बराबर है ?
SSC CGL 3 March 2020 (Afternoon)
(a) 6a(a-b+c)(c-a-b)
(b) 3a(a+b-c)(a-b+c)
(c) 6a(a+b-c)(a-b+c)
(d) 3a(a-b+c)(c-a-b)

Pinnacle

Q5. If $x^4+x^2y^2+y^4$ =21 and x^2+xy+y^2 = 7, then the value of ($\frac{1}{x^2}+\frac{1}{y^2}$) is:
यदि $x^4+x^2y^2+y^4$ =21 तथा x^2+xy+y^2 = 7 है, तो ($\frac{1}{x^2}+\frac{1}{y^2}$) का मान होगा :
SSC CGL 3 March 2020 (Afternoon)
(a) $\frac{5}{2}$
(b) $\frac{7}{4}$
(c) $\frac{5}{4}$
(d) $\frac{7}{3}$

Q6. If $x^2+3x+1=0$, then what is the value of $x^6+\frac{1}{x^6}$?
यदि $x^2+3x+1=0$ है, तो $x^6+\frac{1}{x^6}$ का मान क्या होगा ?
SSC CGL 3 March 2020 (Afternoon)
(a) 324
(b) 322
(c) 318
(d) 327

Q7. $(a+b-c+d)^2 - (a-b+c-d)^2$ = ?
SSC CGL 3 March 2020 (Evening)
(a) 4a(b+d-c)
(b) 4a(b-d+c)
(c) 2a(b+c-d)
(d) 2a(a+b-c)

Q8. The value of $27a^3 - 2\sqrt{2}b^3$ is equal to:
$27a^3 - 2\sqrt{2}b^3$ का मान किसके बराबर है ?
SSC CGL 3 March 2020 (Evening)
(a) $(3a-\sqrt{2}b)(9a^2-2b^2-3\sqrt{2}ab)$
(b) $(3a-\sqrt{2}b)(9a^2-2b^2+6\sqrt{2}ab)$
(c) $(3a-\sqrt{2}b)(9a^2+2b^2+3\sqrt{2}ab)$
(d) $(3a-\sqrt{2}b)(9a^2+2b^2+3\sqrt{2}ab)$

Q9. If a+b+c = 11, ab+bc+ca = 3 and abc = -135, then what is the value of $a^3+b^3+c^3$?
यदि a+b+c = 11, ab+bc+ca = 3 तथा abc = -135 है, तो $a^3+b^3+c^3$ का मान क्या होगा ?
SSC CGL 4 March 2020 (Morning)
(a) 823
(b) 929
(c) 925
(d) 827

Q10. If $5x + \frac{1}{3x}$ =4, then what is the value of $9x^2+\frac{1}{25x^2}$?
यदि $5x + \frac{1}{3x}$ =4 है, तो $9x^2+\frac{1}{25x^2}$ का मान क्या होगा ?
SSC CGL 4 March 2020 (Morning)
(a) $\frac{174}{125}$
(b) $\frac{144}{125}$
(c) $\frac{114}{25}$
(d) $\frac{119}{25}$

Q11. On simplification, $\frac{x^3-y^3}{x[(x+y)^2-3xy]} \div \frac{y[(x-y)^2+3xy]}{x^3+y^3} \times \frac{(x+y)^2-(x-y)^2}{x^2-y^2}$ is equal to:
सरलीकरण के बाद, $\frac{x^3-y^3}{x[(x+y)^2-3xy]} \div \frac{y[(x-y)^2+3xy]}{x^3+y^3} \times \frac{(x+y)^2-(x-y)^2}{x^2-y^2}$ किसके बराबर होगा ?
SSC CGL 4 March 2020 (Morning)
(a) 4
(b) 1
(c) $\frac{1}{2}$
(d) $\frac{1}{4}$

Q12. If P= $\frac{x^4-8x}{x^3-x^2-2x}$,Q= $\frac{x^2+2x+1}{x^2-4x-5}$ and R= $\frac{2x^2+4x+8}{x-5}$, then $(P \times Q) \div R$ is equal to:
यदि P= $\frac{x^4-8x}{x^3-x^2-2x}$,Q= $\frac{x^2+2x+1}{x^2-4x-5}$ तथा R= $\frac{2x^2+4x+8}{x-5}$ है, तो $(P \times Q) \div R$ का मान किसके बराबर है ?
SSC CGL 4 March 2020 (Afternoon)
(a) $\frac{1}{2}$
(b) 1
(c) 2
(d) 4

Q13. If a+b+c = 7 and ab+bc+ac= -6, then the value of $a^3+b^3+c^3-3abc$ is: /
यदि a+b+c = 7 तथा ab+bc+ac= -6 है, तो $a^3+b^3+c^3-3abc$ का मान क्या होगा ?
SSC CGL 4 March 2020 (Afternoon)
(a) 469
(b) 472
(c) 463
(d) 479

Q14. If $30x^2-15x+1= 0$, then what is the value of $25x^2+(36x^2)^{-1}$?
यदि $30x^2-15x+1= 0$ है, तो $25x^2+(36x^2)^{-1}$ का मान ज्ञात करें |
SSC CGL 4 March 2020 (Afternoon)
(a) $\frac{9}{2}$
(b) $6\frac{1}{4}$
(c) $\frac{65}{12}$
(d) $\frac{55}{12}$

Q15. If x+y+z = 3 and $x^2+y^2+z^2$ = 101, then what is the value of $\sqrt{x^3+y^3+z^3-3xyz}$?
यदि x+y+z = 3 तथा $x^2+y^2+z^2$ = 101 है, तो $\sqrt{x^3+y^3+z^3-3xyz}$ का मान क्या होगा ?
SSC CGL 4 March 2020 (Evening)
(a) 19
(b) 21
(c) 24
(d) 28

Q16. If $2x^2+y^2+8z^2-2\sqrt{2}xy+4\sqrt{2}yz-8zx = (Ax+y+Bz)^2$, then the value of (A^2+B^2-AB) is:
यदि $2x^2+y^2+8z^2-2\sqrt{2}xy+4\sqrt{2}yz-8zx = (Ax+y+Bz)^2$ है, तो (A^2+B^2-AB) का मान होगा :
SSC CGL 4 March 2020 (Evening)
(a) 16

(b) 14
(c) 6
(d) 18

Q17. If $12x^2-21x+1 = 0$, then what is the value of $9x^2+(16x^2)^{-1}$?
यदि $12x^2-21x+1 = 0$ है, तो $9x^2+(16x^2)^{-1}$ का मान क्या होगा ?
SSC CGL 4 March 2020 (Evening)
(a) $\frac{429}{8}$
(b) $\frac{465}{16}$
(c) $\frac{417}{16}$
(d) $\frac{453}{8}$

Q18. If P = $\frac{x^3+y^3}{(x-y)^2+3xy}$, Q = $\frac{(x+y)^2-3xy}{x^3-y^3}$ and R = $\frac{(x+y)^2+(x-y)^2}{x^2-y^2}$, then what is the value of (P ÷ Q) × R ?
यदि P = $\frac{x^3+y^3}{(x-y)^2+3xy}$, Q = $\frac{(x+y)^2-3xy}{x^3-y^3}$ तथा R = $\frac{(x+y)^2+(x-y)^2}{x^2-y^2}$ है, तो (P ÷ Q) × R का मान क्या होगा ?
SSC CGL 5 March 2020 (Morning)
(a) $2(x^2+y^2)$
(b) 4xy
(c) x^2+y^2
(d) 2xy

Q19. If $16a^4+36a^2b^2+81b^4=91$ and $4a^2+9b^2-6ab=13$, then what is the value of 3ab?
यदि $16a^4+36a^2b^2+81b^4=91$ तथा $4a^2+9b^2-6ab=13$ है, तो 3ab का मान क्या होगा ?
SSC CGL 5 March 2020 (Morning)
(a) -3
(b) $\frac{3}{2}$
(c) 5
(d) $-\frac{3}{2}$

Q20. If $x^2-2\sqrt{5}x+1=0$, then what is the value of $x^5+\frac{1}{x^5}$?
यदि $x^2-2\sqrt{5}x+1=0$ है, तो $x^5+\frac{1}{x^5}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Morning)
(a) $610\sqrt{5}$
(b) $408\sqrt{5}$
(c) $612\sqrt{5}$
(d) $406\sqrt{5}$

Q21. If $20x^2-30x+1=0$, then what is the value of $25x^2+\frac{1}{16x^2}$?
यदि $20x^2-30x+1=0$ है, तो $25x^2+\frac{1}{16x^2}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Afternoon)
(a) $53\frac{1}{2}$
(b) $58\frac{1}{2}$
(c) $53\frac{3}{4}$
(d) $58\frac{3}{4}$

Q22. If $x^4+x^2y^2+y^4 = 273$ and $x^2-xy+y^2 = 13$, then the value of xy is:
यदि $x^4+x^2y^2+y^4 = 273$ तथा $x^2-xy+y^2 = 13$ है, तो xy का मान क्या होगा ?
SSC CGL 5 March 2020 (Afternoon)
(a) 4
(b) 8
(c) 10
(d) 6

Q23. $\frac{x^2(x-4)^2}{(x+4)^2-4x} \div \frac{(x^2-4x)^3}{(x+4)^2} \times \frac{64-x^3}{16-x^2}$ is equal to:
$\frac{x^2(x-4)^2}{(x+4)^2-4x} \div \frac{(x^2-4x)^3}{(x+4)^2} \times \frac{64-x^3}{16-x^2}$ किसके बराबर है ?
SSC CGL 5 March 2020 (Afternoon)
(a) $\frac{x+4}{x-4}$
(b) $\frac{x+4}{x(x-4)}$
(c) $\frac{x+4}{x(4-x)}$
(d) $\frac{x-4}{x+4}$

Q24. $(a+b+c-d)^2 - (a-b-c+d)^2$ = ?
SSC CGL 5 March 2020 (Evening)
(a) 4a(b+c+d)
(b) 2a(b+c-d)
(c) 4a(b+c-d)
(d) 2a(b+c+d)

Q25. If $x-\frac{1}{x} = 11$, then $x^3-\frac{1}{x^3}$ is:
यदि $x-\frac{1}{x} = 11$ है, तो $x^3-\frac{1}{x^3}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Evening)
(a) 1188
(b) 1364
(c) 1298
(d) 1474

Q26. The coefficient of x^2 in $(2x+y)^3$ is:
$(2x+y)^3$ में x^2 का गुणांक क्या है ?
SSC CGL 5 March 2020 (Evening)
(a) $12y^2$
(b) 12
(c) 12y
(d) 8

Q27. If 3a = 27b = 81c and abc = 144, then the value of $12(\frac{1}{a}+\frac{1}{2b}+\frac{1}{5c})$ is:
यदि 3a = 27b = 81c है तथा abc = 144 है, तो $12(\frac{1}{a}+\frac{1}{2b}+\frac{1}{5c})$ का मान क्या होगा ?
SSC CGL 6 March 2020 (Morning)
(a) $\frac{17}{120}$
(b) $\frac{18}{10}$
(c) $\frac{18}{120}$
(d) $\frac{33}{10}$

Q28. If the value of $(a+b-2)^2 + (b+c-5)^2 + (c+a-5)^2 = 0$, then the value of $\sqrt{(b+c)^a+(c+a)^b-1}$ is:
यदि $(a+b-2)^2 + (b+c-5)^2 + (c+a-5)^2 = 0$ है, तो

$\sqrt{(b+c)^a+(c+a)^b-1}$ का मान क्या होगा ?

SSC CGL 6 March 2020 (Morning)

(a) 2
(b) 1
(c) 3
(d) 0

Q29. If a+b+c = 9 and ab+bc+ca = -22, then the value of $a^3+b^3+c^3-3abc$ is:
यदि a+b+c = 9 तथा ab+bc+ca = -22 है, तो $a^3+b^3+c^3-3abc$ का मान क्या होगा ?

SSC CGL 6 March 2020 (Morning)

(a) 1323
(b) 487
(c) 1571
(d) 783

Q30. If $a+\frac{1}{a}=5$, then $a^3+\frac{1}{a^3}$ is:
यदि $a+\frac{1}{a}=5$ है, तो $a^3+\frac{1}{a^3}$ का मान क्या होगा ?

SSC CGL 6 March 2020 (Afternoon)

(a) 80
(b) 110
(c) 10
(d) 140

Q31. The coefficient of x in $(x-3y)^3$ is:
$(x-3y)^3$ का गुणांक है :

SSC CGL 6 March 2020 (Afternoon)

(a) $-27y^2$
(b) $-3y^2$
(c) $27y^2$
(d) $3y^2$

Q32. If $a^3+\frac{1}{a^3}=52$, then the value of $2(a+\frac{1}{a})$ is:
यदि $a^3+\frac{1}{a^3}=52$ है, तो $2(a+\frac{1}{a})$ का मान क्या होगा ?

SSC CGL 6 March 2020 (Evening)

(a) 6
(b) 2
(c) 8
(d) 4

Q33. If $x^2-4x+4=0$, then the value of $16(x^4-\frac{1}{x^4})$ is:
यदि $x^2-4x+4=0$ है, तो $16(x^4-\frac{1}{x^4})$ का मान क्या होगा ?

SSC CGL 6 March 2020 (Evening)

(a) $\frac{127}{16}$
(b) 255
(c) $\frac{255}{16}$
(d) 127

Q34. If b+c = ax, c+a = by and a+b = cz, then the value of $\frac{1}{9}[\frac{1}{x+1}+\frac{1}{y+1}+\frac{1}{z+1}]$ is:
यदि b+c = ax, c+a = by तथा a+b = cz है, तो $\frac{1}{9}[\frac{1}{x+1}+\frac{1}{y+1}+\frac{1}{z+1}]$ का मान क्या होगा ?

SSC CGL 6 March 2020 (Evening)

(a) $\frac{1}{3}$
(b) 0
(c) $\frac{1}{9}$
(d) 1

Q35. The coefficient of y in the expansion $(2y-5)^3$, is:
व्यंजक $(2y-5)^3$ में y का गुणांक कौन सा है ?

SSC CGL 7 March 2020 (Morning)

(a) 50
(b) -30
(c) -150
(d) 150

Q36. If $1-64x^3-12x+px^2=(1-4x)^3$, then the value of p is:
यदि $1-64x^3-12x+px^2=(1-4x)^3$ है, तो p का मान क्या होगा ?

SSC CGL 7 March 2020 (Morning)

(a) 16
(b) -12
(c) 48
(d) -48

Q37. Expand/ विस्तार करें : $(\frac{x}{3}+\frac{y}{5})^3$.

SSC CGL 7 March 2020 (Afternoon)

(a) $\frac{x^3}{27}+\frac{x^2y}{25}+\frac{xy^2}{25}+\frac{y^3}{125}$
(b) $\frac{x^3}{25}+\frac{x^2y}{15}+\frac{xy^2}{25}+\frac{y^3}{125}$
(c) $\frac{x^3}{27}+\frac{xy}{25}+\frac{xy^2}{25}+\frac{y^3}{125}$
(d) $\frac{x^3}{27}+\frac{x^2y}{15}+\frac{xy^2}{25}+\frac{y^3}{125}$

Q38. If $a^2+b^2+c^2 = 300$ and ab+bc+ca = 50, then what is the value of a+b+c? (Given that a,b and c are all positive.)
यदि $a^2+b^2+c^2 = 300$ है तथा ab+bc+ca = 50 है, तो a+b+c का मान क्या होगा ? (यह मान लीजिए कि a,b तथा c सभी धनात्मक हैं)

SSC CGL 7 March 2020 (Afternoon)

(a) 22
(b) 20
(c) 25
(d) 15

Q39. If x+y+z=10 and xy+yz+zx = 15, then find the value of $x^3+y^3+z^3-3xyz$.
यदि x+y+z=10 and xy+yz+zx = 15 है, तो $x^3+y^3+z^3-3xyz$ का मान ज्ञात करें |

SSC CGL 7 March 2020 (Afternoon)

(a) 660
(b) 525
(c) 550
(d) 575

Q40. If $a^4+\frac{1}{a^4}=50$, a>0, then find the value of $a^3+\frac{1}{a^3}$.
यदि $a^4+\frac{1}{a^4}=50$, a>0 है, तो $a^3+\frac{1}{a^3}$ का मान ज्ञात करें |

SSC CGL 7 March 2020 (Evening)

(a) $\sqrt{2(1+\sqrt{13})(-1+2\sqrt{13})}$

(b) $\sqrt{2(1-\sqrt{13})(-1+2\sqrt{13})}$
(c) $\sqrt{2(1+\sqrt{13})(-1-2\sqrt{13})}$
(d) $\sqrt{2(1+\sqrt{13})}+(-1+2\sqrt{13})$

Q41. $25a^2-9$ is factored as:
$25a^2-9$ का गुणनखंड होगा :
SSC CGL 7 March 2020 (Evening)
(a) (25a+1)(a-9)
(b) $(5a-3)^2$
(c) (5a+3)(5a-3)
(d) (5a+1)(5a-9)

Q42. Find the product of $(a+b+2c)(a^2+b^2+4c^2-ab-2bc-2ca)$.
$(a+b+2c)(a^2+b^2+4c^2-ab-2bc-2ca)$ का गुणनफल ज्ञात करें |
SSC CGL 7 March 2020 (Evening)
(a) $a^3+b^3+8c^3-6abc$
(b) $a^3+b^3+6c^3-6abc$
(c) $a^3+b^3+8c^3-2abc$
(d) $a^3+b^3+8c^3-abc$

Q43. Expand/ विस्तार करें :
$(4a+3b+2c)^2$
SSC CGL 9 March 2020 (Morning)
(a) $16a^2+9b^2+4c^2+24ab+12bc+16ca$
(b) $16a^2+9b^2+4c^2-24ab-12bc-16ca$
(c) $16a^2-9b^2+4c^2-24ab+12bc-16ca$
(d) $4a^2+3b^2+2c^2+24ab+12bc+16ca$

Q44. If A+B = 12 and AB = 17, what is the value of A^3+B^3?
यदि A+B = 12 तथा AB = 17 है, तो A^3+B^3 का मान क्या होगा ?
SSC CGL 9 March 2020 (Morning)
(a) 1116
(b) 1106
(c) 1166
(d) 1213

Q45. $(3a-4b)^3$ is equal to:
$(3a-4b)^3$ किसके बराबर है ?
SSC CGL 9 March 2020 (Morning)
(a) $9a^2-24ab+16b^2$
(b) $9a^2-16b^2$
(c) $27a^3-64b^3-108a^2b+144ab^2$
(d) $27a^3-64b^3$

Q46. If $a^2+b^2-c^2=0$, then the value of $\frac{2(a^6+b^6-c^6)}{3a^2b^2c^2}$ is:
यदि $a^2+b^2-c^2=0$ है, तो $2(a^6+b^6-c^6)$ का मान क्या होगा ?
SSC CGL 9 March 2020 (Afternoon)
(a) 2
(b) 0
(c) 1
(d) 3

Q47. If a=2b=8c and a+b+c = 13 then the value of $\frac{\sqrt{a^2+b^2+c^2}}{2c}$ is:
यदि a=2b=8c है, तथा a+b+c = 13 है, तो $\frac{\sqrt{a^2+b^2+c^2}}{2c}$ का मान क्या होगा ?
SSC CGL 9 March 2020 (Afternoon)
(a) $\frac{9}{2}$
(b) $\frac{5}{6}$
(c) $-\frac{9}{2}$
(d) $-\frac{5}{6}$

Q48. If x,y and z are three numbers such that x+y = 13, y+z = 15 and z+x = 16, then the value of $\frac{xy+xz}{xyz}$ is:
यदि x,y तथा z तीन ऐसी संख्याएँ हैं कि x+y = 13, y+z = 15 तथा z+x = 16 है, तो $\frac{xy+xz}{xyz}$ का मान ज्ञात करें |
SSC CGL 9 March 2020 (Afternoon)
(a) $\frac{5}{18}$
(b) $\frac{5}{36}$
(c) $\frac{18}{5}$
(d) $\frac{36}{5}$

Q49. If x+3y+2=0 then the value of $x^3+27y^3+8-18xy$ is:
यदि x+3y+2=0 है, तो $x^3+27y^3+8-18xy$ का मान क्या होगा ?
SSC CGL 9 March 2020 (Evening)
(a) -2
(b) 2
(c) 0
(d) 1

Q50. If p+q = 7 and pq=5, then the value of p^3+q^3 is:
यदि p+q = 7 तथा pq = 5 है, तो p^3+q^3 का मान क्या होगा ?
SSC CGL 9 March 2020 (Evening)
(a) 34
(b) 238
(c) 448
(d) 64

SSC CHSL 2019
Q1. If x - 2y = 3 and xy = 5, find the value of x^2-4y^2.
यदि x - 2y = 3 तथा xy = 5 है, तो x^2-4y^2 का मान क्या होगा ?
CHSL 12-10-2020 (morning shift)
(a) 22
(b) 20
(c) 23
(d) 21

Q2. If a + b + c = 2, $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=0$, $ac=\frac{4}{b}$ and $a^3+b^3+c^3=28$, find the value of $a^2+b^2+c^2$.
यदि a + b + c = 2, $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=0$, $ac=\frac{4}{b}$ तथा $a^3+b^3+c^3=28$ है, तो $a^2+b^2+c^2$ का मान ज्ञात कीजिए।
CHSL 12-10-2020 (morning shift)
(a) 12
(b) 8
(c) 6

(d) 10

Q3. If x + y + z = 10, $x^3 + y^3 + z^3 = 75$ and xyz = 15, then find the value of $x^2 + y^2 + z^2 - xy - yz - zx$
यदि x + y + z = 10, $x^3 + y^3 + z^3 = 75$ तथा xyz = 15 है, तो $x^2 + y^2 + z^2 - xy - yz - zx$ का मान ज्ञात कीजिए।
CHSL 12-10-2020 (afternoon shift)
(a) 6
(b) 3
(c) 5
(d) 4

Q4. If a + b = 11 and ab = 15, then $a^2 + b^2$ is equal to:
यदि a+b = 11 और ab = 15 है, तो $a^2 + b^2$ का मान किसके बराबर है ?
CHSL 12-10-2020 (afternoon shift)
(a) 90
(b) 91
(c) 93
(d) 92

Q5. If a - b = 4 and $a^3 - b^3 = 88$, then find the value of $a^2 - b^2$.
यदि a - b = 4 और $a^3 - b^3 = 88$ है, तो $a^2 - b^2$ का मान ज्ञात कीजिए।
CHSL 12-10-2020 (afternoon shift)
(a) $6\sqrt{6}$
(b) $9\sqrt{6}$
(c) $7\sqrt{6}$
(d) $8\sqrt{6}$

Q6. If 2x + y = 6 and xy = 4, then find the value of $8x^3 + y^3$ is:
यदि 2x + y = 6 तथा xy = 4 है, तो $8x^3 + y^3$ का मान ज्ञात कीजिए।
CHSL 12-10-2020 (evening shift)
(a) 64
(b) 72
(c) 48
(d) 16

Q7. If the sum of two numbers is 11 and the sum of their squares is 65, then the sum of their cubes will be:
यदि दो संख्याओं का जोड़ 11 है तथा उनके वर्गों का जोड़ 65 है, तो उनके घनों का जोड़ कितना होगा?
CHSL 12-10-2020 (evening shift)
(a) 355
(b) 576
(c) 407
(d) 615

Q8. If, $2^{x+y-2z} = 8^{8z-5-y}$; $5^{4y-6z} = 25^{y+z}$; $3^{4x-3z} = 9^{x+z}$ then the value of 2x+3y+5z is:
यदि $2^{x+y-2z} = 8^{8z-5-y}$; $5^{4y-6z} = 25^{y+z}$; $3^{4x-3z} = 9^{x+z}$ है, तो 2x+3y+5z का मान क्या होगा ?
CHSL 13-10-2020 (morning shift)
(a)56
(b)44
(c)32
(d)28

Q9. Find the value/ मान ज्ञात कीजिए
$\frac{1}{(9-4\sqrt{5})^2} + \frac{1}{(9+4\sqrt{5})^2}$
CHSL 13-10-2020 (morning shift)
(a)322
(b)424
(c)246
(d)286

Q10. If A = $\frac{(0.1)^3 + (0.2)^3 + (0.3)^3 + 3(0.005 + 0.016 + 0.027) + 0.036}{(0.1)^2 + (0.2)^2 + (0.3)^2 + 0.04 + 0.06 + 0.12}$, then the value of 60A is:
यदि A = $\frac{(0.1)^3 + (0.2)^3 + (0.3)^3 + 3(0.005 + 0.016 + 0.027) + 0.036}{(0.1)^2 + (0.2)^2 + (0.3)^2 + 0.04 + 0.06 + 0.12}$ है, तो 60A का मान क्या होगा ?
CHSL 13-10-2020 (afternoon shift)
(a) 20
(b) 60
(c) 36
(d) 30

Q11. If $x^4 + \frac{1}{x^4} = \frac{257}{16}$, then find $\frac{8}{13}(x^3 + \frac{1}{x^3})$, where x > 0.
यदि $x^4 + \frac{1}{x^4} = \frac{257}{16}$ है, तो $\frac{8}{13}(x^3 + \frac{1}{x^3})$ ज्ञात कीजिए, जहाँ x>0 है।
CHSL 13-10-2020 (afternoon shift)
(a) 5
(b) 4
(c) 6
(d) 8

Q12. If a + b = 8 and $a + a^2b + b + ab^2 = 128$, then the positive value of $a^3 + b^3$ is:
यदि a+b = 8 तथा $a + a^2b + b + ab^2 = 128$ है, तो $a^3 + b^3$ का धनात्मक मान कितना होगा?
CHSL 13-10-2020 (afternoon shift)
(a) 96
(b) 224
(c) 344
(d) 152

Q13. If xy = 16 and $x^2 + y^2 = 32$, then the value of (x + y) is:
यदि xy = 16 और $x^2 + y^2 = 32$, है, तो (x + y) का मान है:
CHSL 13-10-2020 (evening shift)
(a) ± 4
(b) ± 10
(c) ± 6
(d) ± 8

Q14. If a + b = 10 and $\frac{3}{7}$ of ab = 9, then the value of $a^3 + b^3$ is:

यदि $a + b = 10$ और $\frac{3}{7}$ of $ab = 9$, है, तो $a^3 + b^3$ का मान:
CHSL 13-10-2020 (evening shift)
(a)350
(b)270
(c)370
(d)360

Q15. $(a + 2b)^2 - (a - 2b)^2$ is equal to:
$(a + 2b)^2 - (a - 2b)^2$ का मान है।
CHSL 14-10-2020 (morning shift)
(a) 10ab
(b) 6ab
(c) 8ab
(d) 4ab

Q16. The value of $5\sqrt{3} + 7\sqrt{2} - \sqrt{6} - \frac{23}{\sqrt{2}+\sqrt{3}+\sqrt{6}}$ is:
$5\sqrt{3} + 7\sqrt{2} - \sqrt{6} - \frac{23}{\sqrt{2}+\sqrt{3}+\sqrt{6}}$ का मान क्या होगा ?
CHSL 14-10-2020 (afternoon shift)
(a) 0
(b) 16
(c) 12
(d) 10

Q17. If x = 255, y = 256, z = 257, then find the value of $x^3+y^3+z^3-3xyz$.
यदि x = 255, y = 256, z = 257 है, तो $x^3+y^3+z^3-3xyz$ का मान ज्ञात कीजिए।
CHSL 14-10-2020 (evening shift)
(a) 1984
(b) 2304
(c) 1876
(d) 1378

Q18. If $x+\frac{1}{x} = 8$, then find the value of $\frac{5x}{x^2+1-6x}$.
यदि $x+\frac{1}{x} = 8$ है, तो $\frac{5x}{x^2+1-6x}$ का मान ज्ञात कीजिए।
CHSL 14-10-2020 (evening shift)
(a) 2.5
(b) 6
(c) 5
(d) 6.5

Q19. If a + b = 27 and $a^3 + b^3 = 5427$, then find ab.
यदि a + b = 27 तथा $a^3 + b^3 = 5427$ है, तो ab ज्ञात कीजिए।
CHSL 14-10-2020 (evening shift)
(a) 143
(b) 135
(c) 176
(d) 149

Q20. Find the value of x in
$\sqrt[3]{15625} - \sqrt{x} = 4$
$\sqrt[3]{15625} - \sqrt{x} = 4$ में x का मान ज्ञात कीजिए।
CHSL 14-10-2020 (evening shift)
(a) 625
(b) 343
(c) 441
(d) 81

Q21.If a and b are two positive real numbers such that a + b = 20 and ab = 4, then the value of $a^3 + b^3$ is:
यदि a और b दो धनात्मक वास्तविक संख्याएँ हैं जैसे कि a + b = 20 और ab = 4, तो $a^3 + b^3$ का मान:
CHSL 15-10-2020 (morning shift)
(a)7760
(b)240
(c)8000
(d)8240

Q22. The sum of two numbers is 47 and their product is 550. Find the sum of their squares.
दो संख्याओं का योग 47 है और उनका उत्पाद 550 है। उनके वर्ग का योग ज्ञात कीजिए
CHSL 15-10-2020 (afternoon shift)
(a) 1109
(b) 986
(c) 876
(d) 1209

Q23. If $x=2 + \sqrt{3}$, then find the value of $x^4 - 8x^3 + 16x^2$.
यदि $x=2 + \sqrt{3}$, तो $x^4 - 8x^3 + 16x^2$ का मान ज्ञात कीजिए
CHSL 15-10-2020 (afternoon shift)
(a) -1
(b) 1
(c) 0
(d) 2

Q24. If 2a + 3b = 8 and ab = 5, then find the value of $4a^2 + 9b^2$.
यदि 2a + 3b = 8 और ab = 5, तो $4a^2 + 9b^2$ का मान ज्ञात कीजिए।
CHSL 15-10-2020 (evening shift)
(a) 2
(b) 4
(c) 8
(d) 6

Q25. If x + y = 15 and xy = 14, then the value of x - y is:
यदिx + y = 15 और xy = 14 है, तो x - y का मान है:
CHSL 15-10-2020 (evening shift)
(a) 11
(b) 12
(c) 14
(d) 13

Q26. If a = 355, b = 356, c = 357, then find the value of $a^3 + b^3 + c^3 - 3abc$.
यदि a = 355, b = 356, c = 357, तो $a^3 + b^3 + c^3 - 3abc$ का मान है:
CHSL 15-10-2020 (evening shift)

Pinnacle

(a) 3208
(b) 3202
(c) 3206
(d) 3204

Q27. If $x + \frac{1}{x} = 4$, then the value of $x^4 + \frac{1}{x^4}$ is:
यदि $x + \frac{1}{x} = 4$, है, तो $x^4 + \frac{1}{x^4}$ का मान:
CHSL 16-10-2020 (morning shift)
(a) 14
(b) 196
(c) 16
(d) 194

Q28. If a + b = 8 and ab = 12, then the value of a^3+b^3 is:
यदि a + b = 8 और ab = 12 है, तो a^3+b^3 का मान है:
CHSL 16-10-2020 (morning shift)
(a) 224
(b) 96
(c) 288
(d) 512

Q29. If a and b are two positive real numbers such that $4a^2+b^2 = 20$ and ab = 4, then the value of 2a+b is:
यदि a और b दो सकारात्मक वास्तविक संख्याएं हैं जैसे कि $4a^2+b^2 = 20$ और ab = 4, तो 2a+b का मान:
CHSL 16-10-2020 (morning shift)
(a) 80
(b) 8
(c) 6
(d) 5

Q30. If 'a' is a natural number, then $(7a^2 + 7a)$ is always divisible by:
अगर एक प्राकृतिक संख्या है ,तो $(7a^2 + 7a)$ हमेस विभाजित होगी :
CHSL 16-10-2020 (morning shift)
(a) 7 and 14 both
(b) 7 only
(c) 14 only
(d) 21 only

Q31. If a : b = 3 : $\sqrt{5}$, then the value of (2a + b) : (3a - 2b) is:
यदि a: b = 3: 5, तो (2a + b): (3a - 2b) का मान है:
CHSL 16-10-2020 (evening shift)
(a) $\frac{1}{64}(64 + 21\sqrt{5})$
(b) $\frac{1}{62}(64 + 21\sqrt{5})$
(c) $\frac{1}{63}(64 + 21\sqrt{5})$
(d) $\frac{1}{61}(64 + 21\sqrt{5})$

Q32. If x + y = 4 and $x^3 + y^3 = 12$, then the value of $x^4 + y^4$ =?
यदिx + y = 4 और $x^3 + y^3 = 12$, है, तो $x^4 + y^4$ का मान क्या है ?
CHSL 16-10-2020 (evening shift)
(a) $\frac{146}{9}$
(b) $\frac{146}{3}$
(c) $\frac{146}{7}$
(d) $\frac{146}{5}$

Q33. If x-y = 13 and xy = 25, then the value of $x^2 - y^2$ =?
यदि x-y = 13 और xy = 25 है, तो $x^2 - y^2$ =?
CHSL 16-10-2020 (evening shift)
(a) $13\sqrt{269}$
(b) $13\sqrt{210}$
(c) $13\sqrt{229}$
(d) $13\sqrt{240}$

Q34. If $x - \frac{1}{x} = 8$, find the value of $x^4 + \frac{1}{x^4}$
यदि $x - \frac{1}{x} = 8$, $x^4 + \frac{1}{x^4}$ का मान ज्ञात करें:
CHSL 19-10-2020 (morning shift)
(a) 4355
(b) 4352
(c) 4356
(d) 4354

Q35. If a + 3b = 12 and ab = 9, then the value of (a - 3b) is:
यदि a + 3b = 12 और ab = 9 है, तो (a - 3b) का मान है:
CHSL 19-10-2020 (afternoon shift)
(a) 4
(b) 8
(c) 6
(d) 9

Q36. If $a^2 + \frac{2}{a^2} = 16$, then find the value of $\frac{72a^2}{a^4+2+8a^2}$.
CHSL 19-10-2020 (afternoon shift)
(a) 3
(b) 1
(c) 4
(d) 2

Q37. If $1 + 9r^2 + 81r^4 = 256$ and $1 + 3r + 9r^2 = 32$, then find the value of $1 - 3r + 9r^2$.
यदि $1 + 9r^2 + 81r^4 = 256$ और$1 + 3r + 9r^2 = 32$, तो $1 - 3r + 9r^2$ का मान ज्ञात करें।
CHSL 19-10-2020 (afternoon shift)
(a) 8
(b) 4
(c) 16
(d) 12

Q38. If $x + \frac{1}{x} = 4$, then find the value of $x^4 + \frac{1}{x^4}$
यदि $x + \frac{1}{x} = 4$, $x^4 + \frac{1}{x^4}$ का मान ज्ञात करें:
CHSL 19-10-2020 (evening shift)
(a) 136
(b) 194
(c) 162
(d) 128

Q39. If $x + \frac{1}{x} = 5$, $x \neq 0$ then the value of $\frac{x^4+\frac{1}{x^2}}{x^2-3x+1}$ is equal to:

यदि $x+\frac{1}{x}=5,\ x\neq 0$; $\frac{x^4+\frac{1}{x^2}}{x^2-3x+1}$ का मान ज्ञात करें:
CHSL 20-10-2020 (morning shift)
(a) 55
(b) 60
(c) 65
(d) 50

Q.40. If $x = 3+2\sqrt{2}$, then the value of $x^2+\frac{1}{x^2}$ is:
यदि $x = 3+2\sqrt{2}$, और $x^2+\frac{1}{x^2}$ का मान ज्ञात करें:
CHSL 20-10-2020 (afternoon shift)
(a) 30
(b) 36
(c) 32
(d) 34

Q.41. If $x+\frac{4}{x}-4=0$, then the value of x^2-4 is equal to:
यदि $x+\frac{4}{x}-4=0;\ x^2-4$ का मान ज्ञात करें:
CHSL 20-10-2020 (afternoon shift)
(a) 2
(b) 4
(c) 0
(d) 1

Q.42. If $4x^2+y^2=40$ and xy=6,(x>0,y>0) then the value of 2x+y is:
यदि $4x^2+y^2=40$ और xy=6,(x>0,y>0) ; x^2-4 का मान ज्ञात करें:
CHSL 20-10-2020 (evening shift)
(a) 24
(b) 16
(c) 4
(d) 8

Q.43. If $x^3+27y^3+64z^3 = 36xyz$, then the relationship between x,y and z is:
यदि $x^3+27y^3+64z^3 = 36xyz$, तो x, y और z में समबन्ध स्थापित करे
CHSL 20-10-2020 (evening shift)
(a) x+y+z = 0
(b) x-3y+4z = 0
(c) x+3y = 4z
(d) x+3y+4z = 0

Q.44. If $x=\sqrt[3]{5}+2$, then the value of $x^3-6x^2+12x-12$ is equal to:
यदि $x=\sqrt[3]{5}+2;\ x^3-6x^2+12x-12$ का मान ज्ञात करें:
CHSL 21-10-2020 (morning shift)
(a) 0
(b) 2
(c) 1
(d) -1

Q.45. If $x(5-\frac{2}{x})=\frac{5}{x}$, then the value of $x^2+\frac{1}{x^2}$ is equal to:
यदि $x(5-\frac{2}{x})=\frac{5}{x}$; $x^2+\frac{1}{x^2}$ का मान ज्ञात करें:
CHSL 21-10-2020 (morning shift)
(a) $2\frac{4}{25}$
(b) $2\frac{1}{25}$
(c) $\frac{4}{25}$
(d) $2\frac{3}{25}$

Q.46. If $a^2+\frac{1}{a^2}=98$, a>0, then the value of $a^3+\frac{1}{a^3}$ will be:
यदि $x(5-\frac{2}{x})=\frac{5}{x}$; $x^2+\frac{1}{x^2}$ का मान ज्ञात करें:
CHSL 21-10-2020 (morning shift)
(a) 960
(b) 950
(c) 970
(d) 870

Q.47. If $\sqrt{x}=\sqrt{3}-\sqrt{5}$, then the value of $x^2-16x+6$ is:
यदि $\sqrt{x}=\sqrt{3}-\sqrt{5}$; $x^2-16x+6$ का मान ज्ञात करें:
CHSL 21-10-2020 (afternoon shift)
(a) 0
(b) 4
(c) 2
(d) -2

Q48. If $x=\frac{\sqrt{3}}{2}$, then the value of $\frac{\sqrt{1+x}+\sqrt{1-x}}{\sqrt{1+x}-\sqrt{1-x}}$ is equal to:
यदि $x=\frac{\sqrt{3}}{2}$; $\frac{\sqrt{1+x}+\sqrt{1-x}}{\sqrt{1+x}-\sqrt{1-x}}$ का मान ज्ञात करें:
CHSL 21-10-2020 (afternoon shift)
(a) 3
(b) $\sqrt{3}$
(c) 2
(d) $\sqrt{2}$

Q.49. If $a^3+b^3=62$ and a+b = 2, then the value of ab is:
यदि $a^3+b^3=62$ और a + b = 2; ab का मान ज्ञात करें:
CHSL 21-10-2020 (afternoon shift)
(a) -9
(b) 9
(c) -6
(d) 6

Q.50. If $a+\frac{1}{a}+2=0$, then the value of $a^{15}+\frac{1}{a^{100}}$ is:
यदि $a+\frac{1}{a}+2=0$, और $a^{15}+\frac{1}{a^{100}}$ का मान ज्ञात करें:
CHSL 21-10-2020 (evening shift)
(a) 0
(b) 2
(c) -2
(d) 1

Q.51. If $4a+\frac{1}{5a}=4$, then the value of $25a^2+\frac{1}{16a^2}$ is:
यदि $x(5-\frac{2}{x})=\frac{5}{x}$; $x^2+\frac{1}{x^2}$ का मान ज्ञात करें
CHSL 21-10-2020 (evening shift)

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(a) 45/2
(b) 55/2
(c) 43/2
(d) 45/4

Q.52. if $x+\frac{1}{x}=\sqrt{3}$, then the value of $x^{18}+x^{12}+x^6+1$ is:
यदि $x+\frac{1}{x}=\sqrt{3}$;
$x^{18}+x^{12}+x^6+1$ का मान ज्ञात करें
CHSL 21-10-2020 (evening shift)
(a) 0
(b) 2
(c) 3
(d) 1

Q.53. If $a^2+b^2+2b+4a+5=0$, then the value of $\frac{2a-3b}{2a+3b}$ is equal to:
यदि $a^2+b^2+2b+4a+5=0$, $\frac{2a-3b}{2a+3b}$ का मान ज्ञात करें
CHSL 26-10-2020 (morning shift)
(a) 1/7
(b) 2/7
(c) 3/7
(d) 2/5

Q.54. If $2a+\frac{1}{a}=4$, then the value of $a^2+\frac{1}{4a^2}$ is:
यदि $2a+\frac{1}{a}=4$, $a^2+\frac{1}{4a^2}$ का मान ज्ञात करें
CHSL 26-10-2020 (morning shift)
(a) 3
(b) 4
(c) 5
(d) 12

Q.55. What is the value of $a^3+b^3+c^3-3abc$, when a = 225, b = 226 and c = 227 ?
यदि a = 225, b = 226 और $a^3+b^3+c^3-3abc$ का मान ज्ञात करें
CHSL 26-10-2020 (morning shift)
(a) 2034
(b) 2340
(c) 2304
(d) 2430

Q.56. If A = $\frac{1+2x}{1-2x}$ and B = $\frac{1-2x}{1+2x}$, then the value of $\frac{A+B}{A-B}$ is:
यदि A = $\frac{1+2x}{1-2x}$ औरB = $\frac{1-2x}{1+2x}$, $\frac{A+B}{A-B}$ का मान ज्ञात करें
CHSL 26-10-2020 (afternoon shift)
(a) $x+\frac{1}{4x}$
(b) $x-\frac{1}{4x}$
(c) $\frac{1}{4x}-x$
(d) $x^2+\frac{1}{4x^2}$

Q.57. If $x+\frac{1}{x}=5$, then the value of $x^2+\frac{1}{x^2}$ is:
यदि $x+\frac{1}{x}=5, x^2+\frac{1}{x^2}$ का मान ज्ञात करें
CHSL 26-10-2020 (afternoon shift)
(a) 23
(b) 25
(c) 29
(d) 27

Q.58.If $x=3+2\sqrt{2}$, then the value of $\sqrt{x}-\frac{1}{\sqrt{x}}$ is:
Q.1.If $x=3+2\sqrt{2}$, तब $\sqrt{x}-\frac{1}{\sqrt{x}}$ का मान:
CHSL 26-10-2020 (evening shift)
(a) 2
(b) 1
(c) 0
(d) 3

Q.59. If a = $\frac{2+\sqrt{3}}{2-\sqrt{3}}$ and b = $\frac{2-\sqrt{3}}{2+\sqrt{3}}$, then the value of a^2+b^2+ab is:
यदि a = $\frac{2+\sqrt{3}}{2-\sqrt{3}}$ और b = $\frac{2-\sqrt{3}}{2+\sqrt{3}}$, तो a^2+b^2+ab का मान:
CHSL 26-10-2020 (evening shift)
(a) 195
(b) 185
(c) 196
(d) 186

Q.60. if a+b+c = 0, then ($\frac{2a^2}{3bc}+\frac{2b^2}{3ca}+\frac{2c^2}{3ab}$) is equal to:
यदि a+ b+ c = 0 है, तो ($\frac{2a^2}{3bc}+\frac{2b^2}{3ca}+\frac{2c^2}{3ab}$)बराबर है:
CHSL 26-10-2020 (evening shift)
(a) 3
(b) 4
(c) 1
(d) 2

Q.61. The difference between two numbers is 43 and their product is 50. Find the sum of their squares?
दो संख्याओं के बीच का अंतर 43 है और उनका गुणनफल 50 है। उनके वर्गों का योग ज्ञात कीजिए?
CHSL 17-03-2020 (morning shift)
(a) 1947
(b) 1946
(c) 1948
(d) 1949

Q.62. If $a^3+b^3=20$, and a+b = 5, the find the value of a^4+b^4
यदि $a^3+b^3=20$, और a+ b = 5, a^4+b^4 का मान ज्ञात करें
CHSL 17-03-2020 (morning shift)
(a) 25
(b) 26
(c) 24
(d) 23

Q.63. If x+y = 4, xy = 2, y+z = 5, yz = 3, z+x = 6 and zx = 4, then find the value of $x^3+y^3+z^3-3xyz$
यदि x+ y = 4, xy = 2, y+ z = 5, yz = 3, z+ x = 6 और zx = 4 है, तो

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$x^3 + y^3 + z^3 - 3xyz$ का मान ज्ञात करें

CHSL 17-03-2020 (morning shift)

(a) 150.75
(b) 152.75
(c) 151.75
(d) 153.75

Q64. If x = 1 + $\sqrt{2}$, then find the value of $\sqrt{x}+(\frac{1}{\sqrt{x}})$.

यदि x =1 + $\sqrt{2}$ है, तो $\sqrt{x}+(\frac{1}{\sqrt{x}})$. का मान ज्ञात कीजिए।

CHSL 17-03-2020 (evening shift)

(a) 2.1014
(b) 2.1973
(c) 1.9876
(d) 1.9996

Q65. If the value of $\frac{3x\sqrt{y}+2y\sqrt{x}}{3x\sqrt{y}-2y\sqrt{x}} - \frac{3x\sqrt{y}-2y\sqrt{x}}{3x\sqrt{y}+2y\sqrt{x}}$ is same as that of $\sqrt{x}\sqrt{y}$, then which of the following relations between x and y is correct?

यदि $\frac{3x\sqrt{y}+2y\sqrt{x}}{3x\sqrt{y}-2y\sqrt{x}} - \frac{3x\sqrt{y}-2y\sqrt{x}}{3x\sqrt{y}+2y\sqrt{x}}$ का मान $\sqrt{x}\sqrt{y}$ के समान है, तो निम्नलिखित में से कौन सा संबंध x और y के बीच सही है?

CHSL 18-03-2020 (morning shift)

(a) 9x - 4y = 36
(b) 9x + 4y = 24
(c) 9x + 4y = 36
(d) 9x - 4y = 24

Q66. If a + b + c + d = 2, then the maximum value of (1 + a)(1 + b)(1 + c)(1 + d) is _____.

यदि a+ b+ c+ d = 2, तो (1+ a)(1+ b)(1+ c)(1+ d) का अधिकतम मान _____ है।

CHSL 18-03-2020 (afternoon shift)

(a) $\frac{91}{9}$
(b) $\frac{81}{16}$
(c) $\frac{63}{22}$
(d) $\frac{54}{13}$

Q67. If p + $(\frac{1}{p})$ = 2 find the value of $p \times p \times p$

यदि p + $(\frac{1}{p})$ = 2 $p \times p \times p$ का मान ज्ञात करें

CHSL 18-03-2020 (afternoon shift)

(a) 4
(b) 8
(c) 1
(d) 2

Q68. The value of 1 + 3 + 5 + 7 + ……. (2n - 1) is:

1 + 3 + 5 + 7 + ……. (2n - 1) का मान है:

CHSL 18-03-2020 (evening shift)

(a) (2n - 1) × (2n - 1)
(b) $\frac{n}{2}$
(c) $n \times n$
(d) $\frac{n(n+1)}{2}$

Q69. If $x^3 + y^3 = 16$ and x + y = 4, then find the value of $x^4 + y^4$.

यदि $x^3 + y^3 = 16$ और x + y = 4 है, तो $x^4 + y^4$. का मान ज्ञात करें।

CHSL 18-03-2020 (evening shift)

(a) 32
(b) 28
(c) 36
(d) 26

Q70. If $2(a^2 + b^2) = (a + b)^2$ then,

यदि $2(a^2 + b^2) = (a + b)^2$ तब,

CHSL 18-03-2020 (evening shift)

(a) b = 2a
(b) a = -b
(c) a = b
(d) a = 2b

Q71. Find the value of x, if $21^{\sqrt{x}} + 20^{\sqrt{x}} = 29^{\sqrt{x}}$.

X का मान ज्ञात करें, यदि $21^{\sqrt{x}} + 20^{\sqrt{x}} = 29^{\sqrt{x}}$.

CHSL 18-03-2020 (evening shift)

(a) 4
(b) 3
(c) 0
(d) 2

Q.72. If a = 2b, then the value of $\frac{a+b}{a-b}$ is:

यदि a = 2b , तो $\frac{a+b}{a-b}$ का मान:

CHSL 19-03-2020 (morning shift)

(a) 5
(b) 4
(c) 3
(d) 6

Q.73. The value of $[(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3] \div [(a - b)^3 + (b - c)^3 + (c - a)^3]$ is equal to:

(Given $a \neq b \neq c$)

$[(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3] \div [(a - b)^3 + (b - c)^3 + (c - a)^3]$ का मान बराबर है:

($a \neq b \neq c$ दिया)

CHSL 19-03-2020 (morning shift)

(a) (a+b)(b+c)(c+a)
(b) $(a^2 - b^2) + (b^2 - c^2) + (c^2 - a^2)$
(c) $(a^2 + b^2) + (b^2 + c^2) + (c^2 + a^2)$
(d) (a-b)(b-c)(c-a)

Q.74. If $x^4 + \frac{1}{x^4} = 14159$, then the value of $x + \frac{1}{x}$ is:

$x^4 + \frac{1}{x^4} = 14159$, फिर $x + \frac{1}{x}$ का मान है:

CHSL 19-03-2020 (afternoon shift)

(a) 9
(b) 12

(c) 10
(d) 11

Q.75. If a-b = 18 and $a^3 - b^3$ = 324, then find ab.
यदि a-b = 18 और $a^3 - b^3$ = 324 है, तो ab खोजें।
CHSL 19-03-2020 (afternoon shift)
(a) -102
(b) 103
(c) 105
(d) -104

Q.76. If $x - \frac{1}{x} = 13$, then the value of $x^2 + \frac{1}{x^2}$ is:
यदि $x - \frac{1}{x} = 13$ है, तो $x^2 + \frac{1}{x^2}$ का मान:
CHSL 19-03-2020 (evening shift)
(a) 171
(b) 169
(c) 167
(d) 165

Q.77. If A = $\frac{x-1}{x+1}$ then, the value of $A - \frac{1}{A}$ is:
यदि A = $\frac{x-1}{x+1}$ तो, $A - \frac{1}{A}$ का मान:
CHSL 19-03-2020 (evening shift)
(a) $\frac{x^2-1}{-4(2x+1)}$
(b) - $\frac{4x}{x^2-1}$
(c) $\frac{x^2-1}{-4(2x-1)}$
(d) $\frac{-4(2x-1)}{x^2-1}$

SSC CGL 2019 TIER II
Q78. If $27(x+y)^3$ - $8(x-y)^3$ = $(x+5y)(Ax^2+By^2+Cxy)$, then what is the value of $(A+B-C)$?
यदि $27(x+y)^3$ - $8(x-y)^3$ = $(x+5y)(Ax^2+By^2+Cxy)$, तो $(A+B-C)$ का मान क्या होगा ?
CGL-2019 Tier-II (15-11-2020)
(a) 13
(b) 16
(c) 18
(d) 11

Q:79. Given that $x^8 - 34x^4 + 1 = 0,\ x > 0,$ What is the value of $(x^3 + x^{-3})$?
दिया गया है $x^8 - 34x^4 + 1 = 0,\ x > 0,$ तो $(x^3 + x^{-3})$ का मान ज्ञात कीजिए ?
CGL-2019 Tier-II (15-11-2020)
(a) $5\sqrt{8}$
(b) $6\sqrt{6}$
(c) $5\sqrt{6}$
(d) $6\sqrt{8}$

Q80. If $3x^2 - 5x + 1 = 0$, then the value of $(x^2 + \frac{1}{9x^2})$ is:
यदि $3x^2 - 5x + 1 = 0$, तो $(x^2 + \frac{1}{9x^2})$ का मान ज्ञात कीजिए ?
CGL-2019 Tier-II (15-11-2020)
(a) $1\frac{2}{3}$
(b) $1\frac{1}{3}$
(c) $2\frac{1}{3}$
(d) $2\frac{1}{9}$

Q81. If $9x^2 + y^2 = 37$ and $xy = 2,\ x,\ y > 0$, then the value of $(27x^3 + y^3)$ is :
यदि $9x^2 + y^2 = 37$ और $xy = 2,\ x,\ y > 0$, तो$(27x^3 + y^3)$ का मान ज्ञात कीजिए ?
CGL-2019 Tier-II (15-11-2020)
(a) 217
(b) 207
(c) 301
(d) 259

Q82. The value of $\frac{0.0203\times2.92}{0.7\times0.0365\times2.9} \div \frac{(12.12)^2-(8.12)^2}{(0.25)^2+(0.25)(19.99)}$ is:
$\frac{0.0203\times2.92}{0.7\times0.0365\times2.9} \div \frac{(12.12)^2-(8.12)^2}{(0.25)^2+(0.25)(19.99)}$ का मान ज्ञात कीजिए
CGL-2019 Tier-II (15-11-2020)
(a) 0.05
(b) 0.5
(c) 0.1
(d) 0.01

Q83. If a + b + c = 7 and $a^3 + b^3 + c^3 - 3abc = 175$, then what is the value of (ab + bc + ca) ?
यदि a + b + c = 7 और $a^3 + b^3 + c^3 - 3abc = 175$, तो (ab + bc + ca) का मान क्या होगा ?
CGL-2019 Tier-II (16-11-2020)
(a) 7
(b) 8
(c) 6
(d) 9

Q84. If $x^2 + 4y^2 = 17$ and $xy = 2$, where x>0, y>0, then what is the value of $x^3 + 8y^3$?
यदि $x^2 + 4y^2 = 17$ और $xy = 2$, x>0, y>0, तो का मान $x^3 + 8y^3$ क्या होगा?
CGL-2019 Tier-II (16-11-2020)
(a) 85
(b) 76
(c) 65
(d) 95

Q85. If $(x+y)^3 + 8(x-y)^3 = (3x + Ay)(3x^2 + Bxy + Cy^2)$, then the value of A+B+C is:
यदि $(x+y)^3 + 8(x-y)^3 = (3x + Ay)(3x^2 + Bxy + Cy^2)$, A + B + C का मान क्या होगा
CGL-2019 Tier-II (16-11-2020)
(a) 0
(b) 4
(c) 2
(d) 3

Q86. If $2x^2 - 7x + 5 = 0$, then what is the value of $x^2 + \frac{25}{4x^2}$?
यदि $2x^2 - 7x + 5 = 0$ तो $x^2 + \frac{25}{4x^2}$ का मान क्या होगा?
CGL-2019 Tier-II (16-11-2020)
(a) $9\frac{1}{2}$
(b) $7\frac{1}{4}$
(c) $9\frac{3}{4}$

(d) $5\frac{1}{2}$

Q87. If $x-\frac{1}{x}=5,\ x\neq 0$, then what is the value of $\frac{x^6+3x^3-1}{x^6-8x^3-1}$?
यदि $x-\frac{1}{x}=5,\ x\neq 0,$ तो $\frac{x^6+3x^3-1}{x^6-8x^3-1}$ का मान क्या होगा?
CGL-2019 Tier-II (16-11-2020)
(a) $\frac{13}{12}$
(b) $\frac{11}{13}$
(c) $\frac{3}{8}$
(d) $\frac{4}{9}$

Q88. The value of $\frac{27\times(0.25)^3+125(0.05)^3}{(0.75)^2-0.25\times0.5}$ is :
$\frac{27\times(0.25)^3+125(0.05)^3}{(0.75)^2-0.25\times0.5}$ का मान क्या होगा?
CGL-2019 Tier-II (16-11-2020)
(a) 1
(b) 0.25
(c) 0.75
(d) 0.5

Q89. If $\frac{8+2\sqrt{3}}{3\sqrt{3}+5}=a\sqrt{3}-b$, then the value of a + b is equal to:
यदि $\frac{8+2\sqrt{3}}{3\sqrt{3}+5}=a\sqrt{3}-b$ तो a + b का मान क्या होगा?
CGL-2019 Tier-II (18-11-2020)
(a) 18
(b) 15
(c) 16
(d) 24

Q90. If $x+\frac{16}{x}=8,$ then the value of $x^2+\frac{32}{x^2}$ is:
यदि $x+\frac{16}{x}=8,$ तो $x^2+\frac{32}{x^2}$ का मान ज्ञात करे:
CGL-2019 Tier-II (18-11-2020)
(a) 24
(b) 18
(c) 20
(d) 16

Q91. If $x\left(3-\frac{2}{x}\right)=\frac{3}{x},$ then the value of $x^3-\frac{1}{x^3}$ is equal to:
यदि $x\left(3-\frac{2}{x}\right)=\frac{3}{x},$ तो $x^3-\frac{1}{x^3}$ का मान ज्ञात करे:
CGL-2019 Tier-II (18-11-2020)
(a) $\frac{61}{27}$
(b) $\frac{52}{27}$
(c) $\frac{8}{27}$
(d) $\frac{62}{27}$

Q92. If $2=x+\frac{1}{1+\frac{1}{5+\frac{1}{2}}}$, then the value of x is equal to:
यदि $2=x+\frac{1}{1+\frac{1}{5+\frac{1}{2}}}$, तो x का मान ज्ञात करे:
CGL-2019 Tier-II (18-11-2020)
(a) $\frac{14}{13}$
(b) 1
(c) $\frac{15}{13}$
(d) $\frac{13}{15}$

Q.93 If $x^2+\frac{1}{x^2}=7$, then the value of $x^3+\frac{1}{x^3}$ Where x>0 is equal to:
यदि $x^2+\frac{1}{x^2}=7$, तो $x^3+\frac{1}{x^3}$ का मान ज्ञात करे: जहा x>0
CGL-2019 Tier-II (18-11-2020)
(a) 15
(b) 16
(c) 12
(d) 18

Q.94 If $\sqrt{x}+\frac{1}{\sqrt{x}}=3$, then the value of $x^3+\frac{1}{x^3}$ is:
यदि $\sqrt{x}+\frac{1}{\sqrt{x}}=3$ तो $x^3+\frac{1}{x^3}$ का मान ज्ञात करे:
CGL-2019 Tier-II (18-11-2020)
(a) 324
(b) 322
(c) 326
(d) 422

Q.95 The value of $5-\frac{8+2\sqrt{15}}{4}-\frac{1}{8+2\sqrt{15}}$ is equal to:
$5-\frac{8+2\sqrt{15}}{4}-\frac{1}{8+2\sqrt{15}}$ का मान ज्ञात करे
CGL-2019 Tier-II (18-11-2020)
(a) $\frac{2}{3}$
(b) 1
(c) $\frac{1}{2}$
(d) $\frac{1}{4}$

Q.96. If $x-\frac{3}{x}=6,\ x\neq 0$, then the value of $\frac{x^4-\frac{27}{x^2}}{x^2-3x-3}$ is:
यदि $x-\frac{3}{x}=6,\ x\neq 0,$ तो $\frac{x^4-\frac{27}{x^2}}{x^2-3x-3}$ का मान ज्ञात करे:
CGL-2019 Tier-II (18-11-2020)
(a) 90
(b) 270
(c) 80
(d) 54

SSC CPO 2019
Q97. If $a^2+b^2+c^2+216=12(a+b-2c),$ is:
यदि $a^2+b^2+c^2+216=12(a+b-2c),$ तो $\sqrt{ab-bc-ca}$ का मान ज्ञात करे
CPO-2019
23/11/2020(Morning)
(a) 6
(b) 4
(c) 3
(d) 8

Q98.If $(5\sqrt{5}x^3-3\sqrt{3}y^3)\div(\sqrt{5}x-\sqrt{3}y)=(Ax^2+By^2+Cxy),$ then the value of $(3A+B-\sqrt{15}C)$ is:
यदि $(5\sqrt{5}x^3-3\sqrt{3}y^3)\div(\sqrt{5}x-\sqrt{3}y)=(Ax^2+By^2+Cxy),$ तो $(3A+B-\sqrt{15}C)$ का मान ज्ञात करे
CPO-2019
23/11/2020(Morning)
(a) 3
(b) 12
(c) 8
(d) 5

Q99. The value of $\frac{6.35\times6.35\times6.35+3.65\times3.65\times3.65}{63.5\times63.5+36.5\times36.5-63.5\times36.5}$ is equal to:
$\frac{6.35\times6.35\times6.35+3.65\times3.65\times3.65}{63.5\times63.5+36.5\times36.5-63.5\times36.5}$ का मान ज्ञात करे
CPO-2019
23/11/2020(Morning)
(a) 0.01
(b) 10
(c) 1
(d) 0.1

Q100. If $x^4+x^{-4}=194$, $x>0$, then the value of $x+\frac{1}{x}$ is :
यदि $x^4+x^{-4}=194$, $x>0$ तो $x+\frac{1}{x}$ का मान ज्ञात करे
CPO-2019
23/11/2020(Morning)
(a) 4
(b) 14
(c) 6
(d) 8

Q101. The value of $\frac{0.325\times0.325+0.175\times0.175+25\times0.00455}{5\times0.0065\times3.25-7\times0.175\times0.025}-\frac{0.5}{1.5}$ is:
$\frac{0.325\times0.325+0.175\times0.175+25\times0.00455}{5\times0.0065\times3.25-7\times0.175\times0.025}-\frac{0.5}{1.5}$ का मान ज्ञात करे
CPO-2019
23/11/2020(Evening)
(a) -3
(b) 3
(c) 0
(d) -1

Q102. If $x^2-5x+1=0$, then the value of $(x^4+\frac{1}{x^2})\div(x^2+1)$ is:
यदि $x^2-5x+1=0$, तो $(x^4+\frac{1}{x^2})\div(x^2+1)$ का मान ज्ञात करे
CPO-2019
23/11/2020(Evening)
(a) 25
(b) 24
(c) 22
(d) 21

Q103. If x + y + z = 19, xyz= 216 and xy + zx + yx = 114, then the value of $x^3+y^3+z^3+xyz$ is:
यदि x + y + z = 19, xyz= 216 और xy + zx + yx = 114, तो $x^3+y^3+z^3+xyz$ का मान क्या होगा
CPO-2019
23/11/2020(Evening)
(a) 1225
(b) 1441
(d) 577
(d) 361

Q104. If $x^2+8y^2-12y-4xy+9=0$, then the value of (7x - 8y) is:
यदि $x^2+8y^2-12y-4xy+9=0$, तो (7x - 8y) का मान क्या होगा
CPO-2019
23/11/2020(Evening)
(a) 12
(b) 5
(c) 9
(d) 21

Q105. If $x^2+8y^2+12y-4xy+9=0$, then the value of (7x + 8y) is :
यदि $x^2+8y^2-12y-4xy+9=0$, तो (7x + 8y) का मान क्या होगा
CPO-2019
24/11/2020(Morning)
(a) -33
(b) 9
(c) -9
(d) 33

Q106. If $x^2-3x+1=0$, then the value of $(x^4+\frac{1}{x^2})\div(x^2+1)$ is:
यदि $x^2-3x+1=0$, तो $(x^4+\frac{1}{x^2})\div(x^2+1)$ का मान ज्ञात करे
CPO-2019
24/11/2020(Morning)
(a) 9
(b) 6
(c) 7
(d) 5

Q107.. The value of $\frac{0.325\times0.325+0.175\times0.175+25\times0.00455}{5\times0.0065\times3.25-7\times0.175\times0.025}+\frac{0.5}{1.5}$ is:
$\frac{0.325\times0.325+0.175\times0.175+25\times0.00455}{5\times0.0065\times3.25-7\times0.175\times0.025}+\frac{0.5}{1.5}$ का मान ज्ञात करे
CPO-2019
24/11/2020(Morning)
(a) 0
(b) $\frac{7}{3}$
(c) 3
(d) $\frac{11}{3}$

Q108. If x + y + z = 17, xyz= 171 and xy + zx + yx = 111, then the value of $\sqrt[3]{x^3+y^3+z^3+xyz}$ is:
यदि x + y + z = 17, xyz= 171 और xy + zx + yx = 111 तो $\sqrt[3]{x^3+y^3+z^3+xyz}$ का मान ज्ञात करे |
CPO-2019
24/11/2020(Morning)
(a) 4
(b) 0
(d) -4
(d) -64

Q109. The value of $\frac{4.35\times4.35\times4.35+3.25\times3.25\times3.25}{43.5\times43.5+32.5\times32.5-43.5\times32.5}$ is:
$\frac{4.35\times4.35\times4.35+3.25\times3.25\times3.25}{43.5\times43.5+32.5\times32.5-43.5\times32.5}$ का मान ज्ञात करे |
CPO-2019
24/11/2020(Evening)
(a) 7.6
(b) 0.076
(c) 0.76
(d) 0.0076

Q110. If $a^2+b^2+c^2+84=4(a-2b+4c)$, then $\sqrt{ab-bc+ca}$ is equal to:
यदि $a^2+b^2+c^2+84=4(a-2b+4c)$,

तो $\sqrt{ab-bc+ca}$ का मान क्या होगा ?
CPO-2019
24/11/2020(Evening)
(a) $5\sqrt{10}$
(b) $4\sqrt{10}$
(c) $2\sqrt{10}$
(d) $\sqrt{10}$

Q111. If $a^3+b^3=217$ and a + b = 7, then the value of ab is:
यदि $a^3+b^3=217$ और a + b = 7 तो ab का मान ज्ञात करे
CPO-2019
24/11/2020(Evening)
(a) 6
(b) -1
(c) -6
(d) 7

Q112. If x + y + z = 13, $x^2+y^2+z^2=133$ and $x^3+y^3+z^3=847$, then the value of $\sqrt[3]{xyz}$ is:
यदि x + y + z = 13, $x^2+y^2+z^2=133$ और $x^3+y^3+z^3=847$ है तो $\sqrt[3]{xyz}$ का मान ज्ञात करे |
CPO-2019
24/11/2020(Evening)
(a) 8
(b) -9
(c) -6
(d) 7

Q113. If $x+y+z=19$, $x^2+y^2+z^2=133$ and $xz=y^2$, $x>z>0$, what is the value of(x - z)?
यदि $x+y+z=19$, $x^2+y^2+z^2=133$ और $xz=y^2$, $x>z>0$ तो (x-z) का मान ज्ञात करे |
CPO-2019
25/11/2020(Morning)
(a) -2
(b) 0
(c) -5
(d) 5

Q114. If $x^4+x^{-4}=194$, $x>0$, then what is the value of $x+\frac{1}{x}+2$?
यदि $x^4+x^{-4}=194$, $x>0$, तो $x+\frac{1}{x}+2$ का मान क्या होगा ?
CPO-2019
25/11/2020(Morning)
(a) 14
(b) 8
(c) 4
(d) 6

Q115. The value of $\frac{5.35\times5.35\times5.35+3.65\times3.65\times3.65}{53.5\times53.5+36.5\times36.5-53.5\times36.5}$ is:
$\frac{5.35\times5.35\times5.35+3.65\times3.65\times3.65}{53.5\times53.5+36.5\times36.5-53.5\times36.5}$ का मान ज्ञात करे |
CPO-2019
25/11/2020(Morning)
(a) 90
(b) 9
(c) 0.9
(d) 0.09

Q116. If $(5\sqrt{5}x^3-3\sqrt{3}y^3)\div(\sqrt{5}x-\sqrt{3}y)=(Ax^2+By^2+Cxy)$, then the value of (3A- B- $\sqrt{15}$ C) ?
यदि $(5\sqrt{5}x^3-3\sqrt{3}y^3)\div(\sqrt{5}x-\sqrt{3}y)=(Ax^2+By^2+Cxy)$, तो (3A- B- $\sqrt{15}$ C) का मान ज्ञात करे |
CPO-2019
25/11/2020(Morning)
(a) -5
(b) 8
(c) 12
(d) -3

Q117. The value of $\frac{427\times427\times427+325\times325\times325}{42.7\times42.7+32.5\times32.5-42.7\times32.5}$ is:
$\frac{427\times427\times427+325\times325\times325}{42.7\times42.7+32.5\times32.5-42.7\times32.5}$ का मान ज्ञात करे
CPO-2019
24/11/2020(Evening)
(a) 75200
(b) 7520
(c) 75.2
(d) 752

Q118. If a + b + c = 0, then the value of $\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}$ is:
यदि a + b + c = 0 तो $\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}$ का मान ज्ञात करे
CPO-2019
24/11/2020(Evening)
(a) 1
(b) 0
(c) -1
(d) 3

Q119. If x + y + z = 19, xyz = 216, and $xy+yz+zx=114$, then the value of $\sqrt{x^3+y^3+z^3+xyz}$ is:
यदि x + y + z = 19, $xyz=216$, $xy+yz+zx=114$ और तो $\sqrt{x^3+y^3+z^3+xyz}$ का मान ज्ञात करे ?
CPO-2019
24/11/2020(Evening)
(a) 32
(b) 28
(c) 30
(d) 35

Q120. If $a^2+b^2=82$ and ab = 9, then a possible value of a^3+b^3 is:
यदि $a^2+b^2=82$ और ab = 9 तो a^3+b^3 के संभवत मान ज्ञात करे
CPO-2019
24/11/2020(Evening)
(a) 830
(b) 720
(c) 750
(d) 730

Pinnacle

SOLUTION

Variety Questions

Sol 1. (d)
We know that,
$(a^3 - b^3) = (a-b)(a^2 + b^2 + ab)$
So,
$5\sqrt{5}x^3 - 81\sqrt{3}y^3 \Rightarrow (\sqrt{5}x - 3\sqrt{3}y)[(\sqrt{5}x)^2 + (3\sqrt{3}y)^2 + \sqrt{5}x \times 3\sqrt{3}y$
$= (\sqrt{5}x - 3\sqrt{3}y)(5x^2 + 27y^2 + 3\sqrt{15}xy)$
Put this value in question term
$\frac{5\sqrt{5}x^3 - 81\sqrt{3}y^3}{(\sqrt{5}x - 3\sqrt{3}y)} = Ax^2 + By^2 + Cxy$
$\Rightarrow \frac{(\sqrt{5}x - 3\sqrt{3}y)(5x^2+27y^2+3\sqrt{15}xy)}{(\sqrt{5}x - 3\sqrt{3}y)} = Ax^2 + By^2 + Cxy$
$= (5x^2 + 27y^2 + 3\sqrt{15}xy) = Ax^2 + By^2 + Cxy$
Comparing the coefficients of x^2, y^2 and xy
A = 5, B = 27 and C = $3\sqrt{15}$
$(6A+B-\sqrt{15}C) = 6(5) + 27 - (\sqrt{15} \times 3\sqrt{15}) = 12$

Sol 2. (a)
We know that
$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy+yz+zx)$
Put the given values
$19^2 = 133 + 2(xy + yz + y^2)$
$114 = y(x+y+z)$
y = 6
x+z = 19-6 = 13
$xz = 6^2 = 36$
Only 9 and 4 are such pairs whose sum is 13 and multiplication is 36
Required difference = 9-4 = 5

Sol 3. (d)
$x^4 + \frac{1}{x^4} = 194$
$\Rightarrow x^2 + \frac{1}{x^2} = \sqrt{194 + 2} = 14$
$\Rightarrow x + \frac{1}{x} = \sqrt{14 + 2} = 4$
$= x^2 + 1 = 4x$
$= x^2 - 4x = -1$
$(x - 2)^2 = 4 - 1 = 3$

Sol 4. (d)
$16x^2 + 9y^2 + 4z^2 = 24(x - y + z) - 61$
$\Rightarrow (16x^2 - 24x + 9) + (9y^2 + 24y + 16) + (4z^2 - 24z + 36) = 0$
$\Rightarrow (4x - 3)^2 + (3y + 4)^2 + (2z - 6)^2 = 0$
$\Rightarrow x = \frac{3}{4}, y = -\frac{4}{3}, z = 3$
Therefore,
$xy + 2z = \frac{3}{4} \times -\frac{4}{3} + 2 \times 3 = -1 + 6 = 5$

Sol 5. (c)
$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$
$\Rightarrow x^2 + y^2 + z^2 = 361 - 228 = 133$
$\therefore \sqrt{x^3 + y^3 + z^3 - 3xyz} = \sqrt{(x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)}$
$= \sqrt{19(133 - 114)} = \sqrt{19 \times 19} = 19$

Sol6. (c)
$[8(x + y)^3 - 27(x - y)^3] \div (5y - x) = Ax^2 + Bxy + Cy^2 \Rightarrow \frac{(2x+2y-3x+3y)(4x^2+4y^2+8xy+9x^2+9y^2-18xy+6x^2-6y^2)}{(5y-x)}$
$= Ax^2 + Bxy + Cy^2$
$\Rightarrow 19x^2 + 7y^2 - 10xy = Ax^2 + Bxy + Cy^2$
A = 19
B = -10
C = 7
Therefore, A+B+C = 19-10+7 = 16
Alternate :
Put x=y=1
$[8(x + y)^3 - 27(x - y)^3] \div (5y - x) = Ax^2 + Bxy + Cy^2$
$\Rightarrow$
$[8(1 + 1)^3 - 27(1 - 1)^3] \div [5(1) - 1] = A(1)^2 + B(1.1) + C(1)^2$
$\Rightarrow$
$[8(2)^3 - 27(0)] \div (4) = A + B + C$
$\Rightarrow [64] \div 4 = A + B + C$
$\Rightarrow 16 = A + B + C$

Sol 7. (d)
$a^2 + b^2 + 64c^2 + 16c + 3 = 2(a + b)$
$\Rightarrow$
$a^2 + b^2 + 64c^2 + 16c + 1 + 1 + 1 - 2a - 2b) = 0$
$\Rightarrow (a - 1)^2 + (b - 1)^2 + (8c + 1)^2 = 0$
$\Rightarrow$ a=1, b=1 and c = $-\frac{1}{8}$
$4a^7 + b^7 + 8c^2 \Rightarrow 4(1^7) + (1^7) + 8(-\frac{1}{8})^2 = 5\frac{1}{8}$

Sol 8. (b)
x+y = 1
Squaring both sides
$x^2 + y^2 + 2xy = 1$
$x^2 + y^2 = 1 - 2xy$
Again squaring both sides
$x^4 + y^4 + 2x^2y^2 = 1 + 4x^2y^2 - 4xy$
$x^4 + y^4 = 1 + 2x^2y^2 - 4xy$
$x^4 + y^4 = 1 + 2(x^2y^2 - 2xy)$
$\ldots\ldots(x^2y^2 - 2xy = 12)$
$= 1 + 2(12)$
$= 25$

Sol 9. (a)
Given, ab + bc + ca = 8 and $a^2 + b^2 + c^2 = 20$
We know that,
$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$
$\Rightarrow (a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca) = 20 + 2(8) = 36$
$\Rightarrow (a+b+c) = 6$
Also,
$\frac{1}{2}[(x - y)^2 + (y - z)^2 + (z - x)^2] = x^2 + y^2 + z^2 - xy - yz - zx$
$\Rightarrow \frac{1}{2}(a + b + c)[(a - b)^2 + (b - c)^2 + (c - a)^2] = (a+b+c)(a^2 + b^2 + c^2 - ab - bc - ca)$
$\Rightarrow (6)(20-8) = 72$

Sol 10. (d)
Put a=1
then , x=2 and y = 0
$\sqrt{x^4 + y^4 - 2x^2y^2} = \sqrt{2^4} = 4$

Sol 11. (a)

Pinnacle

$2x^2 + y^2 + 6x - 2xy + 9 = 0$

$\Rightarrow x^2 + 6x + 9 + x^2 + y^2 - 2xy = 0$

$\Rightarrow (x+3)^2 + (x-y)^2 = 0$

Sum of the squares of two numbers is equal to zero only if the numbers themselves are zero.

$\Rightarrow$ (x+3) = 0 and (x-y) = 0

$\Rightarrow$ x = y = -3

Now,

$4x^3 - y^3 + x^2y^2 \Rightarrow 3x^3 + x^4$ .....(x=y)

$\Rightarrow x^3(3+x)$

$\Rightarrow x^3(3-3) = 0$

Sol 12. (b)

Given, x + y = 12 and xy = 27

We know that,

$(a^3 - b^3) =$ (a+b)$(a^2 + b^2 + ab)$ and

$(a+b)^2 = a^2 + b^2 + 2ab$

Now,

$(x+y)^2 = x^2 + y^2 + 2xy \Rightarrow (12)^2 = x^2 + y^2 + 2(27)$

$\Rightarrow x^2 + y^2 = 144\text{-}54 = 90$

Also, $(x-y)^2 = x^2 + y^2 - 2xy$

= 90-2(27)

= 36

(x-y) = $\sqrt{36} = 6$

$(x^3 - y^3) \Rightarrow$ (x-y)$(x^2 + y^2 + xy)$

= (6)(90+27)

= 702

Alternate :

Using Hit and trial put x = 9 and y = 3]

x + y = 12 $\Rightarrow$ 9+3 = 12

$\Rightarrow$ 12 = 12

xy = 27 $\Rightarrow 9 \times 3 = 27$

$\Rightarrow$ 27 = 27

Condition satisfied

$(x^3 - y^3) = (9^3 - 3^3) = 702$

Sol 13. (d)

We know that,

$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca)

And

$a^3 + b^3 + c^3 - 3abc =$ [a+b+c][$a^2 + b^2 + c^2$ - ab - bc - ca)]

Here,

$\Rightarrow (x+y+z)^2 = x^2 + y^2 + z^2 +$ 2 (xy + yz + zx)

= 133 + 2(114)

= 361

$\Rightarrow (x+y+z) = \sqrt{361} = 19$

Now,

$x^3 + y^3 + z^3 - 3xyz =$ [x+y+z][$x^2 + y^2 + z^2$ - xy - yz - zx)]

$\Rightarrow x^3 + y^3 + z^3 =$ [x+y+z][$x^2 + y^2 + z^2$ - xy - yz - zx)] + 3xyz

= (19)[133-114]+3(216)

= 361 + 648 = 1009

Sol 14. (b)

We know that

If x+ $\frac{1}{x}$ = k, then $x^2 + \frac{1}{x^2} = k^2 - 2$

Here,

a + $\frac{1}{a}$ = 3

$\Rightarrow a^2 + \frac{1}{a^2} = 3^2 - 2 = 7$

$\Rightarrow a^4 + \frac{1}{a^4} = 7^2 - 2 = 47$

Sol 15. (b)

Given, $x^2 - 6x^2 - 1 = 0$

$x^2 - \frac{1}{x^2} = 6$

Cubing both sides

$(x^2 - \frac{1}{x^2})^3 = 6^3$

$\Rightarrow x^6 - \frac{1}{x^6} - 3 \times x^2 \times \frac{1}{x^2}(x^2 - \frac{1}{x^2}) =$ 216

.....[$(a-b)^3 = a^3 - b^3 - 3ab(a-b)$]

$\Rightarrow x^6 - \frac{1}{x^6} = 216+18$

= 234

$x^6 - 5x^2 + \frac{5}{x^2} - \frac{1}{x^6} + 5 \Rightarrow x^6 - \frac{1}{x^6} - 5(x^2 - \frac{1}{x^2}) + 5$

$\Rightarrow$ 234-5(6)+5 = 209

Sol 16. (c)

x =2- p $\Rightarrow$ x+p = 2

Cubing both sides

$(x+p)^3 = 2^3$

$\Rightarrow x^3 + p^3 + 3xp(x+p) = 8$

...[$(a+b)^3 = a^3 + b^3 + 3ab(a+b)$]

$\Rightarrow x^3 + p^3 + 3xp(2) = 8$

$\Rightarrow x^3 + 6xp + p^3 = 8$

Sol 17. (d)

$9a^2 + 4b^2 + c^2 + 21 = 4(3a + b - 2c)$

$\Rightarrow 9a^2 + 4b^2 + c^2 + 21 - 12a - 4b + 8c = 0$

$\Rightarrow (9a^2 - 12a + 4) + (4b^2 - 4b + 1) + (c^2 + 8c + 16) = 0$

$\Rightarrow$

$(3a-2)^2 + (2b-1)^2 + (c+4)^2 = 0$

Sum of the squares of the terms is equal to zero only if the terms themselves are zero.

$\Rightarrow$ 3a-2 =0 , 2b-1 = 0 and c+4 = 0

$\Rightarrow$ a = $\frac{2}{3}$, b = $\frac{1}{2}$ and c = -4

(9a + 4b - c) $\Rightarrow 9(\frac{2}{3}) + 4(\frac{1}{2}) - (-4)$

= 6+2+4

= 12

Sol 18. (c)

Given, $x^2 - 3x - 1 = 0$

$\Rightarrow x^2 - 1 = 3x$

$\Rightarrow x - \frac{1}{x} = 3$

Now,

$(x^2 + 8x - 1)(x^3 + x^{-1})^{-1}$

$\Rightarrow \frac{(x^2 + 8x - 1)}{(x^3 + \frac{1}{x})}$

$\Rightarrow \frac{(x^3 + 8x^2 - x)}{(x^4 + 1)}$

Divide and multiply by x^2

$\Rightarrow \frac{(x^3 + 8x^2 - x)}{(x^4 + 1)} \times \frac{x^2}{x^2}$

$\Rightarrow \frac{x - \frac{1}{x} + 8}{x^2 + \frac{1}{x^2}}$

$\Rightarrow \frac{3+8}{3^2+2} = 1$

...(If x- $\frac{1}{x}$ = k, then $x^2 + \frac{1}{x^2} = k^2 + 2$)

Sol 19. (b)

$\frac{6x}{2x^2 + 5x - 2} = 1$

$\Rightarrow \frac{6}{2x + 5 - \frac{2}{x}} = 1$

$\Rightarrow 6 = 2(x-\frac{1}{x})+5$

$\Rightarrow (x-\frac{1}{x})=\frac{1}{2}$

$\Rightarrow x+\frac{1}{x} = \sqrt{(\frac{1}{2})^2+4} = \frac{\sqrt{17}}{2}$

...(If $x-\frac{1}{x} = k$, then $x+\frac{1}{x} = \sqrt{k^2+4}$)

$\Rightarrow x^3+\frac{1}{x^3} = (\frac{\sqrt{17}}{2})^3 - 3(\frac{\sqrt{17}}{2})$

.....(If $x+\frac{1}{x} = k$, then $x^3+\frac{1}{x^3} = k^3-3k$)

$= \frac{17\sqrt{17}}{8} - \frac{3\sqrt{17}}{2}$

$= \frac{5\sqrt{17}}{8}$

Sol 20. (c)

$4x^2 - 6x + 1 = 0$

$4x^2 + 1 = 6x$

$2x + \frac{1}{2x} = 3$

Cubing both sides

$8x^3 + \frac{1}{8x^3} + 3 \times 2x \times \frac{1}{2x}(2x+\frac{1}{2x}) = 3^3$

$8x^3 + \frac{1}{8x^3} = 27-9$

$= 18$

Sol 21. (b)

Put x=1, y=1 and z=-2

$x+y+z=0 \Rightarrow 1+1+(-2) = 0$

0=0 .....(condition satisfied)

$(x^2+y^2+z^2) \div (z^2-xy) \Rightarrow [(1)^2+(1)^2+(-2)^2] \div [(-2)^2 - 1.1]$

$\Rightarrow 6 \div 3 = 2$

Sol 22. (c)

$\sqrt{x} - \frac{1}{\sqrt{x}} = 4$

$\Rightarrow x+\frac{1}{x} = 4^2+2 = 18$

....(If $a-\frac{1}{a} = k$, then $a^2+\frac{1}{a^2} = k^2+2$)

$\Rightarrow x^2+\frac{1}{x^2} = 18^2-2 = 322$

...(If $a+\frac{1}{a} = k$, then $a^2+\frac{1}{a^2} = k^2-2$)

Sol 23. (b)

Given,

$(3x-1)^3 + (4x-3)^3 + (2x+1)^3 = 3(3x-1)(4x-3)(2x+1)$

$\Rightarrow$

$(3x-1)^3 + (4x-3)^3 + (2x+1)^3 - 3(3x-1)(4x-3)(2x+1) = 0$

We know that

$a^3+b^3+c^3-3abc = 0$, Only if either a+b+c=0 or a=b=c

Case 1:

(3x - 1)+(4x - 3)+(2x + 1) = 0

3x+4x+2x-1-3+1 = 0

9x-3 = 0

$\Rightarrow x = \frac{1}{3}$ (But $x \neq \frac{1}{3}$)

Case 2 :

(3x - 1)=(4x - 3)=(2x + 1)

(3x - 1)=(4x - 3) or (4x - 3)=(2x + 1) or (3x - 1)=(2x + 1)

4x-3x = 3-1 or 4x-2x = 1+3 or 3x-2x = 1+1

$\Rightarrow$ x=2 or $x=\frac{4}{2}=2$ or x=2

Sol 24. (d)

Given, $x - 5\sqrt{x} - 1 = 0$

$x-1 = 5\sqrt{x}$

$\Rightarrow \sqrt{x} - \frac{1}{\sqrt{x}} = 5$

$\Rightarrow x+\frac{1}{x} = 5^2+2 = 27$

....(If $a-\frac{1}{a} = k$, then $a^2+\frac{1}{a^2} = k^2+2$)

$\Rightarrow x^2+\frac{1}{x^2} = 27^2-2 = 727$

....(If $a+\frac{1}{a} = k$, then $a^2+\frac{1}{a^2} = k^2-2$)

Sol 25. (c)

Given, x + y = 7 and xy = 10

$(x+y)^2 = x^2+y^2+2xy$

$\Rightarrow (7)^2 = x^2+y^2+2(10)$

$\Rightarrow x^2+y^2 = 49-20 = 29$

Also,

$x^3+y^3 = (x+y)(x^2+y^2-xy)$

Put the values of (x+y), (x^2+y^2) *and* (xy)

$x^3+y^3 = (7)(29-10) = 133$

Now,

$\frac{1}{x^3}+\frac{1}{y^3} \Rightarrow \frac{x^3+y^3}{(xy)^3} = \frac{133}{10^3} = 0.133$

Alternate :

Using hit and trial put x=5 and y = 2

x+y = 7 $\Rightarrow$ 5+2 = 7

xy =10 $\Rightarrow 5 \times 2 = 10$

Both conditions satisfied clearly 5 and 2 are the values of x and y respectively.

$\frac{1}{x^3}+\frac{1}{y^3} \Rightarrow \frac{1}{5^3}+\frac{1}{2^3}$

$\Rightarrow \frac{1}{125}+\frac{1}{8} = \frac{8+125}{125\times 8} = 0.133$

Sol 26. (a)

We know that,

$(a+b+c)^2 = a^2+b^2+c^2+2(ab+bc+ca)$ .....(1)

And

$a^3+b^3+c^3-3abc = [a+b+c][a^2+b^2+c^2-ab-bc-ca)]$ ....(2)

Put the given values in eq (1)

$(a+b+c)^2 = a^2+b^2+c^2+2(ab+bc+ca) \Rightarrow 5^2 = 27+2(ab+bc+ca)$

$(ab+bc+ca) = -1$

Now put the given values in eq (2)

$a^3+b^3+c^3-3abc = [a+b+c][a^2+b^2+c^2-ab-bc-ca)] \Rightarrow$

125-3abc = (5)(27-(-1))

$\Rightarrow$ 125-3abc = (5)(28)

$\Rightarrow$ 3abc = -15

$\Rightarrow$ abc = -5

$\Rightarrow$ 4abc = $-5 \times 4 = -20$

Sol 27. (b)

Put x=0

$\{\frac{2(x^3-8)}{x^2-x-2} \times \frac{x^2+2x+1}{x^2-4x-5}\} \div \frac{x^2+2x+4}{3x-15} \Rightarrow \{\frac{2(0-8)}{0-2} \times \frac{0+1}{0-5} \div \frac{0+4}{0-15}$

$\Rightarrow (8 \times \frac{1}{-5}) \div (\frac{4}{-15}) = 6$

Sol 28. (b)

We know that 5,12 and 13 are triplet pairs

$\Rightarrow 5^2+12^2 = 13^2$

Comparing it with the question term

$\sqrt[3]{x} = 2$

Cubing both sides

$(\sqrt[3]{x})^3 = 2^3$

$\Rightarrow x=8$

Sol 29. (a)

Given,

$x = 2-\sqrt{3}$

$\Rightarrow \frac{1}{x} = \frac{1}{2-\sqrt{3}}$

Applying rationalization

$\Rightarrow \frac{1}{2-\sqrt{3}} \times \frac{2+\sqrt{3}}{2+\sqrt{3}} = 2+\sqrt{3}$

$\Rightarrow x-\frac{1}{x} = (2-\sqrt{3})-(2+\sqrt{3}) = -2\sqrt{3}$

$\Rightarrow x^3 - \frac{1}{x^3} =$

$(-2\sqrt{3})^3 + 3(-2\sqrt{3})$

...(If $x+\frac{1}{x} = k$, then $x^3 - \frac{1}{x^3} = k^3 + 3k$)

$= -24\sqrt{3} - 6\sqrt{3} = -30\sqrt{3}$

Sol 30. (c)

$\frac{1}{4}\{(a+\frac{1}{a})^2 - (a-\frac{1}{a})^2\} \Rightarrow \frac{1}{4}[\{(a)^2 + (\frac{1}{a})^2 + 2a \times \frac{1}{a}\} - \{(a)^2 + (\frac{1}{a})^2 - 2a \times \frac{1}{a}\}]$

$\Rightarrow \frac{1}{4}(a^2 + \frac{1}{a^2} + 2 - a^2 - \frac{1}{a^2} + 2)$

$\Rightarrow \frac{1}{4} \times 4 = 1$

Alternate :

Put a=1

$\frac{1}{4}\{(a+\frac{1}{a})^2 - (a-\frac{1}{a})^2\} \Rightarrow \frac{1}{4}\{(1+\frac{1}{1})^2 - (1-\frac{1}{1})^2\}$

$\Rightarrow \frac{1}{4}(4-0) = 1$

Sol 31. (c)

$(x+y)^{\frac{1}{3}} + (z+y)^{\frac{1}{3}} = -(x+z)^{\frac{1}{3}}$

$\Rightarrow (x+y)^{\frac{1}{3}} + (z+y)^{\frac{1}{3}} + (x+z)^{\frac{1}{3}} = 0$

$\Rightarrow$

$[(x+y)^{\frac{1}{3}}]^3 + [(z+y)^{\frac{1}{3}}]^3 + [(x+z)^{\frac{1}{3}}]^3 = 3(x+y)^{\frac{1}{3}}(z+y)^{\frac{1}{3}}(x+z)^{\frac{1}{3}}$

$\Rightarrow 2(x+y+z) = 3[(x+y)(x+y)(x+z)]^{\frac{1}{3}}$

Put x=y=z=1

$2(1+1+1) = 3[(1+1)(1+1)(1+1)]^{\frac{1}{3}}$

$\Rightarrow 6 = 3(8)^{\frac{1}{3}}$

$\Rightarrow 6 = 6$ condition satisfied

Now, $(x^3 + y^3 + z^3) \Rightarrow (1^3 + 1^3 + 1^3) = 3$

Now, Going through options

Check option c

$\frac{3}{8}(x+y)(y+z)(z+x) \Rightarrow$

$\frac{3}{8}(1+1)(1+1)(1+1) = 3$

Clearly option c is the right answer.

Sol 32. (d)

Put a = 1, b=-1

$(a+b+4)\{ab+4(a+b)\}-4ab = 0$

$\Rightarrow (1-1+4)\{1(-1)+4(1-1)\}-4 \times 1 \times -1 = 0$

$\Rightarrow (4)(-1)+4 = 0$

$\Rightarrow -4+4 = 0$

Condition satisfied.

$\{\frac{1}{(a+b+4)^{117}} - 2^{-234}\} \Rightarrow \{\frac{1}{(1-1+4)^{117}} - 2^{-234}\}$

$\Rightarrow \frac{1}{(2^2)^{117}} - 2^{-234}$

$\Rightarrow \frac{1}{(2)^{234}} - 2^{-234}$

$\Rightarrow 2^{-234} - 2^{-234} = 0$

Sol 33. (a)

Given,

$(x+y)^2 - z^2 = 8$

$(z+y)^2 - x^2 = 10$

and $(x+z)^2 - y^2 = 7$

Add all the three equations

$(x+y)^2 - z^2 + (z+y)^2 - x^2 + (x+z)^2 - y^2 = 8 + 10 + 7$

$x^2 + y^2 + 2xy - z^2 + z^2 + y^2 + 2zy - x^2 + x^2 + z^2 + 2xz - y^2 = 25$

$x^2 + y^2 + z^2 + 2xy + 2yz + 2xz = 25$

$(x+y+z)^2 = 25$

x+y+z = 5

Sol 34.(a)

Given, $a = \sqrt{8} - \sqrt{7}$ and $a = \frac{1}{b}$

$\Rightarrow b = \frac{1}{\sqrt{8}-\sqrt{7}}$

Apply rationalization

$\Rightarrow b = \frac{1}{\sqrt{8}-\sqrt{7}} \times \frac{\sqrt{8}+\sqrt{7}}{\sqrt{8}+\sqrt{7}} = \sqrt{8} + \sqrt{7}$

$\Rightarrow a+b = a+\frac{1}{a}$ ...$(a = \frac{1}{b})$

$= \sqrt{8} - \sqrt{7} + \sqrt{8} + \sqrt{7} = 2\sqrt{8}$

$\Rightarrow a^2 + \frac{1}{a^2} = a^2 + b^2 = (2\sqrt{8})^2 - 2 = 30$

Now, $ab = (\sqrt{8} - \sqrt{7})(\sqrt{8} + \sqrt{7}) = 1$

$\Rightarrow \frac{a^2+b^2-3ab}{a^2+ab+b^2} = \frac{30-3(1)}{30+1} = \frac{27}{31}$

Sol 35. (b)

Given, $a^{\frac{1}{3}} + b^{\frac{1}{3}} + c^{\frac{1}{3}} = 0$

$\Rightarrow (a^{\frac{1}{3}})^3 + (b^{\frac{1}{3}})^3 + (c^{\frac{1}{3}})^3 = 3a^{\frac{1}{3}}.b^{\frac{1}{3}}.c^{\frac{1}{3}}$

$\Rightarrow a+b+c = 3(abc)^{\frac{1}{3}}$

$\Rightarrow (a+b+c)^6 = [3(abc)^{\frac{1}{3}}]^6 = 729\,a^2b^2c^2$

Sol 36. (d)

Given, a+b-c = 12 and $a^2 + b^2 + c^2 = 110$

$(a+b-c)^2 = a^2 + b^2 + c^2 + 2ab - 2bc - 2ca$

$\Rightarrow (12)^2 = 110 + 2(ab-bc-ca)$

$\Rightarrow 144 - 110 = 2(ab-bc-ca)$

$\Rightarrow ab-bc-ca = 17$

Sol 37. (b)

We know the roots of an equation = $\frac{-b \pm \sqrt{b^2-4ac}}{2a}$ here ,

a=1, b=-4 and c = a

According to question

$\frac{-(-4)+\sqrt{(-4)^2-4a(1)}}{2(1)} = \frac{-(-4)-\sqrt{(-4)^2-4a(1)}}{2(1)}$

$2\sqrt{16-4a} = 0$

16 = 4a

a= 4 ans.

Alternate :

Pinnacle

Let p *and* q be the roots of the equation

We know that,

$p + q = -\frac{\beta}{\alpha}$ and $p.q = \frac{c}{a}$ { Here α = coefficient of x^2, β = coefficient of x and c is the added numerical value(here c=a)}

$\Rightarrow p + q = -\frac{(-4)}{1} = 4$

$\Rightarrow 2p = 2q = 4$

...(given that roots are equal)

$\Rightarrow p = q = 2$

Now,

$p.q = \frac{c}{\alpha} \Rightarrow 2 \times 2 = \frac{c}{1}$

$\Rightarrow$ c =a= 4

Sol 38. (d) $(a+b)^2$ - ab = $\frac{a^3-b^3}{a-b}$

$= \frac{216}{6} = 36$

Sol 39. (c)

$(a + b)^2 - 3ab = a^2 + b^2 + 2ab - 3ab$

We know that

$a^3 + b^3 = (a+b)(a^2 + b^2 - ab)$

$432 = 12(a^2 + b^2 - ab)$

$36 = (a^2 + b^2 - ab)$

Sol 40. (d)

$(a+b+c)^2 = (a^2 + b^2 + c^2 + 2ab + 2bc + 2ca)$

$\Rightarrow 144 = a^2 + b^2 + c^2 + 2 \times 8$

Therefore, $a^2 + b^2 + c^2 = 128$

Practice Question

Sol 1. (c) 2

Given,

$(27x^3 - 343y^3) \div (3x - 7y) = Ax^2 + By^2 + 7Cyx$ .....(1)

We know that

$(27x^3 - 343y^3) = (3x-7y)(9x^2 + 49y^2 + 21xy)$

Put this value in eq (1)

$(9x^2 + 49y^2 + 21xy) = Ax^2 + By^2 + 7Cyx$

Comparing both the terms

A=9, B = 49 and C = 3

(4A - B + 5C) $\Rightarrow$ [4(9)-49+5(3)] = 2

Sol 2. (c)

We know that

$(a+b+c)^2 = a^2 + b^2 + c^2 +$ 2(ab + bc + ac)

Put the values from question term

$(7)^2 = 21 + 2(ab + bc + ac)$

28 = 2(ab+bc+ac)

(ab+bc+ca) = 14

Sol 3. (c)

We know that

$8x^3 - 27y^3 \Rightarrow (2x-3y)(4x^2 + 9y^2 + 6xy)$

$\Rightarrow (8x^3 - 27y^3) \div (2x-3y)$

$= \frac{(2x-3y)(4x^2+9y^2+6xy)}{(2x-3y)}$

$= (4x^2 + 9y^2 + 6xy)$

Comparing this with $(Ax^2 + Bxy + Cy^2)$

A= 4, B= 6 and C = 9

(2A + B - C) = 2(4)+6-9 = 5

Sol 4. (d)

We know that

$3\sqrt{3}x^3 - 2\sqrt{2}y^3 \Rightarrow (\sqrt{3}x - \sqrt{2}y)(3x^2 + 2y^2 + \sqrt{6}xy)$

Now,

$3\sqrt{3}x^3 - 2\sqrt{2}y^3 = (\sqrt{3}x - \sqrt{2}y)(Ax^2 + Cxy + By^2)$ ..(Given)

$\Rightarrow (\sqrt{3}x - \sqrt{2}y)(3x^2 + 2y^2 + \sqrt{6}xy) = (\sqrt{3}x - \sqrt{2}y)(Ax^2 + Cxy + By^2)$

$\Rightarrow (3x^2 + 2y^2 + \sqrt{6}xy) = (Ax^2 + Cxy + By^2)$

Comparing given terms

A= 3, B= 2 and C = $\sqrt{6}$

$(A \times B) \div C \Rightarrow (3 \times 2) \div \sqrt{6} = \sqrt{6}$

Sol 5. (b)

We know that,

$(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$ .....(1)

And

$a^3 + b^3 + c^3 - 3abc = [a+b+c][a^2 + b^2 + c^2 - ab - bc - ca)]$ ....(2)

Put the given values in eq (1)

$(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca) \Rightarrow 2^2 = 26 + 2(ab + bc + ca)$

$(ab + bc + ca) = -11$

Now put the given values in eq (2)

$a^3 + b^3 + c^3 - 3abc = [a+b+c][a^2 + b^2 + c^2 - ab - bc - ca)]$

$\Rightarrow$

$a^3 + b^3 + c^3 - 3abc = (2)(26-(-11))$

$\Rightarrow a^3 + b^3 + c^3 - 3abc = (2)(37)$

$= 74$

Sol 6. (b) We know that

$x^3 - 2\sqrt{2}y^3 \Rightarrow (x - \sqrt{2}y)(x^2 + 2y^2 + \sqrt{2}xy)$

Now,

$(x^3 - 2\sqrt{2}y^3) \div (x - \sqrt{2}y) = (Ax^2 + Bxy + Cy^2)$ .....(Given)

$\Rightarrow (x - \sqrt{2}y)(x^2 + 2y^2 + \sqrt{2}xy) \div (x - \sqrt{2}y) = (Ax^2 + Bxy + Cy^2)$

$\Rightarrow (x^2 + 2y^2 + \sqrt{2}xy) = (Ax^2 + Bxy + Cy^2)$

Comparing given terms

A= 1, B= $\sqrt{2}$ and C = 2

$\Rightarrow$ (2A + 4$\sqrt{2}$B - 4C) $\Rightarrow$ 2(1)+4$\sqrt{2}$($\sqrt{2}$)-4(2) = 2

Sol 7. (c)

We know that

$135\sqrt{5}x^3 - 2\sqrt{2}y^3 \Rightarrow (3\sqrt{5}x - \sqrt{2}y)(45x^2 + 2y^2 + 3\sqrt{10}xy)$

Now,

$135\sqrt{5}x^3 - 2\sqrt{2}y^3 \div 3\sqrt{5}x - \sqrt{2}y = Ax^2 + By^2 + \sqrt{10}Cxy$ .....(Given)

$\Rightarrow (3\sqrt{5}x - \sqrt{2}y)(45x^2 + 2y^2 + 3\sqrt{10}xy) \div 3\sqrt{5}x - \sqrt{2}y = Ax^2 + By^2 + \sqrt{10}Cxy$

$\Rightarrow (45x^2 + 2y^2 + 3\sqrt{10}xy) = Ax^2 + By^2 + \sqrt{10}Cxy$

Comparing given terms

A= 45, B= 2 and C = 3

$\Rightarrow$ (A + B - 9C) = 45+2-9(3) = 20

Sol 8.(b)

We know that

$8x^3 + 27y^3 \Rightarrow (2x+3y)(4x^2 + 9y^2 - 6xy)$

Now,

$(8x^3 + 27y^3) \div (2x + 3y) = (Ax^2 + Bxy + Cy^2)$ .....(Given)

$\Rightarrow (2x+3y)(4x^2 + 9y^2 - 6xy) \div (2x + 3y) = (Ax^2 + Bxy + Cy^2)$

$\Rightarrow (4x^2 + 9y^2 - 6xy) = (Ax^2 + Bxy + Cy^2)$

Comparing given terms

A= 4, B=-6 and C = 9

(5A + 4B + 3C) $\Rightarrow$ 5(4)+4(-6)+3(9) = 23

Sol 9. (a)

Put a=b=c=3

$a^2 + b^2 + c^2 + 27 = 6(a + b + c)$

$\Rightarrow 3^2 + 3^2 + 3^2 + 27 = 6(3 + 3 + 3)$

$\Rightarrow 27+27 = 6 \times 9$

$\Rightarrow 54 = 54$ ....(condition satisfied)

$\sqrt[3]{a^3 + b^3 - c^3} \Rightarrow \sqrt[3]{3^3 + 3^3 - 3^3}$

$\Rightarrow \sqrt[3]{27 + 27 - 27} = 3$

Alternate :

$a^2 + b^2 + c^2 + 27 = 6(a + b + c)$

$\Rightarrow a^2 + b^2 + c^2 + 27\text{-}6a\text{-}6b\text{-}6c = 0$

$\Rightarrow (a^2 + 9 - 6a) + (b^2 + 9 - 6b) + (c^2 + 9 - 6c) = 0$

$\Rightarrow (a-3)^2 + (b-3)^2 + (c-3)^2 = 0$

Sum of the squares of the terms is equal to zero only if the terms themselves are zero.

$\Rightarrow$ a-3 = 0, b-3=0 and c-3=0

$\Rightarrow$ a=b=c=3

Put these values in question term

$\sqrt[3]{a^3 + b^3 - c^3} \Rightarrow \sqrt[3]{3^3 + 3^3 - 3^3}$

$\Rightarrow \sqrt[3]{27 + 27 - 27} = 3$

Sol 10. (c)

Given, $x + \frac{1}{x} = \sqrt{5}$

$\Rightarrow x^3 + \frac{1}{x^3} = (\sqrt{5})^3 - 3\sqrt{5}$

.....(If $x + \frac{1}{x} = k$, then $x^3 + \frac{1}{x^3} = (k)^3 - 3k$)

$= 5\sqrt{5} - 3\sqrt{5} = 2\sqrt{5}$

Sol 11. (d)

Given, $x + \frac{1}{x} = 3$

$\Rightarrow x^3 + \frac{1}{x^3} = (3)^3 - 3(3)$

.....(If $x + \frac{1}{x} = k$, then $x^3 + \frac{1}{x^3} = (k)^3 - 3k$)

= 27-9=18

Sol 12. (c)

Put

a=6, b=4 and c=3

a+b+c = 13 $\Rightarrow$ 6+4+3=13

$\Rightarrow$ 13 = 13

ab + bc + ca = 54 $\Rightarrow (6 \times 4) + (4 \times 3) + (3 \times 6) = 54$

$\Rightarrow$ 54 = 54

Both the conditions are satisfied.

$a^3 + b^3 + c^3 - 3abc$

$\Rightarrow 6^3 + 4^3 + 3^3 - 3(6 \times 4 \times 3) = 91$

Alternate :

We know that,

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$ .....(1)

And

$a^3 + b^3 + c^3 - 3abc = [a+b+c][a^2 + b^2 + c^2 - ab - bc - ca)]$ ....(2)

Put the given values in eq (1)

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca) \Rightarrow 13^2 = a^2 + b^2 + c^2 + 2(54)$

$a^2 + b^2 + c^2 = 61$

Now put the given values in eq (2)

$a^3 + b^3 + c^3 - 3abc = [13][61\text{-}54]$

$\Rightarrow a^3 + b^3 + c^3 - 3abc = (13)(7) = 91$

Sol 13. (b)

Put a=5, b=4 and c=2

a+b+c = 11 $\Rightarrow$ 5+4+2=11

$\Rightarrow$ 11 = 11

ab + bc + ca = 38 $\Rightarrow (5 \times 4) + (4 \times 2) + (2 \times 5) = 38$

$\Rightarrow$ 38 = 38

Both the conditions are satisfied.

$a^3 + b^3 + c^3 - 3abc$

$\Rightarrow 5^3 + 4^3 + 2^3 - 3(5 \times 4 \times 2) = 77$

Alternate :

We know that,

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$ .....(1)

And

$a^3 + b^3 + c^3 - 3abc = [a+b+c][a^2 + b^2 + c^2 - ab - bc - ca)]$ ....(2)

Put the given values in eq (1)

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

$\Rightarrow 11^2 = a^2 + b^2 + c^2 + 2(38)$

$a^2 + b^2 + c^2 = 45$

Now put the given values in eq (2)

$a^3 + b^3 + c^3 - 3abc = [11][45 - 38]$

$\Rightarrow a^3 + b^3 + c^3 - 3abc = (11)(7) = 77$

Sol 14. (b)

Given, $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{6}$

$x + \frac{1}{x} = (\sqrt{6})^2 - 2 = 4$

...(If $x + \frac{1}{x} = k$, then $x^2 + \frac{1}{x^2} = k^2 - 2$)

$x^2 + \frac{1}{x^2} = 4^2 - 2 = 14$

Sol 15. (b)
We know that,
$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca) …..(1)
And
$a^3+b^3+c^3-3abc$ = [a+b+c][a^2 + b^2 + c^2 - ab - bc - ca)] ….(2)
Put the given values in eq (1)
$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca)
$\Rightarrow 8^2 = a^2 + b^2 + c^2 + 2$ (12)
$a^2 + b^2 + c^2 = 40$
Now put the given values in eq (2)
$a^3+b^3+c^3-3abc$ = [8][40 - 12]
$\Rightarrow a^3+b^3+c^3-3abc$ = (8)(28) = 224

Sol 16. (c)
Given, a + b = 5 and ab = 3
$(a^3+b^3) \Rightarrow$ (a+b)(a^2+b^2-ab)
$\Rightarrow$ (a+b)[$(a+b)^2 - 2ab$ -ab]
...(a^2+b^2) = $(a+b)^2 - 2ab$
$\Rightarrow$ (a+b)[$(a+b)^2 - 3ab$]
Put the given values
(a+b)[$(a+b)^2 - 3ab$]=(5)[$(5)^2 - 3(3)$]=80

Sol 17. (d)
We know that,
$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca) …..(1)
And
$a^3+b^3+c^3-3abc$ = [a+b+c][a^2 + b^2 + c^2 - ab - bc - ca)] ….(2)
Put the given values in eq (1)
$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca)
$\Rightarrow 6^2 = a^2 + b^2 + c^2 + 2$ (4)
$a^2 + b^2 + c^2 = 28$
Now put the given values in eq (2)
$a^3+b^3+c^3-3abc$ = [6][28 - 4]
$\Rightarrow a^3+b^3+c^3-3abc$ = (6)(24) = 144

Sol 18. (d)
Given, a + b = 6 and ab = $\frac{16}{3}$
$(a^3+b^3) \Rightarrow$ (a+b)(a^2+b^2-ab)
$\Rightarrow$ (a+b)[$(a+b)^2 - 2ab$ -ab]
....(a^2+b^2) = $(a+b)^2 - 2ab$
$\Rightarrow$ (a+b)[$(a+b)^2 - 3ab$]
Put the given values
(a+b)[$(a+b)^2 - 3ab$]=(6)[$(6)^2 - 3(\frac{16}{3})$]=120

Sol 19. (a)
Given, $\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{6}$
$x - \frac{1}{x} = (\sqrt{6})^2 + 2 = 8$
...(If $x - \frac{1}{x}$ = k, then $x^2 + \frac{1}{x^2}$ = $k^2 + 2$)
$x^2 + \frac{1}{x^2} = 8^2 - 2 = 62$ ...(If $x + \frac{1}{x}$ = k, then $x^2 + \frac{1}{x^2} = k^2 - 2$)

Sol 20. (a)
Given, a + b = 8 and ab = $\frac{32}{3}$
$(a^3+b^3) \Rightarrow$ (a+b)(a^2+b^2-ab)
$\Rightarrow$ (a+b)[$(a+b)^2 - 2ab$ -ab]
.....(a^2+b^2) = $(a+b)^2 - 2ab$
$\Rightarrow$ (a+b)[$(a+b)^2 - 3ab$]
Put the given values
(a+b)[$(a+b)^2 - 3ab$]=(8)[$(8)^2 - 3(\frac{32}{3})$]=256

Sol 21. (d)
Given, $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{7}$
$x + \frac{1}{x} = (\sqrt{7})^2 - 2 = 5$
...(If $x + \frac{1}{x}$ = k, then $x^2 + \frac{1}{x^2}$ = $k^2 - 2$)
$x^2 + \frac{1}{x^2} = 5^3 - 3(5) = 110$
...(If $x + \frac{1}{x}$ = k, then $x^3 + \frac{1}{x^3}$ = $k^3 - 3k$)

Sol 22. (d)
We know that,
$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca) …..(1)
And
$a^3+b^3+c^3-3abc$ = [a+b+c][a^2 + b^2 + c^2 - ab - bc - ca)] ….(2)
Put the given values in eq (1)
$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca) $\Rightarrow$ $4^2 = a^2 + b^2 + c^2 + 2$ (2)
$a^2 + b^2 + c^2 = 12$
Now put the given values in eq (2)
$a^3+b^3+c^3-3abc$ = [4][12 - 2]
$\Rightarrow a^3+b^3+c^3-3abc$ = (4)(10) = 40

Sol 23. (d)
Given, a + b = 6 and ab = 8
$(a^3+b^3) \Rightarrow$ (a+b)(a^2+b^2-ab)
$\Rightarrow$ (a+b)[$(a+b)^2 - 2ab$ -ab]
..(a^2+b^2) = $(a+b)^2 - 2ab \Rightarrow$ (a+b)[$(a+b)^2 - 3ab$]
Put the given values
(a+b)[$(a+b)^2 - 3ab$]= (6)[$(6)^2 - 3(8)$]=72

Sol 24. (b)
We know that,
$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca) …..(1)
And
$a^3+b^3+c^3-3abc$ = [a+b+c][a^2 + b^2 + c^2 - ab - bc - ca)] ….(2)
Put the given values in eq (1)
$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca)
$\Rightarrow 6^2 = a^2 + b^2 + c^2 + 2$ (5)
$a^2 + b^2 + c^2 = 26$
Now put the given values in eq (2)
$a^3+b^3+c^3-3abc$ = [6][26 - 5]
$\Rightarrow a^3+b^3+c^3-3abc$ = (6)(21) = 126

Sol 25.(a)

Given, $\sqrt{x}+\frac{1}{\sqrt{x}}=2\sqrt{2}$

$x+\frac{1}{x}=(2\sqrt{2})^2-2=6$

...(If $x+\frac{1}{x}=$ k, then $x^2+\frac{1}{x^2}=k^2-2$)

$\Rightarrow x^2+\frac{1}{x^2}=6^2-2=34$

Sol 26. (b)

Given, $\sqrt{x}-\frac{1}{\sqrt{x}}=2\sqrt{2}$

$x-\frac{1}{x}=(2\sqrt{2})^2+2$

...(If $x-\frac{1}{x}=$ k, then $x^2+\frac{1}{x^2}=k^2+2$)

$=10$

$\Rightarrow x^2+\frac{1}{x^2}=10^2-2$

...(If $x+\frac{1}{x}=$ k, then $x^2+\frac{1}{x^2}=k^2-2$)

$=98$

Sol 27.(a)

We know that,

$(a+b+c)^2=a^2+b^2+c^2+2$ (ab + bc + ca)

$\Rightarrow (a+b+c)^2=a^2+b^2+c^2+2$ (ab + bc + ca) - (ab+bc+ca)+(ab+bc+ca)

$\Rightarrow (a+b+c)^2=a^2+b^2+c^2$ - (ab +bc + ca) + 3(ab + bc +ca) ….(1)

And

$a^3+b^3+c^3-3abc=$ [a+b+c][$a^2+b^2+c^2$ - ab - bc - ca)] ….(2)

Put the given values in eq (1)

$\Rightarrow$

$6^2=a^2+b^2+c^2-(ab+bc+ca)+3(ab+bc+ca)$

$\Rightarrow$

$6^2-3(ab+bc+ca)=a^2+b^2+c^2-(ab+bc+ca)$

Now put the given values in eq (2)

$126=[6][6^2-3(ab+bc+ca)]$

$\Rightarrow 3(ab+bc+ca)=36-21=15$

$\Rightarrow (ab+bc+ca)=5$

Sol 28.(b)

Given, a + b = 5 and ab = 3

$(a^3+b^3)\Rightarrow$ (a+b)(a^2+b^2-ab)

$\Rightarrow$ (a+b)[$(a+b)^2-2ab$ -ab]

.....$(a^2+b^2)=(a+b)^2-2ab \Rightarrow$ (a+b)[$(a+b)^2-3ab$]

Put the given values

(a+b)[$(a+b)^2-3ab$]=(5)[$(5)^2-3(3)$]=80

Sol 29. (a)

We know that,

$(a+b+c)^2=a^2+b^2+c^2+2$ (ab + bc + ca) …..(1)

And

$a^3+b^3+c^3-3abc=$ [a+b+c][$a^2+b^2+c^2$ - ab - bc - ca)] ….(2)

Put the given values in eq (1)

$(a+b+c)^2=a^2+b^2+c^2+2$ (ab + bc + ca)

$\Rightarrow 7^2=a^2+b^2+c^2+2$ (1)

$a^2+b^2+c^2=47$

Now put the given values in eq (2)

$a^3+b^3+c^3-3abc=$ [7][47 - 1]

$\Rightarrow a^3+b^3+c^3-3abc=(7)(46)=322$

Sol 30. (b)

Given, a - b = 5 and ab = 2

$(a^3-b^3)\Rightarrow$ (a-b)(a^2+b^2+ab)

$\Rightarrow$ (a+b)[$(a-b)^2+2ab$ +ab]

.....$(a^2+b^2)=(a-b)^2+2ab$

$\Rightarrow$ (a+b)[$(a-b)^2+3ab$

Put the given values

(a+b)[$(a+b)^2-3ab$]=(5)[$(5)^2+3(2)$]=155

Sol 31. (d)

Given, $\sqrt{x}-\frac{1}{\sqrt{x}}=2\sqrt{2}$

$x-\frac{1}{x}=(3\sqrt{2})^2+2=20$

...(If $x-\frac{1}{x}=$ k, then $x^2+\frac{1}{x^2}=k^2+2$)

$\Rightarrow x^2+\frac{1}{x^2}=20^2-2$

...(If $x+\frac{1}{x}=$ k, then $x^2+\frac{1}{x^2}=k^2-2$)

$=398$

Sol 32. **(b)**

Given, a - b = 4 and ab = 2

$(a^3-b^3)\Rightarrow$ (a-b)(a^2+b^2+ab)

$\Rightarrow$ (a+b)[$(a-b)^2+2ab$ +ab]

.....$(a^2+b^2)=(a-b)^2+2ab \Rightarrow$ (a+b)[$(a-b)^2+3ab$

Put the given values

(a+b)[$(a+b)^2-3ab$]=(4)[$(4)^2+3(2)$]=88

Sol 33. **(c)**

Given, $\sqrt{x}-\frac{1}{\sqrt{x}}=\sqrt{5}$

$x-\frac{1}{x}=(\sqrt{5})^2+2=7$

....If $x-\frac{1}{x}=$ k, then $x^2+\frac{1}{x^2}=k^2+2$)

$\Rightarrow x^2+\frac{1}{x^2}=7^2-2$

...(If $x+\frac{1}{x}=$ k, then $x^2+\frac{1}{x^2}=k^2-2$)

$=47$

Sol 34. **(c)**

Put a=b=2 and c=4

a + b +c = 8 $\Rightarrow$ 2+2+4 = 8

$\Rightarrow$ 8 = 8

ab + bc + ca = 20 $\Rightarrow 2\times2+2\times4+4\times2=20$

$\Rightarrow$ 20 = 20

Both the conditions are satisfied

$a^3+b^3+c^3$ - 3abc

$\Rightarrow 2^3+2^3+4^3-3(2\times2\times4)$

$\Rightarrow$ 32

Alternate :

We know that,

$(a+b+c)^2=a^2+b^2+c^2+2$ (ab + bc + ca) …..(1)

And

$a^3+b^3+c^3-3abc=$ [a+b+c][$a^2+b^2+c^2$ - ab - bc - ca)] ….(2)

Put the given values in eq (1)

$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca)

$\Rightarrow 8^2 = a^2 + b^2 + c^2 + 2(20)$

$a^2 + b^2 + c^2 = 24$

Now put the given values in eq (2)

$a^3 + b^3 + c^3 - 3abc = [8][24 - 20]$

$\Rightarrow a^3 + b^3 + c^3 - 3abc = (8)(4) = 32$

Sol 35. (b)

Given, $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{6}$

$x + \frac{1}{x} = (\sqrt{6})^2 - 2 = 4$

...(If $x + \frac{1}{x} = k$, then $x^2 + \frac{1}{x^2} = k^2 - 2$)

$\Rightarrow x^2 + \frac{1}{x^2} = 4^2 - 2 = 14$

...(If $x + \frac{1}{x} = k$, then $x^2 + \frac{1}{x^2} = k^2 - 2$)

Sol 36. (b)

Put a=b=4 and c=2

a + b +c = 10 $\Rightarrow$ 4+4+2 = 10

$\Rightarrow$ 10 = 10

ab + bc + ca = 32 $\Rightarrow 4 \times 4 + 4 \times 2 + 2 \times 4 = 32$

$\Rightarrow$ 32 = 32

Both the conditions are satisfied

$a^3 + b^3 + c^3 - 3abc \Rightarrow 4^3 + 4^3 + 2^3 - 3(4 \times 4 \times 2) \Rightarrow 40$

Alternate :

We know that,

$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca) .....(1)

And

$a^3 + b^3 + c^3 - 3abc =$ [a+b+c][$a^2 + b^2 + c^2$ - ab - bc - ca)] ....(2)

Put the given values in eq (1)

$(a+b+c)^2 = a^2 + b^2 + c^2 + 2$ (ab + bc + ca)

$\Rightarrow 10^2 = a^2 + b^2 + c^2 + 2(32)$

$a^2 + b^2 + c^2 = 36$

Now put the given values in eq (2)

$a^3 + b^3 + c^3 - 3abc =$ [10][36 - 32]

$\Rightarrow a^3 + b^3 + c^3 - 3abc = (10)(4) = 40$

Sol 37. (d)

Given, a - b = 5 and ab = 6

$(a^3 - b^3) \Rightarrow$ (a-b)$(a^2 + b^2 + ab)$

$\Rightarrow$ (a-b)[$(a-b)^2 + 2ab$ +ab]

....$(a^2 + b^2) = (a-b)^2 + 2ab$

$\Rightarrow$ (a-b)[$(a-b)^2 + 3ab$

Put the given values

(a-b)[$(a-b)^2 + 3ab$]=(5)[$(5)^2 + 3(6)$]=215

Alternate:

Put a=6 and b=1

a-b=5 $\Rightarrow$ 6-1 = 5

$\Rightarrow$ 5=5

ab = 6 $\Rightarrow 6 \times 1 = 6$

$\Rightarrow$ 6 = 6

Both the conditions are satisfied

$(a^3 - b^3) \Rightarrow (6^3 - 1^3) = 215$

Sol 38. (a)

Given, $x + \frac{1}{x} = 5$

$\Rightarrow x^3 + \frac{1}{x^3} = 5^3 - 3(5) = 110$

...(If $x + \frac{1}{x} = k$, then $x^3 + \frac{1}{x^3} = k^3 - 3k$)

Sol 39. (b)

Given, $(x-5)^3 + (x-6)^3 + (x-7)^3 = 3(x-5)(x-6)(x-7)$

$\Rightarrow (x-5)^3 + (x-6)^3 + (x-7)^3 - 3(x-5)(x-6)(x-7) = 0$

We know that

If $a^3 + b^3 + c^3 - 3abc = 0$ then either a+b+c = 0 or a=b=c. Here (x - 5), (x - 6) and (x - 7) can't be equal as different numbers are subtracted from x.

$\Rightarrow$ (x - 5) + (x - 6) + (x - 7) = 0

$\Rightarrow$ 3x = 5+6+7

$\Rightarrow$ x = 6

Sol 40 . (c)

Given, $a^3 - b^3 = 208$ and a - b = 4

We know that

$(a^3 - b^3) \Rightarrow$ (a-b)$(a^2 + b^2 + ab)$

$(a^3 - b^3) \Rightarrow$ (a-b)[$(a+b)^2 - 2ab + ab$)

..$(a^2 + b^2) =$ $(a+b)^2 - 2ab$

$\Rightarrow (a^3 - b^3) \Rightarrow$ (a-b)[$(a+b)^2 - ab$]

Put the given values

$208 = 4[(a+b)^2 - ab]$

$(a+b)^2$ - ab = 52

Sol 41. (b)

Given, $8x^2 + y^2$ - 12x - 4xy + 9 = 0

$\Rightarrow 4x^2 - 12x + 9 + 4x^2 + y^2$ - 4xy = 0

$\Rightarrow (2x-3)^2 + (2x-y)^2 = 0$

Sum of the square of the terms is equal to zero only if the terms themselves are zero.

$\Rightarrow$ (2x-3) = 0 or (2x-y) = 0

$\Rightarrow x = \frac{3}{2}$ and y=2x=3

(14x - 5y) $\Rightarrow 14(\frac{3}{2}) - 5(3) = 6$

Sol 42. (d)

Given, x + y + z = 19 , xyz = 216 and xy + yz + zx = 114

$\Rightarrow$

$(x+y+z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$

$\Rightarrow (19)^2 = x^2 + y^2 + z^2 + 2(114)$

$\Rightarrow 133 = x^2 + y^2 + z^2$

$x^3 + y^3 + z^3 - 3xyz =$ (x+y+z)($x^2 + y^2 + z^2$ -xy-yz-zx)

$x^3 + y^3 + z^3 - 3xyz =$ (19)(133-114)

= 361

$x^3 + y^3 + z^3 + xyz - xyz - 3xyz =$ 361

$x^3 + y^3 + z^3 + xyz = 361 + 4xyz$

$= 361 + 4(216) = 1225$

$\sqrt{x^3 + y^3 + z^3 + xyz} = \sqrt{1225} =$ 35

Sol 43 . (b)

$a^2 + 4b^2 + 49c^2 + 18 - 2(2b + 28c - a) = 0$

$\Rightarrow a^2 + 2a + 1 + 4b^2 - 4b + 1 + 49c^2 - 56c + 16 = 0$

$\Rightarrow (a+1)^2 + (2b-1)^2 + (7c-4)^2 = 0$

Sum of the square of the terms is equal to zero only if the terms themselves are zero.

(a+1)=0, (2b-1)=0 and (7c-4)=0

$\Rightarrow$ a= – 1 and b= $\frac{1}{2}$ and c= $\frac{4}{7}$

(3a + 2b + 7c) $\Rightarrow$ [3(-1)+2($\frac{1}{2}$)+7($\frac{4}{7}$)]=2

Sol 44. (c)

We know that

$3\sqrt{3}x^3 - 2\sqrt{2}y^3 = (\sqrt{3}x - \sqrt{2}y)(3x^2 + 2y^2 + \sqrt{6}xy)$

$3\sqrt{3}x^3 - 2\sqrt{2}y^3 = (\sqrt{3}x - \sqrt{2}y)(Ax^2 - Bxy + Cy^2)$ .....Given

Now,

$(\sqrt{3}x - \sqrt{2}y)(3x^2 + 2y^2 + \sqrt{6}xy) = (\sqrt{3}x - \sqrt{2}y)(Ax^2 - Bxy + Cy^2)$

$\Rightarrow (3x^2 + 2y^2 + \sqrt{6}xy) = (Ax^2 - Bxy + Cy^2)$

Comparing given terms

A= 3, B=- $\sqrt{6}$ and C = 2

$(A^2 - B^2 + C^2) = (3^2 - (-\sqrt{6})^2 + 2^2) = 7$

Sol 45. (a)

We know that

24

$\sqrt{3}x^3 + 2\sqrt{2}y^3 = (2\sqrt{3}x + \sqrt{2}y)(12x^2 + 2y^2 - 2\sqrt{6}xy)$

$24\sqrt{3}x^3 + 2\sqrt{2}y^3 = (2\sqrt{3}x + \sqrt{2}y)(Ax^2 + Bxy + Cy^2)$ .....Given

$\Rightarrow (2\sqrt{3}x + \sqrt{2}y)(12x^2 + 2y^2 - 2\sqrt{6}xy) = (2\sqrt{3}x + \sqrt{2}y)(Ax^2 + Bxy + Cy^2)$

$\Rightarrow (12x^2 + 2y^2 - 2\sqrt{6}xy) = (Ax^2 + Bxy + Cy^2)$

Comparing given terms

$\Rightarrow$ A = 12, C = 2 and B = $-2\sqrt{6}$

$(2A + \sqrt{6}B - C) \Rightarrow [2(12) + \sqrt{6}(-2\sqrt{6}) - 2] = 10$

Sol 46. (c)

Given, a+b+c = 4 and ab + bc + ca = 1

We know that

$(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

$(4)^2 = a^2 + b^2 + c^2 + 2(1)$

$a^2 + b^2 + c^2 = 14$

Now,

$a^3 + b^3 + c^3 - 3abc = (a+b+c)[a^2 + b^2 + c^2 - (ab + bc + ca)]$

$= (4)[14-(1)] = 52$

Sol 47.(d)

$a^3 + b^3 = 110$ and a+b=5

We know that

$(a^3 + b^3) \Rightarrow (a+b)(a^2 + b^2 - ab)$

$(a^3 + b^3) \Rightarrow (a+b)[(a+b)^2 - 2ab - ab)$

$..(a^2 + b^2) = (a+b)^2 - 2ab$

$\Rightarrow (a^3 + b^3) \Rightarrow (a+b)[(a+b)^2 - 3ab]$

Put the given values

$\Rightarrow 110 = 5[(a+b)^2 - 3ab]$

$\Rightarrow [(a+b)^2 - 3ab] = 22$

Sol 48. (d)

Given, (a+b+c) = 5 and $a^2 + b^2 + c^2 = 33$

$(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

$(5)^2 = 33 + 2(ab + bc + ca)$

$(ab + bc + ca) = -4$

Now,

$a^3 + b^3 + c^3 - 3abc = (5)[33 - (-4)]$

$= (5)[37] = 185$

Sol 49. (b)

Given, $40\sqrt{5}x^3 - 3\sqrt{3}y^3 = (2\sqrt{5}x - \sqrt{3}y)(Ax^2 + Cy^2 + Bxy)$

We know that

40

$\sqrt{5}x^3 - 3\sqrt{3}y^3 = (2\sqrt{5}x - \sqrt{3}y)(20x^2 + 3y^2 + 2\sqrt{15}xy)$

$\Rightarrow (2\sqrt{5}x - \sqrt{3}y)(20x^2 + 3y^2 + 2\sqrt{15}xy) = (2\sqrt{5}x - \sqrt{3}y)(Ax^2 + Cy^2 + Bxy)$

$\Rightarrow (20x^2 + 3y^2 + 2\sqrt{15}xy) = (Ax^2 + Cy^2 + Bxy)$

Comparing given terms

$\Rightarrow$ A = 20, C = 3 and B = $2\sqrt{15}$

$\sqrt{(B^2 + C^2 - A)} = \sqrt{(2\sqrt{15})^2 + 3^2 - 20)} = 7$

Sol 50.(b)

Given, $x^2 + 1 = 3x$

$\Rightarrow x + \frac{1}{x} = 3$

Multiply and divide question term by x

$\frac{x^4+x^{-2}}{x^2+5x+1} \Rightarrow \frac{x}{x} \times \frac{x^4+x^{-2}}{x^2+5x+1}$

$\Rightarrow \frac{x^3+x^{-3}}{x+5+\frac{1}{x}} \Rightarrow \frac{3^3-3(3)}{3+5} = \frac{9}{4} = 2\frac{1}{4}$

Sol 51. (a)

Given,

$x^4 - 5x^2 - 1 = 0$

$\Rightarrow x^2 - \frac{1}{x^2} = 5$

$(x^6 - 3x^2 + \frac{3}{x^2} - \frac{1}{x^6} + 1)$

$\Rightarrow (x^6 - \frac{1}{x^6} - 3(x^2 - \frac{1}{x^2}) + 1)$

$\Rightarrow ((x^2)^3 - \frac{1}{(x^2)^3} - 3(x^2 - \frac{1}{x^2}) + 1)$

$= 5^3 + 3(5) - 3(5) + 1 = 126$

...(If x- $\frac{1}{x}$ = k, then $x^3 - \frac{1}{x^3} = k^3 + 3k$)

Sol 52.(c)

We know that

24

$\sqrt{3}x^3 + 5\sqrt{5}y^3 = (2\sqrt{3}x + \sqrt{5}y)(12x^2 + 5y^2 - 2\sqrt{15}xy)$

$24\sqrt{3}x^3 + 5\sqrt{5}y^3 = (2\sqrt{3}x + \sqrt{5}y)(Ax^2 + Cy^2 + Bxy)$

.....Given

$\Rightarrow (2\sqrt{3}x+\sqrt{5}y)(12x^2+5y^2-2\sqrt{15}xy) =$
$(2\sqrt{3}x+\sqrt{5}y)(Ax^2+Cy^2+Bxy)$
$\Rightarrow (12x^2+5y^2-2\sqrt{15}xy) = (Ax^2+Bxy+Cy^2)$
Comparing given terms
$\Rightarrow$ A = 12, C = 5 and B = -2 $\sqrt{15}$
$\Rightarrow (A^2-B^2+C^2) =$
$(12^2-(-2\sqrt{15})^2+5^2)=109$

Sol 53. (d)
Given, x+y+z=2, xy+yz+zx=-11
We know that
$\Rightarrow$
$(x+y+z)^2 = x^2+y^2+z^2+2(xy+yz+zx)$
$\Rightarrow (2)^2 = x^2+y^2+z^2+2(-11)$
$\Rightarrow 26 = x^2+y^2+z^2$
$x^3+y^3+z^3-3xyz =$
$(x+y+z)(x^2+y^2+z^2-xy-yz-zx)$
$x^3+y^3+z^3-3xyz =$
$(2)[26-(-11)]$
= 74

Sol 54. (b)
Given, $x+\frac{1}{x}=7$
$\Rightarrow x^3+\frac{1}{x^3} = 7^3-3(7)$
...(If $x+\frac{1}{x}=$ k, then $x^3+\frac{1}{x^3} = k^3-3k$)
= 322

Sol 55. (b)
$250\sqrt{2}x^3-5\sqrt{5}y^3 =(5\sqrt{2}x-\sqrt{5}y)(Ax^2+Cy^2+Bxy)$
We know that
250
$\sqrt{2}x^3-5\sqrt{5}y^3 = (5\sqrt{2}x-\sqrt{5}y)(50x^2+5y^2+5\sqrt{10}xy)$
$250\sqrt{2}x^3-5\sqrt{5}y^3 =(5\sqrt{2}x-\sqrt{5}y)(Ax^2+Cy^2+Bxy)$
.....Given
$\Rightarrow (5\sqrt{2}x-\sqrt{5}y)(50x^2+5y^2+5\sqrt{10}xy) =(5\sqrt{2}x-\sqrt{5}y)(Ax^2+Cy^2+Bxy)$
$\Rightarrow (50x^2+5y^2+5\sqrt{10}xy) = (Ax^2+Bxy+Cy^2)$
Comparing given terms
$\Rightarrow$ A = 50, C = 5 and B = 5 $\sqrt{10}$
$(A+C-\sqrt{10}B) \Rightarrow [50+5-\sqrt{10}(5\sqrt{10})] = 5$

Sol 56. (a)
Given, x + y + z = 19 and xy + yz + zx = 114
$\Rightarrow$
$(x+y+z)^2 = x^2+y^2+z^2+2(xy+yz+zx)$
$\Rightarrow (19)^2 = x^2+y^2+z^2+2(114)$
$\Rightarrow 133 = x^2+y^2+z^2$
$x^3+y^3+z^3-3xyz =$
$(x+y+z)(x^2+y^2+z^2-xy-yz-zx)$
$x^3+y^3+z^3-3xyz =$
(19)(133-114)
= 361

Sol 57. (a)

Let 2(x+y) = a and x-y = b
$8(x+y)^3-(x-y)^3 \Rightarrow a^3-b^3$
We know that
$a^3-b^3 = (a-b)(a^2+b^2+ab)$
$= (a-b)[(a-b)^2+2ab+ab]$
$..(a^2+b^2) = (a-b)^2+2ab$
$= (a-b)[(a-b)^2+3ab]$
Put the values of a and b
$(a-b)[(a-b)^2+3ab]$
$=[2(x+y)-(x-y)][\{2(x+y)-(x-y)\}^2+3\{2(x+y)(x-y)\}]$
$\Rightarrow 8(x+y)^3-(x-y)^3$
$=[2(x+y)-(x-y)][\{2(x+y)-(x-y)\}^2+3\{2(x+y)(x-y)\}]$
$\Rightarrow (x+3y)\{(x+3y)^2+6(x^2-y^2)$
$\Rightarrow (x+3y)\{x^2+9y^2+6xy+6x^2-6y^2\}$
$\Rightarrow (x+3y)(7x^2+3y^2+6xy)$
Also,
$8(x+y)^3-(x-y)^3 =(x+3y)(Ax^2+Cy^2+Bxy)$
.....given
$\Rightarrow (x+3y)(Ax^2+Cy^2+Bxy)$
$=(x+3y)(7x^2+3y^2+6xy)$
$\Rightarrow (Ax^2+Cy^2+Bxy) = (7x^2+3y^2+6xy)$
Comparing given terms
$\Rightarrow$ A = 7, C = 3 and B = 6
(A-B-C) = 7-6-3 = -2

Sol 58. (c)
$9a^2+16b^2+c^2+25 = 24(a+b)$
$\Rightarrow 9a^2+16b^2+c^2+25-24a-24b=0$
$\Rightarrow 9a^2+16-24a+16b^2+9-24b+c^2=0$
$\Rightarrow (3a-4)^2+(4b-3)^2+c^2=0$
Sum of the square of the terms is equal to zero only if the terms themselves are zero.
(3a-4)=0, (4b-3)=0 and c=0
$\Rightarrow$ a= $\frac{4}{3}$ and b= $\frac{3}{4}$ and c=0
$(3a+4b+5c) \Rightarrow [3(\frac{4}{3})+4(\frac{3}{4})+5(0)]$
= 7

Sol 59.(b) Given, $x^2-6x+1=0$
$\Rightarrow x^2+1 = 6x$ .....(1)
$\Rightarrow x+\frac{1}{x} = 6$
Now,
Multiply and divide question term by x
$(x^4+\frac{1}{x^2}) \div (x^2+1) \Rightarrow$
$x \times \frac{1}{x} \times \frac{(x^4+\frac{1}{x^2})}{(x^2+1)}$
$\Rightarrow \frac{x(x^3+\frac{1}{x^3})}{(x^2+1)}$
$\Rightarrow \frac{x[(6)^3-3(6)]}{6x}$ ...(If $x+\frac{1}{x}=$ k, then $x^3+\frac{1}{x^3} = k^3-3k$)
$\Rightarrow$ 33

Sol 60. (d)

Given, x+y+z=3 and xy+yz+zx = -18
We know that,
$\Rightarrow (x+y+z)^2$
$= x^2+y^2+z^2+2(xy+yz+zx)$
$\Rightarrow (3)^2 = x^2+y^2+z^2+2(-18)$
$\Rightarrow 45 = x^2+y^2+z^2$
$x^3+y^3+z^3-3xyz =$
(x+y+z)($x^2+y^2+z^2$ -xy-yz-zx)
$x^3+y^3+z^3-3xyz =$
(3){45-(-18)}
= 189

Sol 61. (a)
Given,
$8(a+b)^3+(a-b)^3 = (3a+b)($
$Aa^2+Cb^2+Bab)$
$\Rightarrow (2a+2b)^3+(a-b)^3 = (3$
$a+b)(Aa^2+Cb^2+Bab)$
We know that
a^3+b^3 = (a+b)(a^2+b^2-ab)
= (a+b)[$(a+b)^2-2ab-ab$]
..(a^2+b^2) =
$(a+b)^2-2ab =$ (a+b)[
$(a+b)^2-3ab$]
So,
$(2a+2b)^3+(a-b)^3$ ={(2a+2b)+
(a-b)}[{$(2a+2b)+(a-b)\}^2-3$
$(2a+2b)(a-b)$]
= (3a+b){$(3a+b)^2$ -6a^2
+6ab-6ab+ 6b^2)
= (3a+b)(9a^2+b^2 +6ab-6a^2 +
6b^2)
$\Rightarrow (3a+b)(Aa^2+Cb^2+Bab)$
=(3a+b)(3a^2 +7b^2 +6ab)
Comparing both the terms
A=3, B=6 and C=7
(A+B-C) $\Rightarrow$ 3+6-7 = 2

Sol 62. (d)
Given,
$(x-7)^3+(x-8)^3+(x+6)^3 =$
3(x-7)(x-8)(x+6)
$\Rightarrow (x-7)^3+(x-8)^3+(x+6)^3$
-3(x-7)(x-8)(x+6) = 0
Now, (x-7) $\neq$ $(x-8) \neq (x+6)$
Clearly (x-7)+(x-8)+(x+6) = 0
$\Rightarrow$ 3x-9 = 0
$\Rightarrow$ x=3

Sol 63. (c)
Given,
x- $\frac{1}{x}$ = 10
$\Rightarrow x^3-\frac{1}{x^3} = 10^3+3(10)$ ...(If x- $\frac{1}{x}$
= k, then $x^3-\frac{1}{x^3} = k^3+3k$)
= 1030

Sol 64. (c)
Given,
a^2+b^2 = 88 and ab=6
We know that
(a^3+b^3) $\Rightarrow$ (a+b)(a^2+b^2-ab)
….(1)
And
$(a+b)^2 = a^2+b^2+2ab$
Put the given values
$\Rightarrow (a+b)^2 = 88+2(6) = 100$
$\Rightarrow$ (a+b)= $\sqrt{100} = 10$
Put the values in eq (1)
(a^3+b^3) $\Rightarrow$ (a+b)(a^2+b^2-ab)
$\Rightarrow$ (a^3+b^3)=(10)(88-6)=820

Sol 65. (b)
Given,
$x^4+\frac{1}{x^4} = 2207$
$\Rightarrow x^2+\frac{1}{x^2} = \sqrt{2207+2}$ ...(If
$a^2+\frac{1}{a^2}$ = k, then a+ $\frac{1}{a}$ = $\sqrt{k+2}$)
=47
$\Rightarrow$ x+ $\frac{1}{x}$ = $\sqrt{47+2}$ =7

Sol 66. (b)
$(3x-7)^3+(3x-8)^3+(3x+6)^3$
$= 3(3x-7)(3x-8)(3x+6)$
$\Rightarrow (3x-7)^3+$
$(3x-8)^3+(3x+6)^3$
$-3(3x-7)(3x-8)(3x+6) = 0$
Now, (3x-7) $\neq$ $(3x-8) \neq (3x+6)$
Clearly (3x-7)+(3x-8)+(3x+6) = 0
$\Rightarrow$ 9x-9 = 0
$\Rightarrow$ x=1

Sol 67. (c)
$x^4+\frac{1}{x^4}$ = 1442
$\Rightarrow x^2+\frac{1}{x^2} = \sqrt{1442+2}$ =38
...(If $a^2+\frac{1}{a^2}$ = k, then a+ $\frac{1}{a}$ = $\sqrt{k+2}$)
$\Rightarrow$ x- $\frac{1}{x}$ = $\sqrt{38-2}$ ...(If $a^2+\frac{1}{a^2}$ =
k, then a- $\frac{1}{a}$ = $\sqrt{k-2}$)
= 6

Sol 68. (a)
Given, x+ $\frac{1}{x}$ = 10,
$\Rightarrow x^3+\frac{1}{x^3} = 10^3-3(10)$ ...(If x+
$\frac{1}{x}$ = k, then $x^3+\frac{1}{x^3} = k^3-3k$)
= 970

Sol 69. (b)
Given,
a^2+b^2 = 99 and ab=11
We know that
(a^3+b^3) $\Rightarrow$ (a+b)(a^2+b^2-ab)
….(1)
And
$(a+b)^2 = a^2+b^2+2ab$
Put the given values
$\Rightarrow (a+b)^2 = 99+2(11) = 121$
$\Rightarrow$ (a+b)= $\sqrt{121} = 11$
Put the values in eq (1)
(a^3+b^3) $\Rightarrow$ (a+b)(a^2+b^2-ab)
$\Rightarrow$ (a^3+b^3)=(11)(99-11)=968

Sol 70. (a)
Given,
a^2+b^2 = 135 and ab=7
We know that
(a^3-b^3) $\Rightarrow$ (a-b)(a^2+b^2+ab)
….(1)
And
$(a-b)^2 = a^2+b^2-2ab$
Put the given values
$\Rightarrow (a-b)^2 = 135-2(7) = 121$
$\Rightarrow$ (a-b)= $\sqrt{121} = 11$
Put the values in eq (1)
(a^3-b^3) $\Rightarrow$ (a-b)(a^2+b^2+ab)
$\Rightarrow$ (a^3+b^3)=(11)(135+7)=1562

Sol 71. (d)

Given,
$(2x-7)^3+(2x-8)^3+(2x-3)^3$
$=3(2x-7)(2x-8)(2x-3)$
$\Rightarrow (2x-7)^3+$
$(2x-8)^3+(2x-3)^3$
$-3(2x-7)(2x-8)(2x-3)=0$
Now, $(2x-7)\neq(2x-8)\neq(2x-3)$
Clearly (2x-7)+(2x-8)+(2x-3) = 0
$\Rightarrow$ 6x-18 = 0
$\Rightarrow$ x = 3

Sol 72. (b)
Given, x = $\sqrt{3}-\sqrt{2}$
x- $\frac{1}{x}$ = $\sqrt{3}-\sqrt{2}-\frac{1}{\sqrt{3}-\sqrt{2}}$
= $\sqrt{3}-\sqrt{2}-\frac{1}{\sqrt{3}-\sqrt{2}}\times\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ = -2$\sqrt{2}$
$\Rightarrow x^3-\frac{1}{x^3}=(-2\sqrt{2})^3+3(-2\sqrt{2})$
...(If x- $\frac{1}{x}$ = k, then $x^3-\frac{1}{x^3}=k^3+3k$)
$=-16\sqrt{2}-6\sqrt{2}=-22\sqrt{2}$

Sol 73. (d)
Given,
$(2x+7)^3+(2x+8)^3+(2x+3)^3$
$=3(2x+7)(2x+8)(2x+3)$
$\Rightarrow (2x+7)^3+$
$(2x+8)^3+(2x+3)^3$
$-3(2x+7)(2x+8)(2x+3)=0$
Now, $(2x+7)\neq(2x+8)\neq(2x+3)$
Clearly (2x+7)+(2x+8)+(2x+3) = 0
$\Rightarrow$ 6x+18 = 0
$\Rightarrow$ x = -3

Sol 74. (a)
Given, $(x+7)^3+$
$(2x+8)^3+(2x+3)^3$
$=3(x+7)(2x+8)(2x+3)$
$\Rightarrow (x+7)^3+(2x+8)^3+(2x+3)^3$
$-3(x+7)(2x+8)(2x+3)=0$
Now, $(x+7)\neq(2x+8)\neq(2x+3)$
Clearly (x+7)+(2x+8)+(2x+3) = 0
$\Rightarrow$ 5x+18 = 0
$\Rightarrow$ x = -3.6

Sol 75.(c)
Given,
$(x-8)^3+(2x+16)^3+(2x-13)^3$
$=3(x-8)(2x+16)(2x-13)$
$\Rightarrow (x-8)^3+$
$(2x+16)^3+(2x-13)^3$
$-3(x-8)(2x+16)(2x-13)=0$
Now, (x-8) $\neq(2x+16)\neq(2x-13)$
Clearly (x-8)+(2x+16)+(2x-13) = 0
$\Rightarrow$ 5x-5 = 0
$\Rightarrow$ x = 1

Sol 76. (d)
Given, $3^{\sqrt[4]{x}}+4^{\sqrt[4]{x}}=5^{\sqrt[4]{x}}$
We know that 5,12 and 13 are triplet pairs
$\Rightarrow 5^2+12^2=13^2$
Comparing it with the question term
$\sqrt[4]{x}=2$
$\Rightarrow (\sqrt[4]{x})^4=2^4$
$\Rightarrow$ x=16

Sol 77. (c)
Given, x = 2+ $\sqrt{3}$
x- $\frac{1}{x}$ = 2+ $\sqrt{3}-\frac{1}{2+\sqrt{3}}$
= 2+ $\sqrt{3}-\frac{1}{2+\sqrt{3}}\times\frac{2-\sqrt{3}}{2-\sqrt{3}}=2\sqrt{3}$
$\Rightarrow x^3-\frac{1}{x^3}=(2\sqrt{3})^3+3(2\sqrt{3})$
...(If x- $\frac{1}{x}$ = k, then $x^3-\frac{1}{x^3}=k^3+3k$)
= $24\sqrt{3}+6\sqrt{3}$
= $30\sqrt{3}$

Sol 78. (b)
Given, $6^{\sqrt[4]{x}}+8^{\sqrt[4]{x}}=10^{\sqrt[4]{x}}$
We know that 6,8 and 10 are triplet pairs
$\Rightarrow 6^2+8^2=10^2$
Comparing it with the question term
$\sqrt[4]{x}=2$
$\Rightarrow (\sqrt[4]{x})^4=2^4$
$\Rightarrow$ x=16

Sol 79. (d)
Given,
$(x-7)^3+(2x+8)^3+(2x-3)^3$
$=3(x-7)(2x+8)(2x-3)$
$\Rightarrow (x-7)^3+(2x+8)^3+(2x-3)^3$
$-3(x-7)(2x+8)(2x-3)=0$
Now, (x-7) $\neq(2x+8)\neq(2x-3)$
Clearly (x-7)+(2x+8)+(2x-3) = 0
$\Rightarrow$ 5x-2 = 0
$\Rightarrow$ x = 0.4

Sol 80. (d)
$a^3+b^3=(a+b)(a^2+b^2-ab)$
$=(a+b)[(a+b)^2-2ab-ab]$
..(a^2+b^2) = $(a+b)^2-2ab$
$=(a+b)[(a+b)^2-3ab]$
Put the values
$a^3+b^3=(a+b)[(a+b)^2-3ab]$
$1344=28[(a+b)^2-3ab]$
$\Rightarrow (a+b)^2-3ab=48$

Sol 81. (c)
Given, x = 2+ $\sqrt{5}$
$\Rightarrow$ x- $\frac{1}{x}$ = 2+ $\sqrt{5}-\frac{1}{2+\sqrt{5}}$
= 2+ $\sqrt{5}-\frac{1}{2+\sqrt{5}}\times\frac{\sqrt{5}-2}{\sqrt{5}-2}$
= 2+ $\sqrt{5}-\sqrt{5}+2=4$
$x^3-x^{-3}=x^3-\frac{1}{x^3}=4^3+3(4)$
..(If x- $\frac{1}{x}$ = k, then $x^3-\frac{1}{x^3}=k^3+3k$)
= 76

Sol 82. (c) Given, $x^4+x^{-4}=47$
Simplifying question term
$(2x-3)^2=4x^2+9-12x$ ……(1)
Now,
$x^4+\frac{1}{x^4}=47$
$\Rightarrow x^2+\frac{1}{x^2}=\sqrt{47+2}=7$
...(If $a^2+\frac{1}{a^2}$ = k, then a+ $\frac{1}{a}=\sqrt{k+2}$)
$\Rightarrow$ x+ $\frac{1}{x}$ = $\sqrt{7+2}$ =3
$\Rightarrow x^2+1=3x$
$\Rightarrow x^2-3x=-1$

Multiplying both sides by 4
$\Rightarrow 4x^2 - 12x = -4$
Put this value in eq (1)
$\Rightarrow (2x-3)^2 = -4+9$
$= 5$

Sol 83. (b)
Given, $x = 2+\sqrt{5}$
$\Rightarrow x+\frac{1}{x} = 2+\sqrt{5}+\frac{1}{2+\sqrt{5}}$
$= 2+\sqrt{5}+\frac{1}{2+\sqrt{5}} \times \frac{\sqrt{5}-2}{\sqrt{5}-2}$
$= 2+\sqrt{5}+\sqrt{5}-2 = 2\sqrt{5}$
$x^3 + x^{-3} = x^3 + \frac{1}{x^3} =$
$(2\sqrt{5})^3 - 3(2\sqrt{5}) = = 34\sqrt{5}$
..(If $x+\frac{1}{x} = k$, then $x^3 + \frac{1}{x^3} = k^3 - 3k$)

Sol 84. (d)
$a^3 - b^3 = (a-b)(a^2 + b^2 + ab)$
$= (a-b)[(a-b)^2 + 2ab + ab]$
$..(a^2 + b^2) = (a-b)^2 + 2ab$
$= (a-b)[(a-b)^2 + 3ab]$
Put the values
$a^3 - b^3 = (a-b)[(a-b)^2 + 3ab]$
$899 = 31[(a-b)^2 + 3ab]$
$\Rightarrow (a-b)^2 + 3ab = 29$

Sol 85. (c) Given, $x^4 + x^{-4} = 194$
Simplifying question term
$(2x-4)^2 = 4x^2 + 16 - 16x$
……(1)
Now,
$x^4 + \frac{1}{x^4} = 194$
$\Rightarrow x^2 + \frac{1}{x^2} = \sqrt{194+2} = 14$
...(If $a^2 + \frac{1}{a^2} = k$, then $a+\frac{1}{a} = \sqrt{k+2}$)
$\Rightarrow x+\frac{1}{x} = \sqrt{14+2}$
$= 4$
$\Rightarrow x^2 + 1 = 4x$
$\Rightarrow x^2 - 4x = -1$
Multiplying both sides by 4
$\Rightarrow 4x^2 - 16x = -4$
Put this value in eq (1)
$\Rightarrow (2x-4)^2 = -4+16$
$= 12$

Sol 86. (b)
Given, $x-\frac{1}{x} = 7$
$x^3 - x^{-3} = x^3 - \frac{1}{x^3} = 7^3 + 3(7)$
..(If $x-\frac{1}{x} = k$, then $x^3 - \frac{1}{x^3} = k^3 + 3k$)
$= 364$

Sol 87. (a)
Given, $x^4 + x^{-4} = 1154$
Simplifying question term
$2(x-3)^2 = 2[x^2 + 9 - 6x]$
$= [2x^2 + 18 - 12x]$
……(1)
Now,
$x^4 + \frac{1}{x^4} = 1154$
$\Rightarrow x^2 + \frac{1}{x^2} = \sqrt{1154+2} = 34$
...(If $a^2 + \frac{1}{a^2} = k$, then $a+\frac{1}{a} = \sqrt{k+2}$)
$\Rightarrow x+\frac{1}{x} = \sqrt{34+2} = 6$
$\Rightarrow x^2 + 1 = 6x$
$\Rightarrow x^2 - 6x = -1$
Multiplying both sides by 2
$\Rightarrow 2x^2 - 12x = -2$
Put this value in eq (1)
$\Rightarrow 2(x-3)^2 = -2+18$
$= 16$

Sol 88. (d)
$a^3 - b^3 = (a-b)(a^2 + b^2 + ab)$
$= (a-b)[(a-b)^2 + 2ab + ab]$
$..(a^2 + b^2) = (a-b)^2 + 2ab$
$= (a-b)[(a-b)^2 + 3ab]$
Put the values
$a^3 - b^3 = (a-b)[(a-b)^2 + 3ab]$
$899 = 29[(a-b)^2 + 3ab]$
$\Rightarrow (a-b)^2 + 3ab = 31$

Sol 89. (b)
Given, $(3x+1)^3 + (x-3)^3 + (2x-4)^3$
$= 6(3x+1)(x-3)(x-2)$
$\Rightarrow (3x+1)^3 + (x-3)^3 + (2x-4)^3$
$= 3(3x+1)(x-3)(2x-4)$
$\Rightarrow (3x+1)^3 + (x-3)^3 + (2x-4)^3$
$- 3(3x+1)(x-3)(2x-4) = 0$
Now, $(3x+1) \neq (x-3) \neq (2x-4)$
Clearly $(3x+1)+(x-3)+(2x-4) = 0$
$\Rightarrow 6x-6 = 0$
$\Rightarrow x = 1$

Sol 90. (a)
Given, $(a+b+c) = 20$ and $a^2 + b^2 + c^2 = 152$.
We know that
$(a+b+c)^2 =$
$a^2 + b^2 + c^2 + 2(ab + bc + ca)$
Put the given values
$(20)^2 = 152 + 2(ab + bc + ca)$
$\Rightarrow 400 = 152 + 2(ab + bc + ca)$
$\Rightarrow (ab + bc + ca) = 124$

Sol 91.(a) Given, $a+\frac{1}{a} = 2$
Put a=1
$a+\frac{1}{a} = 1+\frac{1}{1} = 2$
2=2 condition satisfied
$a^4 - \frac{1}{a^4} = 1^4 - \frac{1}{1^4} = 0$

Alternate :
$a^4 - \frac{1}{a^4} = (a^2 + \frac{1}{a^2})(a^2 - \frac{1}{a^2})$
$= (a^2 + \frac{1}{a^2})(a - \frac{1}{a})(a + \frac{1}{a})$

……(1)
Now, $a+\frac{1}{a} = 2$
$\Rightarrow (a^2 + \frac{1}{a^2}) = 2^2 - 2 = 2$
...(If $a+\frac{1}{a} = k$, then $a^2 + \frac{1}{a^2} = k^2 - 2$)
$\Rightarrow (a - \frac{1}{a}) = \sqrt{2-2} = 0$
...(If $a^2 + \frac{1}{a^2} = k$, then $a-\frac{1}{a} = \sqrt{k-2}$)
Put the values in eq (1)
$a^4 - \frac{1}{a^4} = (2)(2)(0) = 0$

Sol 92. (b) Given, $a+\frac{1}{a} = 3$
$\Rightarrow x^3 + \frac{1}{x^3} = 3^3 - 3(3) = 18$
..(If $a+\frac{1}{a} = k$, then $a^3 + \frac{1}{a^3} = k^3 - 3k$)
$\Rightarrow x^6 + \frac{1}{x^6} = 18^2 - 2 = 322$

Pinnacle

..(If a+$\frac{1}{a}$ = k, then $a^2+\frac{1}{a^2}=k^2-2$)

Sol 93. (c)
Given, $a^2+b^2=169$ and ab= 60
Put a=12 and b= 5
$a^2+b^2=169 \Rightarrow 12^2+5^2=169$
$\Rightarrow$ 169=169
ab=60 $\Rightarrow 12\times5=60$
$\Rightarrow$ 60=60
Both the conditions satisfied
$(a^2-b^2)=(12^2-5^2)=119$
Alternate :
Simplifying question term
(a^2-b^2) = (a+b)(a-b) ….(1)
Now,
We know that
$(a+b)^2=a^2+b^2+2ab$
= 169 + 2(60)
= 289
a+b = $\sqrt{289}$ =17
Similarly
a-b = 7
Put these values in eq (1)
(a^2-b^2) = (17)(7) = 119

Sol 94. (a)
Given, $(3x+1)^3+(x-3)^3+(4-2x)^3+6(3x+1)(x-3)(x-2)=0$
$\Rightarrow (3x+1)^3+(x-3)^3+(4-2x)^3-3(3x+1)(x-3)(-2)(x-2)=0$
$\Rightarrow (3x+1)^3+(x-3)^3+(4-2x)^3-3(3x+1)(x-3)(4-2x)=0$
Now, (3x+1) $\neq$ (x – 3) $\neq$ (4 – 2x)
Clearly (3x+1)+(x-3)+(4-2x) = 0
$\Rightarrow$ 2x+2 = 0
$\Rightarrow$ x = -1

Sol 95 (c)
Given, a+$\frac{1}{a}$ = 2
Put a=1
a+$\frac{1}{a}$ = 2 $\Rightarrow$ 1+$\frac{1}{1}$ =2
$\Rightarrow$ 2=2 condition satisfied
$(a^{118}+\frac{1}{a^{117}}) \Rightarrow (1^{118}+\frac{1}{1^{117}})=2$

Sol 96. (d)
Given, a+b+c = 5 and ab+bc+ca = 4
We know that
$(a+b+c)^2=$
$a^2+b^2+c^2+2(ab+bc+ca)$
$\Rightarrow$ Put the given values
$(5)^2=a^2+b^2+c^2+2(4)$
$a^2+b^2+c^2=17$
Now,
$a^3+b^3+c^3-3abc=$
(a+b+c)(
$a^2+b^2+c^2-ab-bc-ca$)
= (5)(17-4) = 65

Sol 97. (d)
$a^3-b^3=$ (a-b)(a^2+b^2+ab)
= (a-b)[$(a+b)^2-2ab+ab$]
..(a^2+b^2) =
$(a+b)^2-2ab$
= (a-b)[$(a+b)^2-ab$]
Put the values
208 = 8[$(a+b)^2-ab$]
$\Rightarrow$ [$(a+b)^2-ab$]=26

Sol 98. (c)
x-$\frac{1}{x}$ =3$\sqrt{2}$
$\Rightarrow x^2+\frac{1}{x^2}=(3\sqrt{2})^2+2=20$
..(If a-$\frac{1}{a}$ = k, then $a^2+\frac{1}{a^2}=k^2+2$)

Sol 99. (c)
Given, $(2x-5)^3+(x+2)^3+(3x-9)^3$
$=(2-5)(3x-9)(3x+6)$
$\Rightarrow (2x-5)^3+(x+2)^3+(3x-9)^3-(2x-5)(3x-9)(3x+6)=0$
$\Rightarrow (2x-5)^3+(x+2)^3+(3x-9)^3 26-3(2x-5)(3x-9)(x+2)=0$
Now, (2x-5) $\neq$ (x + 2) $\neq$ (3x – 9)
Clearly (2x-5)+(x+2)+(3x-9) = 0
$\Rightarrow$ 6x-12 = 0
$\Rightarrow$ x = 2

Sol 100. (c)
Given,
$(2x+3)^3+(x-8)^3+(x+13)^3$
$=(2x+3)(3x-24)(x+13)$
$\Rightarrow (2x+3)^3+(x-8)^3+(x+13)^3-(2x+3)(3x-24)(x+13)=0$
$\Rightarrow (2x+3)^3+(x-8)^3+(x+13)^3-3(2x+3)(x-8)(x+13)$
Now, (2x+3) $\neq$ (x – 8) $\neq$ (x + 13)
Clearly (2x+3)+(x-8)+(x+13) = 0
$\Rightarrow$ 4x+8 = 0
$\Rightarrow$ x = -2

Sol 101. (a)
$a^3+b^3=$ (a+b)(a^2+b^2-ab)
= (a+b)[$(a-b)^2+2ab-ab$]
..(a^2+b^2) =
$(a-b)^2+2ab$
= (a+b)[$(a-b)^2+ab$]
Put the given values
5824 = 28 [$(a-b)^2+ab$]
208 = $(a-b)^2+ab$

Sol 102. (c)
x-$\frac{1}{x}$ =6
$\Rightarrow x^3-\frac{1}{x^3}=(6)^3+3(6)$
..(If a-$\frac{1}{a}$ = k, then $a^3-\frac{1}{a^3}=k^3+3k$)
= 216+18
= 234

Sol 103. (d)
x+$\frac{1}{x}$ =7
$\Rightarrow x^3+\frac{1}{x^3}=(7)^3-3(7)$
..(If a+$\frac{1}{a}$ = k, then $a^3+\frac{1}{a^3}=k^3-3k$)
= 343-21
= 322

Sol 104. (c)
$a^3-b^3=(a-b)(a^2+ab+b^2)$
$\Rightarrow 3552=6\times\{(a+b)^2-ab\}$
$\therefore (a+b)^2-ab=592$

Sol105. (d)

Given,
$(x-3)^3+(2x-5)^3+(x-4)^3$
$=(3x-9)(2x-5)(x-4)$
$\Rightarrow (x-3)^3+(2x-5)^3+(x-4)^3$
$-(3x-9)(2x-5)(x-4)=0$
$\Rightarrow (x-3)^3+(2x-5)^3+(x-4)^3$
$-3(x-3)(2x-5)(x-4)=0$
Now, (x-3) ≠ (2x – 5) ≠ (x – 4)
Clearly (x-3)+(2x-5)+(x-4) = 0
⇒ 4x-12 = 0
⇒ x = 3

Sol 106. (a)
$a^3-b^3=$ (a-b)(a^2+b^2+ab)
$=$ (a-b)$[(a+b)^2-2ab+ab]$
$..(a^2+b^2) = (a+b)^2-2ab$
$=$ (a-b)$[(a+b)^2-ab]$
Put the given values
$208 = 4[(a+b)^2-ab]$
$52 = (a+b)^2-ab$

Sol 107. (a)
$x+\frac{1}{x}=5$
$\Rightarrow x^3+\frac{1}{x^3}=(5)^3-3(5)$
..(If $a+\frac{1}{a}=k$, then $a^3+\frac{1}{a^3}=k^3-3k$)
= 125-15
= 110

Sol 108. (a)
Given, $(x-5)^3+(x-6)^3+(x-7)^3 = 3(x-5)(x-6)(x-7)$
$\Rightarrow (x-5)^3+(x-6)^3+(x-7)^3-3(x-5)(x-6)(x-7)=0$
Now, (x-5) ≠ (x – 6) ≠ (x – 7)
Clearly (x-5)+(x-6)+(x-7) = 0
⇒ 3x-18 = 0
⇒ x = 6

Sol 109. (c)
$(a+b)^2-ab=\frac{1603}{7}=229$

Sol 110. (b) Given equation:
$(x+4)^3+(2x+1)^3+(2x+5)^3 = (3x+12)(2x+1)(2x+5)$
$\Rightarrow (x+4)^3+(2x+1)^3+(2x+5)^3-(3x+12)(2x+1)(2x+5)=0$
$\Rightarrow (x+4)^3+(2x+1)^3+(2x+5)^3-3(x+4)(2x+1)(2x+5)=0$
Now, (x+4) ≠ (2x + 1) ≠ (2x + 5)
Clearly (x+4)+(2x+1)+(2x+5) = 0
⇒ 5x+10 = 0
⇒ x = -2

Sol 111. (a)
Given, $x+\frac{1}{x}=8$
$x^2+\frac{1}{x^2}=(8)^2-2=62$
..(If $a+\frac{1}{a}=k$, then $a^2+\frac{1}{a^2}=k^2-2$)

Sol 112. (b)
Given, $x^2+\frac{1}{x^2}=11$
$\Rightarrow x-\frac{1}{x}=\sqrt{11-2}=3$
..(If $a^2+\frac{1}{a^2}=k$, then $a-\frac{1}{a}=\sqrt{k-2}$)

Sol 113. (c)
Given, $x-\frac{1}{x}=4$
$\Rightarrow (x-\frac{1}{x})^3=64$
….(1)
Also,
$(x-\frac{1}{x})^3=x^3-\frac{1}{x^3}-3x.\frac{1}{x}(x-\frac{1}{x})$
….(2)
From (1) and (2)
$\Rightarrow x^3-\frac{1}{x^3}-3\times 4=64$
Therefore, $x^3-\frac{1}{x^3}=76$

Sol 114.(d)
We know that,
$(a+b-c)^2=$
$a^2+b^2+c^2+2(ab-bc-ca)$
Put the given values
$7^2=a^2+b^2+c^2+2(21)$
$7=a^2+b^2+c^2$
Now,
$a^3+b^3-c^3+3abc = (a+b-c)[a^2+b^2+c^2-(ab-bc-ca)]$
= (7)(7-21) = -98

Sol 115. (c)
$(a+b)^2=a^2+b^2+2ab$
Put the given values
$\Rightarrow (8)^2=a^2+b^2+2(-12)$
$\Rightarrow 88=a^2+b^2$
……(1)
We know that
$a^3+b^3=$ (a+b)(a^2+b^2-ab)
= (8)[88-(-12)] = 800

Sol 116. (c)
$x+\frac{1}{x}=2$ then,
$x^3+\frac{1}{x^3}=(2^3-3\times 2)$ ..(If $a+\frac{1}{a}=k$, then $a^3+\frac{1}{a^3}=k^3-3k$)
= 2
Alternate :
Put x = 1
$\Rightarrow x^3+\frac{1}{x^3}=1^3+\frac{1}{1^3}=2$

Sol 117. (c)
Given, $x+\frac{1}{x}=2\sqrt{3}$
$x^2+\frac{1}{x^2}=(2\sqrt{3})^2-2=10$
..(If $a+\frac{1}{a}=k$, then $a^2+\frac{1}{a^2}=k^2-2$)

Sol 118. (c)
$(2x-1)^3+(3x-4)^3+(x-7)^3 = (6x-3)(3x-4)(x-7)$
$\Rightarrow (2x-1)^3+(3x-4)^3+(x-7)^3 = 3(2x-1)(3x-4)(x-7)$
$\Rightarrow (2x-1)^3+(3x-4)^3+(x-7)^3-3(2x-1)(3x-4)(x-7)=0$
Now,
(2x-1) ≠ (3x-4) ≠ (x-7)
Clearly, (2x-1)+(3x-4)+(x-7) = 0
6x-12 = 0
6x = 12
x=2

Sol 119. (d)
$a^3+b^3=$ (a+b)(a^2+b^2-ab)
$416 = 16(a^2+b^2-ab)$
$26 = (a-b)^2+ab$
….{$(a^2+b^2)=(a-b)^2+2ab$}

Sol 120. (d)

$x - \frac{1}{x} = 2\sqrt{2}$

$x^2 + \frac{1}{x^2} = (2\sqrt{2})^2 + 2$

..(If a- $\frac{1}{a}$ = k, then $a^2 + \frac{1}{a^2} = k^2 + 2$)

= 10

Sol 121. (b)

$(x - 2)^3 + (x - 3)^3 + (x - 10)^3 =$ (x - 2) (x - 3) (3x - 30)

$\Rightarrow (x-2)^3 + (x-3)^3 + (x-10)^3$ - (x-2)(x-3)(3x-30) = 0

$\Rightarrow (x-2)^3 + (x-3)^3 + (x-10)^3$ - 3(x-2)(x-3)(x-10) = 0

Now, $(x-2) \neq (x-3) \neq (x-10)$

Clearly, x-2+x-3+x-10 = 0

3x-15 = 0

x=5

Sol 122. (b)

Given, $(2x - 5)^3 + (x - 4)^3 + (x - 11)^3 = 3$ (2x-5) (x-4) (x-11)

$\Rightarrow (2x - 5)^3 + (x - 4)^3 + (x - 11)^3$ - 3 (2x-5) (x-4) (x-11)=0

Now,

$(2x-5) \neq (x-4) \neq (x-11)$

Clearly,

$2x - 5 + x - 4 + x - 11 = 0$

$\Rightarrow 4x = 20$

$\Rightarrow x = 5$

Sol 123. (a)

Given, $a^3 - b^3 = 416$ and (a-b) = 8

We know that

$(a^3 - b^3) =$ (a-b)$(a^2 + b^2 + ab)$

Put the given values

$416 = 8(a^2 + b^2 + ab)$

$52 = (a+b)^2$ -ab

$\ldots.\{(a^2 + b^2) = (a+b)^2$ -2ab$\}$

Sol 124. (a) Given, $x + \frac{1}{x} = 4\sqrt{3}$

$\Rightarrow x^2 + \frac{1}{x^2} = 48 - 2$

..(If a+ $\frac{1}{a}$ = k, then $a^2 + \frac{1}{a^2} = k^2 - 2$)

=46

Sol 125. (b)

Given, $(x-6)^3 + (x-4)^3 + (x-5)^3 =$(3x-15)(x-4)(x-6)

$\Rightarrow (x-6)^3 + (x-4)^3 + (x-5)^3$ - (3x-15)(x-4)(x-6) = 0

$\Rightarrow (x-6)^3 + (x-4)^3 + (x-5)^3$ - 3(x-5)(x-4)(x-6) = 0

Now, $(x-6) \neq (x-4) \neq (x-5)$

Clearly, x-6+x-4+x-5 = 0

3x-15 = 0

x=5

Sol 126. (c)

Given, x + $\frac{1}{x}$ =3 $\sqrt{2}$

$\Rightarrow x^2 + \frac{1}{x^2} = (3\sqrt{2})^2 - 2$ ..(If a+ $\frac{1}{a}$ = k, then $a^2 + \frac{1}{a^2} = k^2 - 2$)

= 18-2 = 16

Sol 127. (a)

Given,

$x^4 + \frac{1}{x^4} = 1442$

$\Rightarrow x^2 + \frac{1}{x^2} = \sqrt{1442 + 2} = 38$

….(If $a^2 + \frac{1}{a^2}$ = k, then $a + \frac{1}{a} = \sqrt{k+2}$)

$\Rightarrow x + \frac{1}{x} = \sqrt{38+2} = 2\sqrt{10}$

Sol 128. (a)

x = 2+ $\sqrt{3}$

$\frac{1}{x} = \frac{1}{2+\sqrt{3}} = \frac{1}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}} = 2 - \sqrt{3}$

x+ $\frac{1}{x}$ = 2+ $\sqrt{3}$ +2- $\sqrt{3}$ = 4

$x^3 + \frac{1}{x^3} = 4^3 - 3(4) = 52$

...(If x+ $\frac{1}{x}$ = k, then $x^3 + \frac{1}{x^3} = k^3 - 3k$)

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Sol 1. (d)

Given, $x^8 - 1442x^4 + 1 = 0$

$\Rightarrow x^8 + 1 = 1442x^4$

Dividing both sides by x^4

$\Rightarrow x^4 + \frac{1}{x^4} = 1442$

$\Rightarrow x^2 + \frac{1}{x^2} = \sqrt{1442+2} = 38$

...(If $a^2 + \frac{1}{a^2}$ = k, then a+ $\frac{1}{a} = \sqrt{k+2}$)

$\Rightarrow$ x- $\frac{1}{x} = \sqrt{38-2} = 6$

...(If $a^2 + \frac{1}{a^2}$ = k, then a- $\frac{1}{a} = \sqrt{k-2}$)

Sol 2. (c)

Given,

$\sqrt{86 - 60\sqrt{2}}$ =a-b $\sqrt{2}$ …(1)

But

$\sqrt{86 - 60\sqrt{2}} \Rightarrow \sqrt{36 + 50 - 2 \times 6 \times 5\sqrt{2}}$

$\Rightarrow \sqrt{(6 - 5\sqrt{2})^2}$

$\Rightarrow (6 - 5\sqrt{2})$

Comparing this with equation (1)

a=6, b=5

Now, $\sqrt{a^2 + b^2} = \sqrt{6^2 + 5^2}$

$= \sqrt{61} \approx 7.8$

Sol 3. (c)

Given,

$a^2 + b^2 + c^2 + 96 = 8(a + b - 2c)$

$\Rightarrow$

$a^2 + b^2 + c^2 + 96 - 8(a + b - 2c)$ =0

$\Rightarrow a^2$ +16 - 8a + b^2 +16 - 8b + c^2 +64+16b = 0

$\Rightarrow$

$(a-4)^2 + (b-4)^2 + (c+8)^2$ = 0

Sum of the square of the terms is equal to zero only if the terms themselves are zero.

(a-4)=0, (b-4)=0 and (c+8)=0

$\Rightarrow$ a= 4 and b= 4 and c=-8

$\sqrt{ab - bc + ca} \Rightarrow \sqrt{(4 \times 4) - (4 \times -8) + (-8 \times 4)}$ =4

Sol 4. (a)

Given, x+y+z=11,

$x^2 + y^2 + z^2 = 133$ and

$x^3 + y^3 + z^3 = 881$

We know that,

$\Rightarrow$

$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz +$

zx)

$\Rightarrow (11)^2 = 133 + 2(xy + yz + zx)$

$\Rightarrow$ -6 = (xy+yz+zx)

Now,

$x^3 + y^3 + z^3 - 3xyz =$ (x+y+z)($x^2 + y^2 + z^2$ -xy-yz-zx)

$881 - 3xyz = (11)\{133-(-6)\}$

$881 - 3xyz = 1529$

$\Rightarrow$ xyz =-216

$\Rightarrow \sqrt[3]{xyz} = \sqrt[3]{-216} = -6$

Sol 5. (d)

Given,

a+b+c = $1\frac{11}{12}$ …(1)

and $\frac{c}{a} = \frac{5}{2}$

Let c = 5 unit and a = 2 unit

According to the question

b = $\frac{5}{2} - \frac{7}{4} = \frac{3}{4}$

Put this value in eq (1)

$\Rightarrow$ a+c = $\frac{23}{12} - \frac{3}{4} = \frac{7}{6}$

$\Rightarrow$ (5+2) unit = $\frac{7}{6}$

$\Rightarrow$ 1 unit = $\frac{1}{6}$

$\Rightarrow$ 5 unit = $\frac{5}{6}$

$\Rightarrow$ 2 unit = $\frac{1}{3}$

Required difference = $\frac{5}{6} - \frac{1}{3} = \frac{1}{2}$

Sol 6. (a)

Given,

$x = \sqrt{1 + \frac{\sqrt{3}}{2}} - \sqrt{1 - \frac{\sqrt{3}}{2}}$

$\Rightarrow x = \sqrt{\frac{2+\sqrt{3}}{2}} - \sqrt{\frac{2-\sqrt{3}}{2}}$

Multiply and divide by 2

$\Rightarrow x = \sqrt{\frac{4+2\sqrt{3}}{4}} - \sqrt{\frac{4-2\sqrt{3}}{4}}$

$= \sqrt{(\frac{\sqrt{3}+1}{2})^2} - \sqrt{(\frac{\sqrt{3}-1}{2})^2}$

$= \frac{\sqrt{3}+1}{2} - \frac{\sqrt{3}-1}{2} = 1$

Now,

$\frac{\sqrt{2}-x}{\sqrt{2}+x} = \frac{\sqrt{2}-1}{\sqrt{2}+1}$

$= \frac{\sqrt{2}-1}{\sqrt{2}+1} \times \frac{\sqrt{2}-1}{\sqrt{2}-1} = 3-2\sqrt{2} \approx 0.17$

Sol 7. (b)

$a^3 + b^3 = (a+b)(a^2 + b^2 - ab)$

$218 = 2(a^2 + b^2 - ab)$

$109 = (a+b)^2 - 3ab$

$\ldots.\{(a^2 + b^2) = (a+b)^2 - 2ab\}$

$109 = 2^2 - 3ab$

$\Rightarrow$ ab = -35

Sol 8. (b)

Given,

$2\sqrt{2}\,x^3 - 3\sqrt{3}\,y^3 = (\sqrt{2}x - \sqrt{3}y)(Ax^2 + By^2 + Cxy)$

We know that

$2\sqrt{2}\,x^3 - 3\sqrt{3}\,y^3 = (\sqrt{2}x - \sqrt{3}y)(2x^2 + 3y^2 + \sqrt{6}xy)$

$\Rightarrow (\sqrt{2}x - \sqrt{3}y)(2x^2 + 3y^2 + \sqrt{6}xy) = (\sqrt{2}x - \sqrt{3}y)(Ax^2 + By^2 + Cxy)$

$\Rightarrow (2x^2 + 3y^2 + \sqrt{6}xy) = (Ax^2 + By^2 + Cxy)$

Comparing given terms

$\Rightarrow$ A = 2, B = 3 and C = $\sqrt{6}$

$A^2 + B^2 - C^2 =$

$4^2 + 3^2 - (\sqrt{6})^2 = 7$

Sol 9. (c)

Given,

x+y+z = $1\frac{13}{24}$ …(1)

and $\frac{z}{x} = \frac{9}{16}$

Let z = 9 unit and x = 16 unit

According to the question

y = $\frac{9}{16}$ -0.0625

= $\frac{9}{16} - \frac{625}{10000} = \frac{1}{2}$

Put this value in eq (1)

$\Rightarrow$ x+z = $\frac{37}{24} - \frac{1}{2} = \frac{25}{24}$

Sol 10. (a)

Given, x+ $\frac{1}{16x}$ =3

Multiplying both sides by 4

$\Rightarrow$ 4x+ $\frac{1}{4x}$ =12

$64x^3 + \frac{1}{64x^3} = (12^3 - 3 \times 12)$

..(If a+ $\frac{1}{a}$ = k, then $a^3 + \frac{1}{a^3} = k^3 - 3k$)

= 1692

Exploring question term

$16x^3 + \frac{1}{256x^3} = \frac{1}{4} \times 4 \times (16x^3 + \frac{1}{256x^3})$

$= \frac{1}{4}(64x^3 + \frac{1}{64x^3})$

$\Rightarrow \frac{1}{4} \times 1692 = 423$

Sol 11. (a)

Given, x+y+z=2, $xy + yz + zx = -11$ and $xyz = -12$

We know that,

$\Rightarrow (x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$

$\Rightarrow (2)^2 = x^2 + y^2 + z^2 + 2(-11)$

$\Rightarrow 26 = x^2 + y^2 + z^2$

Now,

$x^3 + y^3 + z^3 - 3xyz =$ (x+y+z)($x^2 + y^2 + z^2$ -xy-yz-zx)

$x^3 + y^3 + z^3 - 3(-12) =$ (2){26-(-11)}

$x^3 + y^3 + z^3 = 74-36 = 38$

$\sqrt{x^3 + y^3 + z^3 - 2} = \sqrt{38 - 2} = 6$

Sol 12. (b)

Given, $x^4 - 83x^2 + 1 = 0$

$x^4 + 1 = 83x^2$

Multiplying both sides by x^2

$\Rightarrow x^2 + \frac{1}{x^2} = 83$

$\Rightarrow$ x- $\frac{1}{x} = \sqrt{83 - 2}$

...(If $a^2 + \frac{1}{a^2} = k$, then a- $\frac{1}{a} = \sqrt{k-2}$)

=9

$x^3 - x^{-3} \Rightarrow x^3 - \frac{1}{x^3}$

$x^3 - \frac{1}{x^3} = 9^3 + 3(9)$ ..(if a- $\frac{1}{a}$ =k, then, $a^3 - \frac{1}{a^3} = k^3 + 3k$)

= 756

Sol 13. (a)

Given,

$(5x + 1)^3 + (x - 3)^3 + 8(3x - 4)^3$

$= 6(5x+1)(x-3)(3x-4)$

$\Rightarrow$

$(5x+1)^3 + (x-3)^3 + 8(3x-4)^3 - 6(5x+1)(x-3)(3x-4) = 0$

$\Rightarrow$

$(5x+1)^3 + (x-3)^3 + \{2(3x-4)\}^3 - 3(5x+1)(x-3)\{2(3x-4)\} = 0$

Now, $(5x+1) \neq (x-3) \neq (6x-8)$

Clearly, $5x+1+x-3+6x-8 = 0$

$12x-10 = 0$

$x = \frac{5}{6}$

Sol 14. (b)

Given,

$8x^3 - 27y^3 = (Ax+By)(Cx^2 - Dy^2 + 6xy)$

We know that

$8x^3 - 27y^3 = (2x-3y)(4x^2 + 9y^2 + 6xy)$

$\Rightarrow (2x-3y)(4x^2 + 9y^2 + 6xy) = (Ax+By)(Cx^2 - Dy^2 + 6xy)$

Comparing given terms

$\Rightarrow A = 2, B = -3, C = 4$ and $D = -9$

$(A+B+C-D) = 2+(-3)+4-(-9) = 12$

Sol 15. (a)

$x = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$

$\Rightarrow x = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}} \times \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}-\sqrt{3}}$

$\Rightarrow \frac{(\sqrt{5}-\sqrt{3})^2}{2} = 4-\sqrt{15}$

Now,

$y = \frac{1}{x} = \frac{1}{4-\sqrt{15}}$

Applying rationalization

$= \frac{1}{4-\sqrt{15}} \times \frac{4+\sqrt{15}}{4+\sqrt{15}} = 4+\sqrt{15}$

Now,

$x+y = x+\frac{1}{x} = 4-\sqrt{15} + 4 + \sqrt{15} = 8$

$(x^3+y^3) = x^3 + \frac{1}{x}^3 = 8^3 - 3(8)$ ..(if $a+\frac{1}{a} = k$, then, $a^3 + \frac{1}{a^3} = k^3 - 3k$)

$= 488$

Sol 16. (b)

Given,

$\sqrt{10-2\sqrt{21}} + \sqrt{8+2\sqrt{15}} = \sqrt{a} + \sqrt{b}$ .....(1)

Now,

$\sqrt{10-2\sqrt{21}} = \sqrt{7+3-2\times\sqrt{7}\times\sqrt{3}} = \sqrt{(\sqrt{7}-\sqrt{3})^2} = (\sqrt{7}-\sqrt{3})$

and

$\sqrt{8+2\sqrt{15}} = \sqrt{5+3+2\times\sqrt{5}\times\sqrt{3}} = \sqrt{(\sqrt{5}+\sqrt{3})^2} = (\sqrt{5}+\sqrt{3})$

$\sqrt{10-2\sqrt{21}} + \sqrt{8+2\sqrt{15}} = (\sqrt{7}-\sqrt{3}) + (\sqrt{5}+\sqrt{3}) = (\sqrt{7}+\sqrt{5})$

Comparing this with the equation (1)

$\Rightarrow a=7$ and $b=5$

$\sqrt{ab} = \sqrt{7\times5} \approx 5.9$

Sol 17. (d)

Put a=2, b=1 and c=0

$ab(a-b)+bc(b-c)+ca(c-a) = 2\times1(2-1)+1\times0(1-0)+0\times2(0-2)$

$= 2$

Now, Go throw options

Choose option d

$(b-a)(b-c)(c-a) \Rightarrow (1-2)(1-0)(0-2) = 2$

Condition satisfied.

Similarly you can put these values in other options but only option d will satisfy the condition

Sol 18. (b)

Given,

$(5x-3)^3 + (2x+5)^3 + 27(4-3x)^3 = 9(3-5x)(2x+5)(3x-4)$

$\Rightarrow$

$(5x-3)^3 + (2x+5)^3 + 27(4-3x)^3 - 9(3-5x)(2x+5)(3x-4) = 0$

$\Rightarrow (5x-3)^3 + (2x+5)^3 + \{3(4-3x)\}^3 - 9(-1)(5x-3)(2x+5)(-1)(4-3x) = 0$

$\Rightarrow$

$(5x-3)^3 + (2x+5)^3 + (12-9x)^3 - 3(5x-3)(2x+5)\{3(4-3x)\} = 0$

$\Rightarrow$

$(5x-3)^3 + (2x+5)^3 + (12-9x)^3 - 3(5x-3)(2x+5)(12-9x) = 0$

Now, $(5x-3) \neq (2x+5) \neq (12-9x)$

Clearly, $5x-3+2x+5+12-9x = 0$

$-2x+14 = 0$

$x=7$

$(2x+1) = 2(7)+1 = 15$

Sol 19. (b)

Given,

$5\sqrt{5}\,x^3 + 2\sqrt{2}y^3 = (Ax+\sqrt{2}y)(Bx^2 + 2y^2 + Cxy)$

We know that

$5\sqrt{5}\,x^3 + 2\sqrt{2}y^3 = (\sqrt{5}x+\sqrt{2}y)(5x^2 + 2y^2 - \sqrt{10}xy)$

$\Rightarrow (\sqrt{5}x+\sqrt{2}y)(5x^2 + 2y^2 - \sqrt{10}xy) = (Ax+\sqrt{2}y)(Bx^2 + 2y^2 + Cxy)$

Comparing given terms

$\Rightarrow A = \sqrt{5}$, $B = 5$ and $C = -\sqrt{10}$

$(A^2 + B^2 - C^2) = ((\sqrt{5})^2 + (5)^2 - (-\sqrt{10})^2)$

$= 20$

Sol 20. (d)

Given, $\frac{3(x^2+1)-7x}{3x} = 6$

$\Rightarrow \frac{3x^2+3-7x}{3x} = 6$

$\Rightarrow x+\frac{1}{x} = \frac{25}{3}$

$\Rightarrow \sqrt{x}+\frac{1}{\sqrt{x}} = \sqrt{\frac{25}{3}+2}$ ...(If $a^2 + \frac{1}{a^2} = k$, then $a+\frac{1}{a} = \sqrt{k+2}$)

$= \sqrt{\frac{31}{3}}$

Sol 21. (d)
Given,
a+b+c = $\frac{19}{12}$ …(1)
and $\frac{c}{a} = \frac{9}{2}$
Let c = 9 unit and a = 2 unit
According to the question
b = $\frac{9}{2} - \frac{23}{6} = \frac{2}{3}$
Put this value in eq (1)
⇒ a+c = $\frac{19}{12} - \frac{2}{3} = \frac{11}{12}$
⇒ (9+2) unit = $\frac{11}{12}$
⇒ 1 unit = $\frac{1}{12}$
⇒ 9 unit = $\frac{3}{4}$
⇒ 2 unit = $\frac{1}{6}$
(2a+b-c) = $2(\frac{1}{6}) + \frac{2}{3} - \frac{3}{4} = \frac{1}{4}$

Sol 22. (a)
Given, $x = \sqrt[6]{27} - \sqrt{6\frac{3}{4}}$ and $y = \frac{\sqrt{45}+\sqrt{605}+\sqrt{245}}{\sqrt{80}+\sqrt{125}}$
$\Rightarrow x^2 = (\sqrt[6]{27} - \sqrt{6\frac{3}{4}})^2$
$= \sqrt[3]{27} + \frac{27}{4} - 2 \times \sqrt[6]{27} \times \sqrt{6\frac{3}{4}}$
$= 3 + \frac{27}{4} - 9 = \frac{3}{4}$
$y = \frac{\sqrt{45}+\sqrt{605}+\sqrt{245}}{\sqrt{80}+\sqrt{125}}$
$= y = \frac{3\sqrt{5}+11\sqrt{5}+7\sqrt{5}}{4\sqrt{5}+5\sqrt{5}} = \frac{7}{3}$
$\Rightarrow y^2 = \frac{49}{9}$
$x^2 + y^2 = \frac{3}{4} + \frac{49}{9} = \frac{223}{36}$

Sol 23. (a)
Given, x+y+z=6, xyz=-10
and $x^2 + y^2 + z^2 = 30$
We know that,
$\Rightarrow (x+y+z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$
$\Rightarrow (6)^2 = 30 + 2(xy + yz + zx)$
$\Rightarrow 3 = (xy + yz + zx)$
Now,
$x^3 + y^3 + z^3 - 3xyz =$
$(x+y+z)(x^2 + y^2 + z^2 - xy - yz - zx)$
$x^3 + y^3 + z^3 - 3(-10) =$
$(6)\{30-(3)\}$
$x^3 + y^3 + z^3 = 162-30$
$= 132$

SSC CGL 2019 TIER I

Sol 1. (a)
Given, $x^{2a} = y^{2b} = z^{2c} \neq 0$ ……(1)
and $x^2 = yz$ ……(2)
Let x = y = z = m
…(where m is any integer value)
put these value in eq (2)
$x^2 = yz \Rightarrow m^2 = m \times m$
…….(condition satisfied)
put these value in eq (1)
$x^{2a} = y^{2b} = z^{2c} \Rightarrow m^{2a} = m^{2b} = m^{2c} \neq 0$ …(3)
….(m is an integer value)
in equation (3) since base is same power must be same
⇒ 2a = 2b = 2c
⇒ a=b=c
let a = b = c = k
$\frac{ab+bc+ca}{bc} \Rightarrow \frac{(k\times k)+(k\times k)+(k\times k)}{k\times k} = \frac{3k^2}{k^2} = 3$

Sol 2. (b) It is given that
x - y = 4 and xy = 45
We know $x^3 - y^3 = (x-y)(x^2 + y^2 + xy)$
Thus, the answer should be multiple of 4.
Directly check the last two digits of the options which is multiple of 4 and mark the answer.

Sol 3. (c) x + y = 8, y + z = 13 and z + x = 17
On adding above equations,
2(x+y+z) = 38
x+y+z = 19
x= 6
y= 2
z= 11
$\frac{x^2}{yz} = \frac{6\times6}{2\times11} = \frac{18}{11}$

Sol 4. (a) $(a+b-c)^3+(a-b+c)^3-8a^3$
$\Rightarrow (a+b-c)^3+(a-b+c)^3+(-2a)^3$
We know that if x+y+z =0
Then $x^3+y^3+z^3 = 3xyz$
Here, x= a+b-c
y= a-b+c
z= -2a
So, $(a+b-c)^3+(a-b+c)^3-8a^3 =$ 6a(a-b+c)(c-a-b)
Alternate
Put a = 1 and b=c=0
$(a+b-c)^3+(a-b+c)^3-8a^3 \Rightarrow (1+0-0)^3+(1-0+0)^3-8(1)^3 = 1+1-8 = -6$
now go through options
option A
6a(a-b+c)(c-a-b) ⇒
6(1)(1-0+0)(0-1-0) = -6
condition satisfied hence option A is the right answer.

Sol 5. (c) $x^4+x^2y^2+y^4 = (x^2+y^2+xy)(x^2+y^2-xy)$
Given that: $x^4+x^2y^2+y^4 = 21$
$x^2+xy+y^2 = 7$
Then, $x^2+y^2-xy = 3$
On solving above equations:
$x^2+y^2 = 5$
xy = 2
$\frac{1}{x^2} + \frac{1}{y^2} = \frac{x2+y2}{x^2y^2} = \frac{5}{4}$

Sol 6. (b) $x^2+3x+1=0$
Then, $x + \frac{1}{x} = -3$
$\Rightarrow x^2 + \frac{1}{x^2} = 7$
$\Rightarrow x^6 + \frac{1}{x^6} = 322$

Sol 7. (a) In the equation:
$(a+b-c+d)^2 - (a-b+c-d)^2$
Use formula :
$x^2-y^2 = (x-y)(x+y)$
$(a+b-c+d)^2 - (a-b+c-d)^2 =$ (a+b-c+d+a-b+c-d)(a+b-c+d-a+b-c+d)
(2a)(2(b-c+d))
4a(b-c+d)

Sol 8. (c) We know,
$x^3 - y^3 = (x-y)(x^2+y^2+xy)$

Pinnacle

$27a^3 - 2\sqrt{2}\,b^3 = (3a)^3 - (\sqrt{2})^3$
$=(3a-\sqrt{2}\,b)(9a^2 + 2b^2 + 3\sqrt{2}\,ab)$

Sol 9. (d) It is known that:
$a^3+b^3+c^3-3abc =$
$(a+b+c)(a^2+b^2+c^2-ab-bc-ca)$
Given: $a+b+c = 11$
$ab+bc+ca = 3$
$abc = -135$
On squaring: we get,
$a^2+b^2+c^2+2(ab+bc+ca)=121$
$a^2+b^2+c^2+2(3)= 121$
$a^2+b^2+c^2=115$
Thus,
$a^3+b^3+c^3-3(-135) = (11)(115-3)$
$\Rightarrow a^3+b^3+c^3+405 = 1232$
$\Rightarrow a^3+b^3+c^3= 827$

Sol 10. (c) $5x+\frac{1}{3x} = 4$
Multiply by $\frac{3}{5}$ on both sides
We get:
$3x+\frac{1}{5x} = \frac{12}{5}$
Square both sides:
$9x^2+\frac{1}{25x^2} + \frac{6}{5} = \frac{144}{25}$
$9x^2+\frac{1}{25x^2} = \frac{114}{25}$

Sol 11. (a)
$\frac{x^3-y^3}{x[(x+y)^2-3xy]} \div \frac{y[(x-y)^2+3xy]}{x^3+y^3} \times \frac{(x+y)^2-(x-y)^2}{x^2-y^2}$
$\Rightarrow \frac{x^3-y^3}{x[(x+y)^2-3xy]} \times \frac{x^3+y^3}{y[(x-y)^2+3xy]} \times \frac{(x+y)^2-(x-y)^2}{x^2-y^2}$
$\Rightarrow \frac{x-y}{x} \times \frac{x+y}{y} \times \frac{4xy}{(x-y)(x+y)} \Rightarrow 4$

Sol 12. (a) $P= \frac{x^4-8x}{x^3-x^2-2x} = \frac{x^3-8}{x^2-x-2}$
Now, put $x = 0$ in $P= \frac{x^3-8}{x^2-x-2}$, $Q= \frac{x^2+2x+1}{x^2-4x-5}$ and $R= \frac{2x^2+4x+8}{x-5}$
We get:
$P = 4$, $Q = -\frac{1}{5}$ and $R = -\frac{8}{5}$
Then, $(P \times Q) \div R = (-\frac{4}{5}) \div (-\frac{8}{5}) = \frac{1}{2}$

Sol 13. (a) Given:
$a+b+c = 7$ and $ab+bc+ac= -6$
And
$a^3+b^3+c^3-3abc =$
$(a+b+c)[a^2+b^2+c^2-(ab+bc+ca)]$
Here we can directly check options which are multiple of 7 or solve by putting values.

Sol 14. (d) Given: $30x^2-15x+1= 0$
$30x^2+1=15x \Rightarrow 30x + \frac{1}{x} = 15$
Multiply by $\frac{1}{6}$ both sides
We get:
$5x + \frac{1}{6x} = \frac{5}{2}$
Squaring both sides we get:
$25x^2+(36x^2)^{-1}+ \frac{5}{3} = \frac{25}{4}$
$25x^2+(36x^2)^{-1} = \frac{55}{12}$

Sol 15. (b) It is given that $x+y+z = 3$...(i) and $x^2+y^2+z^2 = 101$…(ii)
On squaring (i), we get:
$x^2+y^2+z^2+ 2(xy+yz+zx)= 9$
$101+2(xy+yz+zx) = 9$
$xy+yz+zx = -46$

$\sqrt{x^3+y^3+z^3-3xyz} =$
$\sqrt{(x+y+z)(x^2+y^2+z^2-(xy+yz+zx))}$
$= \sqrt{(3)(101-(-46))} =$
$\sqrt{(3)(147)} = 21$

Sol 16. (b) $2x^2+y^2+8z^2-2\sqrt{2}xy+4\sqrt{2}yz-8zx = (Ax+y+Bz)^2$
$\Rightarrow (-\sqrt{2}\,x)^2+y^2+(2\sqrt{2}\,z)^2-2\sqrt{2}xy+4\sqrt{2}yz-8zx =$
$(Ax+y+Bz)^2$
$\Rightarrow A = -\sqrt{2}$ and $B = 2\sqrt{2}$
Then, $A^2+B^2-AB = 2+8+4 = 14$

Sol 17. (c) $12x^2-21x+1 = 0$
$\Rightarrow 12x^2+1 = 21x$
$\Rightarrow 4x + \frac{1}{3x} = 7$
On multiplying both sides by $(\frac{3}{4})$ and then squaring both sides, we get:
$\Rightarrow 9x^2+\frac{1}{16x^2} = \frac{417}{16}$

Sol 18. (a) $P = \frac{x^3+y^3}{(x-y)^2+3xy}$, $Q = \frac{(x+y)^2-3xy}{x^3-y^3}$ and $R = \frac{(x+y)^2+(x-y)^2}{x^2-y^2}$
$(P \div Q) \times R = (\frac{x^3+y^3}{(x-y)^2+3xy} \div \frac{(x+y)^2-3xy}{x^3-y^3}) \times \frac{(x+y)^2+(x-y)^2}{x^2-y^2} =$
$\frac{x^3+y^3}{x^2+y^2+xy} \times \frac{x^3-y^3}{x^2+y^2-xy} \times \frac{2(x^2+y^2)}{x^2-y^2} =$
$2(x^2+y^2)$

Sol 19. (d) $16a^4+36a^2b^2+81b^4=91$
$(4a^2+9b^2-6ab)(4a^2+9b^2+6ab)=91$
$(13)(4a^2+9b^2+6ab) = 91$
$4a^2+9b^2+6ab = 7$ …(i)
$4a^2+9b^2-6ab = 13$ (ii)
(ii)-(i) $\Rightarrow -12ab = 6 \Rightarrow ab = -\frac{1}{2}$
$\Rightarrow 3ab = -\frac{3}{2}$

Sol 20. (a) $x^2-2\sqrt{5}x + 1 = 0$
$\Rightarrow x+\frac{1}{x} = 2\sqrt{5}$
$\Rightarrow x^5+\frac{1}{x^5} = (x^2+\frac{1}{x^2})(x^3+\frac{1}{x^3})-(x+\frac{1}{x})$
$x^2+\frac{1}{x^2} = 18$
$x^3+\frac{1}{x^3} = 34\sqrt{5}$
$\Rightarrow x^5+\frac{1}{x^5} = 610\sqrt{5}$

Sol 21. (c) $20x^2-30x+1=0$
$\Rightarrow 20x^2+1=30x \Rightarrow 4x+\frac{1}{5x} =6$
Multiply by $\frac{5}{4}$ both sides; we get:
$5x+\frac{1}{4x} = \frac{15}{2}$ $\Rightarrow$ Squaring both sides we get:
$25x2+\frac{1}{16x^2} = \frac{215}{4} = 53\frac{3}{4}$

Sol 22. (a) $x^4+x^2y^2+y^4 = 273$
$\Rightarrow x^2-xy+y^2 = 13$ … (i)
$\Rightarrow x^4+x^2y^2+y^4$
$=(x^2-xy+y^2)(x^2+xy+y^2)$
$\Rightarrow 273 = (13)(x^2+xy+y^2)$
$\Rightarrow x^2+xy+y^2 = 21$ … (ii)
$\Rightarrow$ (ii)-(i) $\Rightarrow 2xy = 8$
$\Rightarrow xy = 4$

Sol 23. (b)
$\frac{x^2(x-4)^2}{(x+4)^2-4x} \div \frac{(x^2-4x)^3}{(x+4)^2} \times \frac{64-x^3}{16-x^2}$
$\Rightarrow \frac{x^2(x-4)^2}{(x+4)^2-4x} \times \frac{(x+4)^2}{(x^2-4x)^3} \times \frac{64-x^3}{16-x^2}$
$\Rightarrow$

Pinnacle

$\frac{(x^2-4x)^2}{x^2+16+4x} \times \frac{(x+4)^2}{(x^2-4x)^3} \times \frac{4^3-x^3}{4^2-x^2}$
$\Rightarrow \frac{x+4}{x(x-4)}$

Sol 24. (c)
$(a+b+c-d)^2 - (a-b-c+d)^2$
$= (a+b+c-d+a-b-c+d)($
$a+b+c-d-a+b+c-d) =$
$(2a)(2[b+c-d]) = 4a(b+c-d$
$)$

Sol 25. (b) $x-\frac{1}{x} = 11$
Cubing on both sides we get, x^3-
$\frac{1}{x^3} -3(x \times \frac{1}{x})(x-\frac{1}{x}) = 1331$
$x^3-\frac{1}{x^3} = 1331 + 33 = 1364$

Sol 26. (c) $(2x+y)^3 = 8x^3 + y^3 +$
$12x^2 y + 6xy^2$
Coefficient of $x^2 = 12y$

Sol 27. (d) $3^a = 3^{3b} = 3^{4c}$
$\Rightarrow a = 3b = 4c$
$\Rightarrow a:b:c = 12:4:3$
Given: abc = 144
Thus, a = 12; b = 4; c = 3
Put values in $12(\frac{1}{a} + \frac{1}{2b} + \frac{1}{5c}) =$
$12(\frac{1}{12} + \frac{1}{8} + \frac{1}{15}) = \frac{33}{10}$

Sol 28. (c)
$(a+b-2)^2 + (b+c-5)^2 + (c+a-5)^2$
$= 0$
Square of any number is always positive and their sum can be 0 only when they are themselves zero.
Thus, a+b = 2, b+c = 5 and c+a = 5
a = 1 , b = 1 , c = 4
$\sqrt{(b+c)^a + (c+a)^b - 1} =$
$\sqrt{(5)^1 + (5)^1 - 1} = 3$

Sol 29. (a) $a^3+b^3+c^3-3abc =$
$(a+b+c)(a^2+b^2+c^2-[ab+bc+ca])$
$\Rightarrow a^3+b^3+c^3-3abc =$
$(9)(a^2+b^2+c^2+22)$
$\Rightarrow a+b+c = 9 \Rightarrow$
$a^2+b^2+c^2+2(ab+bc+ca) = 81 \Rightarrow$
$a^2+b^2+c^2-44 = 81$
$\Rightarrow a^2+b^2+c^2 = 125$
$\Rightarrow a^3+b^3+c^3-3abc = (9)(125+22)$
$= (9)(147) = 1323$

Sol 30. (b) $a+\frac{1}{a} = 5$
Cubing both sides, we get: $a^3+\frac{1}{a^3}$
$= 110$

Sol 31. (c)
$(x-3y)^3 = x^3-27y^3-9x^2y+27xy^2$
$\Rightarrow$ coefficient of x = 27 y^2

Sol 32. (c) $a^3+\frac{1}{a^3} = 52 \Rightarrow a+\frac{1}{a} = 4$
$\Rightarrow 2(a+\frac{1}{a}) = 8$

Sol 33. (b) $x^2-4x+4 = 0$
$\Rightarrow (x-2)^2 = 0$
$\Rightarrow x = 2$
$16(x^4-\frac{1}{x^4}) = 16(2^4-\frac{1}{2^4}) = 16(16-$
$\frac{1}{16}) = 255$

Sol 34. (c)
b+c = ax, a+c = by, a+b= cz
a+b+c = a+ax, b+a+c = b+by,
c+a+b= c+cz
$\frac{a+b+c}{a} = 1+x, \frac{a+b+c}{b} = 1+y, \frac{a+b+c}{c}$
$= 1+z$
$\frac{1}{9}[\frac{1}{x+1} + \frac{1}{y+1} + \frac{1}{z+1}] = \frac{1}{9}$

Sol 35. (d) $(2y-5)^3 =$
$8y^3-125-60y^2+150y$
Coefficient of y = 150

Sol 36. (c) $(1-4x)^3 =$
$1-64x^3-12x+48x^2$
p = 48

Sol 37. (d) $(\frac{x}{3} + \frac{y}{5})^3 = \frac{x^3}{27} + \frac{x^2y}{15} +$
$\frac{xy^2}{25} + \frac{y^3}{125}$

Sol 38. (b) $(a+b+c)^2 =$
$a^2+b^2+c^2+2(ab+bc+ca) = 300+100$
$= 400$
a+b+c = 20

Sol 39. (c) $x^3+y^3+z^3-3xyz =$
$(x+y+z)(x^2+y^2+z^2-xy-yz-zx)$
x+y+z = 10
$x^2+y^2+z^2+2(xy+yz+zx) = 100$
$x^2+y^2+z^2= 70$
$x^3+y^3+z^3-3xyz = (10)(70-15) =$
550

Sol 40. (a)
$a^4+\frac{1}{a^4} = 50$
$a^2+\frac{1}{a^2} = \sqrt{52}$
$a+\frac{1}{a} = \sqrt{2\sqrt{13}+2}$
$a^3+\frac{1}{a^3} +3(\sqrt{2\sqrt{13}+2}) = ($
$2\sqrt{13}+2)(\sqrt{2\sqrt{13}+2}) = 2$
$\sqrt{13}(\sqrt{2\sqrt{13}+2}) +2($
$\sqrt{2\sqrt{13}+2})$
$a^3+\frac{1}{a^3} = 2\sqrt{13}(\sqrt{2\sqrt{13}+2}) -($
$\sqrt{2\sqrt{13}+2})$
$a^3+\frac{1}{a^3} = (\sqrt{2\sqrt{13}+2})(2\sqrt{13}-1)$

Sol 41. (c) $25a^2-9 = (5a)^2-(3)^2 =$
$(5a+3)(5a-3)$

Sol 42. (a) $a^3+b^3+c^3-3abc =$
$(a+b+c)(a^2+b^2+c^2-ab-bc-ca)$
Similarly,
$(a+b+2c)(a^2+b^2+4c^2-ab-2bc-2ca)$
$= a^3+b^3+8c^3-6abc$

Sol 43. (a) $(x+y+z)^2 =$
$x^2+y^2+z^2+2(xy+yz+zx)$
Therefore, $(4a+3b+2c)^2 =$
$16a^2+9b^2+4c^2+2(12ab+6bc+8ca)$
$= 16a^2+9b^2+4c^2+24ab+12bc+16ca$

Sol 44. (a) A+B = 12 and AB = 17
$\Rightarrow A^3+B^3+3(AB)(A+B) = 1728$
$\Rightarrow A^3+B^3= 1728-3(17)(12)$
$\Rightarrow A^3+B^3=1728- 612 = 1116$

Sol 45. (c) $(3a-4b)^3 =$
$27a^3-64b^3-108a^2b+144ab^2$

Sol 46. (a) if x+y+z = 0, then
$x^3+y^3+z^3 = 3xyz$

Pinnacle

Similarly, $a^2+b^2-c^2 = 0$
Therefore, $a^6+b^6-c^6 = 3a^2b^2c^2$
$\frac{2(a^6+b^6-c^6)}{3a^2b^2c^2} = 2$

Sol 47. (a) a= 2b= 8c
a:b:c = 8:4:1
a+b+c = 13
Thus, a=8; b=4 and c=1
$\frac{\sqrt{a^2+b^2+c^2}}{2c} = \frac{\sqrt{64+16+1}}{2} = \frac{\sqrt{81}}{2} = \frac{9}{2}$

Sol 48. (a) x+y = 13, y+z = 15, z+x = 16
2(x+y+z) = 13+15+16 = 44
x+y+z = 22
x = 7, y = 6, z = 9
$\frac{xy+xz}{xyz} = \frac{y+z}{yz} = \frac{15}{54} = \frac{5}{18}$

Sol 49. (c) x+3y+2 = 0
x+3y = -2
$x^3+27y^3-18xy = -8$
$x^3+27y^3-18xy+8 = 0$

Sol 50. (b) p+q = 7 and pq = 5
$p^3+q^3 + 3(pq)(p+q) = 343$
$p^3+q^3 + 3(5)(7) = 343$
$p^3+q^3 = 343 - 105 = 238$

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Sol:1.(d)
x - 2y = 3 and xy = 5
By hit and trial x=5, y=1 and x=1, y=5 is only possible value for xy=5
put x = 5 and y = 1
x - 2y = 3
5-2(1) = 3 (satisfy)
$x^2 - 4y^2 = 5^2 - 4(1) = 21$

Sol:2. (*)
$(a + b + c)^2 =$
$a^2 + b^2 + c^2 + 2(ab + bc + ca)$
$4 = a^2 + b^2 + c^2 + 2(0)$
$a^2 + b^2 + c^2 = 4$

Sol:3.(b)
$x^3 + y^3 + z^3 - 3xyz = (x + y + z)($
$x^2 + y^2 + z^2 - xy - yz - zx)$
$75 - 3 \times 15 = 10($
$x^2 + y^2 + z^2 - xy - yz - zx)$
$x^2 + y^2 + z^2 - xy - yz - zx = 3$

Sol:4.(b)
$(a + b)^2 = a^2 + b^2 + 2ab$
$(11)^2 = a^2 + b^2 + 2 \times 15$
$a^2 + b^2 = 91$

Sol:5.(d)
$a^3 - b^3 = (a - b)(a^2 + b^2 + ab)$
$a^2 + b^2 + ab = 22$……..eq1
$(a - b)^2 = a^2 + b^2 - 2ab$
$a^2 + b^2 - 2ab = 16$…….eq2
Sub eq2 from eq 1, we get
ab = 2
Now,
$(a - b)^2 = a^2 + b^2 - 2ab$
$a^2 + b^2 = 20$
And
$(a + b)^2 = a^2 + b^2 + 2ab$
$(a+b) = 2\sqrt{6}$
therefore ,
$a^2 - b^2 = (a+b)(a - b)$
$=(2\sqrt{6})\,4 = 8\sqrt{6}$

Sol:6.(b)
Use : $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$
$8x^3 + y^3 = (6)^3 - 3 \times 2 \times 4 \times 6$
$= 216-144$
$= 72$

Sol:7.(c)
Let two numbers are a and b.
sum of two numbers, a+b = 11,
sum of their squares, $a^2 + b^2 = 65$,
Now,
$(a + b)^2 = a^2 + b^2 + 2ab$
$(11)^2 = 65 + 2ab$
ab = 28
$a^3 + b^3 = (a + b)(a^2 + b^2 - ab)$
$= (11)(65 - 28)$
$= 407$

Sol:8.(b)
$2^{x+y-2z} = 8^{8z-5-y};$
$= 2^{x+y-2z} = (2^3)^{8z-5-y};$
= x+y-2z = 3(8z -5-y) { base is same }
= x+4y-26z = -15……...eq1
$5^{4y-6z} = 25^{y+z};$
$= 5^{4y-6z} = (2^2)^{y+z};$
= 4y-6z = 2(y+z) { base is same }
= 2y-8z = 0……..eq2
$3^{4x-3z} = 9^{x+z}$
$= 3^{4x-3z} = (3^2)^{x+z}$
= 4x-3z = 2(x+z) { base is same }
= 2x-5z = 0……...eq3
Add eq2 and eq3, we get
2x+2y-13z = 0……..eq4
Multiply eq4 by 2 and subtract eq1 from it, we get
3x = 15
x = 5,
Put value of x in eq3, we get
z = 2
Put value of z in eq2, we get
y = 8
Now,
the value of 2x+3y+5z is:
$= 2 \times 5 + 3 \times 8 + 5 \times 2$
$= 44$

Sol:9.(a).
$\frac{1}{(9-4\sqrt{5})^2} + \frac{1}{(9+4\sqrt{5})^2}$
$= \frac{1}{(a-b)^2} + \frac{1}{(a+b)^2}$ {a = 9, b = $4\sqrt{5}$}
$= \frac{(a+b)^2+(a-b)^2}{(a-b)^2(a+b)^2}$
$= \frac{2(a^2+b^2)}{(a^2-b^2)^2}$
$= \frac{2(9^2+4\sqrt{5}^2)}{(9^2-4\sqrt{5}^2)^2}$
$= 322$

Sol:10.(c)

On solving we get,

A=(0.1)+(0.2)+(0.3)

A=0.6

60A=60 × 0.6=36

Sol:11.(a)

$x^4 + \frac{1}{x^4} = \frac{257}{16}$

$x^4 + \frac{1}{x^4} + 2 = \frac{257}{16} + 2$

$x^2 + \frac{1}{x^2} = \frac{17}{4}$

$x + \frac{1}{x} + 2 = \frac{17}{4} + 2$

$x + \frac{1}{x} = \frac{5}{2}$

Put x=2

$\frac{8}{13}(2^3 + \frac{1}{2^3})$

$= \frac{8}{13} \times \frac{65}{8} = 5$

Sol:12.(d)

$a + a^2b + b + ab^2 = 128$

$a + b + ab(a + b) = 128$

$(a + b)(1 + ab) = 128$

$8(1 + ab) = 128$

$ab = 15$

$(a + b)^2 = a^2 + b^2 + 2ab$

$64 = a^2 + b^2 + 30$

$a^2 + b^2 = 34$

$a^3 + b^3 = (a + b)(a^2 + b^2 - ab)$

$a^3 + b^3 = 8(34-15)$

$a^3 + b^3 = 152$

ALTERNATE METHOD

Put a=5, b=3

$a^3 + b^3 = 5^3 + 3^3$

$= 152$

Sol:13.(d)

$(x + y)^2 = x^2 + y^2 + 2xy$

$(x + y)^2 = 32 + 32$

$(x + y)^2 = \pm 8$

ALTERNATE METHOD

Put x = y = 4 or x = y = -4

$4^2 + 4^2 = 32$ (which satisfy)

$(x+y) = \pm 8$

Sol:14.(c)

$(a + b)^2 = a^2 + b^2 + 2ab$

$100 = a^2 + b^2 + 42$

$a^2 + b^2 = 58$

$a^3 + b^3 = (a + b)(a^2 + b^2 - ab)$

$a^3 + b^3 = 10\ (58- 21)$

$a^3 + b^3 = 370$

ALTERNATE METHOD

put a=7 , b=3

a + b = 10 (Which satisfy)

$a^3 + b^3 = 7^3 + 3^3$

$a^3 + b^3 = 343+27 = 370$

Sol:15.(c)

$(a + b)^2 - (a - 2b)^2$

$= a^2 + 4b^2 + 4ab - a^2 - 4b^2 + 4ab$

$= 8ab$

Sol:16.(c)

$5\sqrt{3} + 7\sqrt{2} - \sqrt{6} - \frac{23}{\sqrt{2}+\sqrt{3}+\sqrt{6}}$

(put value of $\sqrt{3} = 1.73$ and $\sqrt{2} =$ 1.41 and $\sqrt{6} = 2.45$

$5(1.73)+7(1.41)-2.45-\frac{23}{1.41+1.73+2.45}$

= 8.65+9.87-2.45-4.11

= 11.96 or 12

Sol:17.(b)

When numbers in A.P then

$x^3+y^3+z^3-3xyz. = 9 \times$ middle term $\times (common.difference)^2$

$= 9 \times 256 \times (1)^2$

= 2304

Sol:18. (a)

$x + \frac{1}{x} = 8$

$x^2 + 1 = 8x$

$\frac{5x}{x^2+1-6x} = \frac{5x}{8x-6x} = 2.5$

Sol:19.(c)

a + b = 27, $a^3 + b^3 = 5427$

$a^3 + b^3 = (a+b)\{(a + b)^2 - 3ab)\}$

$5427 = 27(729-3ab)$

$201 = 729-3ab$

$3ab = 528$

$ab = 176$

Sol:20. (c)

$\sqrt[3]{15625} - \sqrt{x} = 4$

$25 - \sqrt{x} = 4$

$21 = \sqrt{x}$

x = 441

Sol:21.(a)

$a^3 + b^3 = (a+b)\{(a + b)^2 - 3ab)\}$

$a^3 + b^3 = 20(400-12)$

$a^3 + b^3 = 7760$

Sol:22. (a)

Let the two numbers are P and Q

P+Q = 47

PQ = 550

$(P + Q)^2 = P^2 + Q^2 + 2PQ$

$(47)^2 = P^2 + Q^2 + 1100$

$1109 = P^2 + Q^2$

Sol:23.(b)

$x=2 + \sqrt{3}$

$x-2 = \sqrt{3}$

After squaring both sides

$x^2 - 4x + 4 = 3$

$x^2 - 4x = -1$

after squaring both sides

$x^4 - 8x^3 + 16x^2 = 1$

Sol:24.(b)

2a + 3b = 8

after squaring both sides,

$4a^2 + 9b^2 + 12ab = 64$

$4a^2 + 9b^2 + 60 = 64$

$4a^2 + 9b^2 = 4$

Sol:25.(d)

$(x - y)^2 = (x + y)^2 - 4ab$

$(x - y)^2 = 225-56$

$(x - y)^2 = 169$

x - y = 13

Sol:26. (d)

When numbers are in A.P. then

Pinnacle

$a^3 + b^3 + c^3 - 3abc. = 9 \times$ (middle term) $\times$ $(common\ \ difference)^2$
$= 9 \times (356) \times 1$
$= 324$

Sol:27. (d)
$x + \frac{1}{x} = 4$
On squaring both sides
$(x + \frac{1}{x})^2 = 16$
$x^2 + \frac{1}{x^2} = 14$
On squaring both sides
$x^4 + \frac{1}{x^4} = 14^2 - 2 = 194$

Sol:28. (a)
$a^3+b^3 = (a+b)\{(a+b)^2 - 3ab\}$
$a^3+b^3 = 8(64-36)$
$a^3+b^3 = 224$

Sol:29. (c)
$(2a + b) = x$ taking square
$4a^2+b^2+4ab = x^2$
$20 + 16 = x^2$
$x = 2a + b = 6$
ALTERNATE METHOD
$4a^2+b^2 = 20$
put , $a = b = 2$
$4(2)^2 + 2^2 = 20$ (which satisfy)
$2a+b = 2(2)+2 = 6$

Sol:30. (a)
$7a^2 + 7a = 7a(a + 1)$
A and a+1 are two consecutive number and out of two consecutive number one is odd and one is even and even is always divisible by 2
So, the complete number is divisible by 14
ALTERNATE METHOD
Put the value of a = 1
$7a^2 + 7a = 7(1)^2 + 7(1) = 14$
So, number is divisible by 7 and 14 both

Sol:31. (d)
$a : b = 3 : \sqrt{5}$
$(2a + b) : (3a - 2b) = \{2(3)+\sqrt{5}\}$
$: \{3(3)-2(\sqrt{5})$
$\frac{6+\sqrt{5}}{9-2\sqrt{5}}$ (after rationalization)
$\frac{6+\sqrt{5}}{9-2\sqrt{5}} \times \frac{9+2\sqrt{5}}{9-2\sqrt{5}}$
$= \frac{54+12\sqrt{5}+9\sqrt{5}+10}{81-20}$
$= \frac{64+21\sqrt{5}}{61}$
$= \frac{1}{61}(64 + 21\sqrt{5})$

Sol:32. (a)
$x^3 + y^3 = (x+y)\{(x+y)^2 - 3xy\}$
$12 = 4(16 - 3xy)$
$3 = 16-3xy$
$xy = \frac{13}{3}$
$x^2y^2 = \frac{169}{9}$
$x^3 + y^3 = (x+y)\{(x^2 + y^2 - xy\}$
$12 = 4(x^2 + y^2 - \frac{13}{3})$
$x^2 + y^2 = \frac{22}{3}$
$x^4 + y^4 = (x^2)^2 + (y^2)^2$
$(x^2)^2 + (y^2)^2 = (x^2 + y^2)^2 - 2x^2y^2$
$(x^2)^2 + (y^2)^2 = \frac{484}{9} - \frac{338}{9}$
$(x^2)^2 + (y^2)^2 = \frac{146}{9}$
$x^4 + y^4 = \frac{146}{9}$

Sol:33.(a)
$(x - y)^2 = (x + y)^2 - 4xy$
$169 = (x + y)^2 - 4 \times 25$
$(x + y)^2 = 269$
$x + y = \sqrt{269}$
$x^2 - y^2 = (x+y)(x-y)$
$= (\sqrt{269})(13)$
$= 13\sqrt{269}$

Sol:34. (d)
$x - \frac{1}{x} = 8$, (on squaring both sides)
$x^2 + \frac{1}{x^2} = 66$
On squaring both sides,
$x^4 + \frac{1}{x^4} = (66)^2 - 2 = 4,354$

Sol:35.(c)
$a + 3b = 12$ squaring both side
$a^2 + 9b^2 + 6ab = 144$
$a^2 + 9b^2 = 144 - 6(9) = 90$
$(a - 3b)^2 = a^2 + 9b^2 - 6ab$
$(a - 3b)^2 = 90 - 54$
$a - 3b = 6$
ALTERNATE METHOD
put a = 9 and b = 1
$a + 3b = 12$
$9+3(1) = 12$ (which satisfy)
$(a - 3b) = 9-3(1) = 6$

Sol:36.(a)
$a^2 + \frac{2}{a^2} = 16$
$a^4 + 2 = 16a^2$
$\frac{72a^2}{a^4+2+8a^2} = \frac{72a^2}{16a^2+8a^2} = 3$

Sol:37. (a)
$(1 + 3r + 9r^2)(1 - 3r + 9r^2) = 1 + 9r^2 + 81r^4$
$32 \times (1 - 3r + 9r^2) = 256$
$(1 - 3r + 9r^2) = 8$

Sol:38.(b)
$x + \frac{1}{x} = 4$,
on squaring both sides,
$x^2 + \frac{1}{x^2} = 14$
on squaring both sides,
$x^4 + \frac{1}{x^4} = 194$

Sol:39.(a)
$x + \frac{1}{x} = 5$
$x^3 + \frac{1}{x^3} = 5^3 - 3 \times 5 = 110$
$\frac{x^4+\frac{1}{x^2}}{x^2-3x+1}$
$= \frac{x(x^3+\frac{1}{x^3})}{x(x+\frac{1}{x}-3)}$
$= \frac{110}{2}$
$= 55$

Sol:40.(d)
$x = 3+2\sqrt{2}$
$x^2 = 17+2\sqrt{2}$
$\frac{1}{x^2} = 17-2\sqrt{2}$
$x^2 + \frac{1}{x^2} = 17+2\sqrt{2}+17-2\sqrt{2} = 34$

Sol:41.(c)
$x + \frac{4}{x} - 4 = 0$
$x^2 + 4 - 4x = 0$
$(x-2)^2 = 0$

x = 2

$x^2 - 4$

$= 2^2 - 4$

= 4 - 4

= 0

Sol:42. (d)

$4x^2 + y^2 = 40$

Put, $x = 1$, and y = 6

$4x^2 + y^2 = 40$

$4(1)^2 + 6^2 = 40$

40 = 40 (which satisfy)

2x+y = 2(1)+6 = 8

Sol:43. (d)

When, $a^3 + b^3 + c^3 = 3abc$

Then, a = b = c or a+b+c = 0

$x^3 + (3y)^3 + (4z)^3 = 3(x)(3y)(4z)$

Therefore, x+3y+4z = 0

Sol:44. (c)

$x - 2 = \sqrt[3]{5}$

Cube both sides, we get

$(x-2)^3 = 5$

$x^3 - 6x^2 + 12x - 8 = 5$

$x^3 - 6x^2 + 12x - 12 = 1$

Sol:45.(a)

$x(5 - \frac{2}{x}) = \frac{5}{x}$

$5(x - \frac{1}{x}) = 2$

$(x - \frac{1}{x}) = ⅖$

Square both sides, we get

$x^2 + \frac{1}{x^2} = 2\frac{4}{25}$

Sol:46. (c)

$a^2 + \frac{1}{a^2} = 98,$

$a^2 + \frac{1}{a^2} + 2 = 98 + 2,$

$a + \frac{1}{a} = 10$

$a^3 + \frac{1}{a^3} = 10^3 - 30 = 970$

Sol:47.(c) :

$\sqrt{x} = \sqrt{3} - \sqrt{5}$

Square both sides, we get

$x = 8 - 2\sqrt{15}$

$x - 8 = -2\sqrt{15}$

Again square both sides, we get

$x^2 - 16x + 64 = 60$

$x^2 - 16x + 4 = 0$

$x^2 - 16x + 6 = 2$

Sol:48.(b)

$x = \frac{\sqrt{3}}{2}$

$1 + x = (2 + \sqrt{3})/2 = (4+2\sqrt{3})/4$

$\sqrt{1+x} = (\sqrt{3} + 1)/2$

$1 - x = (2 + \sqrt{3})/2 = (4+2\sqrt{3})/4$

$\sqrt{1-x} = (\sqrt{3} - 1)/2$

Now, put both values

$\frac{\sqrt{1+x}+\sqrt{1-x}}{\sqrt{1+x}-\sqrt{1-x}} = \frac{2\sqrt{3}}{2} = \sqrt{3}$

Sol:49.(a)

$a^3 + b^3 = (a+b)(a^2 + b^2 - ab)$

$(a^2 + b^2 - ab) = 31$.....eq1

$(a+b)^2 = (a^2 + b^2 + 2ab)$

$a^2 + b^2 + 2ab = 4$.....eq2

Subtract eq2 from eq1, we get

ab = -27/3 =-9

Sol:50. (a)

$a + \frac{1}{a} + 2 = 0,$

$a^2 + 1 + 2a = 0$

$(a+1)^2 = 0$

a = -1

If we put a = -1 then,

$a^{15} + \frac{1}{a^{100}} = -1 + 1 = 0$

Sol:51. (a)

$4a + \frac{1}{5a} = 4,$

Multiply both sides by 5/4 ,we get

$5a + \frac{1}{4a} = 5,$

Squaring both sides, we get

$25a^2 + \frac{1}{16a^2} = 25 - 5/2$

$25a^2 + \frac{1}{16a^2} = 45/2$

Sol:52.(a)

$x + \frac{1}{x} = \sqrt{3}$

$x^6 = -1$

Put this value in

$x^{18} + x^{12} + x^6 + 1$, we get

-1+1-1+1 = 0

Sol: 53.(a)

$a^2 + b^2 + 2b + 4a + 5 = 0$

$(a+2)^2 + (b+1)^2 = 0$

a = -2, b = -1

Put the value of a and b, we get

$\frac{2a-3b}{2a+3b}$

(-4+3)/(-4-3) = 1/7

Sol:54. (a)

$2a + \frac{1}{a} = 4,$

Divide both sides by 2, we get

$a + \frac{1}{2a} = 2,$

Squaring both sides, we get

$a^2 + \frac{1}{4a^2} = 4 - 1 = 3$

Sol:55. (a)

We know,

When numbers are in A.P.

$a^3 + b^3 + c^3 - 3abc =$

9b(common difference)^2

$9 \times 226 \times 1 = 2034$

Sol:56. (a)

Given:- A = $\frac{1+2x}{1-2x}$ and B = $\frac{1-2x}{1+2x}$

A + B = $\frac{1+2x}{1-2x} + \frac{1-2x}{1+2x} =$

$\frac{(1+2x)^2 + (1-2x)^2}{1-4x^2} =$

$\frac{1+4x^2+4x+1+4x^2-4x}{1-4x^2} = \frac{2+8x^2}{1-4x^2}$

A - B = $\frac{1+2x}{1-2x} - \frac{1-2x}{1+2x} =$

$\frac{(1+2x)^2 - (1-2x)^2}{1-4x^2} =$

$\frac{1+4x^2+4x-1-4x^2+4x}{1-4x^2} = \frac{8x}{1-4x^2}$

$\frac{A+B}{A-B} = \frac{2+8x^2}{1-4x^2} \times \frac{1-4x^2}{8x} =$

$\frac{2+8x^2}{8x} = \frac{1+4x^2}{4x} = x + \frac{1}{4x}$

Sol:57. (a)

$x + \frac{1}{x} = 5$

Square both sides, we get:-

$\Rightarrow x^2 + \frac{1}{x^2} + 2 = 25$

$\Rightarrow x^2 + \frac{1}{x^2} = 23$

Sol:58. (a)

$x = 3 + 2\sqrt{2} = (\sqrt{2} + 1)^2$

$\Rightarrow \sqrt{x} = \sqrt{2} + 1$

$\Rightarrow \frac{1}{\sqrt{x}} = \frac{1}{\sqrt{2}+1} = \sqrt{2} - 1$

$\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{2} + 1 - (\sqrt{2} - 1) =$

$\sqrt{2} + 1 - \sqrt{2} + 1 = 2$

Pinnacle

Sol:59. (a)

$a = \frac{2+\sqrt{3}}{2-\sqrt{3}}$ and $b = \frac{2-\sqrt{3}}{2+\sqrt{3}}$ … (Given)

$a = \frac{2+\sqrt{3}}{2-\sqrt{3}} \times \frac{2+\sqrt{3}}{2+\sqrt{3}} = \frac{4+3+4\sqrt{3}}{4-3} = 7 + 4\sqrt{3}$

$b = \frac{2-\sqrt{3}}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}} = \frac{4+3-4\sqrt{3}}{4-3} = 7 - 4\sqrt{3}$

$a + b = 14$

Squaring both sides, we get:-

$a^2 + b^2 + 2ab = 196$

$a^2 + b^2 = 196 - 2ab = 196 - 2(\frac{2+\sqrt{3}}{2-\sqrt{3}})(\frac{2-\sqrt{3}}{2+\sqrt{3}}) = 196 - 2 = 194$

$a^2 + b^2 + ab = 194 + (\frac{2+\sqrt{3}}{2-\sqrt{3}})(\frac{2-\sqrt{3}}{2+\sqrt{3}}) = 194 + 1 = 195$

Sol:60. (d)

Given:- a+b+c = 0

Let a = 2, b = -1 and c = -1

Then , $\frac{2a^2}{3bc} + \frac{2b^2}{3ca} + \frac{2c^2}{3ab} = \frac{2(2)^2}{3(-1)(-1)} + \frac{2(-1)^2}{3(-1)(2)} + \frac{2(-1)^2}{3(2)(-1)} = \frac{8}{3} - \frac{1}{3} - \frac{1}{3} = \frac{8-1-1}{3} = \frac{6}{3} = 2$

Sol:61. (d)

Let two numbers be x and y.

x - y = 43… (i)

xy = 50

On squaring (i):- $x^2 + y^2 - 2xy = 43^2$

$x^2 + y^2 - 2(50) = 43^2 = 1849$

$x^2 + y^2 - 100 = 1849$

$x^2 + y^2 = 1849 + 100 = 1949$

Sol:62.(d)

Given:- $a^3 + b^3 = 20$ and a + b = 5

$a^3 + b^3 = 20$

$\Rightarrow (a + b)(a^2 + b^2 - ab) = 20$

$\Rightarrow (5)(a^2 + b^2 - ab) = 20$

$\Rightarrow a^2 + b^2 - ab = 4$ … (i)

a + b = 5

Squaring both sides:- $a^2 + b^2 + 2ab = 25$ … (ii)

(ii) - (i) $\Rightarrow 3ab = 21 \Rightarrow ab = 7$

Therefore, $a^2 + b^2 - 7 = 4$

$\Rightarrow a^2 + b^2 = 11$

Squaring both sides, we get:- $a^4 + b^4 + 2a^2b^2 = 121$

$\Rightarrow a^4 + b^4 + 2(7)^2 = 121$

$\Rightarrow a^4 + b^4 + 98 = 121$

$\Rightarrow a^4 + b^4 = 121-98 = 23$

Sol:63.(d).

Given:- x+y = 4, xy = 2, y+z = 5, yz = 3, z+x = 6 and zx = 4

$x + y = 4 \Rightarrow x^2 + y^2 + 2xy = 16$

$\Rightarrow x^2 + y^2 + 2(2) = 16 \Rightarrow x^2 + y^2 = 12$

$y + z = 5 \Rightarrow y^2 + z^2 + 2yz = 25$

$\Rightarrow y^2 + z^2 + 2(3) = 25 \Rightarrow y^2 + z^2 = 19$

$z + x = 6 \Rightarrow z^2 + x^2 + 2xz = 36$

$\Rightarrow z^2 + x^2 + 2(4) = 36 \Rightarrow z^2 + x^2 = 28$

2(x +y+z) = 15

x + y + z = 7.5

$2(x^2 + y^2 + z^2) = 59$

$x^2 + y^2 + z^2 = \frac{59}{2} = 29.5$

$x^3 + y^3 + z^3 - 3xyz = (x+y+z)(x^2 + y^2 + z^2 - xy - xz - yz)$

$\Rightarrow x^3 + y^3 + z^3 - 3xyz = (x+y+z)(x^2 + y^2 + z^2 - xy - xz - yz)$

$\Rightarrow x^3 + y^3 + z^3 - 3xyz = (7.5)(29.5 - 2-4-3)$

$\Rightarrow x^3 + y^3 + z^3 - 3xyz = (7.5)(29.5 - 9)$

$\Rightarrow x^3 + y^3 + z^3 - 3xyz = 153.75$

Sol 64. (b)

$x = 1 + \sqrt{2}$ or $\sqrt{2} + 1$

$\frac{1}{x} = \sqrt{2} - 1$ (after rationalization)

$\sqrt{x} + (\frac{1}{\sqrt{x}})$.

On squaring we get,

$(\sqrt{x} + (\frac{1}{\sqrt{x}}))^2 = x + \frac{1}{x} + 2$

$(\sqrt{x} + (\frac{1}{\sqrt{x}}))^2 = \sqrt{2} + 1 + \sqrt{2} - 1 + 2$

$(\sqrt{x} + (\frac{1}{\sqrt{x}}))^2 = 2 + 2\sqrt{2}$

$(\sqrt{x} + (\frac{1}{\sqrt{x}}))^2 = 4.828$

$\sqrt{x} + (\frac{1}{\sqrt{x}}) = 2.1973$

Sol:65. (d)

$\frac{3x\sqrt{y}+2y\sqrt{x}}{3x\sqrt{y}-2y\sqrt{x}} - \frac{3x\sqrt{y}-2y\sqrt{x}}{3x\sqrt{y}+2y\sqrt{x}} = \frac{(3x\sqrt{y}+2y\sqrt{x})^2-(3x\sqrt{y}-2y\sqrt{x})^2}{(3x\sqrt{y}-2y\sqrt{x})(3x\sqrt{y}+2y\sqrt{x})} = \frac{4(3x\sqrt{y})(2y\sqrt{x})}{9x^2y-4y^2x} = .$

Sol:66. (b)

a + b + c + d = 2…. (given)

Let a = b = c = d = ½

Therefore, $(1 + a)(1 + b)(1 + c)(1 + d) = (1 + \frac{1}{2})(1 + \frac{1}{2})(1 + \frac{1}{2})(1 + \frac{1}{2}) = (\frac{3}{2})(\frac{3}{2})(\frac{3}{2})(\frac{3}{2}) = \frac{81}{16}$

Sol:67. (c)

$p + (\frac{1}{p}) = 2$

then , p = 1

Therefore, $p \times p \times p = 1 \times 1 \times 1 = 1$

Sol:68. (c)

We know, The sum of odd numbers = (no. of terms)^2

In 1 + 3 + 5 + 7 + …….

(2n - 1); let the no. of terms = x

2n - 1 = 1 + (x -1)2

2n - 2 = (x - 1)2

n - 1 = x - 1

x = n

Therefore, no. of terms, x = n

1 + 3 + 5 + 7 + ……. (2n - 1) = $n^2 = n \times n$

Sol:69. (a)

Given: $x^3 + y^3 = 16$ …. (i) and x + y = 4 …. (ii)

$(x+y)(x^2 + y^2 - xy) = 16$

$(4)(x^2 + y^2 - xy) = 16$

$x^2 + y^2 - xy = 4$ …. (iii)

Squaring (ii) both sides, we get:-

$x^2 + y^2 + 2xy = 16$ …. (iv)

(iv) - (iii) $\Rightarrow 3xy = 12$

$\Rightarrow xy = 4$

Therefore , $x^2 + y^2 - 4 = 4$

$x^2 + y^2 = 8$

Pinnacle

Squaring it on both sides, we get:-
$x^4 + y^4 + 2(xy)^2 = 64$
$\Rightarrow x^4 + y^4 + 2(4)^2 = 64$
$\Rightarrow x^4 + y^4 = 64 - 32 = 32$

Sol:70. (c)
$2(a^2 + b^2) = (a + b)^2$
$\Rightarrow 2a^2 + 2b^2 = a^2 + b^2 + 2ab$
$\Rightarrow 2a^2 + 2b^2 - a^2 - b^2 - 2ab = 0$
$\Rightarrow a^2 + b^2 - 2ab = 0$
$\Rightarrow (a - b)^2 = 0$
$\Rightarrow a = b$

Sol:71. (a)
$21^{\sqrt{x}} + 20^{\sqrt{x}} = 29^{\sqrt{x}}$
We know triplet :- $29^2 = 21^2 + 20^2$
Therefore, $\sqrt{x} = 2$
$x = 4$

Sol:72. (c)
$a = 2b$
$\Rightarrow \frac{a}{b} = \frac{2}{1}$
$\frac{a+b}{a-b} = \frac{2+1}{2-1} = 3$

Sol:73. (a)
$[(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3] \div [(a - b)^3 + (b - c)^3 + (c - a)^3]$
$\Rightarrow$ Put a = 1, b = -1 and c = 0 in $[(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3] \div [(a - b)^3 + (b - c)^3 + (c - a)^3]$
$\Rightarrow [(1^2 - (-1)^2)^3 + ((-1)^2 - 0^2)^3 + (0^2 - 1^2)^3] \div [(1 - (-1))^3 + ((-1) - 0)^3 + (0 - 1)^3]$
$\Rightarrow [(0)^3 + (1)^3 + (-1)^3] \div [(2)^3 + (-1)^3 + (-1)^3]$
$\Rightarrow [(1)^3 + (-1)^3] \div [8 + (-1 - 1]$
$\Rightarrow [0] \div [8 + (-2)] = 0$

Sol:74.(d)
Given: $x^4 + \frac{1}{x^4} = 14159$
$x^2 + \frac{1}{x^2} = \sqrt{x^4 + \frac{1}{x^4} + 2}$
$x^2 + \frac{1}{x^2} = \sqrt{14159 + 2} = \sqrt{14161} = 119$

$x + \frac{1}{x} = \sqrt{x^2 + \frac{1}{x^2} + 2} = \sqrt{119 + 2} = \sqrt{121} = 11$

Sol 75. (a)
Given:
a-b = 18 and $a^3 - b^3 = 324$
$a^3 - b^3 = (a-b)(a^2+b^2+ab)$
$324 = (18)(a^2+b^2+ab)$
$a^2+b^2+ab = \frac{324}{18} = 18$
$a^2+b^2+ab = 18$ …. (i)
a-b = 18
$a^2+b^2-2ab = 324$ ....(ii)
Subtract (ii) from (i):
$a^2+b^2+ab = 18$
$-a^2 - b^2+2ab = -324$
$3ab = -306$
$ab = -102$

Sol:76. (a)
$x - \frac{1}{x} = 13$
On squaring both sides,
$(x - \frac{1}{x})^2 = 13^2$
$x^2 + \frac{1}{x^2} - 2 = 169$
$x^2 + \frac{1}{x^2} = 171$

Sol:77 (b)
$A = \frac{x-1}{x+1}$
$\frac{1}{A} = \frac{x+1}{x-1}$
$A - \frac{1}{A} = \frac{x-1}{x+1} - \frac{x+1}{x-1}$
$A - \frac{1}{A} = \frac{(x-1)^2-(x+1)^2}{(x+1)(x-1)}$
$A - \frac{1}{A} = \frac{x^2+1-2x-x^2-1-2x}{x^2-1}$
$A - \frac{1}{A} = \frac{-4x}{x^2-1}$

SSC CGL 2019 TIER II
Sol:78. (b)
$27(x^3 + 3x^2y + 3xy^2 + y^3) - 8(x^3 - 3x^2y + 3xy^2 - y^3)$
$19x^3 + 105x^2y + 57xy^2 + 35y^3$
$19x^3 + 10x^2y + 95x^2y + 7xy^2 + 50xy^2 + 35y^3$
$19x^3 + 7xy^2 + 10x^2y + 95x^2y + 35y^3 + 50xy^2$
$x(19x^2 + 7y^2 + 10xy) + 5y(19x^2 + 7y^2 + 10xy)$
$(x + 5y)(19x^2 + 7y^2 + 10xy)$
On comparison
a=19 b=7 c=10
A+B-C=19+7-10
A+B+C => 16

SHORT TRICK : PUT X= -1 and Y=1
$27(-1 + 1)^3 - 8(-1 - 1)^3 = (-1 + 5)(A + B + C)$
-8(-8)=4(A+B-C)
64=4(A+B-C)
16=(A+B-C)

Sol:79.(a)
$x^8 + 1 = 34x^4$ dividing both side by x^4
$x^4 + \frac{1}{x^4} = 34$ adding 2 to both side
$x^4 + \frac{1}{x^4} + 2 = 36$ taking root on both side
$x^2 + \frac{1}{x^2} = 6$ again applying above process
$x + \frac{1}{x} = 2\sqrt{2}$ taking cube on both side
$x^3 + \frac{1}{x^3} = 8\sqrt{8} - 3\sqrt{8}$
$x^3 + \frac{1}{x^3} = 5\sqrt{8}$

Sol:80.(d)
$3x^2 + 1 = 5x$, dividing both side by $\sqrt{3}x$
$\sqrt{3}x + \frac{1}{\sqrt{3}x} = \frac{5}{\sqrt{3}}$ squaring both side
$3x^2 + \frac{1}{3x^2} + 2 = \frac{25}{3}$
$3x^2 + \frac{1}{3x^2} = \frac{19}{3}$ dividing both side by 3
$x^2 + \frac{1}{9x^2} = \frac{19}{9} = 2\frac{1}{9}$

Sol:81.(a)
Taking the square of $= (3x + y)^2$
$(3x + y)^2 = 9x^2 + y^2 + 6xy$
$(3x + y)^2 = 37 + 6 \times 2$
$(3x + y)^2 = 49$
$3x + y = 7$
Taking cube on both side

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$27x^3 + Y^3 + 9xy(3x + y) = 343$

$27x^3 + Y^3 = 343 - 9 \times 2 \times 7$

$27x^3 + Y^3 = 217$

Sol:82.(a)

$\frac{0.0203\times2.92}{0.7\times0.0365\times2.9} \div \frac{(12.12)^2-(8.12)^2}{(0.25)^2+(0.25)(19.99)}$

$\frac{203\times292\times10000\times100}{7\times365\times29\times10\times10000\times10}$

$\div \frac{(12.12.+8.12)(12.12-8.12)}{0.25\times0.25+0.25\times19.99}$

$\frac{203\times292}{7\times365\times29} \div \frac{(20.24)(4)}{0.25(0.25+19.99)}$

$\frac{4}{5} \times \frac{20.24\times0.25}{20.24\times4} = 0.05$

Sol:83.(b)

$a^3 + b^3 + c^3 - 3abc =$

$(a + b + c)((a + b + c)^2 - 3(ab + bc + bc))$

$175 = 7(7^2 - 3(ab+bc+ca))$

$25=49-3(ab+bc+ca)$

$24= 3(ab+bc+ca)$

$8= (ab+bc+ca)$

Sol:84.(c)

$(x + 2y)^2 = x^2 + 4y^2 + 4xy$

$(x + 2y)^2 = 17 + 8 = 25$

$x + 2y = 5$

Taking cube on both side

$(x + 2y)^3 = x^3 + 8y^3 + 3 \times x \times 2y(x + 2y)$

$125 = x^3 + 8y^3 + 12(5)$

$65 = x^3 + 8y^3$

Sol:85.(a)

Applying the formula

$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

$(x+y)^3 + (2x - 2y)^3 = (x + y + 2x - 2y)(x^2 + y^2 + 2xy - 2x^2 + 2y^2 + 4x^2 + 4y^2 - 8xy)$

$(x+y)^3 + (2x - 2y)^3 = (3x - y)(3x^2 + 7y^2 - 6xy)$

Comparing a, b and c

A = -1

B = 7

C = -6

A + B + C = 0

Sol:86.(b)

$2x^2 - 7x + 5 = 0$

$2x^2 + 5 = 7x$ dividing by 2x

$x + \frac{5}{2x} = 3.5$

Squaring both side

$x^2 + \frac{25}{4x^2} + 2 \times \frac{5}{2x} \times x = 12.25$

$x^2 + \frac{25}{4x^2} = 7.25 = 7\frac{1}{4}$

Sol:87.(a)

$\frac{x^6 + 3x^3 - 1}{x^6 - 8x^3 - 1}$ dividing numerator and denominator by x^3

$\frac{x^3 + 3 - \frac{1}{x^3}}{x^3 - 8 - \frac{1}{x^3}}$

$x^3 - \frac{1}{x^3} = 125 + 15 = 140$

$\frac{x^3 + 3 - \frac{1}{x^3}}{x^3 - 8 - \frac{1}{x^3}} = \frac{140+3}{140-8} = \frac{143}{132} = \frac{13}{12}$

Sol:88.(a)

$\frac{27 \times (0.25)^3 + 125(0.05)^3}{(0.75)^2 - 0.25\times0.5}$

$\frac{3^3\times(0.25)^3 + 5^3(0.05)^3}{(0.75)^2 - 0.25\times0.5}$

$\frac{(0.75)^3 + (0.25)^3}{(0.75)^2 - 0.25\times(0.75-0.25)}$

$\frac{(0.75)^3 + (0.25)^3}{(0.75)^2 - 0.25\times(0.75)+(0.25)^2} = 0.75 + 0.25 = 1$

Sol89.a)

$\frac{8+2\sqrt{3}}{3\sqrt{3}+5}$ on rationalising

$\frac{8+2\sqrt{3}}{3\sqrt{3}+5} \times \frac{3\sqrt{3}-5}{3\sqrt{3}-5}$

$\frac{2(4+\sqrt{3})\times 3\sqrt{3}-5}{2}$

$(4 + \sqrt{3}) \times (3\sqrt{3} - 5)$

$12\sqrt{3} - 20 + 9 - 5\sqrt{3}$

$7\sqrt{3} - 11$

a = 7 and b = 11

a + b =18

Sol:90.(b)

$x + \frac{16}{x} = 8,$

$x^2 + 16 - 8x = 0$

$(x - 4)^2 = 0$

x = 4

$x^2 + \frac{32}{x^2}$

16 + 2 = 18

Sol:91.(d)

$x\left(3 - \frac{2}{x}\right) = \frac{3}{x},$

$3x - \frac{3}{x} = 2$

$x - \frac{1}{x} = \frac{2}{3}$

$x^3 - \frac{1}{x^3} = \frac{8}{27} + 3 \times \frac{2}{3}$

$x^3 - \frac{1}{x^3} = \frac{62}{27}$

Sol:92.(c)

$2 = x + \frac{1}{1+\frac{1}{5+\frac{1}{2}}},$

$2 = x + \frac{1}{1+\frac{2}{11}}$

$2 = x + \frac{11}{13}$

$x = \frac{15}{13}$

Sol:93.(d)

$x^2 + \frac{1}{x^2} + 2 = 7 + 2$

$x + \frac{1}{x} = 3$

$x^3 + \frac{1}{x^3} = 3^3 - 3 \times 3 = 18$

Sol:94.(b)

$\sqrt{x} + \frac{1}{\sqrt{x}} = 3$ squaring both side

$x + \frac{1}{x} = 7$ now taking cube on both sides

$x^3 + \frac{1}{x^3} = 7^3 - 3 \times 7 = 322$

Sol:95.(b)

$5 - \frac{8+2\sqrt{15}}{4} - \frac{1}{8+2\sqrt{15}}$ on rationalisation

$5 - \frac{8+2\sqrt{15}}{4} - \frac{1}{8+2\sqrt{15}} \times \frac{8-2\sqrt{15}}{8-2\sqrt{15}}$

$5 - \frac{8+2\sqrt{15}}{4} - \frac{8-2\sqrt{15}}{4}$

$5 - \frac{4}{4} = 1$

Sol:96.(a)

$x - \frac{3}{x} = 6$

Cubing both side

$(x - \frac{3}{x})^3 = 216$

$x^3 - \frac{27}{x^3} = 216 + 9 \times 6 = 270$

$\frac{x^4 - \frac{27}{x^2}}{x^2 - 3x - 3}$ dividing numerator and denominator by x

$\frac{x^4 - \frac{27}{x^2}}{x^2 - 3x - 3} = \frac{x^3 - \frac{27}{x^3}}{x - 3 - \frac{3}{x}} = \frac{216 + 9\times6}{6-3} = \frac{270}{3} = 90$

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97.Sol:(a)

$a^2+b^2+c^2+216=12(a+b-2c)$

Taking all to LHS and rearranging all we get

a^2-12a

$+36+b^2-12b+36+c^2+24c+144=0$

$(a-6)^2+(b-6)^2+(c+12)^2=0$

Now we can easily say that a=6, b=6,c=-12,

Now we have to find out

$\sqrt{ab-bc+ca}$

Putting the values of a,b and c we get

$\sqrt{36+72-72}=\sqrt{36}=6$

Sol:98.(a)

Using formula $a^3-b^3=(a-b)(a^2+ab+b^2)$

$(5\sqrt{5}x^3-3\sqrt{3}y^3)\div(\sqrt{5}x-\sqrt{3}y)=(Ax^2+By^2+Cxy)$,

Let $a=\sqrt{5}x$, $b=\sqrt{3}y$

$[(\sqrt{5}x)^3-(\sqrt{3}y)^3]\div(\sqrt{5}x-\sqrt{3}y)=(Ax^2+By^2+Cxy)$

$5x^2+3y^2+\sqrt{15}xy=(Ax^2+By^2+Cxy)$

By comparing,

A=5, B=3, C=$\sqrt{15}$

Now putting the values of a,b,c in $(3A+B-\sqrt{15}C)$ we get

$(3\times5+3-\sqrt{15}\times\sqrt{15})$

=3

99.Sol:(d)

$\frac{6.35\times6.35\times6.35+3.65\times3.65\times3.65}{63.5\times63.5+36.5\times36.5-63.5\times36.5}$

Multiplying both numerator and denominator by 10^6 and applying $a^3+b^3=(a+b)(a^2-ab+b^2)$

Let a=635, b=365

$\frac{a^3+b^3}{(a^2+b^2-ab)\times10^4}$

$\frac{(a+b)(a^2-ab+b^2)}{(a^2+b^2-ab)\times10^4}$

$\frac{(a+b)}{10^4}$

$\frac{635+365}{10000}$

$=\frac{1000}{10000}$

=0.1

100.sol:(a)

$x^4+x^{-4}=194$

Adding 2 to both sides, and apply formula $a^2+b^2+2ab=(a+b)^2$

$(x^2+x^{-2})^2=196$

$x^2+x^{-2}=14$

Again adding 2 to both sides and taking square root we get

$x^1+x^{-1}=4$

Sol:101.(b)

$\frac{0.325\times0.325+0.175\times0.175+25\times0.00455}{5\times0.0065\times3.25-7\times0.175\times0.025}-\frac{0.5}{1.5}$

$\frac{(0.325)^2+(0.175)^2+2\times0.175\times0.325}{(0.325)^2-(0.175)^2}-\frac{0.5}{1.5}$

$\frac{(0.325+0.175)^2}{(0.325+0.175)(0.325-0.175)}-\frac{0.5}{1.5}$

$\frac{0.325+0.175}{0.325-0.175}-\frac{0.5}{1.5}$

$\frac{0.5}{0.15}-\frac{0.5}{1.5}$

$\frac{5-0.5}{1.5}=\frac{4.5}{1.5}=3$

Sol:102.(c)

$x^2-5x+1=0$

$x^2-1=5x$

$x-\frac{1}{x}=5$

$(x^4+\frac{1}{x^2})\div(x^2+1)$

$\frac{x^4+\frac{1}{x^2}}{x^2+1}$ on dividing by x we get

$\frac{x^3+\frac{1}{x^3}}{x+\frac{1}{x}}=\frac{5^3-3\times5}{5}=\frac{110}{5}=22$

Sol:103.(a)

$x^3+y^3+z^3-3xyz=(x+y+z)((x+y+z)^2-3(xy+yz+zx))$

$x^3+y^3+z^3-3xyz=(19)(19^2-3(114))$

$x^3+y^3+z^3-3xyz=361$

$x^3+y^3+z^3+xyz=361+864=1225$

Sol:104.(a)

$x^2+8y^2-12y-4xy+9=0$,

$(x-2y)^2+(2y+3)^2=0$

$x=2y$ and $y=-\frac{3}{2}$

$8y=-12$

$7x=-21$

$7x-8y=9$

Sol:105.(a)

$x^2+8y^2-12y-4xy+9=0$,

$(x-2y)^2+(2y+3)^2=0$

$x=2y$ and $y=-\frac{3}{2}$

$8y=-12$

$7x=-21$

$7x+8y=-33$

Sol:106.(b)

$x^2-3x+1=0$

$x^2+1=3x$

$x+\frac{1}{x}=3$

Cubing both side

$(x+\frac{1}{x})^3=27$

$x^3+\frac{1}{x^3}+3\times3=27$

$x^3+\frac{1}{x^3}=18$

$(x^4+\frac{1}{x^2})\div(x^2+1)$

$\frac{x^4+\frac{1}{x^2}}{x^2+1}$ on dividing by x we get

$\frac{x^3+\frac{1}{x^3}}{x+\frac{1}{x}}=\frac{18}{3}=6$

Sol:107.(d)

$\frac{0.325\times0.325+0.175\times0.175+25\times0.00455}{5\times0.0065\times3.25-7\times0.175\times0.025}+\frac{0.5}{1.5}$

$\frac{(0.325)^2+(0.175)^2+2\times0.175\times0.325}{(0.325)^2-(0.175)^2}+\frac{0.5}{1.5}$

$\frac{(0.325+0.175)^2}{(0.325+0.175)(0.325-0.175)}+\frac{0.5}{1.5}$

$\frac{0.325+0.175}{0.325-0.175}+\frac{0.5}{1.5}$

$\frac{0.5}{0.15}+\frac{0.5}{1.5}$

$\frac{5+0.5}{1.5}=\frac{5.5}{1.5}=\frac{11}{3}$

Sol:108.(c)

$x^3+y^3+z^3-3xyz=(x+y+z)((x+y+z)^2-3(xy+yz+zx))$

$x^3+y^3+z^3-3xyz=(17)(17^2-3(111))$

$x^3+y^3+z^3-3xyz=-748$

$x^3+y^3+z^3+xyz=-748+684=-64$

$\sqrt[3]{x^3+y^3+z^3+xyz}=\sqrt[3]{-64}=-4$

Sol:109.(b)

$\frac{4.35\times4.35\times4.35+3.25\times3.25\times3.25}{43.5\times43.5+32.5\times32.5-43.5\times32.5}$

Multiplying both numerator and denominator by 10^6 and applying $a^3+b^3 = (a+b)(a^2-ab+b^2)$

Let a=435, b=325

$\frac{a^3+b^3}{(a^2+b^2-ab)\times 10^4}$

$\frac{(a+b)(a^2-ab+b^2)}{(a^2+b^2-ab)\times 10^4}$

$\frac{(a+b)}{10^4}$

$\frac{760}{10000}$

$= 0.076$

110.Sol:(c)

$a^2 + b^2 + c^2 + 84 = 4(a - 2b + 4c)$

Taking all the terms to the LHS and rearranging it

$A^2-4a+4+b^2+8b+16+c^2-16c+64$

We get

$(a-2)^2+(b+4)^2+(c-8)^2=0$

As sum of squares terms is always greater than zero unless each term is individually equal to 0

So a=2,b=-4,c=8

$\sqrt{ab - bc + ca}$

Putting the above values

$\sqrt{-8 + 32 + 16}$

$= \sqrt{40}$

$2\sqrt{10}$

111.Sol:(a)

$a^3 + b^3 = 217$ and $a + b = 7$

Using formula $a^3+b^3 = (a+b)\{(a+b)^2-3ab\}$

Putting the values we get

$\{(a+b)^2-3ab\} = 31$

Again putting $a + b = 7$, $3ab = 18$, $ab = 6$

112.Sol:(c)

If $x + y + z = 13$,

$x^2 + y^2 + z^2 = 133$ and

$x^3 + y^3 + z^3 = 847$

Using $(x+y+z)^2 = x^2 + y^2 + z^2 + 2(xy+yz+xz)$

And putting the values we get

$169=133+2(xy+yz+xz)$

$(xy+yz+xz)=18$

Now using formula

$x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x+y+z)^2 \{x^2 + y^2 + z^2 - xy+yz+xz\}$

Putting all the values we get

$xyz=-216$

$\sqrt[3]{xyz} = -6$

113.Sol:(d)

$x + y + z = 19$, $x^2 + y^2 + z^2 = 133$ and $xz = y^2$

Using $(x+y+z)^2 = x^2+y^2+z^2 +2xy+2yz+2xz$

And putting the values we get

$361=133+2(xy+yz+xz)$

$228=2(xy+yz+xz)$

$(xy+yz+xz)=114$

Now putting $xz = y^2$ and taking out y common simultaneously

We get $y(x + y + z)=114$

Putting $x + y + z = 19$ we get y=6

Now x+z=13 and $x^2+z^2=97$

Solving these equations we get

x=9 and z=4 As $x > z > 0$ (given0

So x-z=9-4=5

114.Sol:(d)

$x^4+x^{-4} =194$

Adding 2 to both sides

$(x^2+x^{-2})^2 =196$

$x^2+x^{-2} =14$

Again adding 2 to both sides and taking square root we get

$x + \frac{1}{x} = 4$

$x + \frac{1}{x} + 2 = 6$

115.Sol:(d)

$\frac{5.35\times5.35\times5.35+3.65\times3.65\times3.65}{53.5\times53.5+36.5\times36.5-53.5\times36.5}$

Multiplying both numerator and denominator by 10^6 and applying $a^3+b^3 = (a+b)(a^2-ab+b^2)$

Let a=435, b=325

$\frac{a^3+b^3}{(a^2+b^2-ab)\times 10^4}$

$\frac{(a+b)(a^2-ab+b^2)}{(a^2+b^2-ab)\times 10^4}$

$\frac{(a+b)}{10^4}$

$\frac{535+365}{10000}$

$\frac{900}{10000}$

$=0.09$

116.Sol:(d)

$(5\sqrt{5}x^3 - 3\sqrt{3}y^3) \div (\sqrt{5}x - \sqrt{3}y) = (Ax^2 + By^2 + Cxy)$

Using formula $a^3-b^3 = (a-b)(a^2+ab+b^2)$

Let $a= \sqrt{5}x$, $b= \sqrt{3}y$

$[(\sqrt{5}x)^3 - (\sqrt{3}y)^3] \div (\sqrt{5}x - \sqrt{3}y) = (Ax^2 + By^2 + Cxy)$

$5x^2 + 3y^2 + \sqrt{15}xy = (Ax^2 + By^2 + Cxy)$

By comparing,

A=5, B=3, C= $\sqrt{15}$

Now putting the values of a,b,c in $(3A + B - \sqrt{15}C)$ we get

$(3\times5-3-\sqrt{15}\times\sqrt{15})$

(15-18)

-3

Sol:117.(a)

$\frac{427\times427\times427+325\times325\times325}{42.7\times42.7+32.5\times32.5-42.7\times32.5}$

Taking 42.7 = a and 32.5 = b

The given expression is in the form of $\frac{1000a^3+1000b^3}{a^2+b^2-ab}$

Using the formula $a^3 + b^3 = (a + b)(a^2 + ab + b^2)$

$\frac{1000a^3+1000b^3}{a^2+b^2-ab} = 1000(a + b) =$ 75200

Sol:118.(d)

$\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab}$

Multiply the numerator and denominator of $\frac{a^2}{bc}$ by a

Multiply the numerator and denominator of $\frac{b^2}{ac}$ by b

Multiply the numerator and denominator of $\frac{c^2}{ba}$ by c

After multiplication

$\frac{a^3+b^3+c^3}{abc}$

If a + b + c = 0

Then

$a^3 + b^3 + c^3 - 3abc = 0$

So

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$\frac{a^3+b^3+c^3}{abc} = 3$

Sol:119.(d)
Using the formula
$x^3 + y^3 + z^3 - 3xyz = (x + y + z)((x + y + z)^2 - 3(xy + yz + zx))$
$x^3 + y^3 + z^3 - 3xyz = 19\ (361-342)$
$x^3 + y^3 + z^3 - 3xyz = 361$
$x^3 + y^3 + z^3 + xyz = 361 + 864 = 1225$
$\sqrt{x^3 + y^3 + z^3 + xyz} = 35$

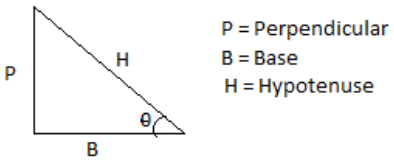
Sol:120.(d)
$a^2 + b^2 = 82$ and $ab = 9$
Multiplying ab by 2 and adding it to $a^2 + b^2$ we get $(a+b)^2 = 100$
So a+b=10
Using formula $a^3+b^3 = (a+b)(a^2-ab+b^2)$
And putting all the values we get
$a^3+b^3=10 \times 73=730$

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Trigonometry / त्रिकोणमिति

Important Formulae's / महत्वपूर्ण सूत्र:

In a right angled triangle, as shown below/ किसी समकोण त्रिभुज में, जैसा कि नीचे दर्शाया गया है:



- $sin\ \theta = \frac{P}{H}$
- $cosec\theta = \frac{H}{P}$
- $cos\ \theta = \frac{B}{H}$
- $sec\ \theta = \frac{H}{B}$
- $tan\ \theta = \frac{P}{B}$
- $cot\ \theta = \frac{B}{P}$

Note that / याद रखें :

$cosec\theta = \frac{1}{sin\,\theta}$,

$\therefore cosec\theta \times sin\,\theta = 1$

Similarly, $sec\ \theta = \frac{1}{cos\,\theta}$,

$\therefore sec\ \theta \times cos\ \theta = 1$

And, $cot\ \theta = \frac{1}{tan\,\theta}$,

$\therefore cot\ \theta \times tan\ \theta = 1$

Also, $tan\ \theta = \frac{Sin\,\theta}{Cos\,\theta}$

Important Identities/ महत्वपूर्ण सर्वसमिका :

- $sin^2\theta + cos^2\theta = 1$
- $sec^2\theta - tan^2\theta = 1$
- $cosec^2\theta - cot^2\theta = 1$

We can derive all other identities from these three basic identities./ इन तीनो मूल सूत्रों से हम बाकी सारे सूत्र निकाले जा सकते है|

Values of Trigonometric functions for different values of θ / θ के विभिन्न मान के लिए त्रिकोणमितीय फलनों के मान :

	0^0	30^0	45^0	60^0	90^0
	$\sqrt{\frac{0}{4}}$	$\sqrt{\frac{1}{4}}$	$\sqrt{\frac{2}{4}}$	$\sqrt{\frac{3}{4}}$	$\sqrt{\frac{4}{4}}$
$sin\theta$	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
$cos\theta$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
$tan\theta$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	∞
$cot\theta$	∞	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0
$sec\theta$	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	∞
$cosec\theta$	∞	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1

- $sin\ \theta = \theta)$
- $cos\ \theta = \theta)$
- $cot\ \theta = \theta)$
- $tan\ \theta = \theta)$
- $sec\ \theta = \theta)$
- $cosec\theta = \theta)$

Compound Formulae/ यौगिक सूत्र :

- $sin\ (A+B)$
  $= sin\,A.cosB + cosA.sinB$
- $sin\ (A-B)$
  $= sin\,A\ .cosB - cosA.sinB$
- $cos\ (A+B)$
  $= cosA.cosB - sinA.sinB$
- $cos\ (A-B)$
  $= cosA\ .cosB + sinA.sin\,B$
- $tan\ (A+B)$
  $= \frac{tan\,A + tan\,B}{1 - tan\,A\ .tan\,B}$
- $tan\ (A-B)$
  $= \frac{tan\,A - tan\,B}{1 + tan\,A\ .tan\,B}$
- $sin\ 2A = 2\ sin\,A.\ cos\,A = \frac{2\ tan\ tan\,A}{1+tan^2A}$
- $cos\ 2A = cos^2A - sin^2A$
  $= 1 - 2sin^2A$
- $cos2A = \frac{1-tan^2A}{1+tan^2A}$
  $= 2cos^2A - 1$
- $sin\ 3A =$
  $3sinA - 4\ sin^3A$
- $cos\ 3A =$
  $4cos^3A - 3cosA$
- $tan\ 3A = \frac{3\ tan\,A - 4\ tan^3A}{1+3tan^2A}$
- $sin\ \theta\ .sin\ 2\theta\ .sin\ 4\theta$
  $= \frac{1}{4}sin\ 3\theta$
- $cos\ \theta\ .cos\ 2\theta\ .cos\ 4\theta$
  $= \frac{1}{4}cos\ 3\theta$
- $tan\theta.tan2\theta.tan4\theta = tan3\theta$

Varieties questions

Q1. If $4 - 2\,sin^2\theta - 5\,cos\theta = 0$, $0^0 < \theta < 90^0$, then the value of $\sin\theta + tan\theta$ is :

यदि $4 - 2\,sin^2\theta - 5\,cos\theta = 0$, $0^0 < \theta < 90^0$ है, तो $\sin\theta + tan\theta$ का मान क्या होगा ?

SSC CGL 4 June 2019 (Morning)

(a) $\frac{3\sqrt{2}}{2}$

(b) $\frac{3\sqrt{3}}{2}$

(c) $3\sqrt{2}$

(d) $2\sqrt{3}$

Q2. $\frac{2+tan^2\theta+cot^2\theta}{sec\theta\ cosec\theta}$ is equal to : $\frac{2+tan^2\theta+cot^2\theta}{sec\theta\ cosec\theta}$ का मान किसके बराबर है ?

SSC CGL 4 June 2019 (Morning)

(a) $cot\theta$

(b) $cos\theta\ sin\theta$

(c) $sec\theta\ cosec\theta$

(d) $tan\theta$

Q3. If $\cos\theta = 2p/(1+p^2)$, then $tan\theta$ is equal to :

यदि $\cos\theta = 2p/(1+p^2)$ है, तो $tan\theta$ का मान ज्ञात करें |

SSC CGL 4 June 2019 (Afternoon)

(a) $\frac{p^2}{1+p^2}$

(b) $\frac{2p}{1-p^2}$

(c) $\frac{1-p^2}{1+p^2}$

(d) $\frac{1-p^2}{2p}$

Q4. If $0^0 < \theta < 90^0$ and $cos^2\theta = 3(cot^2\theta - cos^2\theta)$ then the value of $(\frac{1}{2}sec\theta + sin\theta)^{-1}$ is :

यदि $0^0 < \theta < 90^0$ और $cos^2\theta = 3(cot^2\theta - cos^2\theta)$ है,तो $(\frac{1}{2}sec\theta + sin\theta)^{-1}$ का मान क्या होगा ?

SSC CGL 4 June 2019 (Afternoon)

Pinnacle

(a) $\sqrt{3}+2$
(b) $2(2-\sqrt{3})$
(c) $2(\sqrt{3}-1)$
(d) $\sqrt{3}+1$

Q5. $\left(\frac{\sin\theta-2\sin^3\theta}{2\cos^3\theta-\cos\theta}\right)^2+1, \theta\neq 45^0$, is equal $\left(\frac{\sin\theta-2\sin^3\theta}{2\cos^3\theta-\cos\theta}\right)^2+1, \theta\neq 45^0$, का मान किसके बराबर है ?
SSC CGL 4 June 2019 (Afternoon)
(a) $cosec^2\theta$
(b) $sec^2\theta$
(c) $cot^2\theta$
(d) $2\tan^2\theta$

Q6. If $\sec\theta-\tan\theta=P$, then $\text{cosec}\ \theta=?$
यदि $\sec\theta-\tan\theta=P$ है, तो $\text{cosec}\ \theta=?$
SSC CGL 4 June 2019 (Evening)
(a) $\frac{2P}{1-P^2}$
(b) $\frac{1-P^2}{1+P^2}$
(c) $\frac{P^2+1}{1-P^2}$
(d) $\frac{2P}{1+P^2}$

Q7. The value of θ when $\sqrt{3}\cos\theta+\sin\theta=1\ (0^\theta\leq\theta\leq 90°)$, is:
θ का मान ज्ञात करें जब $\sqrt{3}\cos\theta+\sin\theta=1\ (0^\theta\leq\theta\leq 90°)$ है |
SSC CGL 4 June 2019 (Evening)
(a) 90°
(b) 30°
(c) 60°
(d) 0°

Q8. $\frac{Sin\theta-Cos\theta+1}{Sin\theta+Cos\theta-1}=?$
SSC CGL 6 June 2019 (Morning)
(a) $sec\theta\ sin\theta$
(b) $sec\theta\ tan\theta$
(c) $sec\theta+tan\theta$
(d) $sec\theta-tan\theta$

Q9. The value of $\sqrt{sec^2\theta+cosec^2\theta}\times\sqrt{tan^2\theta-sin^2\theta}$ is equal to :
$\sqrt{sec^2\theta+cosec^2\theta}\times\sqrt{tan^2\theta-sin^2\theta}$ का मान किसके बराबर है -
SSC CGL 6 June 2019 (Morning)
(a) $cosec\theta\ sec^2\theta$
(b) $sin\ \theta\ sec^2\theta$
(c) $\sin\ \theta\ cos^2\theta$
(d) $cosec\ \theta\ cos^2\theta$

Q10. If $cos^2\theta-3\cos\theta+2=sin^2\theta$, $0°<\theta<90°$, then the value of $2\text{cosec}\theta+4\cot\theta$ is :
यदि $cos^2\theta-3\cos\theta+2=sin^2\theta$, $0°<\theta<90°$ है, तो $2\text{cosec}\theta+4\cot\theta$ का मान क्या होगा ?
SSC CGL 7 June 2019 (Afternoon)
(a) $\frac{8\sqrt{3}}{3}$
(b) $\frac{4\sqrt{3}}{4}$
(c) $2\sqrt{3}$
(d) $4\sqrt{3}$

Q11. If $\sin\theta=4\cos\theta$, then what is the value of $\sin\theta\ \cos\theta$?
यदि $\sin\theta=4\cos\theta$ है, तो $\sin\theta\ \cos\theta$ का मान क्या होगा ?
SSC CGL 6 June 2019 (Afternoon)
(a) $\frac{2}{9}$
(b) $\frac{3}{10}$
(c) $\frac{4}{17}$
(d) $\frac{3}{4}$

Q12. If $\frac{cos\theta}{1-sin\theta}+\frac{cos\theta}{1+sin\theta}=4$, $0°<\theta<90°$, then the value of $(\tan\theta+\text{cosec}\theta)$ is :
यदि $\frac{cos\theta}{1-sin\theta}+\frac{cos\theta}{1+sin\theta}=4$, $0°<\theta<90°$ है, तो $(\tan\theta+\text{cosec}\theta)$ का मान क्या होगा ?
SSC CGL 6 June 2019 (Evening)
(a) $\frac{5\sqrt{2}}{2}$
(b) $\frac{5\sqrt{3}}{3}$
(c) $\frac{4\sqrt{3}}{3}$
(d) $\frac{5\sqrt{2}}{3}$

Q13. If $(1+tan^2\theta)+(1+(tan^2\theta)^{-1})=k$, then $\sqrt{k}=?$
यदि $(1+tan^2\theta)+(1+(tan^2\theta)^{-1})=k$, है, तो $\sqrt{k}=?$
SSC CGL 6 June 2019 (Evening)
(a) $\text{cosec}\theta.\sec\theta$
(b) $\text{cosec}\theta.\cos\theta$
(c) $\sin\theta.\cos\theta$
(d) $\sin\theta.\sec\theta$

Q14. The value of $sin^230^0\ cos^245^0+4tan^230^0+\frac{1}{2}sin^290^0+2\cos 90°$ is:
$sin^230^0\ cos^245^0+4tan^230^0+\frac{1}{2}sin^290^0+2\cos 90°$ का मान ज्ञात करें |
SSC CGL 7 June 2019 (Evening)
(a) $\frac{15}{8}$
(b) $\frac{47}{24}$
(c) $\frac{23}{12}$
(d) 2

Q15. If $tan\theta=\frac{2}{3}$, then $\frac{3\ sin\ \theta-4\ cos\ \theta}{3\ sin\ \theta+4\ cos\ \theta}$ is equal to:
यदि $tan\theta=\frac{2}{3}$ है, तो $\frac{3\ sin\ \theta-4\ cos\ \theta}{3\ sin\ \theta+4\ cos\ \theta}$ का मान किसके बराबर होगा ?
SSC CGL 10 June 2019 (Afternoon)
(a) $-\frac{1}{3}$
(b) $\frac{2}{3}$
(c) $-\frac{2}{3}$
(d) $\frac{1}{3}$

Q16. If $\text{Sec}4\theta=\text{Cosec}(\theta+20°)$, then θ is equal to:
यदि $\text{Sec}4\theta=\text{Cosec}(\theta+20°)$ है, तो θ किसके बराबर है ?
SSC CGL 10 June 2019 (Afternoon)
(a) 22°
(b) 18°

Pinnacle

(c) 14°
(d) 20°

Q17. If $\frac{\tan\theta+\sin\theta}{\tan\theta-\sin\theta}=\frac{k+1}{k-1}$. Then k = ?
यदि $\frac{\tan\theta+\sin\theta}{\tan\theta-\sin\theta}=\frac{k+1}{k-1}$ है, तो k = ?
SSC CGL 10 June 2019 (Morning)
(a) cosecθ
(b) secθ
(c) cosθ
(d) sinθ

Q18.The value of
$\sin^2 38^0+\sin^2 52^0+\sin^2 30^0-\tan^2 45^0$ is equal to:
$\sin^2 38^0+\sin^2 52^0+\sin^2 30^0-\tan^2 45^0$ का मान किसके बराबर है ?
SSC CGL 10 June 2019 (Afternoon)
(a) $\frac{1}{3}$
(b) $\frac{1}{4}$
(c) $\frac{3}{4}$
(d) $\frac{1}{2}$

Q19. If Cosecθ = $\frac{13}{12}$, then Sinθ + Cosθ - tanθ is equal to:
यदि Cosecθ = $\frac{13}{12}$ है, तो Sinθ + Cosθ - tanθ का मान ज्ञात करें |
SSC CGL 11 June 2019 (Afternoon)
(a) $\frac{91}{65}$
(b) $\frac{139}{65}$
(c) $\frac{71}{65}$
(d) $-\frac{71}{65}$

Q20. The value of
$\frac{\sin 44^0}{\cos 46^0}+\sin^2 60^0-\cos^2 45^0+\sec 60^0$ is equal to: /
$\frac{\sin 44^0}{\cos 46^0}+\sin^2 60^0-\cos^2 45^0+\sec 60^0$ का मान किसके बराबर है ?
SSC CGL 12 June 2019 (Morning)
(a) $\frac{13}{4}$
(b) $\frac{11}{4}$
(c) $\frac{11}{3}$
(d) $\frac{7}{4}$

Q21. If $3\cos^2 A+7\sin^2 A=4$, then what is the value of cot A, given that A is an acute angle?
यदि $3\cos^2 A+7\sin^2 A=4$ है, तो cot A का मान ज्ञात करें, यदि दिया हुआ है कि A एक न्यून कोण है ?
SSC CGL 13 June 2019 (Evening)
(a)1
(b) $\sqrt{3}$
(c) $\frac{\sqrt{3}}{2}$
(d) $\frac{1}{\sqrt{3}}$

Q22. If
$\frac{\cos^2\theta}{\cot^2\theta-\cos^2\theta}=3, 0^0<\theta<90^0$, then the value of cot$\theta$ + cosecθ is:
यदि $\frac{\cos^2\theta}{\cot^2\theta-\cos^2\theta}=3$ है और $0°<\theta<90°$ है, तो cotθ + cosecθ का मान ज्ञात करें
SSC CGL 6 June 2019 (Afternoon)
(a) $\sqrt{3}$
(b) $\frac{\sqrt{3}}{2}$
(c) $2\sqrt{3}$
(d) $\frac{3\sqrt{3}}{4}$

Q23. The value of $\frac{1}{\sin\theta}-\frac{\cot^2\theta}{1+\operatorname{cosec}\theta}$ is :
$\frac{1}{\sin\theta}-\frac{\cot^2\theta}{1+\operatorname{cosec}\theta}$ का मान है :
SSC CGL 6 June 2019 (Evening)
(a) 0
(b) 1
(c) 2
(d) -1

Q24. $\left(\frac{1}{1+\sin^2\theta}+\frac{1}{1+\operatorname{cosec}^2\theta}\right)$ = ?
SSC CGL 6 June 2019 (Evening)
(a) $\sin^2\theta$
(b) 1
(c) $\operatorname{cosec}^2\theta$
(d) 2

Q25. The value of $\frac{1}{\sec x-\tan x}-\frac{1}{\cos x}$, $0°<x<90°$, is equal to :
$\frac{1}{\sec x-\tan x}-\frac{1}{\cos x}$ का मान ज्ञात करें जब $0°<x<90°$ है |
SSC CGL 7 June 2019 (Morning)
(a) 2secx
(b) tanx
(c) 2cosx
(d) cotx

Q26. If $\tan^2\theta-3\sec\theta+3=0$, $0°<x<90°$, then the value of sinθ + cotθ is :
यदि $\tan^2\theta-3\sec\theta+3=0$ है और $0°<x<90°$ है, तो sinθ + cotθ का मान क्या होगा ?
SSC CGL 7 June 2019 (Morning)
(a) $\frac{5\sqrt{3}}{6}$
(b) $2\sqrt{3}$
(c) $\frac{5\sqrt{3}}{3}$
(d) $3\sqrt{3}$

Q27. If cotθ = $\sqrt{7}$, then the value of $\frac{\operatorname{cosec}^2\theta-\sec^2\theta}{\operatorname{cosec}^2\theta+\sec^2\theta}$ is :
यदि cotθ = $\sqrt{7}$ है, तो $\frac{\operatorname{cosec}^2\theta-\sec^2\theta}{\operatorname{cosec}^2\theta+\sec^2\theta}$ का मान क्या होगा ?
SSC CGL 7 June 2019 (Morning)
(a) $\frac{3}{4}$
(b) $\frac{2}{3}$
(c) $\frac{8}{9}$
(d) $\frac{7}{9}$

Q28. If sinθ= $\frac{a}{\sqrt{a^2+b^2}}$, $0°<\theta<90°$, then the value of secθ + tanθ is :
यदि sinθ = $\frac{a}{\sqrt{a^2+b^2}}$ है और $0°<\theta<90°$ है, तो secθ + tanθ का मान ज्ञात करें |
SSC CGL 7 June 2019 (Afternoon)
(a) $\frac{\sqrt{a^2+b^2}+a}{b}$
(b) $\frac{\sqrt{a^2+b^2}+b}{2a}$

(c) $\frac{\sqrt{a^2+b^2}+a}{2b}$

(d) $\frac{\sqrt{a^2+b^2}+b}{a}$

Q29. $(\frac{2\tan 30^0}{1-\tan^2 30^0}) = ?$

SSC CGL 7 June 2019 (Evening)

(a) 3

(b) $\frac{1}{3}$

(c) $\sqrt{3}$

(d) $\frac{1}{\sqrt{3}}$

Q30. If $\frac{1}{cosec\,\theta-1} + \frac{1}{cosec\,\theta+1} = 2\sec\theta$, $0° < \theta < 90°$, then the value of $(\cot\theta + \cos\theta)$ is:

यदि $\frac{1}{cosec\,\theta-1} + \frac{1}{cosec\,\theta+1} = 2\sec\theta$, $0° < \theta < 90°$ है, तो $(\cot\theta + \cos\theta)$ का मान क्या होगा ?

SSC CGL 7 June 2019 (Evening)

(a) $\frac{1+\sqrt{2}}{2}$

(b) $\frac{2+\sqrt{2}}{2}$

(c) $\frac{2+\sqrt{3}}{\sqrt{2}}$

(d) $1 + \sqrt{2}$

Q31. If $cos^2\theta - sin^2\theta - 3\cos\theta + 2 = 0$, $0° < \theta < 90°$, then what is the value of $4\mathrm{Cosec}\theta + \mathrm{Cot}\theta$?

यदि $cos^2\theta - sin^2\theta - 3\cos\theta + 2 = 0$ है और $0° < \theta < 90°$ है, तो $4\mathrm{Cosec}\theta + \mathrm{Cot}\theta$ का मान क्या होगा ?

SSC CHSL 2 July 2019 (Morning)

(a) $3\sqrt{3}$

(b) 4

(c) $4\sqrt{3}$

(d) 3

Q32. $\frac{(sec\theta + tan\theta)(1 - sin\theta)}{cosec\theta(1 + cos\theta)(cosec\theta - cot\theta)}$ is equal to:

$\frac{(sec\theta + tan\theta)(1 - sin\theta)}{cosec\theta(1 + cos\theta)(cosec\theta - cot\theta)}$ का मान किसके बराबर है ?

SSC CHSL 2 July 2019 (Morning)

(a) $\sin\theta$

(b) $\sec\theta$

(c) $\cos\theta$

(d) $\mathrm{Cosec}\theta$

Q33. If $\cot\theta = \frac{1}{\sqrt{3}}$, then the value of $\frac{2-sin^2\theta}{1-cos^2\theta} + cosec^2\theta + sec\theta$ is:

यदि $\cot\theta = \frac{1}{\sqrt{3}}$ है, तो $\frac{2-sin^2\theta}{1-cos^2\theta} + cosec^2\theta + sec\theta$ का मान ज्ञात करें |

SSC CHSL 2 July 2019 (Morning)

(a) 4

(b) 6

(c) 7

(d) 5

Q34. If $\mathrm{Cosec}\ 31° = x$, then $sin^2 59 + \frac{1}{cosec^2 31} + tan^2 59 - \frac{1}{sin^2 59.cosec^2 59}$ is equal to:

यदि $\mathrm{Cosec}\ 31° = x$ है, तो $sin^2 59 + \frac{1}{cosec^2 31} + tan^2 59 - \frac{1}{sin^2 59.cosec^2 59}$ का मान किसके बराबर होगा ?

SSC CHSL 2 July 2019 (Afternoon)

(a) x + 1

(b) $x^2 - 1$

(c) x - 1

(d) $x^2 + 1$

Q35. If $\sqrt{\frac{1-cos\theta}{1+cos\theta}} \times \sqrt{\frac{cosec\theta-cot\theta}{cosec\theta+cot\theta}} = \frac{1-r}{1+r}$, then the value of r is:

यदि $\sqrt{\frac{1-cos\theta}{1+cos\theta}} \times \sqrt{\frac{cosec\theta-cot\theta}{cosec\theta+cot\theta}} = \frac{1-r}{1+r}$ है, तो r का मान ज्ञात करें |

SSC CHSL 3 July 2019 (Afternoon)

(a) $\sin\theta$

(b) $\mathrm{Cosec}\theta$

(c) $\sec\theta$

(d) $\cos\theta$

Q36. If $\sin(A+B) = \frac{\sqrt{3}}{2}$ and $\tan(A - B) = \frac{1}{\sqrt{3}}$, then (2A + 3B) is equal to :

यदि $\sin(A+B) = \frac{\sqrt{3}}{2}$ तथा $\tan(A - B) = \frac{1}{\sqrt{3}}$ है, तो (2A + 3B) का मान क्या होगा ?

SSC CPO 2018 - 13 March 2019 (Morning)

(a) 120^0

(b) 135^0

(c) 130^0

(d) 125^0

Q37. $(\mathrm{cosecA} - \sin A)^2 + (\sec A - \cos A)^2 - (\cot A - \tan A)^2$ is equal to:

$(\mathrm{cosecA} - \sin A)^2 + (\sec A - \cos A)^2 - (\cot A - \tan A)^2$ का मान किसके बराबर है ?

SSC CPO 2018 - 16 March 2019 (Evening)

(a)2

(b)0

(c)1

(d)-1

Q38. If $x = a\cos\theta + b\sin\theta$ and $y = a\sin\theta - b\cos\theta$, the value of $x^2 + y^2$ is: यदि $x = a\cos\theta + b\sin\theta$ तथा $y = a\sin\theta - b\cos\theta$ है, तो $x^2 + y^2$ का मान ज्ञात करें | **SSC CPO 2018 - 15 March 2019 (Morning)**

(a) $a^2 - b^2$

(b)a-b

(c) $a^2 + b^2$

(d)a+b

Q39. Find the value of $1 + \frac{tan^2 A}{1+sec\,A}$

$1 + \frac{tan^2 A}{1+sec\,A}$ का मान क्या होगा ?

SSC CPO 2018 - 15 March 2019 (Evening)

(a)cosec A

(b)cos A

(c)sec A

(d)sin A

Q40. If $3\sin\theta = 2\cos^2\theta$, $0° < \theta < 90°$, then the value of $(tan^2\theta + sec^2\theta - cosec^2\theta)$ is :

यदि $3\sin\theta = 2\cos^2\theta$, $0° < \theta < 90°$ है, तो $(\tan^2\theta + \sec^2\theta - \operatorname{cosec}^2\theta)$ का मान ज्ञात करें |

SSC CGL 10 June 2019 (Morning)

(a) -2
(b) $-\frac{7}{3}$
(c) $\frac{7}{3}$
(d) 2

Q41. The value of $[\frac{\sin^2 24° + \sin^2 66°}{\cos^2 24° + \cos^2 66°} + \sin^2 61° + \cos 61°.\sin 29°]$ is : /
$[\frac{\sin^2 24° + \sin^2 66°}{\cos^2 24° + \cos^2 66°} + \sin^2 61° + \cos 61°.\sin 29°]$ का मान ज्ञात करें |

SSC CGL 13 June 2019 (Evening)

(a)3
(b)1
(c)2
(d)0

Q42. $\frac{\cot\theta}{(1-\sin\theta)(\sec\theta+\tan\theta)}$ is equal to:
$\frac{\cot\theta}{(1-\sin\theta)(\sec\theta+\tan\theta)}$ का मान ज्ञात करें |

SSC CHSL 1 July 2019 (Evening)

(a) Cosecθ
(b) Sinθ
(c) Secθ
(d) 1

Q43. The value of $\frac{\tan 13^0 \tan 37^0 \tan 45^0 \tan 53^0 \tan 77^0}{2\operatorname{cosec}^2 60^0(\cos^2 60^0 - 3\cos 60^0 + 2)}$ is:
$\frac{\tan 13^0 \tan 37^0 \tan 45^0 \tan 53^0 \tan 77^0}{2\operatorname{cosec}^2 60^0(\cos^2 60^0 - 3\cos 60^0 + 2)}$ का मान ज्ञात करें |

SSC CHSL 1 July 2019 (Evening)

(a) 2
(b) 1
(c) 1.5
(d) 0.5

Q44. If $3\cos^2 A + 6\sin^2 A = 3$, $0° \le A \le 90°$, then the value of A is:

यदि $3\cos^2 A + 6\sin^2 A = 3$ तथा $0° \le A \le 90°$ है, तो A का मान ज्ञात करें |

SSC CHSL 2 July 2019 (Evening)

(a) 30°
(b) 0°
(c) 90°
(d) 45°

Q45. The value of $\frac{(\cos 9 + \sin 81)(\sec 9 + \operatorname{cosec} 81)}{\sin 56.\sec 34 + \cos 25.\operatorname{cosec} 65}$ is:
$\frac{(\cos 9 + \sin 81)(\sec 9 + \operatorname{cosec} 81)}{\sin 56.\sec 34 + \cos 25.\operatorname{cosec} 65}$ का मान ज्ञात करें |

SSC CHSL 2 July 2019 (Evening)

(a) ½
(b) 4
(c) 2
(d) 1

Q46. A simplified of $(\frac{\sin\theta}{1+\cos\theta} + \frac{1+\cos\theta}{\sin\theta})(\frac{1}{\tan\theta + \cot\theta})$ is :
$(\frac{\sin\theta}{1+\cos\theta} + \frac{1+\cos\theta}{\sin\theta})(\frac{1}{\tan\theta + \cot\theta})$ का सरलीकृत मान ज्ञात करें |

SSC CHSL 2 July 2019 (Evening)

(a) Cosθ
(b) 2Sinθ
(c) Sinθ
(d) 2Cosθ

Q47. If $3 - 2\sin^2\theta - 3\cos\theta = 0$, $0° < \theta < 90°$, then what is the value of $(2\operatorname{Cosec}\theta + \tan\theta)$?
यदि $3 - 2\sin^2\theta - 3\cos\theta = 0$ और $0° < \theta < 90°$ है, तो $(2\operatorname{Cosec}\theta + \tan\theta)$ का मान क्या होगा ?

SSC CHSL 2 July 2019 (Evening)

(a) $7\sqrt{3}$
(b) $5\sqrt{3}$
(c) $\frac{5\sqrt{3}}{3}$
(d) $\frac{7\sqrt{3}}{3}$

Q48. If $\cot\theta = \sqrt{6}$, then the value of $\frac{\operatorname{cosec}^2\theta + \sec^2\theta}{\operatorname{cosec}^2\theta - \sec^2\theta}$ is:
यदि $\cot\theta = \sqrt{6}$ है, तो $\frac{\operatorname{cosec}^2\theta + \sec^2\theta}{\operatorname{cosec}^2\theta - \sec^2\theta}$ का मान ज्ञात करें |

SSC CHSL 3 July 2019 (Morning)

(a) $\frac{49}{36}$
(b) $\frac{43}{36}$
(c) $\frac{7}{5}$
(d) $\frac{48}{35}$

Q49. If $\sin\theta.\sec^2\theta = \frac{2}{3}$, $0° < \theta < 90°$, then the value of $(\tan^2\theta + \cos^2\theta)$ is:
यदि $\sin\theta.\sec^2\theta = \frac{2}{3}$ है, और $0° < \theta < 90°$ है तो $(\tan^2\theta + \cos^2\theta)$ का मान ज्ञात करें |

SSC CHSL 3 July 2019 (Morning)

(a) $\frac{7}{6}$
(b) $\frac{11}{12}$
(c) $\frac{13}{12}$
(d) $\frac{5}{4}$

Q50. If $\frac{(\sin\theta - \operatorname{cosec}\theta)(\cos\theta - \sec\theta)}{\tan^2\theta - \sin^2\theta} = r^3$, then r = ?
यदि $\frac{(\sin\theta - \operatorname{cosec}\theta)(\cos\theta - \sec\theta)}{\tan^2\theta - \sin^2\theta} = r^3$ है, तो r = ?

SSC CHSL 3 July 2019 (Morning)

(a) SinθCosθ
(b) tanθ
(c) Cotθ
(d) CosecθSecθ

Q51. If $\sec\theta = 4x$ and $\tan\theta = \frac{4}{x}$, $(x \neq 0)$ then the value of $8(x^2 - \frac{1}{x^2})$ is :/
यदि $\sec\theta = 4x$ और $\tan\theta = \frac{4}{x}$ है जहाँ $(x \neq 0)$ है, तो $8(x^2 - \frac{1}{x^2})$ का मान ज्ञात करें |

SSC CHSL 5 July 2019 (Afternoon)

(a) $\frac{1}{16}$
(b) $\frac{1}{4}$
(c) $\frac{1}{2}$
(d) $\frac{1}{8}$

Pinnacle

Q52. If $\theta = 9^\circ$, then what is the value of $\cot\theta .\cot 2\theta .\cot 3\theta .\cot 4\theta .\cot 5\theta \cot 6\theta .\cot 7\theta .\cot 8\theta .\cot 9\theta$ /
यदि $\theta = 9^\circ$ है, तो $\cot\theta .\cot 2\theta .\cot 3\theta .\cot 4\theta .\cot 5\theta \cot 6\theta .\cot 7\theta .\cot 8\theta .\cot 9\theta$ का मान ज्ञात करें |
SSC CHSL 10 July 2019 Evening)
(a) $\sqrt{3}$ -1
(b) 1
(c) $\sqrt{3}$
(d) $\frac{1}{\sqrt{3}}$

Q53. For α and β both being acute angles, it is given that $\sin(\alpha+\beta) = 1$, $\cos(\alpha-\beta) = \frac{1}{2}$. The values of α and β are :
यदि α और β दोनों न्यून कोण हैं तथा यह दिया गया है कि $\sin(\alpha+\beta) = 1$, $\cos(\alpha-\beta) = \frac{1}{2}$ है, तो α और β के मान ज्ञात करें |
SSC CHSL 10 July 2019 Evening)
(a) $75^\circ, 15^\circ$
(b) $45^\circ, 15^\circ$
(c) $75^\circ, 45^\circ$
(d) $60^\circ, 30^\circ$

Q54. For all $\alpha'_i s$, $(i = 1, 2, 3.....20)$ lying between 0° and 90°, it is given that $\sin\alpha_1 + \sin\alpha_2 + \sin\alpha_3$ ……..$\sin\alpha_{20} = 20$. What is the value (in degrees) of $(\alpha_1 + \alpha_2 + \alpha_3....\alpha_{20})$?
0° से 90° के बीच स्थित सभी $\alpha'_i s$, $(i = 1, 2, 3.....20)$ के लिए, यह दिया गया है कि $\sin\alpha_1 + \sin\alpha_2 + \sin\alpha_3$ ……..$\sin\alpha_{20} = 20$ है | $(\alpha_1 + \alpha_2 + \alpha_3....\alpha_{20})$ का मान (डिग्री में) ज्ञात करें |
SSC CHSL 11 July 2019 (Morning)
(a) 1800
(b) 900
(c) 0
(d) 20

Q55. Which among the following is an irrational quantity
निम्न में से कौन एक अपरिमेय राशि है ?
SSC CHSL 10 July 2019 (Afternoon)
(a) $\tan 30^\circ . \tan 60^\circ$
(b) $\sin 30^\circ$
(c) $\tan 45^\circ$
(d) $\cos 30^\circ$

Q56. If $\sin\theta + \text{cosec}\,\theta = 2$, then what is the value of $(sin^{153}\theta + cosec^{253}\theta)$?
यदि $\sin\theta + \text{cosec}\,\theta = 2$ है, तो $(sin^{153}\theta + cosec^{253}\theta)$ का मान क्या होगा ?
SSC CHSL 10 July 2019 (Morning)
(a) $\frac{1}{153\times 253}$
(b) $\frac{253}{123}$
(c) 2
(d) $\frac{153}{253}$

Q57. If $\cos x = \frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $4\,cot^2 x$ -3 $cosec^2 x$ *is* :
यदि $\cos x = \frac{-\sqrt{3}}{2}$ है तथा $\pi < x < \frac{3\pi}{2}$ है तो $4\,cot^2 x$ -3 $cosec^2 x$ का मान ज्ञात करें |
SSC CHSL 9 July 2019 (Afternoon)
(a) 8
(b) 0
(c) 2
(d) 1

Practice

Q1. If $12cot^2\theta - 31\,cosec\,\theta + 32 = 0$, $0^0 < \theta < 90^0$, then the values of $\tan\theta$ will be :
यदि $12cot^2\theta - 31\,cosec\,\theta + 32 = 0$, $0^0 < \theta < 90^0$ है, तो $\tan\theta$ का मान क्या होगा ?
SSC CGL 6 June 2019 (Morning)
(a) $\frac{4}{3}, \frac{3\sqrt{7}}{7}$
(b) $\frac{4}{5}, \frac{5\sqrt{7}}{7}$
(c) $\frac{5}{4}, \frac{4}{3}$
(d) $\frac{4}{5}, \frac{4}{3}$

Q2. If $(\frac{\tan\theta - \sec\theta + 1}{\tan\theta + \sec\theta - 1})\sec\theta = \frac{1}{k}$, then k = _____.
यदि $(\frac{\tan\theta - \sec\theta + 1}{\tan\theta + \sec\theta - 1})\sec\theta = \frac{1}{k}$ है, तो k = _____ .
SSC CGL 7 June 2019 (Afternoon)
(a) $1 + \sin\theta$
(b) $1 - \cos\theta$
(c) $1 + \cos\theta$
(d) $1 - \sin\theta$

Q3. If $\frac{\tan\theta}{1-\cot\theta} + \frac{\cot\theta}{1-\tan\theta} = 1 + k$, then k = _____.
यदि $\frac{\tan\theta}{1-\cot\theta} + \frac{\cot\theta}{1-\tan\theta} = 1 + k$ है, तो k = _____
SSC CGL 7 June 2019 (Evening)
(a) $\cot\theta + \sec\theta$
(b) $\tan\theta\ \text{cosec}\theta$
(c) $\tan\theta + \sec\theta$
(d) $\text{cosec}\theta\ \sec\theta$

Q4. When $2\,sin^2\theta = 3\cos\theta$, and $0 \le \theta \le 90$, then θ =
जब $2\,sin^2\theta = 3\cos\theta$, तथा $0 \le \theta \le 90$ है, तो θ = ?
SSC CGL 10 June 2019 (Evening)
(a) 45°
(b) 30°
(c) 90°
(d) 60°

Q5. The value of $(sin^2 60^0 - cos^2 45^0$

$+ sec60^0 + cos^2 40^0 + cos^2 50^0$)is equal to:
$(sin^2 60^0 - cos^2 45^0 + sec60^0 + cos^2 40^0 + cos^2 50^0)$ का मान किसके बराबर है ?
SSC CGL 10 June 2019 (Evening)
(a) $\frac{13}{4}$
(b) $\frac{7}{2}$
(c) $\frac{11}{4}$
(d) $\frac{9}{14}$

Q6. If $\tan\theta = \frac{3}{4}$, *then* $\frac{4\sin\theta - \cos\theta}{4\sin\theta + \cos\theta}$ is equal to :
यदि $\tan\theta = \frac{3}{4}$ है, तो $\frac{4\sin\theta - \cos\theta}{4\sin\theta + \cos\theta}$ का मान किसके बराबर होगा ?
SSC CGL 10 June 2019 (Evening)
(a) $\frac{1}{4}$
(b) $\frac{3}{5}$
(c) $\frac{2}{5}$
(d) $\frac{1}{2}$

Q7. If $\cot\theta = \frac{3}{4}$, then $\sin\theta + \cos\theta - \tan\theta$ is equal to :
यदि $\cot\theta = \frac{3}{4}$ है, तो $\sin\theta + \cos\theta - \tan\theta$ का मान किसके बराबर होगा ?
SSC CGL 11 June 2019 (Morning)
(a) $-\frac{1}{20}$
(b) $\frac{2}{15}$
(c) $\frac{1}{20}$
(d) $\frac{1}{15}$

Q8. The value of $sec^2 28^0 - cot^2 62^0 + sin^2 60^0 + cosec^2 30^0$ is equal to:
$sec^2 28^0 - cot^2 62^0 + sin^2 60^0 + cosec^2 30^0$ का मान किसके बराबर है ?
SSC CGL 11 June 2019 (Morning)
(a) $\frac{7}{2}$
(b) 3
(c) $\frac{19}{4}$
(d) $\frac{23}{4}$

Q9. If $\tan 4\theta = \cot(2\theta + 30°)$, then θ is equal to:
यदि $\tan 4\theta = \cot(2\theta + 30°)$ है, तो θ का मान ज्ञात करें |
SSC CGL 11 June 2019 (Morning)
(a) 15°
(b) 10°
(c) 20°
(d) 25°

Q10. The value of $cot^2 62^0 - sec^2 28^0 + cosec^2 30^0 + tan^2 60^0$ is equal to :/
$cot^2 62^0 - sec^2 28^0 + cosec^2 30^0 + tan^2 60^0$ का मान किसके बराबर है ?
SSC CGL 11 June 2019 (Afternoon)
(a) 8
(b) $\frac{10}{3}$
(c) 6
(d) $\frac{16}{3}$

Q11. If $\sin\theta = \cos(50° + \theta)$, then θ is equal to:
$\sin\theta = \cos(50° + \theta)$ है, तो θ का मान क्या होगा ?
SSC CGL 11 June 2019 (Afternoon)
(a) 20°
(b) 25°
(c) 30°
(d) 35°

Q12. The value of $sin^2 48^0 + sin^2 42^0 - sec^2 30^0 + tan^2 60^0$ is equal to:
$sin^2 48^0 + sin^2 42^0 - sec^2 30^0 + tan^2 60^0$ का मान ज्ञात करें |
SSC CGL 11 June 2019 (Evening)
(a) $\frac{8}{3}$
(b) 2
(c) $\frac{7}{3}$
(d) $\frac{5}{3}$

Q13. If $\sec\theta = \frac{13}{5}$, then $\tan\theta - \sin\theta + \cos\theta$ is equal to:
यदि $\sec\theta = \frac{13}{5}$ है, तो $\tan\theta - \sin\theta + \cos\theta$ का मान क्या होगा ?
SSC CGL 11 June 2019 (Evening)
(a) $\frac{121}{65}$
(b) $\frac{118}{65}$
(c) $\frac{23}{13}$
(d) $\frac{124}{65}$

Q14. If $\sin 5\theta = \cos(50° - 3\theta)$, then θ is equal to:
यदि $\sin 5\theta = \cos(50° - 3\theta)$ है, तो θ का मान क्या होगा ?
SSC CGL 11 June 2019 (Evening)
(a) 20°
(b) 25°
(c) 30°
(d) 15°

Q15. If $\cos\theta = \frac{4}{5}$, then $sin^2\theta\cos\theta + cos^2\theta\sin\theta$ is equal to:
यदि $\cos\theta = \frac{4}{5}$ है, तो $sin^2\theta\cos\theta + cos^2\theta\sin\theta$ का मान किसके बराबर होगा ?
SSC CGL 12 June 2019 (Morning)
(a) $\frac{16}{25}$
(b) $\frac{84}{125}$
(c) $\frac{14}{25}$
(d) $\frac{82}{125}$

Q16. If $\tan 4\theta = \cot(40^0 - 2\theta)$, then θ is equal to:
यदि $\tan 4\theta = \cot(40^0 - 2\theta)$ है, तो θ किसके बराबर है ?
SSC CGL 12 June 2019 (Morning)
(a) 20^0
(b) 25^0
(c) 35^0
(d) 30^0

Pinnacle

Q17. The value of
$sin^2 20^0 + sin^2 70^0 - tan^2 45^0 + sec 60^0$ is equal to :
$sin^2 20^0 + sin^2 70^0 - tan^2 45^0 + sec 60^0$ का मान किसके बराबर है ?
SSC CGL 12 June 2019 (Afternoon)
(a) 1
(b) 2
(c) 2.5
(d) 3

Q18. If $3\sin\theta = 4\cos\theta$, then $tan^2\theta + \sin\theta - \cos\theta$ is equal to :
यदि $3\sin\theta = 4\cos\theta$ है, तो $tan^2\theta + \sin\theta - \cos\theta$ का मान किसके बराबर है ?
SSC CGL 12 June 2019 (Afternoon)
(a) $\frac{88}{45}$
(b) 2
(c) $\frac{89}{45}$
(d) $\frac{17}{9}$

Q19. If $\text{cosec}3\theta = \sec(20^0 + 2\theta)$, then θ is equal to :
यदि $\text{cosec}3\theta = \sec(20^0 + 2\theta)$ है, तो θ का मान किसके बराबर होगा ?
SSC CGL 12 June 2019 (Afternoon)
(a) 30^0
(b) 20^0
(c) 15^0
(d) 14^0

Q20.
$sec^2 29^0 - cot^2 61^0 + sin^2 60^0 + cosec^2 30^0$ is equal to :
$sec^2 29^0 - cot^2 61^0 + sin^2 60^0 + cosec^2 30^0$ का मान किसके बराबर है ?
SSC CGL 12 June 2019 (Evening)
(a) $\frac{19}{4}$
(b) $\frac{23}{4}$
(c) $\frac{15}{4}$
(d) $\frac{11}{4}$

Q21. If $\text{Cosec}4\theta = \text{Sec}(60° - 2\theta)$, then θ is equal to :
यदि $\text{Cosec}4\theta = \text{Sec}(60° - 2\theta)$ है, तो θ का मान किसके बराबर होगा ?
SSC CGL 12 June 2019 (Evening)
(a) 18°
(b) 25°
(c) 15°
(d) 20°

Q22. If 12 Sin θ = 5 Cos θ , then Sin θ + Cos θ - Cot θ is equal to :
यदि 12 Sin θ = 5 Cos θ है, तो Sin θ + Cos θ - Cot θ का मान किसके बराबर होगा ?
SSC CGL 12 June 2019 (Evening)
(a) $\frac{139}{156}$
(b) $-\frac{71}{65}$
(c) $\frac{116}{156}$
(d) $-\frac{16}{65}$

Q23. The value of $\sin^2 42° + \sin^2 48° + \tan^2 60° - \text{cosec}30°$ is equal to:
$\sin^2 42° + \sin^2 48° + \tan^2 60° - \text{cosec}30°$ का मान ज्ञात करें |
SSC CGL 13 June 2019 (Morning)
(a)5
(b)3
(c)4
(d)2

Q24. If $sin\ 3\theta = \cos(20° - \theta)$, then θ is equal to:
यदि $sin\ 3\theta = \cos(20° - \theta)$ है, तो θ का मान ज्ञात करें |
SSC CGL 13 June 2019 (Morning)
(a)25
(b)35
(c)28
(d)30

Q25. If $3\sin\theta = 2\cos\theta$, then $\frac{4sin\theta - cos\theta}{4cos\theta + sin\theta}$ is equal to:
यदि $3\sin\theta = 2\cos\theta$ है, तो $\frac{4sin\theta - cos\theta}{4cos\theta + sin\theta}$ का मान क्या होगा ?
SSC CGL 13 June 2019 (Morning)
(a) $\frac{5}{7}$
(b) $\frac{5}{8}$
(c) $\frac{5}{14}$
(d) $\frac{5}{11}$

Q26. If $2\sin\theta = 5\cos\theta$, then $\frac{sin\theta + cos\theta}{sin\theta - cos\theta}$ is equal to:
यदि $2\sin\theta = 5\cos\theta$ है, तो $\frac{sin\theta + cos\theta}{sin\theta - cos\theta}$ का मान किसके बराबर होगा ?
SSC CGL 13 June 2019 (Afternoon)
(a) $\frac{5}{3}$
(b) $\frac{9}{5}$
(c) $\frac{2}{3}$
(d) $\frac{7}{3}$

Q27. The value of $\sin^2 32° + \sin^2 58° - \sin 30° + \sec^2 60°$ is equal to:
$\sin^2 32° + \sin^2 58° - \sin 30° + \sec^2 60°$ का मान ज्ञात करें |
SSC CGL 13 June 2019 (Afternoon)
(a)5.5
(b)3.5
(c)4.5
(d)4

Q28. If $\text{cosec}2\theta = \sec(3\theta - 15°)$, then θ is equal to:
यदि $\text{cosec}2\theta = \sec(3\theta - 15°)$ है, तो θ का मान क्या होगा ?
SSC CGL 13 June 2019 (Afternoon)
(a)22°
(b)20°
(c)25°
(d)21°

Q29. If tanx = cot(45° + 2x), then what is the value of x?
यदि tanx = cot(45° + 2x) है, तो x का मान क्या होगा ?

SSC CGL 13 June 2019 (Evening)

(a) $\frac{45°}{2}$

(b)20°

(c)15°

(d)45°

CHSL

Q30. If $2cos^2\theta - 5Cos\theta + 2 = 0$, $0° < \theta < 90°$, then the value of $(Cosec\theta + Cot\theta)$ is:

यदि $2cos^2\theta - 5Cos\theta + 2 = 0$ है और $0° < \theta < 90°$ है, तो $(Cosec\theta + Cot\theta)$ का मान ज्ञात करें |

SSC CHSL 1 July 2019 (Evening)

(a) $\frac{1}{\sqrt{3}}$

(b) $\sqrt{3}$

(c) $\frac{1}{3}$

(d) $2\sqrt{3}$

Q31. If $\frac{1}{sec\theta - tan\theta} - \frac{1}{cos\theta} = Sec\theta \times k$, $0° < \theta < 90°$, then k is equal to:

यदि $\frac{1}{sec\theta - tan\theta} - \frac{1}{cos\theta} = Sec\theta \times k$ है और $0° < \theta < 90°$ है, तो k का मान किसके बराबर है ?

SSC CHSL 2 July 2019 (Afternoon)

(a) $Cosec\theta$

(b) $tan\theta$

(c) $Sin\theta$

(d) $Cot\theta$

Q32. The simplified value of / सरलीकृत मान ज्ञात करें :

$[\frac{sin^2 25 + sin^2 65}{cos^2 24 + cos^2 66} + sin^2 71 + cos 71.\ Sin 19\ ]$

SSC CHSL 2 July 2019 (Afternoon)

(a) 0

(b) 1

(c) 2

(d) 3

Q33. If $3Sin\theta = 2\,cos^2\theta$, $0° < \theta < 90°$, then the value of $(tan\theta + Cos\theta + Sin\theta)$ is:

यदि $3Sin\theta = 2\,cos^2\theta$ है और $0° < \theta < 90°$ है, तो $(tan\theta + Cos\theta + Sin\theta)$ का मान ज्ञात करें |

SSC CHSL 2 July 2019 (Afternoon)

(a) $\frac{5\sqrt{3}}{3}$

(b) $\frac{5\sqrt{3}}{6}$

(c) $\frac{3+5\sqrt{3}}{6}$

(d) $\frac{3+5\sqrt{3}}{3}$

Q34. If $\tan\theta = \frac{3}{5}$, $0° < \theta < 90°$ then $\sin\theta \cos\theta$ is equal to :

यदि $\tan\theta = \frac{3}{5}$ है और $0° < \theta < 90°$ है, तो $\sin\theta \cos\theta$ का मान ज्ञात करें |

SSC CHSL 11 July 2019 (Evening)

(a) $\frac{14}{\sqrt{34}}$

(b) $\sqrt{17}$

(c) $\frac{16}{\sqrt{34}}$

(d) $\frac{15}{\sqrt{34}}$

Q35. If $\frac{1}{1-sin\theta} + \frac{1}{1+sin\theta} = 4Sec\theta$, $0° < \theta < 90°$, then the value of $(3Cot\theta + Cosec\theta)$ is:

यदि $\frac{1}{1-sin\theta} + \frac{1}{1+sin\theta} = 4Sec\theta$ है और $0° < \theta < 90°$ है, तो $(3Cot\theta + Cosec\theta)$ का मान क्या होगा ?

SSC CHSL 3 July 2019 (Afternoon)

(a) $\frac{5\sqrt{3}}{3}$

(b) $4\sqrt{3}$

(c) $5\sqrt{3}$

(d) $\frac{2\sqrt{3}}{3}$

Q36. The value of $\frac{4tan^2 30 + \frac{1}{4}sin^2 90 + \frac{1}{8}cot^2 60 + sin^2 30.cos^2 45}{sin 60.cos 30 - cos 60.sin 30}$ is/

$\frac{4tan^2 30 + \frac{1}{4}sin^2 90 + \frac{1}{8}cot^2 60 + sin^2 30.cos^2 45}{sin 60.cos 30 - cos 60.sin 30}$ का मान है

SSC CHSL 3 July 2019 (Evening)

(a) $1\frac{3}{4}$

(b) 4

(c) $2\frac{1}{2}$

(d) $3\frac{1}{2}$

Q37. If $(\frac{1}{1+cosec\theta} - \frac{1}{1-cosec\theta})\cos\theta = 2$, $0° < \theta < 90°$, then the value of $sin^2\theta + cot^2\theta + sec^2\theta$ is

यदि $(\frac{1}{1+cosec\theta} - \frac{1}{1-cosec\theta})\cos\theta = 2$ है और $0° < \theta < 90°$ है, तो $sin^2\theta + cot^2\theta + sec^2\theta$ का मान क्या होगा ?

SSC CHSL 3 July 2019 (Evening)

(a) 1

(b) $2\frac{1}{2}$

(c) $3\frac{1}{2}$

(d) 2

Q38. If tanx = cot (60+6x), then what is the value of x ?

यदि tanx = cot (60+6x) है, तो x का मान क्या होगा ?

SSC CHSL 3 July 2019 (Evening)

(a) 10°

(b) $\frac{30}{7}°$

(c) $\frac{15}{2}°$

(d) 12°

Q39. For θ being an acute angle, if $cosec\,\theta = 1.25$, then the value of $\frac{4tan\theta - 5cos\theta}{sec\theta + 4cot\theta}$ is equal to

यदि θ एक न्यून कोण है तथा यदि $cosec\,\theta = 1.25$ है, तो $\frac{4tan\theta - 5cos\theta}{sec\theta + 4cot\theta}$ का मान किसके बराबर होगा ?

SSC CHSL 4 July 2019 (Morning)

(a) $\frac{3}{7}$

(b) $\frac{4}{7}$

(c) $\frac{1}{4}$

(d) $\frac{1}{2}$

Q40. For $0 < \theta < 90$, if $2\,cos^2\theta = 3\sin\theta$, then the value of (

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$cosec^2\theta - cot^2\theta + cos^2\theta$) is equal to :

$0 < \theta < 90$ के लिए, यदि $2\,cos^2\theta = 3\sin\theta$ है, तो ($cosec^2\theta - cot^2\theta + cos^2\theta$) किसके बराबर होगा ?

SSC CHSL 4 July 2019 (Morning)

(a) $1\frac{1}{2}$
(b) $2\frac{3}{4}$
(c) $1\frac{3}{4}$
(d) $2\frac{1}{4}$

Q41. For $0 < \theta < 90$, if $\frac{sec\theta(1-sin\theta)(sec\theta+tan\theta)}{(sec\theta-tan\theta)^2} = \frac{1+k}{1-k}$, then k is equal to :

$0 < \theta < 90$ के लिए यदि $\frac{sec\theta(1-sin\theta)(sec\theta+tan\theta)}{(sec\theta-tan\theta)^2} = \frac{1+k}{1-k}$ है, तो k का मान किसके बराबर है ?

SSC CHSL 4 July 2019 (Morning)

(a) cosec θ
(b) cos θ
(c) sec θ
(d) sin θ

Q42. If $\cos\theta = \frac{2p}{p^2+1}$, then $sin\theta$ is equal to :

यदि $\cos\theta = \frac{2p}{p^2+1}$ है, तो $sin\theta$ का मान किसके बराबर होगा ?

SSC CHSL 4 July 2019 (Afternoon)

(a) $\frac{p^2-1}{p^2+1}$
(b) $\frac{2p}{p^2-1}$
(c) $\frac{p^2+1}{p^2-1}$
(d) $\frac{2p}{p^2+1}$

Q43. If tanx = cot(65+9x), then what is the value of x?

यदि tanx = cot(65+9x) है, तो x का मान ज्ञात करें |

SSC CHSL 4 July 2019 (Afternoon)

(a) 2.5°
(b) 1.0°
(c) 2.0°
(d) 1.5°

Q44. If $\cos\theta = \frac{2p}{p^2+1}, (p \neq 0)$ then $tan\theta$ is equal to :

यदि $\cos\theta = \frac{2p}{p^2+1}, (p \neq 0)$ है, तो $tan\theta$ का मान किसके बराबर होगा ?

SSC CHSL 4 July 2019 (Evening)

(a) $\frac{p^2+1}{p^2-1}$
(b) $\frac{p^2-1}{2p}$
(c) $\frac{2p}{p^2+1}$
(d) $\frac{2p}{p^2-1}$

Q45. If $2\,sin^2\theta + 5\cos\theta - 4 = 0$, $0 < \theta < 90$, then the value of $\tan\theta + \sin\theta$ is : यदि $2\,sin^2\theta + 5\cos\theta - 4 = 0$ तथा $0 < \theta < 90$ है, तो $\tan\theta + \sin\theta$ का मान क्या होगा ?

SSC CHSL 4 July 2019 (Evening)

(a) $\frac{\sqrt{3}}{3}$
(b) $\frac{\sqrt{3}}{2}$
(c) $\frac{2}{\sqrt{3}}$
(d) $\frac{3\sqrt{3}}{2}$

Q46. If $\cos\theta = \frac{2p}{p^2+1}, (p \neq \pm 1)$ then $cosec\theta$ is equal to :

यदि $\cos\theta = \frac{2p}{p^2+1}, (p \neq \pm 1)$ है, तो $cosec\theta$ का मान क्या होगा ?

SSC CHSL 5 July 2019 (Morning)

(a) $\frac{2p}{p^2-1}$
(b) $\frac{2p}{p^2+1}$
(c) $\frac{p^2-1}{2p}$
(d) $\frac{p^2+1}{p^2-1}$

Q47. If $2\,sin^2\theta + 5\cos\theta - 4 = 0$, $0 < \theta < 90$, then the value of $\cot\theta + \text{cosec}\,\theta$ is :

यदि $2\,sin^2\theta + 5\cos\theta - 4 = 0$ तथा $0 < \theta < 90$ है, तो $\cot\theta + \text{cosec}\,\theta$ का मान क्या होगा ?

SSC CHSL 5 July 2019 (Morning)

(a) $\frac{3\sqrt{3}}{2}$
(b) $\sqrt{3}$
(c) $\frac{2}{\sqrt{3}}$
(d) $\frac{\sqrt{3}}{2}$

Q48. If $12\,cot^2\theta - 31\text{cosec}\,\theta + 32 = 0$, $0 < \theta < 90$, then the value of $\sin\theta$ will be :

यदि $12\,cot^2\theta - 31\text{cosec}\,\theta + 32 = 0$ है और $0 < \theta < 90$ है, तो $\sin\theta$ का मान क्या होगा ?

SSC CHSL 5 July 2019 (Morning)

(a) $\frac{5}{4}, \frac{4}{3}$
(b) $\frac{2}{3}, \frac{1}{4}$
(c) $\frac{4}{5}, \frac{3}{4}$
(d) $\frac{1}{3}, \frac{3}{2}$

Q49. If $\cos x = \frac{-1}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $4\,tan^2x + 3cosec^2x$ is :

यदि $\cos x = \frac{-1}{2}$ और $\pi < x < \frac{3\pi}{2}$ है, तो $4\,tan^2x + 3cosec^2x$ का मान क्या होगा ?

SSC CHSL 5 July 2019 (Afternoon)

(a) 16
(b) 8
(c) 4
(d) 10

Q50. If $6(sec^2 59 - cot^2 31) + \frac{2}{3}\sin 90 - 3\,tan^2 56\,y\,tan^2 34 = \frac{y}{3}$, then the value of y is:

यदि $6(sec^2 59 - cot^2 31) + \frac{2}{3}\sin 90 - 3\,tan^2 56\,y\,tan^2 34 = \frac{y}{3}$ है, तो y का मान क्या होगा ?

SSC CHSL 5 July 2019 (Afternoon)

(a) $\frac{2}{3}$

(b) $-\frac{2}{3}$
(c) 2
(d) -2

Q51. If $6(sec^2 59 - cot^2 31) - \frac{2}{3}\sin 90 - 3\tan^2 56 \, y \tan^2 34 = \frac{y}{3}$, then the value of y is :
यदि $6(sec^2 59 - cot^2 31) - \frac{2}{3}\sin 90 - 3\tan^2 56 \, y \tan^2 34 = \frac{y}{3}$ है, तो y का मान ज्ञात करें |
SSC CHSL 5 July 2019 (Evening)
(a) $\frac{8}{5}$
(b) $-\frac{8}{5}$
(c) $\frac{2}{3}$
(d) $-\frac{2}{3}$

Q52. If $\sec\theta = 3x$ and $\tan\theta = \frac{3}{x}$, $(x \neq 0)$ then the value of $9(x^2 - \frac{1}{x^2})$ is :
यदि $\sec\theta = 3x$ और $\tan\theta = \frac{3}{x}$ है, जहाँ $(x \neq 0)$ है, तो $9(x^2 - \frac{1}{x^2})$ का मान ज्ञात करें |
SSC CHSL 5 July 2019 (Evening)
(a) $\frac{1}{2}$
(b) $\frac{1}{3}$
(c) 1
(d) $\frac{1}{4}$

Q53. If $\cos x = \frac{-1}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $2\tan^2 x + 3cosec^2 x$ is :
यदि $\cos x = \frac{-1}{2}$ है और $\pi < x < \frac{3\pi}{2}$ है, तो $2\tan^2 x + 3cosec^2 x$ का मान क्या होगा ?
SSC CHSL 5 July 2019 (Evening)
(a) 4
(b) 10
(c) 8
(d) 16

Q54. If $\cos x = \frac{-1}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $2\tan^2 x - 3\,cosec^2 x$ is :
यदि $\cos x = \frac{-1}{2}$ है और $\pi < x < \frac{3\pi}{2}$ है, तो $2\tan^2 x - 3\,cosec^2 x$ का मान ज्ञात करें |
SSC CHSL 8 July 2019 (Morning)
(a) 2
(b) 10
(c) 8
(d) 4

Q55. If $2(cosec^2 39 - \tan^2 51) - \frac{2}{3}\sin 90 - \tan^2 56 \, y \tan^2 34 = \frac{y}{3}$, then the value of y is :
यदि $2(cosec^2 39 - \tan^2 51) - \frac{2}{3}\sin 90 - \tan^2 56 \, y \tan^2 34 = \frac{y}{3}$ है, तो y का मान क्या होगा ?
SSC CHSL 8 July 2019 (Morning)
(a) 1
(b) $\frac{2}{3}$
(c) $\frac{-2}{3}$
(d) -1

Q56. If $\text{cosec}\,\theta = 3x$ and $\cot\theta = \frac{3}{x}$, $(x \neq 0)$ then the value of $6(x^2 - \frac{1}{x^2})$ is : यदि $\text{cosec}\,\theta = 3x$ और $\cot\theta = \frac{3}{x}$ है, जहाँ $(x \neq 0)$ है, तो $6(x^2 - \frac{1}{x^2})$ का मान क्या होगा ?
SSC CHSL 8 July 2019 (Morning)
(a) $\frac{2}{3}$
(b) 1
(c) $\frac{1}{4}$
(d) $\frac{1}{2}$

Q57. If $\sin\theta = 3x$ and $\cos\theta = \frac{3}{x}$, $(x \neq 0)$then the value of $6(x^2 + \frac{1}{x^2})$ is : यदि $\sin\theta = 3x$ तथा $\cos\theta = \frac{3}{x}$ है जहाँ $(x \neq 0)$ है, तो $6(x^2 + \frac{1}{x^2})$ का मान क्या होगा ?
SSC CHSL 8 July 2019 (Afternoon)
(a) $\frac{1}{4}$
(b) $\frac{1}{3}$
(c) $\frac{2}{3}$
(d) $\frac{1}{2}$

Q58. If $\cos x = \frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $2\,cot^2 x + 3\,sec^2 x$ is : यदि $\cos x = \frac{-\sqrt{3}}{2}$ है और $\pi < x < \frac{3\pi}{2}$ है, तो $2\,cot^2 x + 3\,sec^2 x$ का मान क्या होगा ?
SSC CHSL 8 July 2019 (Afternoon)
(a) 10
(b) 4
(c) 8
(d) 16

Q59. If $4(cosec^2 66 - \tan^2 24) + \frac{1}{2}\sin 90 - 4\tan^2 66 \, y \tan^2 24 = \frac{y}{2}$, then find the value of y.
यदि $4(cosec^2 66 - \tan^2 24) + \frac{1}{2}\sin 90 - 4\tan^2 66 \, y \tan^2 24 = \frac{y}{2}$ है, तो y का मान ज्ञात करें |
SSC CHSL 8 July 2019 (Afternoon)
(a) $\frac{1}{2}$
(b) 1
(c) $\frac{-1}{2}$
(d) -1

Q60. If $\cos x = \frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $2cot^2 x - 3\,sec^2 x$ is :
यदि $\cos x = \frac{-\sqrt{3}}{2}$ है तथा $\pi < x < \frac{3\pi}{2}$ है, तो $2cot^2 x - 3\,sec^2 x$ का मान क्या होगा ?
SSC CHSL 8 July 2019 (Evening)
(a) 6
(b) 4
(c) 8
(d) 2

Q61. If $\cot\theta = 5x$ and $\text{cosec}\,\theta = \frac{5}{x}$ $(x \neq 0)$, then the value of $5\,(x^2 - \frac{1}{x^2})$ is :

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यदि $\cot\theta = 5x$ तथा $\operatorname{cosec}\theta = \frac{5}{x}$ $(x \neq 0)$ है, तो $5\left(x^2 - \frac{1}{x^2}\right)$ का मान ज्ञात करें |

SSC CHSL 8 July 2019 (Evening)

(a) $\frac{1}{5}$
(b) $\frac{1}{2}$
(c) $\frac{-1}{5}$
(d) $\frac{-1}{4}$

Q62. If $4(cosec^2 65 - tan^2 25)$-sin90- $tan^2 63$ y $tan^2 27 = \frac{y}{2}$, then the value of y is :

यदि $4(cosec^2 65 - tan^2 25)$-sin90- $tan^2 63$ y $tan^2 27 = \frac{y}{2}$ है, तो y का मान क्या होगा ?

SSC CHSL 8 July 2019 (Evening)

(a) $\frac{-1}{2}$
(b) 2
(c) -1
(d) 1

Q63. If cosx = $\frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$, then the value of $2\,cot^2 x + 3\,cosec^2 x$ is :

यदि cosx = $\frac{-\sqrt{3}}{2}$ है तथा $\pi < x < \frac{3\pi}{2}$ है, तो $2\,cot^2 x + 3\,cosec^2 x$ का मान क्या होगा ?

SSC CHSL 9 July 2019 (Morning)

(a) 14
(b) 16
(c) 8
(d) 18

Q64. If $7(cosec^2 55 - tan^2 35) + 2\sin 90 - tan^2 52$ y $tan^2 38 = \frac{y}{2}$, then the value of y is :

यदि $7(cosec^2 55 - tan^2 35) + 2\sin 90 - tan^2 52$ y. $tan^2 38 = \frac{y}{2}$ है, तो y का मान ज्ञात करें |

SSC CHSL 9 July 2019 (Morning)

(a) 2
(b) 6
(c) 3
(d) 1

Q65. If $\cos\theta = 4x$ and $\sin\theta = \frac{4}{x}$ $(x \neq 0)$, then the value of $\left(x^2 + \frac{1}{x^2}\right)$ is :

यदि $\cos\theta = 4x$ तथा $\sin\theta = \frac{4}{x}$ $(x \neq 0)$ है, तो $\left(x^2 + \frac{1}{x^2}\right)$ का मान क्या होगा ?

SSC CHSL 9 July 2019 (Morning)

(a) $\frac{1}{4}$
(b) $\frac{1}{3}$
(c) $\frac{1}{2}$
(d) $\frac{1}{16}$

Q66. If $7(cosec^2 57 - tan^2 33) + 2\sin 90 - 4\,tan^2 52$ y $tan^2 38 = \frac{y}{2}$, then the value of y is :

यदि $7(cosec^2 57 - tan^2 33) + 2\sin 90 - 4\,tan^2 52$ y $tan^2 38 = \frac{y}{2}$ है, तो y का मान क्या होगा ?

SSC CHSL 9 July 2019 (Afternoon)

(a) 2
(b) 4
(c) 1
(d) 3

Q67. If $\sec\theta = 8x$ and $\tan\theta = \frac{8}{x}$ $(x \neq 0)$, then the value of $16\left(x^2 - \frac{1}{x^2}\right)$ is :

यदि $\sec\theta = 8x$ और $\tan\theta = \frac{8}{x}$ $(x \neq 0)$ है, तो $16\left(x^2 - \frac{1}{x^2}\right)$ का मान क्या होगा ?

SSC CHSL 9 July 2019 (Afternoon)

(a) $\frac{1}{4}$
(b) $\frac{1}{16}$
(c) $\frac{1}{3}$
(d) $\frac{1}{2}$

Q68. If θ is an acute angle, and it is given that $5\sin\theta + 12\cos\theta = 13$, then what is the value of $\tan\theta$?

यदि θ एक न्यून कोण है और यह दिया गया है कि $5\sin\theta + 12\cos\theta = 13$ है, तो $\tan\theta$ का मान क्या होगा ?

SSC CHSL 9 July 2019 (Evening)

(a) $\frac{5}{13}$
(b) $\frac{13}{12}$
(c) $\frac{12}{13}$
(d) $\frac{5}{12}$

Q69. Which among the following increases continuously in the range $0^\circ < \theta < 90^\circ$?

निम्न में से कौन $0^\circ < \theta < 90^\circ$ की सीमा में लगातार बढ़ता है ?

SSC CHSL 9 July 2019 (Evening)

(a) $\cot\theta$
(b) $\operatorname{cosec}\theta$
(c) $\tan\theta$
(d) $\cos\theta$

Q70. For θ being an acute angle, it is given that, $3(cosec^2\theta + cot^2\theta) = 5$, then θ is equal to :

यदि θ एक न्यून कोण है और यह दिया गया है कि $3(cosec^2\theta + cot^2\theta) = 5$ है, तो θ का मान किसके बराबर होगा ?

SSC CHSL 9 July 2019 (Evening)

(a) 45°
(b) 60°
(c) 0°
(d) 30°

Q71. For θ being an acute angle, $4(2\,sin^2\theta + 7cos^2\theta) = 13$. What is the value of θ ?

यदि θ एक न्यून कोण है तथा $4(2\,sin^2\theta + 7cos^2\theta) = 13$ है, तो θ का मान क्या होगा ?

SSC CHSL 10 July 2019 (Morning)

(a) 60°
(b) 45°
(c) 30°
(d) 0°

Pinnacle

Q72. Find the simplified value
सरलीकृत मान ज्ञात करें :
$\frac{sin^3 21+cos^3 19}{sin\ 21+cos 19} + sin^2 69 + cos^2 71 + \frac{1}{sec 69.\ cosec 71}$
SSC CHSL 10 July 2019 (Afternoon)
(a) 3
(b) 1
(c) 4
(d) 2

Q73. θ being an acute angle, it is given that $sec^2\theta + 4\ tan^2\theta = 6$. What is the value of θ.
यदि θ एक न्यून कोण है तथा यह दिया गया है कि $sec^2\theta + 4\ tan^2\theta = 6$ है, तो θ का मान क्या होगा ?
SSC CHSL 10 July 2019 (Afternoon)
(a) 45°
(b) 0°
(c) 30°
(d) 60°

Q74. It is given that, $\sqrt{\frac{1-sinx}{1+sinx}}$ = a - tanx then a is equal to :
यह दिया गया है कि $\sqrt{\frac{1-sinx}{1+sinx}}$ = a - tanx है, तो a किसके बराबर है ?
SSC CHSL 10 July 2019 Evening)
(a) cosx
(b) sinx
(c) cosecx
(d) secx

Q75. What is the value of $cosec^2 30 + sin^2 45 + sec^2 60 + tan^2 30$?
$cosec^2 30 + sin^2 45 + sec^2 60 + tan^2 30$ का मान ज्ञात करें |
SSC CHSL 11 July 2019 (Morning)
(a) $\frac{53}{6}$
(b) 8
(c) $\frac{25}{3}$
(d) 9

Q76. For $0^\circ \le \theta \le 90^\circ$, what is θ, when $\sqrt{3}\cos\theta + \sin\theta = 1$?
$0^\circ \le \theta \le 90^\circ$ के लिए, θ का मान क्या होगा जब $\sqrt{3}\cos\theta + \sin\theta = 1$ है ?
SSC CHSL 11 July 2019 (Morning)
(a) 90°
(b) 0°
(c) 45°
(d) 30°

Q77. For all $\alpha_i^t s$, $(i = 1, 2, 3.....20)$ lying between 0° and 90°, it is given that $\cos\alpha_1 + \cos\alpha_2 + \cos\alpha_3$ ……..$\cos\alpha_{20} = 20$. What is the value (in degrees) of $(\alpha_1 + \alpha_2 + \alpha_3....\alpha_{20})$?
0° से 90° के बीच स्थित सभी $\alpha'_i s$, $(i = 1, 2, 3.....20)$ के लिए, यह दिया गया है कि $\cos\alpha_1 + \cos\alpha_2 + \cos\alpha_3$ ……..$\cos\alpha_{20} = 20$ है | $(\alpha_1 + \alpha_2 + \alpha_3....\alpha_{20})$ का मान (डिग्री में) ज्ञात करें |
SSC CHSL 11 July 2019 (Afternoon)
(a) 900°
(b) 1800°
(c) 0°
(d) 20°

Q78. For $0^\circ \le \theta \le 90^\circ$, $\tan\theta + \cot\theta = 2$. θ is equal to :
यदि $\tan\theta + \cot\theta = 2$ और $0^\circ \le \theta \le 90^\circ$,तो θ बराबर है :
SSC CHSL 11 July 2019 (Afternoon)
(a) 30°
(b) 60°
(c) 45°
(d) 0°

Q79. Find the simplified value
सरलीकृत मान ज्ञात करें :
$\frac{sin^2 31^\circ + sin^2 59^\circ}{sec^2 35^\circ - cot^2 55^\circ} + tan\ 29^\circ .\ cot\ 61^\circ - cosec^2 61^\circ$
SSC CHSL 11 July 2019 (Afternoon)
(a) 0
(b) -1
(c) $\frac{1}{2}$
(d) 1

Q80. $sin^2 36^\circ + tan^2 60^\circ + sec^2 30^\circ + sin^2 54^\circ$ is equal to /
$sin^2 36^\circ + tan^2 60^\circ + sec^2 30^\circ + sin^2 54^\circ$ बराबर है
SSC CHSL 11 July 2019 (Evening)
(a) 5
(b) $\frac{17}{3}$
(c) $\frac{14}{3}$
(d) $\frac{16}{3}$

Q81. If $2\ sin^2\theta + 3\sin\theta - 2 = 0$, $0^\circ < \theta < 90^\circ$ then the value of θ is :
यदि $2\ sin^2\theta + 3\sin\theta - 2 = 0$ और $0^\circ < \theta < 90^\circ$,तो θ बराबर है :
SSC CHSL 11 July 2019 (Evening)
(a) 45°
(b) 30°
(c) 90°
(d) 60°

CPO

Q82. If $5\ cos\ \theta - 12\ sin\ \theta = 0$, the value of $\frac{2sin\theta + cos\theta}{cos\theta - sin\theta}$
यदि $5\ cos\ \theta - 12\ sin\ \theta = 0$, है, तो $\frac{2sin\theta + cos\theta}{cos\theta - sin\theta}$ का मान ज्ञात करें |
SSC CPO 2018 - 16 March 2019 (Morning)
(a) $1\frac{75}{119}$
(b) $\frac{2}{3}$
(c) $2\frac{34}{35}$
(d) $3\frac{1}{7}$

Pinnacle

Q83. $\sin 18^0 - \cos 72^0$ is equal to :

$\sin 18^0 - \cos 72^0$ क्या का मान होगा ?

SSC CPO 2018 - 16 March 2019 (Morning)

(a) 2
(b) 0
(c) 1
(d) $\frac{1}{2}$

Q84. The value of $\frac{\sin 30^0 - \cos 60^0 + \cot^2 45^0}{\cos 30^0 - \tan 45^0 + \sin 90^0}$ is equal to :

$\frac{\sin 30^0 - \cos 60^0 + \cot^2 45^0}{\cos 30^0 - \tan 45^0 + \sin 90^0}$ का मान किसके बराबर है ?

SSC CPO 2018 - 12 March 2019 (Evening)

(a) $\frac{2\sqrt{3}}{3}$
(b) $\frac{\sqrt{3}}{2}$
(c) $\frac{3}{2}$
(d) $\frac{\sqrt{3}}{4}$

Q85. If tan 3x = cot (30^0 + 2x), then what is the value of x?

यदि tan 3x = cot (30^0 + 2x) है, तो x का मान क्या है ?

SSC CPO 2018 - 12 March 2019 (Evening)

(a) 18^0
(b) 12^0
(c) 10^0
(d) 15^0

Q86. If sec 2x = cosec(3x - 45^0), then x is equal to:

यदि sec 2x = cosec(3x - 45^0) है, तो x किसके बराबर है ?

SSC CPO 2018 - 13 March 2019 (Evening)

(a) 40^0
(b) 45^0
(c) 27^0
(d) 35^0

Q87. The value of $\frac{\sin^2 60^0 + \cos^2 30^0 - \sec 35^0 . \sin 55^0}{\sec 60^0 + \operatorname{cosec} 30^0}$ is equal to:

$\frac{\sin^2 60^0 + \cos^2 30^0 - \sec 35^0 . \sin 55^0}{\sec 60^0 + \operatorname{cosec} 30^0}$ का मान किसके बराबर है ?

SSC CPO 2018 - 13 March 2019 (Evening)

(a) $\frac{1}{8}$
(b) $\frac{1}{3}$
(c) $\frac{1}{2}$
(d) $\frac{1}{4}$

Q88: If tan x = cot (45° + 2x), then what is the value of x?

यदि tan x = cot (45° + 2x) है, तो x का मान क्या होगा ?

SSC CPO 2018 - 12 March 2019 (Morning)

(a) 45°
(b) 15°
(c) 45°/2
(d) 20°

Q89: The value of [$\frac{\sin^2 24° + \sin^2 66°}{\cos^2 24° + \cos^2 66°}$ + $\sin^2 61°$ + $\cos 61° \sin 29°$] is equal to:

[$\frac{\sin^2 24° + \sin^2 66°}{\cos^2 24° + \cos^2 66°}$ + $\sin^2 61°$ + $\cos 61° . \sin 29°$] का मान किसके बराबर होगा ?

SSC CPO 2018 - 12 March 2019 (Morning)

(a) 2
(b) 3
(c) 1
(d) 0

Q90. The value of $\sin^2 30^0 . \cos^2 45^0 + 2\tan^2 30^0 - \sec^2 60^0$ is equal to :

$\sin^2 30^0 . \cos^2 45^0 + 2\tan^2 30^0 - \sec^2 60^0$ का मान किसके बराबर है ?

SSC CPO 2018 - 13 March 2019 (Morning)

(a) $-\frac{13}{12}$
(b) $-\frac{77}{24}$
(c) $-\frac{25}{12}$
(d) $-\frac{1}{12}$

Q91. If $\cos\theta = \frac{1}{\sqrt{10}}$, then tan θ is equal to:

यदि $\cos\theta = \frac{1}{\sqrt{10}}$ है, तो tan θ किसके बराबर होगा ?

SSC CPO 2018 - 14 March 2019 (Morning)

(a) $\frac{1}{\sqrt{3}}$
(b) $\frac{1}{3}$
(c) $\sqrt{3}$
(d)3

Q92. If $2\sin 3\theta = 1$, then value of θ is:

यदि $2\sin 3\theta = 1$ है, तो θ का मान क्या होगा ?

SSC CPO 2018 - 14 March 2019 (Morning)

(a) 10^0
(b) 45^0
(c) 20^0
(d) 30^0

Q93. $\frac{4}{3}\tan^2 60^0 + 3\cos^2 30^0 - 2\sec^2 30^0 - \frac{3}{4}\cot^2 60^0$ is equal to:

$\frac{4}{3}\tan^2 60^0 + 3\cos^2 30^0 - 2\sec^2 30^0 - \frac{3}{4}\cot^2 60^0$ का मान किसके बराबर है ?

SSC CPO 2018 - 16 March 2019 (Evening)

(a) $\frac{8}{3}$
(b) $\frac{5}{4}$
(c) $\frac{10}{3}$
(d) $\frac{7}{3}$

Q94. The value of $4\sin^2 30^0 + 3\cot^2 60^0$ is:

$4\sin^2 30^0 + 3\cot^2 60^0$ का मान ज्ञात करें |

SSC CPO 2018 - 15 March 2019 (Morning)

(a)1
(b) $\frac{1}{\sqrt{3}}$
(c)2

(d)0

Q95. The value of $cos^2 45^0 + sin^2 30^0 - sin^2 60^0$ is equal to:
$cos^2 45^0 + sin^2 30^0 - sin^2 60^0$ का मान किसके बराबर है ?
SSC CPO 2018 - 16 March 2019 (Afternoon)
(a) $\frac{3}{2}$
(b) $\frac{1}{2}$
(c) 0
(d) 1

Q96. The value of $\cot^2 A - \frac{1}{\sin^2 A}$ is equal to:
$\cot^2 A - \frac{1}{\sin^2 A}$ का मान किसके बराबर है ?
SSC CPO 2018 - 16 March 2019 (Afternoon)
(a)0
(b)-1
(c) -2
(d)1

Q97. Find the value of $(1 + cot^2\theta)(1 - cos^2\theta)$
$(1 + cot^2\theta)(1 - cos^2\theta)$ मान क्या है ?
SSC CPO 2018 - 14 March 2019 (Evening)
(a) 1
(b) Not defined
(c) 0
(d) $\frac{1}{2}$

Q98. If $4\tan\theta = 3$, then find the value of $\frac{5\sin\theta - 3\cos\theta}{5\sin\theta + 3\cos\theta}$.
यदि $4\tan\theta = 3$ है, तो $\frac{5\sin\theta - 3\cos\theta}{5\sin\theta + 3\cos\theta}$ का मान क्या है ?
SSC CPO 2018 - 14 March 2019 (Evening)
(a) $\frac{1}{9}$
(b) $\frac{1}{3}$
(c) 3
(d) 9

Q99. $\frac{cosec\ 31^0}{sec\ 59^0}$ is equal to:
$\frac{cosec\ 31^0}{sec\ 59^0}$ का मान क्या होगा ?
SSC CPO 2018 - 15 March 2019 (Evening)
(a)3
(b)2
(c)1
(d)0

Q100. If $\sin\theta = \frac{p^2-1}{p^2+1}$, then $\cos\theta$ is equal to :
यदि $\sin\theta = \frac{p^2-1}{p^2+1}$ है, तो $\cos\theta$ का मान है :
SSC CGL 4 June 2019 (Morning)
(a) $\frac{2P}{1+P^2}$
(b) $\frac{P}{P^2-1}$
(c) $\frac{P}{1+P^2}$
(d) $\frac{2P}{P^2-1}$

Q101. If $\frac{\cos^2\theta}{\cot^2\theta - \cos^2\theta} = 3$, $0^\circ < \theta < 90^\circ$, then the value of $\cot\theta + \text{cosec}\,\theta$ is :
यदि $\frac{\cos^2\theta}{\cot^2\theta - \cos^2\theta} = 3$, $0^\circ < \theta < 90^\circ$ है, तो $\cot\theta + \text{cosec}\,\theta$ का मान क्या होगा ?
SSC CGL 6 June 2019 (Afternoon)
(a) $\sqrt{3}$
(b) $\frac{\sqrt{3}}{2}$
(c) $2\sqrt{3}$
(d) $\frac{3\sqrt{3}}{4}$

Q102. Let $a = \frac{2sinx}{1+sinx+cosx}$ and $b = \frac{c}{1+sinx}$. Then a = b, if c = ?
मान लीजिये कि $a = \frac{2sinx}{1+sinx+cosx}$ और $b = \frac{c}{1+sinx}$ है, तो a=b होगा, यदि c = ?
SSC CGL 6 June 2019 (Afternoon)
(a) 1 - sinx.cosx
(b) 1 + sinx - cosx
(c) 1 + sinx.cosx
(d) 1 + cosx - sinx

Q103. If $\frac{\cos\alpha}{\sin\alpha+\cos\beta} + \frac{\cos\beta}{\sin\beta-\cos\alpha} = \frac{x}{\sin\alpha-\cos\beta} + \frac{\cos\beta}{\sin\beta+\cos\alpha}$, then x is equal to :
यदि $\frac{\cos\alpha}{\sin\alpha+\cos\beta} + \frac{\cos\beta}{\sin\beta-\cos\alpha} = \frac{x}{\sin\alpha-\cos\beta} + \frac{\cos\beta}{\sin\beta+\cos\alpha}$ है, तो x का मान किसके बराबर होगा ?
SSC CHSL 8 July 2019 (Morning)
(a) $\cos\beta$
(b) $\cos\alpha$
(c) $\sin\beta$
(d) $\sin\alpha$

SSC CGL TIER II QUESTIONS

Q1. If $\sin\theta = \sqrt{3}\cos\theta$, $0^\circ < \theta < 90^\circ$, then the value of $2sin^2\theta + sec^2\theta + sin\theta.sec\theta + cosec\theta$ is :
यदि $\sin\theta = \sqrt{3}\cos\theta$, $0^\circ < \theta < 90^\circ$ है, तो $2sin^2\theta + sec^2\theta + sin\theta.sec\theta + cosec\theta$ का मान ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) $\frac{33+10\sqrt{3}}{6}$
(b) $\frac{19+10\sqrt{3}}{6}$
(c) $\frac{33+10\sqrt{3}}{3}$
(d) $\frac{19+10\sqrt{3}}{3}$

Q2. The value of the expression $(cos^6\theta + sin^6\theta - 1)(tan^2\theta + cot^2\theta + 2)$ is :
व्यंजक $(cos^6\theta + sin^6\theta - 1)(tan^2\theta + cot^2\theta + 2)$ का मान है :
SSC CGL TIER II (11 September 2019)
(a) 0
(b) -1
(c) -3
(d) 1

Q3. $\frac{(2SinA)(1+SinA)}{1+SinA+CosA}$ is equal to : $\frac{(2SinA)(1+SinA)}{1+SinA+CosA}$ किसके बराबर है ?

SSC CGL TIER II (11 September 2019)
(a) 1+SinA-CosA
(b) 1-SinACosA
(c) 1+CosA-SinA
(d) 1+SinACosA

Q4. The value of $\frac{(cos9^\circ+sin81^\circ)(sec9^\circ+cosec81^\circ)}{sin56^\circ sec34^\circ+cos25^\circ cosec65^\circ}$ is
$\frac{(cos9^\circ+sin81^\circ)(sec9^\circ+cosec81^\circ)}{sin56^\circ sec34^\circ+cos25^\circ cosec65^\circ}$ का मान है :
SSC CGL TIER II (11 September 2019)
(a) 4
(b) $\frac{1}{2}$
(c) 2
(d) $\frac{1}{4}$

Q5. If θ lies in the first quadrant and $cos^2\theta - sin^2\theta = \frac{1}{2}$, then the value of $tan^2 2\theta + sin^2 3\theta$ is :
यदि θ पहले चतुर्थांश में स्थित है और $cos^2\theta - sin^2\theta = \frac{1}{2}$ है, तो $tan^2 2\theta + sin^2 3\theta$ का मान ज्ञात करें |
SSC CGL TIER II (11 September 2019)
(a) $\frac{7}{2}$
(b) 3
(c) 4
(d) $\frac{4}{3}$

Q6. What is the value of cosec($65^\circ + \theta$)-sec($25^\circ - \theta$)+ $tan^2 20^\circ - cosec^2 70^\circ$? cosec($65^\circ + \theta$)-sec($25^\circ - \theta$)+ $tan^2 20^\circ - cosec^2 70^\circ$ का मान क्या है ?
SSC CGL TIER II (11 September 2019)
(a) 0
(b) 1
(c) 2
(d) -1

Q7. $\frac{(1+cos\theta)^2+sin^2\theta}{(cosec^2\theta-1)sin^2\theta} = ?$
SSC CGL TIER II (11 September 2019)
(a) cos θ (1+sin θ)
(b) 2cos θ (1+sec θ)
(c) sec θ (1+sin θ)
(d) 2sec θ (1+sec θ)

Q8. $(\frac{1-tan\theta}{1-cot\theta})^2 + 1 =$
SSC CGL TIER II (11 September 2019)
(a) $cosec^2\theta$
(b) $sec^2\theta$
(c) $sin^2\theta$
(d) $cos^2\theta$

Q9. $\sqrt{\frac{cot\theta+cos\theta}{cot\theta-cos\theta}}$ is equal to : / $\sqrt{\frac{cot\theta+cos\theta}{cot\theta-cos\theta}}$ किसके बराबर है ?
SSC CGL TIER II (11 September 2019)
(a) sec θ + tan θ
(b) 1 + sec θ .tan θ
(c) 1 - sec θ .tan θ
(d) sec θ - tan θ

Q10. If $5\sin\theta - 4\cos\theta = 0$, $0^\circ < \theta < 90^\circ$, then the value of $\frac{5sin\theta-2cos\theta}{5sin\theta+3cos\theta}$ is
यदि $5\sin\theta - 4\cos\theta = 0$, $0^\circ < \theta < 90^\circ$ है, तो $\frac{5sin\theta-2cos\theta}{5sin\theta+3cos\theta}$ का मान होगा :
SSC CGL TIER II (11 September 2019)
(a) $\frac{3}{8}$
(b) $\frac{3}{7}$
(c) $\frac{2}{7}$
(d) $\frac{5}{8}$

Q11. The value of $(\frac{sinA}{1-cosA} + \frac{1-cosA}{sinA}) \div (\frac{cot^2 A}{1+cosecA} + 1)$ is :
$(\frac{sinA}{1-cosA} + \frac{1-cosA}{sinA}) \div (\frac{cot^2 A}{1+cosecA} + 1)$ का मान है :
SSC CGL TIER II (12 September 2019)
(a) $\frac{3}{2}$
(b) $\frac{1}{2}$
(c) 1
(d) 2

Q12. If $\frac{1+sin\varphi}{1-sin\varphi} = \frac{p^2}{q^2}$, then sec φ is equal to :
यदि $\frac{1+sin\varphi}{1-sin\varphi} = \frac{p^2}{q^2}$ है, तो $sec\varphi$ किसके बराबर है ?
SSC CGL TIER II (12 September 2019)
(a) $\frac{2p^2q^2}{p^2+q^2}$
(b) $\frac{1}{2}(\frac{q}{p} + \frac{p}{q})$
(c) $\frac{1}{p^2} + \frac{1}{q^2}$
(d) $\frac{p^2q^2}{p^2+q^2}$

Q13. The value of $\frac{sec\varphi(1-sin\varphi)(sin\varphi+cos\varphi)(sec\varphi+tan\varphi)}{sin\varphi(1+tan\varphi)+cos\varphi(1+cot\varphi)}$ is equal to : $\frac{sec\varphi(1-sin\varphi)(sin\varphi+cos\varphi)(sec\varphi+tan\varphi)}{sin\varphi(1+tan\varphi)+cos\varphi(1+cot\varphi)}$ का मान किसके बराबर है ?
SSC CGL TIER II (12 September 2019)
(a) 2cos φ
(b) cosec φ sec φ
(c) 2sin φ
(d) sin φ cos φ

Q14. The value of $tan^2\varphi + cot^2\varphi - sec^2\varphi.cosec^2\varphi$ is equal to : $tan^2\varphi + cot^2\varphi - sec^2\varphi.cosec^2\varphi$ का मान किसके बराबर है ?
SSC CGL TIER II (12 September 2019)
(a) -2
(b) 1
(c) 0
(d) -1

Q15. $(sec\varphi - tan\varphi)^2(1 + sin\varphi)^2 \div sin^2\varphi = ?$
SSC CGL TIER II (12 September 2019)
(a) cos φ
(b) $cot^2\varphi$
(c) sec φ
(d) $cos^2\varphi$

Pinnacle

Q16. If $3(cot^2\varphi - cos^2\varphi) = cos^2\varphi$, $0^\circ < \varphi < 90^\circ$, then the value of $(tan^2\varphi + cosec^2\varphi + sin^2\varphi)$ is :
यदि $3(cot^2\varphi - cos^2\varphi) = cos^2\varphi$, $0^\circ < \varphi < 90^\circ$ है, तो $(tan^2\varphi + cosec^2\varphi + sin^2\varphi)$ का मान क्या होगा ?
SSC CGL TIER II (12 September 2019)
(a) $\frac{13}{3}$
(b) $\frac{61}{12}$
(c) $\frac{25}{12}$
(d) $\frac{15}{4}$

Q17. If $\frac{sin^2\varphi - 3sin\varphi + 2}{cos^2\varphi} = 1$, where $0^\circ < \varphi < 90^\circ$, then the value of $(\cos 2\varphi + \sin 3\varphi + \operatorname{cosec} 2\varphi)$?
यदि $\frac{sin^2\varphi - 3sin\varphi + 2}{cos^2\varphi} = 1$ है, जहाँ $0^\circ < \varphi < 90^\circ$ है, तो $(\cos 2\varphi + \sin 3\varphi + \operatorname{cosec} 2\varphi)$ का मान क्या होगा ?
SSC CGL TIER II (12 September 2019)
(a) $\frac{2+\sqrt{3}}{3}$
(b) $\frac{3+4\sqrt{3}}{6}$
(c) $\frac{9+4\sqrt{3}}{6}$
(d) $\frac{3+2\sqrt{3}}{3}$

Q18. The value of $\frac{sin(78^\circ+\theta) - cos(12^\circ - \theta) + (tan^2 70^\circ - cosec^2 20^\circ)}{sin25^\circ cos65^\circ + cos25^\circ sin65^\circ}$ is :
$\frac{sin(78^\circ+\theta) - cos(12^\circ - \theta) + (tan^2 70^\circ - cosec^2 20^\circ)}{sin25^\circ cos65^\circ + cos25^\circ sin65^\circ}$ का मान ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) 2
(b) -1
(c) -2
(d) 0

Q19. The value of $\sqrt{\frac{cosec\varphi - cot\varphi}{cosec\varphi + cot\varphi}} \div \frac{sin\varphi}{1+cos\varphi}$ is equal to :
$\sqrt{\frac{cosec\varphi - cot\varphi}{cosec\varphi + cot\varphi}} \div \frac{sin\varphi}{1+cos\varphi}$ का मान किसके बराबर है ?
SSC CGL TIER II (12 September 2019)
(a) cosec φ
(b) $\frac{1}{2}$
(c) sec φ
(d) 1

Q20.The value of $(\tan 29^\circ cot 61^\circ - cosec^2 61^\circ) + cot^2 54^\circ - sec^2 36^\circ + (sin^2 1^\circ + sin^2 3^\circ + sin^2 5^\circ + ... + sin^2 89^\circ)$ is :
$(\tan 29^\circ cot 61^\circ - cosec^2 61^\circ) + (cot^2 54^\circ - sec^2 36^\circ + sin^2 1^\circ + sin^2 3^\circ + sin^2 5^\circ + ... + sin^2 89^\circ)$ का मान ज्ञात करें |
SSC CGL TIER II (12 September 2019)
(a) $20\frac{1}{2}$
(b) 21
(c) $22\frac{1}{2}$
(d) 22

Q21. If $\sec\theta + \tan\theta = p$, $(p>1)$ then $\frac{cosec\theta+1}{cosec\theta-1} = ?$
यदि $\sec\theta + \tan\theta = p$ है और $(p>1)$ है, तो $\frac{cosec\theta+1}{cosec\theta-1}$ का मान क्या होगा ?
SSC CGL TIER II (13 September 2019)
(a) $\frac{p+1}{p-1}$
(b) p^2
(c) $\frac{p-1}{p+1}$
(d) $2p^2$

Q22. The value $cosec(67^\circ + \theta) - sec(23^\circ - \theta) + \cos 15^\circ \cos 35^\circ \operatorname{cosec} 55^\circ \cos 60^\circ cosec 75^\circ$ is :
$cosec(67^\circ + \theta) - sec(23^\circ - \theta) + \cos 15^\circ \cos 35^\circ \operatorname{cosec} 55^\circ \cos 60^\circ cosec 75^\circ$ का मान है :
SSC CGL TIER II (13 September 2019)
(a) 2
(b) 0
(c) 1
(d) $\frac{1}{2}$

Q23.If $2cos^2\theta + 3\sin\theta = 3$, where $0^\circ < \theta < 90^\circ$, then what is the value of $sin^2 2\theta + cos^2\theta + tan^2 2\theta + cosec^2 2\theta$?
यदि $2cos^2\theta + 3\sin\theta = 3$ है, जहाँ $0^\circ < \theta < 90^\circ$ है, तो $sin^2 2\theta + cos^2\theta + tan^2 2\theta + cosec^2 2\theta$ का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) $\frac{35}{12}$
(b) $\frac{29}{3}$
(c) $\frac{35}{6}$
(d) $\frac{29}{6}$

Q24. The value of $(1+\cot\theta - \operatorname{cosec}\theta)(1+\cos\theta + \sin\theta)\sec\theta = ?$
$(1+\cot\theta - \operatorname{cosec}\theta)(1+\cos\theta + \sin\theta)\sec\theta$ का मान क्या होगा ?
SSC CGL TIER II (13 September 2019)
(a) -2
(b) 2
(c) $\sec\theta \operatorname{cosec}\theta$
(d) $\sin\theta \cos\theta$

Q25. The value of $\frac{sec^2\theta}{cosec^2\theta} + \frac{cosec^2\theta}{sec^2\theta} - (sec^2\theta + cosec^2\theta)$ is :
$\frac{sec^2\theta}{cosec^2\theta} + \frac{cosec^2\theta}{sec^2\theta} - sec^2\theta + (cosec^2\theta)$ का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 0
(b) -2
(c) 2
(d) 1

Q26. The value of $\frac{2(sin^6\theta + cos^6\theta) - 3(sin^4\theta + cos^4\theta)}{cos^4\theta - sin^4\theta - 2cos^2\theta}$ is/
$\frac{2(sin^6\theta + cos^6\theta) - 3(sin^4\theta + cos^4\theta)}{cos^4\theta - sin^4\theta - 2cos^2\theta}$ का मान है :

SSC CGL TIER II (13 September 2019)
(a) -1
(b) -2
(c) 2
(d) 1

Q27. The value of $sin^2 64^\circ + cos 64^\circ sin 26^\circ + 2cos 43^\circ cosec 47^\circ$ is : $sin^2 64^\circ + cos 64^\circ sin 26^\circ + 2cos 43^\circ cosec 47^\circ$ का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) 4
(b) 1
(c) 2
(d) 3

Q28.Find the value
मान ज्ञात करें $\frac{(sin\theta - cos\theta)(1+tan\theta+cot\theta)}{1+sin\theta cos\theta} =$?
SSC CGL TIER II (13 September 2019)
(a) sec θ -cosec θ
(b) cosec θ -sec θ
(c) sin θ +cos θ
(d) tan θ -cot θ

Q29.Find the value
मान ज्ञात करें :
$\frac{sin\theta+cos\theta-1}{sin\theta-cos\theta+1} \times \frac{tan^2\theta(cosec^2\theta-1)}{sec\theta-tan\theta}$
SSC CGL TIER II (13 September 2019)
(a) 0
(b) -1
(c) 1
(d) $\frac{1}{2}$

Q30.If $\frac{sin\theta}{1+cos\theta} + \frac{1+cos\theta}{sin\theta} = \frac{4}{\sqrt{3}}$ $0^\circ < \theta < 90^\circ$, then the value of $(tan\theta + sec\theta)^{-1}$ is :
यदि $\frac{sin\theta}{1+cos\theta} + \frac{1+cos\theta}{sin\theta} = \frac{4}{\sqrt{3}}$, $0^\circ < \theta < 90^\circ$ है, तो $(tan\theta + sec\theta)^{-1}$ का मान ज्ञात करें |
SSC CGL TIER II (13 September 2019)
(a) $2-\sqrt{3}$
(b) $3-\sqrt{2}$
(c) $2+\sqrt{3}$
(b) $3+\sqrt{2}$

SSC CGL TIER I

Q1. If x = 4cosA + 5sinA and y = 4 sinA - 5 cosA, then the value of $x^2 + y^2$ is:
यदि x = 4cosA + 5sinA तथा y = 4 sinA - 5 cosA है, तो $x^2 + y^2$ का मान क्या होगा ?
SSC CGL 3 March 2020 (Morning)
(a) 41
(b) 0
(c) 16
(d) 25

Q2. If A lies in the first quadrant and 6tanA = 5, then the value $\frac{8\,sinA - 4\,cosA}{cosA + 2\,sinA}$ is:
यदि A प्रथम चतुर्थांश में स्थित है तथा 6tanA = 5 है, तो $\frac{8\,sinA - 4\,cosA}{cosA + 2\,sinA}$ का मान क्या होगा ?
SSC CGL 3 March 2020 (Morning)
(a) -2
(b) 1
(c) 16
(d) 4

Q3. If A+B = 45°, then the value of 2(1+ tanA)(1+ tanB) is:
यदि A+B = 45° है, तो 2(1+ tanA)(1+ tanB) का मान होगा :
SSC CGL 3 March 2020 (Morning)
(a) 2
(b) 4
(c) 1
(d) 0

Q4. If $2sin\theta+15\ cos^2\theta=7$, $0°<\theta<90°$, than $tan\theta+cos\theta+sec\theta =$
यदि $2sin\theta+15\ cos^2\theta=7$, $0°<\theta<90°$ है, तो $tan\theta+cos\theta+sec\theta$ = ?
SSC CGL 3 March 2020 (Afternoon)
(a) $3\frac{3}{5}$
(b) 3
(c) $3\frac{4}{5}$
(d) 4

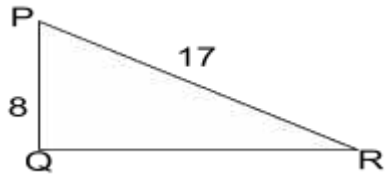
Q5. If $\frac{sec\theta - tan\theta}{sec\theta + tan\theta} = \frac{3}{5}$, then the value of $\frac{cosec\theta + cot\theta}{cosec\theta - cot\theta}$ is:
यदि $\frac{sec\theta - tan\theta}{sec\theta + tan\theta} = \frac{3}{5}$ है, तो $\frac{cosec\theta + cot\theta}{cosec\theta - cot\theta}$ का मान क्या होगा ?
SSC CGL 3 March 2020 (Afternoon)
(a) $24+\sqrt{15}$
(b) $31+8\sqrt{15}$
(c) $27+\sqrt{15}$
(d) $33+4\sqrt{15}$

Q6. The value of the expression cosec(85°+θ) - sec(5°-θ) - tan(55°+θ) + cot(35°- θ) is:
व्यंजक cosec(85° + θ) - sec(5°-θ) - tan(55°+θ) + cot(35°- θ) का मान है :
SSC CGL 3 March 2020 (Afternoon)
(a) $\frac{3}{2}$
(b) 0
(c) -1
(d)1

Q7. The value of $\frac{tan\ 30° + tan\ 60°}{cos\ 30°}$ is:
$\frac{tan\ 30° + tan\ 60°}{cos\ 30°}$ का मान है :
SSC CGL 3 March 2020 (Evening)
(a) $\frac{8}{3}$
(b) $1 + \sqrt{3}$
(c) $\sqrt{3} + 3$
(d) $\frac{8}{\sqrt{3}}$

Q8. If $2\sin\theta - 8\cos^2\theta + 5 = 0$, $0°<\theta<90°$, then what is the value of $(\tan 2\theta + \text{cosec } 2\theta)$?
यदि $2\sin\theta - 8\cos^2\theta + 5 = 0$, $0°<\theta<90°$ है, तो $(\tan 2\theta + \text{cosec } 2\theta)$ का मान क्या होगा ?
SSC CGL 3 March 2020 (Evening)
(a) $3\sqrt{3}$
(b) $2\sqrt{3}$
(c) $\frac{4\sqrt{3}}{3}$
(d) $\frac{5\sqrt{3}}{3}$

Q9. In the figure, what is the value of cotθ?
इस आकृति में, cotθ का मान कितना है ?



SSC CGL 3 March 2020 (Evening)
(a) $\frac{8}{15}$
(b) $\frac{17}{18}$
(c) $\frac{15}{17}$
(d) $\frac{15}{8}$

Q10. If $\sec\theta - \tan\theta = \frac{x}{y}$, $(0<x<y)$ and $0°<\theta<90°$, then $\sin\theta$ is equal to:
यदि $\sec\theta - \tan\theta = \frac{x}{y}$ $(0<x<y)$ तथा $0°<\theta<90°$ है, तो $\sin\theta$ का मान किसके बराबर है ?
SSC CGL 4 March 2020 (Morning)
(a) $\frac{x^2+y^2}{2xy}$
(b) $\frac{2xy}{x^2+y^2}$
(c) $\frac{y^2-x^2}{x^2+y^2}$
(d) $\frac{x^2+y^2}{y^2-x^2}$

Q11. If $5\sin^2\theta+14\cos\theta = 13$, $0°<\theta<90°$, then what is the value of $\frac{\sec\theta+\cot\theta}{\text{cosec}\theta+\tan\theta}$?
यदि $5\sin^2\theta+14\cos\theta = 13$, $0°<\theta<90°$ है, तो $\frac{\sec\theta+\cot\theta}{\text{cosec}\theta+\tan\theta}$ का मान क्या होगा ?
SSC CGL 4 March 2020 (Morning)
(a) $\frac{9}{8}$
(b) $\frac{31}{29}$
(c) $\frac{21}{28}$
(d) $\frac{32}{27}$

Q12. The value of $\frac{\tan30°\text{cosec}60°+\tan60°\sec30°}{\sin^2 30°+4\cot^2 45°-\sec^2 60°}$ is:
$\frac{\tan30°\text{cosec}60°+\tan60°\sec30°}{\sin^2 30°+4\cot^2 45°-\sec^2 60°}$ का मान है :
SSC CGL 4 March 2020 (Morning)
(a) $\frac{2}{3}$
(b) $\frac{32}{3}$
(c) $\frac{8}{3}$
(d) $\frac{32}{99}$

Q13. If $7\sin^2\theta-\cos^2\theta+2\sin\theta=2$, $0°<\theta<90°$, then the value of $\frac{\sec2\theta+\cot2\theta}{\text{cosec}2\theta+\tan2\theta}$ is:
यदि $7\sin^2\theta-\cos^2\theta+2\sin\theta=2$, $0°<\theta<90°$ है, तो $\frac{\sec2\theta+\cot2\theta}{\text{cosec}2\theta+\tan2\theta}$ का मान होगा :
SSC CGL 4 March 2020 (Afternoon)
(a) $\frac{2\sqrt{3}+1}{3}$
(b) 1
(c) $\frac{1}{5}(1+2\sqrt{3})$
(d) $\frac{2}{5}(1+\sqrt{3})$

Q14. The expression $3\sec^2\theta\tan^2\theta + \tan^6\theta - \sec^6\theta$ is equal to:
व्यंजक $3\sec^2\theta\tan^2\theta + \tan^6\theta - \sec^6\theta$ किसके बराबर है ?
SSC CGL 4 March 2020 (Afternoon)
(a) -2
(b) 1
(c) 2
(d) -1

Q15. The value of $\frac{\tan^2\theta-\sin^2\theta}{2+\tan^2\theta+\cot^2\theta}$ is:
$\frac{\tan^2\theta-\sin^2\theta}{2+\tan^2\theta+\cot^2\theta}$ का मान है :
SSC CGL 4 March 2020 (Afternoon)
(a) $\text{cosec}^6\theta$
(b) $\cos^4\theta$
(c) $\sin^6\theta$
(d) $\sec^4\theta$

Q16. If $\sec\theta + \tan\theta = p$, $0°<\theta<90°$, then $\frac{p^2-1}{p^2+1}$ is equal to:
यदि $\sec\theta + \tan\theta = p$ है, जहाँ $0°<\theta<90°$ है, तो $\frac{p^2-1}{p^2+1}$ का मान किसके बराबर होगा ?
SSC CGL 4 March 2020 (Evening)
(a) $\text{cosec}\theta$
(b) $\sin\theta$
(c) $\cos\theta$
(d) $2\text{cosec}\theta$

Q17. If $7\cos^2\theta+3\sin^2\theta=6$, $0°<\theta<90°$, then the value of $\frac{\cot^2 2\theta+\sec^2 2\theta}{\tan^2 2\theta-\sin^2 2\theta}$ is:
यदि $7\cos^2\theta+3\sin^2\theta=6$, $0°<\theta<90°$ है, तो $\frac{\cot^2 2\theta+\sec^2 2\theta}{\tan^2 2\theta-\sin^2 2\theta}$ का मान ज्ञात कीजिए |
SSC CGL 4 March 2020 (Evening)
(a) $\frac{52}{27}$
(b) $\frac{26}{15}$
(c) $\frac{28}{27}$
(d) $\frac{49}{45}$

Q18. The value of $\frac{(\cos9°+\sin81°)(\sec9°+\text{cosec}81°)}{2\sin^2 63°+1+2\sin^2 27°}$ is:
$\frac{(\cos9°+\sin81°)(\sec9°+\text{cosec}81°)}{2\sin^2 63°+1+2\sin^2 27°}$ का मान होगा :
SSC CGL 4 March 2020 (Evening)
(a) $\frac{1}{2}$
(b) $\frac{4}{3}$
(c) 2
(d) 1

Pinnacle

Q19. If $12\cos^2\theta - 2\sin^2\theta + 3\cos\theta = 3$, $0°<\theta<90°$, then what is the value of $\frac{cosec\theta+sec\theta}{tan\theta+cot\theta}$?
यदि $12\cos^2\theta - 2\sin^2\theta + 3\cos\theta = 3$, $0°<\theta<90°$ है, तो $\frac{cosec\theta+sec\theta}{tan\theta+cot\theta}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Morning)
(a) $\frac{4+\sqrt{3}}{4}$
(b) $\frac{1+2\sqrt{2}}{2}$
(c) $\frac{2+\sqrt{3}}{4}$
(d) $\frac{1+\sqrt{3}}{2}$

Q20. If $5\sin\theta = 4$, then the value of $\frac{sec\theta+4cot\theta}{4tan\theta-5cos\theta}$ is:
यदि $5\sin\theta = 4$ है, तो $\frac{sec\theta+4cot\theta}{4tan\theta-5cos\theta}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Morning)
(a) $\frac{3}{2}$
(b) $\frac{5}{4}$
(c) 2
(d) 1

Q21. The value of $\frac{sec^6\theta-tan^6\theta-3sec^2\theta tan^2\theta+1}{cos^4\theta-sin^4\theta+2sin^2\theta+2}$ is:
$\frac{sec^6\theta-tan^6\theta-3sec^2\theta tan^2\theta+1}{cos^4\theta-sin^4\theta+2sin^2\theta+2}$ का मान क्या है ?
SSC CGL 5 March 2020 (Morning)
(a) $\frac{2}{3}$
(b) 1
(c) $\frac{3}{4}$
(d) $\frac{1}{2}$

Q22. If $11\sin^2\theta-\cos^2\theta+4\sin\theta-4=0$, $0°<\theta<90°$, then what is the value of $\frac{cos2\theta+cot2\theta}{sec2\theta-tan2\theta}$?
यदि $11\sin^2\theta-\cos^2\theta+4\sin\theta-4=0$, $0°<\theta<90°$ है, तो $\frac{cos2\theta+cot2\theta}{sec2\theta-tan2\theta}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Afternoon)
(a) $\frac{10+5\sqrt{3}}{3}$
(b) $\frac{12+7\sqrt{3}}{6}$
(c) $\frac{10+7\sqrt{3}}{6}$
(d) $\frac{12+5\sqrt{3}}{3}$

Q23. What is the value of $\frac{cosec(78°+\theta)-sec(12°-\theta)-tan(67°+\theta)+cot(23°-\theta)}{tan13°tan37°tan45°tan53°tan77°}$?
$\frac{cosec(78°+\theta)-sec(12°-\theta)-tan(67°+\theta)+cot(23°-\theta)}{tan13°tan37°tan45°tan53°tan77°}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Afternoon)
(a) 0
(b) 2
(c) -1
(d) 1

Q24. If $5\cos\theta-12\sin\theta = 0$, then what is the value of $\frac{1+sin\theta+cos\theta}{1-sin\theta+cos\theta}$?
यदि $5\cos\theta-12\sin\theta = 0$ है, तो $\frac{1+sin\theta+cos\theta}{1-sin\theta+cos\theta}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Afternoon)
(a) $\frac{3}{2}$
(b) $\frac{3}{4}$
(c) $\frac{5}{4}$
(d) $\frac{5}{2}$

Q25. The value of $\sqrt{tan^2 60° + sin\ 90° - 2\ tan\ 45°}$ is:
$\sqrt{tan^2 60° + sin\ 90° - 2\ tan\ 45°}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Evening)
(a) 2
(b) 1
(c) 4
(d) 0

Q26. The value of $\cos 0°\cos 30°\cos 45°\cos 60°\cos 90°$ is:
$\cos 0°\cos 30°\cos 45°\cos 60°\cos 90°$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Evening)
(a) 5
(b) $\frac{\sqrt{6}}{8}$
(c) 3
(d) 0

Q27. If $\tan\theta-\cot\theta = \operatorname{cosec}\theta$, $0°<\theta<90°$, then what is the value of $\frac{2tan\theta-cos\theta}{\sqrt{3}cot\theta+sec\theta}$?
यदि $\tan\theta-\cot\theta = \operatorname{cosec}\theta$, $0°<\theta<90°$ है, तो $\frac{2tan\theta-cos\theta}{\sqrt{3}cot\theta+sec\theta}$ का मान क्या होगा ?
SSC CGL 5 March 2020 (Evening)
(a) $\frac{3\sqrt{3}-1}{6}$
(b) $\frac{2\sqrt{3}-1}{3}$
(c) $\frac{2(2\sqrt{3}-1)}{3}$
(d) $\frac{4\sqrt{3}-1}{6}$

Q28. If $x\cos A - y\sin A = 1$ and $x\sin A + y\cos A = 4$, then the value of $17x^2+17y^2$ is:
यदि $x\cos A - y\sin A = 1$ तथा $x\sin A + y\cos A = 4$ है, तो $17x^2+17y^2$ का मान क्या होगा ?
SSC CGL 6 March 2020 (Morning)
(a) 0
(b) 49
(c) 7
(d) 289

Q29. If $(2\sin A + \operatorname{cosec} A) = 2\sqrt{2}$, $0°<A<90°$, then the value of $2(\sin^4A+\cos^4A)$ is:
यदि $(2\sin A + \operatorname{cosec} A) = 2\sqrt{2}$, $0°<A<90°$ है, तो $2(\sin^4A+\cos^4A)$ का मान क्या होगा ?
SSC CGL 6 March 2020 (Morning)
(a) 1
(b) 2
(c) 4
(d) 0

Q30. Solve the following/ निम्नलिखित को हल कीजिए :
$\frac{sin\ 40°}{cos\ 50°} + \frac{cosec\ 50°}{sec\ 40°} - 4cos\ 50°\ cosec\ 40°$
SSC CGL 6 March 2020 (Morning)
(a) -1
(b) -2

(c) 1
(d) 2

Q31. Solve the following/ हल कीजिए :
sin 0° sin 30° sin 45° sin 60° sin 90° = ?
SSC CGL 6 March 2020 (Afternoon)

(a) 0
(b) $\frac{\sqrt{6}}{8}$
(c) 1
(d) 4

Q32. If $(\cos^2\theta-1)(1+\tan^2\theta)+2\tan^2\theta = 1$, $0°<\theta<90°$, then θ is
यदि $(\cos^2\theta-1)(1+\tan^2\theta)+2\tan^2\theta = 1$ है, जहाँ $0°<\theta<90°$, तो θ का मान होगा :
SSC CGL 6 March 2020 (Afternoon)
(a) 45°
(b) 60°
(c) 30°
(d) 90°

Q33. The value of $\frac{\sin 30°\sin 60°}{\cos 60°\cos 30°} - \tan 45°$ is:
$\frac{\sin 30°\sin 60°}{\cos 60°\cos 30°} - \tan 45°$ का मान है :
SSC CGL 6 March 2020 (Afternoon)
(a) 0
(b) $\frac{2-\sqrt{2}}{2}$
(c) 5
(d) 2

Q34. If $0°<A, B<45°$, $\cos(A+B) = \frac{24}{25}$ and $\sin(A-B) = \frac{15}{17}$, then tan2A
यदि $0°<A, B<45°$ है तथा $\cos(A+B) = \frac{24}{25}$ और $\sin(A-B) = \frac{15}{17}$ है, तो tan2A का मान क्या होगा ?
SSC CGL 6 March 2020 (Evening)
(a) 0
(b) 1
(c) $\frac{416}{87}$
(d) $\frac{213}{4}$

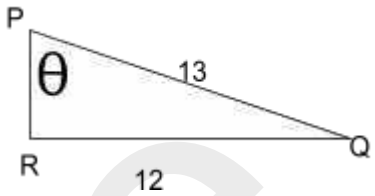
Q35. If A lies in the third quadrant, and 20tanA = 21, then the value of $\frac{5\sin A-2\cos A}{4\cos A-\frac{5}{7}\sin A}$ is:
यदि A तीसरे चतुर्थांश में स्थित है तथा 20tanA= 21 है, तो $\frac{5\sin A-2\cos A}{4\cos A-\frac{5}{7}\sin A}$ का मान क्या होगा ?
SSC CGL 6 March 2020 (Evening)
(a) $\frac{13}{12}$
(b) 1
(c) $\frac{-65}{29}$
(d) $\frac{5}{29}$

Q36. The value of
$4\left[\frac{(1-\sec A)^2+(1+\sec A)^2}{1+\sec^2 A}\right]$ is:
$4\left[\frac{(1-\sec A)^2+(1+\sec A)^2}{1+\sec^2 A}\right]$ का मान है :
SSC CGL 6 March 2020 (Evening)
(a) 2
(b) 4
(c) 8
(d) 1

Q37. The value of $\frac{1-2\sin^2\theta\cos^2\theta}{\sin^4\theta+\cos^4\theta} - 1$ is:
$\frac{1-2\sin^2\theta\cos^2\theta}{\sin^4\theta+\cos^4\theta} - 1$ का मान है :
SSC CGL 7 March 2020 (Morning)
(a) $-2\sin^2\theta\cos^2\theta$
(b) -1
(c) 0
(d) 1

Q38. What is the value of sin 30°+cos 30°-tan 45° ?
sin 30°+cos 30°-tan 45° का मान क्या होगा ?
SSC CGL 7 March 2020 (Morning)
(a) $\frac{\sqrt{3}-1}{2}$
(b) $\frac{1-\sqrt{3}}{2}$
(c) $\frac{\sqrt{2}+1}{\sqrt{2}}$
(d) $\frac{\sqrt{3}+1}{2}$

Q39. In the given figure, cosθ is equal to:
दी गयी आकृति में, cosθ किसके बराबर है ?



SSC CGL 7 March 2020 (Morning)
(a) $\frac{5}{13}$
(b) $\frac{12}{5}$
(c) $\frac{5}{12}$
(d) $\frac{12}{13}$

Q40. If $3\sec^2\theta+\tan\theta=7$, $0°<\theta<90°$, then the value of $\frac{\operatorname{cosec}2\theta+\cos\theta}{\sin2\theta+\cot\theta}$ is:
यदि $3\sec^2\theta+\tan\theta=7$ है, जहाँ $0°<\theta<90°$ है, तो $\frac{\operatorname{cosec}2\theta+\cos\theta}{\sin2\theta+\cot\theta}$ का मान क्या होगा ?
SSC CGL 7 March 2020 (Afternoon)
(a) $\frac{2+3\sqrt{2}}{4}$
(b) $\frac{3+\sqrt{2}}{2}$
(c) $\frac{2+\sqrt{2}}{4}$
(d) $\frac{2+\sqrt{3}}{2}$

Q41. If $\frac{\sin A+\cos A}{\cos A} = \frac{17}{12}$, then the value of $\frac{1-\cos A}{\sin A}$ is:
यदि $\frac{\sin A+\cos A}{\cos A} = \frac{17}{12}$ है, तो $\frac{1-\cos A}{\sin A}$ का मान क्या होगा ?
SSC CGL 7 March 2020 (Afternoon)
(a) -5
(b) 1
(c) $\frac{5}{12}$
(d) $\frac{1}{5}$

Pinnacle

Q42. If $\cot\theta + \tan\theta = 2\sec\theta$, $0°<\theta<90°$, then the value of $\frac{\tan2\theta-\sec\theta}{\cot2\theta+\operatorname{cosec}\theta}$ is

यदि $\cot\theta + \tan\theta = 2\sec\theta$, $0°<\theta<90°$ है, तो $\frac{\tan2\theta-\sec\theta}{\cot2\theta+\operatorname{cosec}\theta}$ का मान क्या होगा ?

SSC CGL 7 March 2020 (Evening)

(a) $\frac{2\sqrt{3}-1}{11}$

(b) $\frac{2\sqrt{3}-1}{5}$

(c) $\frac{3-\sqrt{2}}{5}$

(d) $\frac{3-\sqrt{2}}{11}$

Q43. If $5\cos^2\theta+1=3\sin^2\theta$, $0°<\theta<90°$, then what is the value of $\frac{\tan\theta+\sec\theta}{\cot\theta+\operatorname{cosec}\theta}$?

यदि $5\cos^2\theta+1=3\sin^2\theta$, $0°<\theta<90°$ है, तो $\frac{\tan\theta+\sec\theta}{\cot\theta+\operatorname{cosec}\theta}$ का मान क्या होगा ?

SSC CGL 7 March 2020 (Evening)

(a) $\frac{3+2\sqrt{3}}{2}$

(b) $\frac{3+2\sqrt{3}}{3}$

(c) $\frac{2+3\sqrt{3}}{3}$

(d) $\frac{2+3\sqrt{3}}{2}$

Q44. Solve the following/ निम्नलिखित को हल कीजिए

$\left(\frac{\sin 27°}{\cos 63°}\right)-\left(\frac{\cos 27°}{\sin 63°}\right)^2$

SSC CGL 7 March 2020 (Evening)

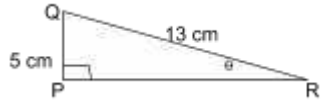
(a) 2

(b) 1

(c) 0

(d) -1

Q45. In the right triangle shown in the figure, what is the value of $\operatorname{cosec}\theta$? / इस आकृति में दिए गए समकोण त्रिभुज में, $\operatorname{cosec}\theta$ का मान क्या है ?



SSC CGL 9 March 2020 (Morning)

(a) $\frac{13}{5}$

(b) $\frac{5}{11}$

(c) $\frac{12}{13}$

(d) $\frac{5}{13}$

Q46. If $6\tan\theta-5\sqrt{3}\sec\theta+12\cot\theta = 0$, $0°<\theta<90°$, then the value of $(\operatorname{cosec}\theta+\sec\theta)$ is:

यदि $6\tan\theta-5\sqrt{3}\sec\theta+12\cot\theta = 0$, $0°<\theta<90°$ है, तो $(\operatorname{cosec}\theta+\sec\theta)$ का मान क्या होगा ?

SSC CGL 9 March 2020 (Morning)

(a) $\frac{3+2\sqrt{3}}{2}$

(b) $\frac{2}{3}(3+\sqrt{3})$

(c) $\frac{3+\sqrt{3}}{2}$

(d) $\frac{2(3+2\sqrt{3})}{3}$

Q47. The value of (cosecA + cotA +1)(cosecA - cotA + 1) - 2cosecA is:

(cosecA + cotA +1)(cosecA - cotA + 1) - 2cosecA का मान है :

SSC CGL 9 March 2020 (Afternoon)

(a) 4cosecA

(b) 2

(c) 2cosecA

(d) 0

Q48. If $5\cot\theta = 3$, find the value of $\frac{6\sin\theta-3\cos\theta}{7\sin\theta+3\cos\theta}$.

यदि $5\cot\theta = 3$ है, तो $\frac{6\sin\theta-3\cos\theta}{7\sin\theta+3\cos\theta}$ का मान ज्ञात कीजिए |

SSC CGL 9 March 2020 (Afternoon)

(a) $\frac{21}{44}$

(b) $\frac{44}{21}$

(c) $\frac{11}{40}$

(d) $\frac{20}{41}$

Q49. Solve the following/ हल कीजिए |

$\frac{2\sin22°}{\cos68°}-\frac{2\cot75°}{5\tan15°}-\frac{8\tan45°\tan20°\tan40°\tan50°\tan70°}{5}$

SSC CGL 9 March 2020 (Afternoon)

(a) 1

(b) 3

(c) 0

(d) 2

Q50. The value of $\frac{3(1-2\sin^2x)}{\cos^2x-\sin^2x}$ is:

$\frac{3(1-2\sin^2x)}{\cos^2x-\sin^2x}$ का मान क्या होगा ?

SSC CGL 9 March 2020 (Evening)

(a) 4

(b) 3

(c) 1

(d) 2

Q51. The value of cos 10° cos 30° cos 50° cos 70° cos 90° is:

cos 10° cos 30° cos 50° cos 70° cos 90° का मान है :

SSC CGL 9 March 2020 (Evening)

(a) 3

(b) 0

(c) 5

(d) 1

Q52. The value of (cosec 30° - tan 45°)cot 60° tan 30° is:

(cosec 30° - tan 45°)cot 60° tan 30° का मान क्या है ?

SSC CGL 9 March 2020 (Evening)

(a) $\frac{1}{3}$

(b) 1

(c) 3

(d) $(2-1)\frac{1}{\sqrt{3}}\times\frac{1}{\sqrt{3}}$

SSC CHSL 2019

Q1. The least value of $8\operatorname{cosec}^2\theta + 25\sin^2\theta$ is:

$8\operatorname{cosec}^2\theta + 25\sin^2\theta$ का न्यूनतम मान होगा :

CHSL 12-10-2020 (morning shift)

Pinnacle

(a) $20\sqrt{2}$
(b) $10\sqrt{2}$
(c) $40\sqrt{2}$
(d) $30\sqrt{2}$

Q2. If $\frac{\cos\theta + \sin\theta}{\cos\theta - \sin\theta} = 8$, then the value of cot θ is equal to :
यदि $\frac{\cos\theta + \sin\theta}{\cos\theta - \sin\theta} = 8$, है, तो cot θ का मान किसके बराबर होगा ?
CHSL 12-10-2020 (morning shift)
(a) $\frac{6}{5}$
(b) $\frac{9}{7}$
(c) $\frac{7}{6}$
(d) $\frac{8}{7}$

Q3.. If cot A = k, then sin A is equal to :
(presume that A is an acute angle)
यदि cot A = k है, तो sin A का मान किसके बराबर होगा ?
(मान लीजिए कि A एक न्यून कोण है)
CHSL 12-10-2020 (morning shift)
(a) $\frac{k^2}{\sqrt{1+k^2}}$
(b) $-\frac{1}{k}$
(c) $\frac{1}{\sqrt{1+k^2}}$
(d) $\frac{1}{k}$

Q4. Find the value/ मान ज्ञात कीजिए $\frac{\tan 60° - \tan 15°}{1 + \tan 60° \tan 15°}$
CHSL 12-10-2020 (Afternoon shift)
(a) $\frac{\sqrt{3}}{2}$
(b) 1
(c) $\frac{1}{2}$
(d) $\frac{1}{\sqrt{2}}$

Q5. If $3\sec^2 x - 4 = 0$, then the value of x $(0 < x < 90°)$
यदि $3\sec^2 x - 4 = 0$ है, तो x का मान क्या होगा ? $(0 < x < 90°)$
CHSL 12-10-2020 (Afternoon shift)
(a) 15°
(b) 45°
(c) 30°
(d) 60°

Q6. If $4\cos^2\theta - 3\sin^2\theta + 2 = 0$, then the value of tan θ is (where $0 \le \theta < 90°$)
यदि $4\cos^2\theta - 3\sin^2\theta + 2 = 0$ है, तो tan θ का मान क्या होगा ? (जहाँ $0 \le \theta < 90°$)
CHSL 12-10-2020 (Afternoon shift)
(a) $\sqrt{6}$
(b) 1
(c) $\sqrt{2}$
(d) $\frac{1}{\sqrt{3}}$

Q7. What is the value of $\sin^2 45° + \cos^2 45°$?
$\sin^2 45° + \cos^2 45°$ का मान क्या है?
CHSL 12-10-2020 (Evening shift)
(a) 1
(b) 2
(c) -1
(d) 0

Q8. If $\tan\theta = \frac{20}{21}$, then the value of $\frac{\sin\theta - \cos\theta}{\sin\theta + \cos\theta}$ is:
यदि $\tan\theta = \frac{20}{21}$ है, तो $\frac{\sin\theta - \cos\theta}{\sin\theta + \cos\theta}$ का मान क्या है?
CHSL 12-10-2020 (Evening shift)
(a) $\frac{-1}{41}$
(b) $\frac{27}{21}$
(c) $\frac{29}{35}$
(d) $\frac{-29}{31}$

Q9. If sin x = $\frac{12}{37}$, then what is the value of tan x?
यदि sin x = $\frac{12}{37}$ है, तो tan x का मान क्या होगा?
CHSL 12-10-2020 (Evening shift)
(a) $\frac{35}{37}$
(b) $\frac{12}{35}$
(c) $\frac{37}{12}$
(d) $\frac{35}{12}$

Q10. If $A = 2(\sin^6\theta + \cos^6\theta) - 3(\sin^4\theta + \cos^4\theta)$ then the value of 3 α such that $\cos\alpha = \sqrt{\frac{3+A}{5+A}}$ is
यदि $A = 2(\sin^6\theta + \cos^6\theta) - 3(\sin^4\theta + \cos^4\theta)$ है, तो 3 α का मान इस प्रकार ज्ञात कीजिए कि $\cos\alpha = \sqrt{\frac{3+A}{5+A}}$ हो।
CHSL 13-10-2020 (Morning Shift)
(a)45°
(b)135°
(c)180°
(d)90°

Q11. If $117\cos^2 A + 129\sin^2 A = 120$ and $170\cos^2 B + 158\sin^2 B = 161$, then the value of $\text{Cosec}^2 A \sec^2 B$ is:
यदि $117\cos^2 A + 129\sin^2 A = 120$ तथा $170\cos^2 B + 158\sin^2 B = 161$ है, तो $\text{Cosec}^2 A \sec^2 B$ का मान क्या होगा ?
CHSL 13-10-2020 (Morning Shift)
(a)1
(b)9
(c)4
(d)16

Q12. If cosA, sinA, cotA are in geometric progression, then the value of $\tan^6 A - \tan^2 A$ is:
यदि cosA, sinA, cotA ज्यामितीय श्रेणी में है, तो $\tan^6 A - \tan^2 A$ का मान क्या होगा ?
CHSL 13-10-2020 (Afternoon Shift)
(a) 1/2
(b) 3
(c) 1/3
(d) 1

Q13. If $\frac{(1+\sin\theta-\cos\theta)}{(1+\sin\theta+\cos\theta)}+\frac{(1+\sin\theta+\cos\theta)}{(1+\sin\theta-\cos\theta)}=4$, then which of the following values will be suitable for θ?
यदि $\frac{(1+\sin\theta-\cos\theta)}{(1+\sin\theta+\cos\theta)}+\frac{(1+\sin\theta+\cos\theta)}{(1+\sin\theta-\cos\theta)}=4$ है, तो θ के लिए निम्नलिखित में से कौन सा मान उपयुक्त होगा?
CHSL 13-10-2020 (Afternoon Shift)
(a) 90°
(b) 60°
(c) 45
(d) 30°

Q14. If sec A = $\frac{\sqrt{11}}{3}$, then the value of $\frac{cosec^2A+tan^2A}{sin^2A+cot^2A}$ is:
यदि secA = $\frac{\sqrt{11}}{3}$ है, तो $\frac{cosec^2A+tan^2A}{sin^2A+cot^2A}$ का मान क्या होगा?
CHSL 13-10-2020 (Afternoon Shift)
(a) $\frac{9}{4}$
(b) $\frac{4}{9}$
(c) $\frac{11}{9}$
(d) $\frac{2}{11}$

Q15. If sinx - cosx = 0, then the value of ($\sin^3 x - \cos^3 x$) is:
यदि sinx - cosx = 0,तो ($\sin^3 x - \cos^3 x$) मान होगा :
CHSL 13-10-2020 (Evening Shift)
(a)0
(b)2
(c)1
(d)4

Q16. $\frac{cotx}{1+cosecx}+\frac{1+cosecx}{cotx}$ is equal to:
$\frac{cotx}{1+cosecx}+\frac{1+cosecx}{cotx}$ का मान है :
CHSL 13-10-2020 (Evening Shift)
(a)2 secx
(b)2cosx
(c)2 cosecx
(d)2sinx

Q17. If tanx = $\frac{m}{n}$ and $0° \le x \le 90°$, then the value of (sin x + cos x) is:
यदि tanx = $\frac{m}{n}$ और $0° \le x \le 90°$,(sin x + cos x) का मान है:
CHSL 13-10-2020 (Evening Shift)
(a) $\frac{1}{\sqrt{m^2-n^2}}$
(b) $\frac{1}{\sqrt{m^2+n^2}}$
(c) $\frac{m+n}{\sqrt{m^2+n^2}}$
(d) $\sqrt{m^2-n^2}$

Q18. If cos x = $\frac{24}{25}$, $0 \le x \le 90°$, then the value of cot x + cosec x is:
यदि cos x = $\frac{24}{25}$, $0 \le x \le 90°$, cot x + cosec x का मान है :
CHSL 14-10-2020 (Morning shift)
(a) 0
(b) 1
(c) 7
(d) $\frac{7}{2}$

Q19. If sec θ and $\sin\theta$ $(0 < \theta < 90)$ are the roots of the equation $\sqrt{6}x^2 - kx + \sqrt{6} = 0$,then the value of k is:
यदि sec θ और $\sin\theta$ $(0 < \theta < 90)$ $\sqrt{6}x^2 - kx + \sqrt{6} = 0$ समीकरण का मूल है, तो k का मान है:
CHSL 14-10-2020 (Morning shift)
(a) $\sqrt{3}$
(b) $3\sqrt{2}$
(c) $2\sqrt{3}$
(d) $3\sqrt{3}$

Q20. If tanx = $\frac{3}{2}$, then the value of $\frac{3sinx+2cosx}{3sinx-2cosx}$ is:
यदि tanx = $\frac{3}{2}$, $\frac{3sinx+2cosx}{3sinx-2cosx}$ का मान है:
CHSL 14-10-2020 (Morning shift)
(a) $\frac{1}{5}$
(b) $\frac{5}{13}$
(c) $\frac{13}{5}$
(d) 5

Q21. Which of the following values suits for A to make the equation $\frac{4Tan62°Sec28°Cot38°}{Cosec62°Tan11°}=1$ *true*?
A के लिए निम्नलिखित में से कौन सा मान समीकरण $\frac{4Tan62°Sec28°Cot38°}{Cosec62°Tan11°}=1$ को सही बनाता है?
CHSL 14-10-2020 (Afternoon shift)
(a) $\frac{Tan38°}{Tan79°Tan28°}$
(b) $\frac{Tan28°Tan79°}{Tan38°}$
(c) $\frac{Tan28°Tan38°}{Tan79°}$
(d) $\frac{Tan38°Tan79°}{Tan28°}$

Q22. If $tan^4x - tan^2x = 1$, then the value of $sin^4x + Sin^2x$ is:
यदि $tan^4x - tan^2x = 1$, तो $sin^4x + sin^2x$ का मान है:
CHSL 14-10-2020 (Afternoon shift)
(a) $\frac{3}{4}$
(b) $\frac{1}{2}$
(c) 1
(d) $\frac{3}{2}$

Q23. If sin x + cosec x = 2, then $\sin^{17}x + cosec^{18}x$ is equal to:
यदि sin x + cosec x = 2 है, तो $\sin^{17}x + cosec^{18}x$ का मान किसके बराबर है?
CHSL 14-10-2020 (Evening shift)
(a) 1
(b) 0
(c) 4
(d)2

Q24. If sinθ - cosθ = $\frac{7}{17}$, then find the value of sinθ + cosθ.
यदि sinθ - cosθ = $\frac{7}{17}$ है, तो sinθ + cosθ का मान ज्ञात कीजिए।

Pinnacle

CHSL 14-10-2020 (Evening shift)

(a) $\frac{8}{17}$

(b) $\frac{23}{13}$

(c) $\frac{23}{17}$

(d) $\frac{8}{13}$

Q25. Find x if cos x = -½ .

X ज्ञात कीजिए यदि cos x = -½ है।

CHSL 14-10-2020 (Evening shift)

(a) $\frac{3\pi}{2}$

(b) $\frac{2\pi}{3}$

(c) $\frac{5\pi}{2}$

(d) $\frac{4\pi}{3}$

Q26. $\frac{cosx}{1+sinx} + \frac{1+sinx}{cosx}$ is equal to:

$\frac{cosx}{1+sinx} + \frac{1+sinx}{cosx}$ किसके बराबर है :

CHSL 15-10-2020 (Morning shift)

(a)2sinx

(b)2cosx

(c)2cosecx

(d)2secx

Q27.If cosx = $\frac{p}{q}$ and 0° < x < 90°, then the value of tanx is:

यदि cosx = $\frac{p}{q}$ और 0° < x < 90°, तो tanx का मान है:

CHSL 15-10-2020 (Morning shift)

(a) $\frac{\sqrt{q^2-p^2}}{q}$

(b) $\frac{q}{\sqrt{q^2-p^2}}$

(c) $\frac{p}{\sqrt{p^2-q^2}}$

(d) $\frac{\sqrt{q^2-p^2}}{p}$

Q28.If sinx - cosx = 0, 0° < x < 90° then the value of (secx + cosec x) ^{2} is:

यदि .If sinx - cosx = 0, 0° < x < 90° तो (secx + cosec x) ^{2} का मान है:

CHSL 15-10-2020 (Morning shift)

(a)8

(b)4

(c)10

(d)6

Q29. If sinx = $\frac{2}{3}$, then find the value of Cos 3x.

यदि sinx = $\frac{2}{3}$, तो Cos 3x का मान ज्ञात कीजिए

CHSL 15-10-2020 (Afternoon shift)

(a) 0.6735

(b) -0.8765

(c) -0.5797

(d) 0.5678

Q30. Find the value of $sin^2 35 + sin^2 55$.

$sin^2 35 + sin^2 55$ का मान ज्ञात करें।

CHSL 15-10-2020 (Afternoon shift)

(a) -1

(b) $\frac{1}{2}$

(c) 0

(d) 1

Q31. If tan θ + $cot\theta$ = 6, then find the value of $tan^2\theta + cot^2\theta$.

यदि tan θ + $cot\theta$ = 6, तो $tan^2\theta + cot^2\theta$ का मान ज्ञात कीजिए

CHSL 15-10-2020 (Afternoon shift)

(a) 26

(b) 34

(c) 24

(d) 36

Q32. Find the value of $\frac{cos^2 30° - sin^2 30°}{sin^2 15° + cos^2 15°}$.

$\frac{cos^2 30° - sin^2 30°}{sin^2 15° + cos^2 15°}$.का मान ज्ञात कीजिए

CHSL 15-10-2020 (Evening shift)

(a) $\frac{1}{2}$

(b) 1

(c) 1- $\sqrt{3}$

(d) 0

Q33. If sec θ – $tan\theta$ = 3, then cos θ is equal to:

यदि sec-tan = 3 है, तो cos बराबर है:

CHSL 15-10-2020 (Evening shift)

(a) $\frac{3}{7}$

(b) $\frac{2}{5}$

(c) $\frac{3}{5}$

(d) $\frac{4}{9}$

Q34. If $tan^2 x - 3sec^2 x + 3 = 0$, then the value of x $(0 \le x \le 90°)$ is:

यदि $tan^2 x - 3sec^2 x + 3 = 0$, तब x का मान क्या है $(0 \le x \le 90°)$

CHSL 15-10-2020 (Evening shift)

(a) 60°

(b) 0°

(c) 30°

(d) 45°

Q35. If $cos^2\theta + cos^4\theta = 1$, then the value of $sin\theta + sin^2\theta$ is:

यदि $cos^2\theta + cos^4\theta = 1$, $sin\theta + sin^2\theta$ का मान है:

CHSL 16-10-2020 (Morning shift)

(a) 0

(b) ½

(c) 2

(d) 1

Q36. If cos(A+B) = 0 and sin(A-B) = ½ , then the value of B is:

(Given 0°< A, B < 90°)

यदि cos(A+B) = 0 और sin(A-B) = ½ , B का मान है:

CHSL 16-10-2020 (Morning shift)

(a) 45°

(b) 90°

(c) 60°

(d) 30°

Pinnacle

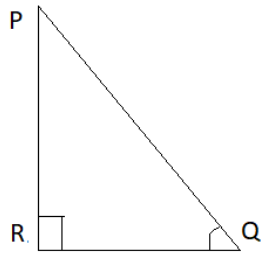
Q37. If $\text{cosec}\theta = \frac{x^2+y^2}{x^2-y^2}$, then what will be the value of $\tan\theta$?
यदि $\text{cosec}\theta = \frac{x^2+y^2}{x^2-y^2}$, $\tan\theta$ का मान क्या होगा ?
CHSL 16-10-2020 (Morning shift)
(a) $\frac{x^2-y^2}{x^2+y^2}$
(b) $\frac{2xy}{x^2-y^2}$
(c) $\frac{x^2-y^2}{2xy}$
(d) $\frac{x^2+y^2}{2xy}$

Q38. If $\sin\theta + \text{cosec}\theta = 2$, then the value of $\sin^2\theta + \text{cosec}^2\theta$ is:
यदि $\sin\theta + \text{cosec}\theta = 2$, $\sin^2\theta + \text{cosec}^2\theta$ का मान क्या होगा ?
CHSL 16-10-2020 (Afternoon shift)
(a) 8
(b) 4
(c) 1
(d) 2

Q39. The value of $\sin20° \cos70° + \sin70° \cos20°$ is:
$\sin20° \cos70° + \sin70° \cos20°$ का मान क्या होगा ?
CHSL 16-10-2020 (Afternoon shift)
(a) 1
(b) $\frac{1}{\sqrt{2}}$
(c) 0
(d) 2

Q40. If $\tan4A = \cot(A-20°)$, $0° < \theta < 90°$, then the value of A is:
यदि $\tan4A = \cot(A-20°)$, $0° < \theta < 90°$, A का मान क्या होगा ?
CHSL 16-10-2020 (Afternoon shift)
(a) 22°
(b) 80°
(c) 5°
(d) 14°

Q41. In the given figure, if PQ = 13 cm and PR = 12 cm, then the value of $\sin\theta + tan\theta$ =?
दिए गए आकृति में, यदि PQ = 13 सेमी और PR = 12 सेमी है, तो $\sin\theta + tan\theta$ =?
CHSL 16-10-2020 (Evening shift)



(a) $\frac{213}{5}$
(b) $\frac{218}{5}$
(c) $\frac{216}{13}$
(d) $\frac{216}{65}$

Q42. What is the value of $\cot35°\cot40°\cot45°\cot50°\cot55°$?
$\cot35°\cot40°\cot45°\cot50°\cot55°$ का मान क्या है?
CHSL 16-10-2020 (Evening shift)
(a) -1
(b) 2
(c) 1
(d) 0

Q43. The value of x, if $2\sin^2x = 2 - 3\sin x$, is:
यदि $2\sin2x = 2-3\sin x$ है, तो X का मान क्या होगा :
CHSL 16-10-2020 (Evening shift)
(a) $\frac{\pi}{6}$
(b) $\frac{\pi}{4}$
(c) $\frac{\pi}{2}$
(d) $\frac{\pi}{3}$

Q44.Find the smallest positive angle which satisfies the given trigonometric equation:
$2\sin^2x + \sqrt{3}\cos x + 1 = 0$
सबसे छोटा सकारात्मक कोण ज्ञात कीजिए जो दिए गए त्रिकोणमितीय समीकरण को संतुष्ट करता है:
CHSL 19-10-2020 (Morning shift)
(a) $\frac{\pi}{3}$
(b) $\frac{2\pi}{3}$
(c) $\frac{5\pi}{6}$
(d) $\frac{\pi}{6}$

Q45. The value of $\tan(63° - \theta) - \cot(27° + \theta) + \frac{\text{cosec}^2 70 - \tan^2 20}{\sec^2 37 - \cot^2 53}$ is:
$\tan(63° - \theta) - \cot(27° + \theta) + \frac{\text{cosec}^2 70 - \tan^2 20}{\sec^2 37 - \cot^2 53}$ का मान ज्ञात करें:
CHSL 19-10-2020 (Morning shift)
(a) 2
(b) 3
(c) 0
(d) 1

Q46. If $x = \text{cosec}A + \cos A$ and $y = \text{cosec}A - \cos A$, then find the value of $\left(\frac{2}{x+y}\right)^2 + \left(\frac{x-y}{2}\right)^2 - 1$.
यदि $x = \text{cosec}A + \cos A$ और $y = \text{cosec}A - \cos A$, तो $\left(\frac{2}{x+y}\right)^2 + \left(\frac{x-y}{2}\right)^2 - 1$ का मान ज्ञात करें
CHSL 19-10-2020 (Morning shift)
(a) 3
(b) 0
(c) 2
(d) 1

Q47. If $0 < \theta < 90°, 3b\,\text{cosec}\theta = a\sec\theta$ and $3a\sec\theta$ -
then the value of $9b^2 + a^2$ is:
यदि $0 < \theta < 90°, 3b\,\text{cosec}\theta = a\sec\theta$ और $3a\sec\theta - b\,\text{cosec}\theta = 8$, तो $9b^2 + a^2$ का मान है:
CHSL 19-10-2020 (Afternoon shift)
(a) 6
(b) 8
(c) 9
(d) 7

Q48. If $cosec^2x - 2 = 0$, then the value of x(0 < x < 90°) is:
यदि $cosec^2x - 2 = 0$, है, तो x (0 <x <90 is) का मान है:
CHSL 19-10-2020 (Afternoon shift)
(a) 15°
(b) 45°
(c) 30°
(d) 60°

Q49. The value of sin 60° cos30° - cos60° sin30° is:
sin 60° cos30° - cos60° sin30° का मान है:
CHSL 19-10-2020 (Afternoon shift)
(a) $\frac{1}{2}$
(b) $\frac{1}{\sqrt{2}}$
(c) 1
(d) $\frac{\sqrt{3}}{2}$

Q50. The value of $Sin^4\theta + Cos^4\theta + 2Sin^2\theta Cos^2\theta$ is:
$Sin^4\theta + Cos^4\theta + 2Sin^2\theta Cos^2\theta$ का मान है
CHSL 19-10-2020 (Evening shift)
(a) 1
(b) 2
(c) 4
(d) 0

Q51. If Sec A = $\frac{5}{3}$, then what is the value of Cot A?
यदि Sec A = $\frac{5}{3}$, तो Cot A का मान क्या होगा
CHSL 19-10-2020 (Evening shift)
(a) $\frac{3}{4}$
(b) $\frac{4}{3}$
(c) $\frac{4}{5}$
(d) $\frac{3}{5}$

Q52. If cos A = 2 sin A, then cosec A is equal to:
यदि cos A = 2 sin A तो cosec A का मान क्या होगा
CHSL 19-10-2020 (Evening shift)
(a) $\frac{1}{2}$
(b) $\frac{1}{\sqrt{5}}$
(c) 2
(d) $\sqrt{5}$

Q53. If Cos 3 θ = sin (θ – 34°), then the value of θ as an acute angle is:
यदि Cos 3 θ = sin (θ – 34°), तो θ का मान ज्ञात करे जो की न्यून कोण है
CHSL 20-10-2020 (Morning shift)
(a) 34°
(b) 31°
(c) 56°
(d) 17°

Q54. If $\sqrt{3}cos\theta = sin\,\theta$, then the value of $\frac{4sin^2\theta - 5\,cos\,\theta}{3\,cos\,\theta + 1}$ is:
यदि $\sqrt{3}cos\theta = sin\,\theta$, तो $\frac{4sin^2\theta - 5\,cos\,\theta}{3\,cos\,\theta + 1}$ का मान ज्ञात करे
CHSL 20-10-2020 (Morning shift)
(a) $\frac{1}{4}$
(b) $\frac{1}{5}$
(c) 5
(d) $\frac{2}{5}$

Q55. If $x\,sin^3\theta + ycos^3\theta = sin\theta\,cos\theta$ *and* $x\,sin\theta = y\,cos\theta$, then the value of $x^2 + y^2$ is:
यदि $x\,sin^3\theta + ycos^3\theta = sin\theta\,cos\theta$ *and* तो $x\,sin\theta = y\,cos\theta$, $x^2 + y^2$ का मान ज्ञात करे
CHSL 20-10-2020 (Morning shift)
(a) 0
(b) 4
(c) 1
(d) 2

Q.56. If θ is a positive acute angle and $tan2\theta.tan3\theta = 1$, then the value of θ is:
यदि $tan2\theta.tan3\theta = 1$, तो θ का मान ज्ञात करे जो की एक सकारात्मक न्यून कोण है
CHSL 20-10-2020 (afternoon shift)
(a) 45°
(b) 18°
(c) 60°
(d) 36°

Q.57. If sin(A+B) = cos(A-B) = $\frac{\sqrt{3}}{2}$ and A and B are acute angles. The measures of angles A and B (in degrees) will be:
यदि sin(A +B) = cos (A-B) = $\frac{\sqrt{3}}{2}$ और A और B न्यून कोण हैं। A और B (डिग्री में) का मान ज्ञात करे
CHSL 20-10-2020 (afternoon shift)
(a) A = 45 and B = 15
(b) A = 45 and B = 45
(c) A = 15 and B = 45
(d) A = 60 and B = 30

Q.58. If $cot\,\theta = \frac{3}{\sqrt{5}}$, $0° < \theta < 90°$, then the value of $\frac{6sec^2\theta - \frac{5}{3}cosec^2\theta}{\frac{3}{5}sec^2\theta + \frac{4}{3}cosec^2\theta}$ is equal to:
यदि $cot\,\theta = \frac{3}{\sqrt{5}}$, $0° < \theta < 90°$ तो $\frac{6sec^2\theta - \frac{5}{3}cosec^2\theta}{\frac{3}{5}sec^2\theta + \frac{4}{3}cosec^2\theta}$ का मान ज्ञात करे
CHSL 20-10-2020 (afternoon shift)
(a) $\frac{2}{3}$
(b) 1
(c) $\frac{1}{2}$
(d) $\frac{1}{3}$

Q.59. If cotA = tan(2A- 45°), A is an acute angle then tanA is equal to:
यदि cotA = tan(2A- 45°), तो tanA का मान ज्ञात करे जहा A न्यून कोण है

CHSL 20-10-2020 (Evening shift)
(a) $\frac{1}{2}$
(b) 0
(c) $\sqrt{3}$
(d) 1

Q.60.The value of $sin^2 38° - cos^2 52°$ is:
$sin^2 38° - cos^2 52°$ का मान ज्ञात करे
CHSL 20-10-2020 (Evening shift)
(a) $\frac{1}{\sqrt{2}}$
(b) 1
(c) $\sqrt{2}$
(d) 0

Q.61. If the value of secB +tanB=r, then the value of secB-tanB is equal to:
यदि secB +tanB=r, तो secB-tanB का मान ज्ञात करे
CHSL 20-10-2020 (Evening shift)
(a) 0
(b) $\frac{1}{r}$
(c) r^2
(d) -r

Q.62. If $\frac{sin\theta+cos\theta}{sin\theta-cos\theta} = 3$ and θ is an acute angle, then the value of $\frac{3sin\theta+4cos\theta}{8cos\theta-3sin\theta}$ is:
यदि $\frac{sin\theta+cos\theta}{sin\theta-cos\theta} = 3$ तो $\frac{3sin\theta+4cos\theta}{8cos\theta-3sin\theta}$ का मान ज्ञात करे
CHSL 21-10-2020 (Morning shift)
(a) 10
(b) $\frac{1}{2}$
(c) 5
(d) 2

Q.63. If sin7x = cos11x, 0°<x<90°, then the value of tan9x is:
यदि sin7x = cos11x, 0°<x<90° तो tan9x का मान ज्ञात करे
CHSL 21-10-2020 (Morning shift)
(a) $\frac{\sqrt{3}}{2}$
(b) 1
(c) $\frac{1}{\sqrt{3}}$
(d) $\sqrt{3}$

Q.64. If $\frac{CosA}{CosecA+1} + \frac{CosA}{CosecA-1} = 2$, $0° \le A \le 90°$, then A is equal to:
यदि $\frac{CosA}{CosecA+1} + \frac{CosA}{CosecA-1} = 2,\ 0° \le A \le 90°$, तो A का मान ज्ञात करे
CHSL 21-10-2020 (Morning shift)
(a) 60°
(b) 45°
(c) 90°
(d) 30°

Q.65. If $\frac{sec\theta+tan\theta}{sec\theta-tan\theta} = 5$ and θ is an acute angle, then the value of $\frac{3cos^2\theta+1}{3cos^2\theta-1}$ is:
यदि $\frac{sec\theta+tan\theta}{sec\theta-tan\theta} = 5$ तो $\frac{3cos^2\theta+1}{3cos^2\theta-1}$ का मान ज्ञात करे, जहाँ θ एक न्यून कोण है
CHSL 21-10-2020 (Afternoon shift)
(a) 3
(b) 2
(c) 1
(d) 4

Q.66. If $sin(\theta + 30°) = \frac{3}{\sqrt{12}}$, then the value of θ is equal to:
यदि $sin(\theta + 30°) = \frac{3}{\sqrt{12}}$, तो θ का मान ज्ञात करे
CHSL 21-10-2020 (Afternoon shift)
(a) 60°
(b) 15°
(c) 45°
(d) 30°

Q.67. If sin(A-B) = $\frac{1}{2}$ and cos(A+B) = $\frac{1}{2}$, where A>B>0°, and A+B is an acute angle, then the value of A is:
यदि sin(A-B) = $\frac{1}{2}$ and cos(A+B) = $\frac{1}{2}$ तो A+B का मान ज्ञात करे, जहाँ A>B>0° और A एक न्यून कोण है
CHSL 21-10-2020 (Afternoon shift)
(a) 45°
(b) 30°
(c) 15°
(d) 75°

Q.68. if $\alpha + \beta = 90°$, and $\alpha = 2\beta$, then the value of $cos^2\alpha + sin^2\beta$ is:
यदि $\alpha + \beta = 90°$ और $\alpha = 2\beta$, तो $cos^2\alpha + sin^2\beta$ का मान क्या होगा
CHSL 21-10-2020 (Evening shift)
(a) 1/3
(b) 1/5
(c) 1
(d) ½

Q.69. If $sec\theta + tan\theta = 2 + \sqrt{5}$ and θ is an acute angle, then the value of $sin\theta$ is:
यदि $sec\theta + tan\theta = 2 + \sqrt{5}$ तो $sin\theta$ का मान क्या होगा जहाँ θ न्यून कोण है
CHSL 21-10-2020 (Evening shift)
(a) $\frac{2\sqrt{5}}{5}$
(b) $\frac{3}{5}$
(c) $\frac{\sqrt{5}}{5}$
(d) $\frac{1}{5}$

Q.70. The elimination of θ from $xcos\theta - ysin\theta = 2$ and $xsin\theta - ycos\theta = 4$ will give:
$xcos\theta - ysin\theta = 2$ and $xsin\theta - ycos\theta = 4$ से θ का निष्काषित करने पर क्या मिलेगा
CHSL 21-10-2020 (Evening shift)
(a) $3x^2 - y^2 = 20$
(b) $x^2 + y^2 = 20$

(c) $3x^2 + y^2 = 20$
(d) $x^2 - y^2 = 20$

.Q.71. If $tan\theta + cot\theta = 2$ and θ is acute, then the value of $tan^{100}\theta + cot^{100}\theta$ is equal to:
यदि $tan\theta + cot\theta = 2$ तो $tan^{100}\theta + cot^{100}\theta$ का मान ज्ञात करे जहाँ θ एक न्यून कोण है
CHSL 26-10-2020 (Morning shift)
(a) 2
(b) $\sqrt{3}$
(c) 1
(d) 0

Q.72. If A is an acute angle and cotA+ CosecA = 3, then the value of Cos A is equal to:
यदि cotA+ CosecA = 3, तो $Cos\ A$ का मान ज्ञात करे जहाँ A एक न्यून कोण है
CHSL 26-10-2020 (Morning shift)
(a) 4/5
(b) 2/5
(c) 1/5
(d) 3/5

Q.73. If $\text{cosec}\,\theta = \frac{13}{12}$, then the value of $\frac{2sin\theta - 3cos\theta}{4sin\theta - 9cos\theta}$ is:
यदि $\text{cosec}\,\theta = \frac{13}{12}$ तो $\frac{2sin\theta - 3cos\theta}{4sin\theta - 9cos\theta}$ का मान ज्ञात करे
CHSL 26-10-2020 (Morning shift)
(a) 2
(b) 4
(c) 1
(d) 3

Q.74. If $\frac{sec\theta + tan\theta}{sec\theta - tan\theta} = 5$ and θ is an acute angle, then the value of $\frac{3cos^2\theta + 1}{3cos^2\theta - 1}$ is:
यदि $\frac{sec\theta + tan\theta}{sec\theta - tan\theta} = 5$ तो $\frac{3cos^2\theta + 1}{3cos^2\theta - 1}$ का मान ज्ञात करे, जहाँ θ एक न्यून कोण है
CHSL 26-10-2020 (Afternoon shift)
(a) 3
(b) 2
(c) 1
(d) 4

Q.75. If $sin(\theta + 30°) = \frac{3}{\sqrt{12}}$, then the value of θ is equal to:
यदि $sin(\theta + 30°) = \frac{3}{\sqrt{12}}$, तो θ का मान ज्ञात करे
CHSL 26-10-2020 (Afternoon shift)
(a) 60°
(b) 15°
(c) 45°
(d) 30°

Q.76. If $\sin(A-B) = \frac{1}{2}$ and $\cos(A+B) = \frac{1}{2}$, where A>B>0°, and A+B is an acute angle, then the value of A is:
यदि $\sin(A-B) = \frac{1}{2}$ and $\cos(A+B) = \frac{1}{2}$ तो A+B का मान ज्ञात करे, जहाँ A>B>0° और A एक न्यून कोण है
CHSL 26-10-2020 (Afternoon shift)
(a) 0
(a) 45°
(b) 30°
(c) 15°
(d) 75°

Q.77. If cos 27° = x, then the value of tan 63° is:
यदि cos 27° = x है, तो tan 63°: का मान है:
CHSL 26-10-2020 (Evening shift)
(a) $\frac{\sqrt{1+x^2}}{x}$
(b) $\frac{x}{\sqrt{1+x^2}}$
(c) $\frac{\sqrt{1-x^2}}{x}$
(d) $\frac{x}{\sqrt{1-x^2}}$

Q.78. If x, y are acute angles, where 0<x+y<90°, and sin(3x-40°) = cos(3y+40°), then the value of tan(x+y) is:
यदि x, y तीव्र कोण हैं, जहाँ 0 <x+ y <90 and, और sin(3x-40°) = cos(3y+40°) है, तो tan (x+ y) का मान है:
CHSL 26-10-2020 (Evening shift)
(a) $\frac{1}{\sqrt{2}}$
(b) $\frac{1}{\sqrt{3}}$
(c) $\sqrt{3}$
(d) 1/3

Q.79. If $\tan\theta = \frac{2}{\sqrt{11}}$, $0 < \theta < 90°$, then the value of $\frac{2cosec^2\theta - 3sec^2\theta}{3cosec^2\theta + 4sec^2\theta}$ is equal to:
यदि $\tan\theta = \frac{2}{\sqrt{11}}$, ,$0 < \theta < 90°$, है, तो $\frac{2cosec^2\theta - 3sec^2\theta}{3cosec^2\theta + 4sec^2\theta}$ का मान इसके बराबर है:
CHSL 26-10-2020 (Evening shift)
(a) $\frac{11}{45}$
(b) $\frac{11}{49}$
(c) $\frac{13}{49}$
(d) $\frac{10}{49}$

Q.80. Find the value of $\frac{Cos30° - sin30°}{Sin60° + Cos60°}$
$\frac{Cos30° - sin30°}{Sin60° + Cos60°}$ का मान ज्ञात करें
CHSL 17-03-2020 (Morning shift)
(a) $2 + \sqrt{3}$
(b) $2 - \sqrt{3}$
(c) $1 + \sqrt{3}$
(d) $1 - \sqrt{3}$

Q.81. If $sec^2x - 3secx + 2 = 0$, then the value of $x(0 < x < 90°)$ is:
यदि $sec^2x - 3secx + 2 = 0$, है, तो x $(0 < x < 90°)$ का मान है:
CHSL 17-03-2020 (Morning shift)

(a) 45°
(b) 15°
(c) 60°
(d) 30°

Q.82.If $cosec\theta + cot\theta = 2$, then $Sin\theta$ is:
यदि $cosec\theta + cot\theta = 2$ है, तो $Sin\theta$:
CHSL 17-03-2020 (Morning shift)
(a) 3/5
(b) 2/5
(c) 3/4
(d) 4/5

Q83.(sin $\theta + cos\ \theta)^2 = 2,\ 0° < \theta < 90°$, then the value of θ is:
(sin $\theta + cos\ \theta)^2 = 2,\ 0° < \theta < 90°$, तो θ का मूल्य है:
CHSL 17-03-2020 (afternoon shift)
(a) 0
(b) $\frac{\pi}{2}$
(c) π
(d) $\frac{\pi}{4}$

Q84. If cosecA = $\frac{25}{7}$, then what is the value of Tan A?
यदि cosecA = $\frac{25}{7}$, है तो Tan A का मान क्या है?
CHSL 17-03-2020 (afternoon shift)
(a) $\frac{7}{24}$
(b) $\frac{25}{24}$
(c) $\frac{7}{25}$
(d) $\frac{24}{25}$

Q85. Find the value of Cos 225°
Cos 225° का मान ज्ञात कीजिए
CHSL 17-03-2020 (afternoon shift)
(a) -0.7071
(b) -0.866
(c) 0.7071
(d) 0.866

Q86. If cotθ = $\frac{80}{39}$, find the value of cosecθ.
यदि cotθ = $\frac{80}{39}$, तो cosecθ का मान प्राप्त कीजिये
CHSL 17-03-2020 (Evening shift)
(a) $\frac{39}{80}$
(b) $\frac{89}{39}$
(c) $\frac{39}{89}$
(d) $\frac{80}{80}$

Q87. If sinθ = $\frac{4}{5}$, find the value of sin3θ.
यदि sinθ = $\frac{4}{5}$,sin3θ का मान प्राप्त कीजिये
CHSL 17-03-2020 (Evening shift)
(a) $\frac{32}{45}$
(b) $\frac{44}{125}$
(c) $\frac{64}{125}$
(d) $\frac{12}{25}$

Q88. If tan a = $\frac{2}{\sqrt{13}}$, then the value of $\frac{cosec^2a+2sec^2a}{cosec^2a-3sec^2a}$ is:
Q3। यदि tan a = $\frac{2}{\sqrt{13}}$, है, तो $\frac{cosec^2a+2sec^2a}{cosec^2a-3sec^2a}$ का मान:
CHSL 18-03-2020 (Evening shift)
(a) 21
(b) 14
(c) 32
(d) 16

Q89. If a sinA + b cosA = c, then a cosA - b sinA is equal to:
Q23। यदि a sinA + b cosA = c है, तो a cosA - b sinA इसके बराबर है:
CHSL 18-03-2020 (Evening shift)
(a) $\sqrt{a^2 - b^2 - c^2}$
(b) $\sqrt{a^2 + b^2 - c^2}$
(c) $\sqrt{a^2 + b^2 + c^2}$
(d) $\sqrt{a^2 - b^2 + c^2}$

Q90. $\frac{1-tan\ A}{1+tan\ A} = \frac{tan\ 3°\ tan\ 15°\ tan\ 30°\ tan\ 75°\ tan\ 87°}{tan\ 27°tan\ 39°\ tan\ 51°\ tan\ 60°\ tan\ 63°}$, then the value of cot A is:
$\frac{1-tan\ A}{1+tan\ A} = \frac{tan\ 3°\ tan\ 15°\ tan\ 30°\ tan\ 75°\ tan\ 87°}{tan\ 27°tan\ 39°\ tan\ 51°\ tan\ 60°\ tan\ 63°}$, , फिर cot A का मान है:
CHSL 18-03-2020 (Evening shift)
(a) 3
(b) 2
(c) 1
(d) 4

Q.91. The value of $\frac{Sin\ 30°\ Cos\ 60°\ + Cos\ 45°\ Sin\ 45°}{tan\ 60°\ Cot\ 30°}$ is:
$\frac{Sin\ 30°\ Cos\ 60°\ + Cos\ 45°\ Sin\ 45°}{tan\ 60°\ Cot\ 30°}$ का मूल्य:
CHSL 19-03-2020 (Morning shift)
(a) $\frac{1}{\sqrt{3}}$
(b) $\sqrt{3}$
(c) 2
(d) 1/4

Q.92. If $\frac{Sin\ x + Cos\ x}{Sin\ x - Cos\ x} = \frac{6}{5}$, then the value of $\frac{tan^2x+1}{tan^2x-1}$ is:
यदि $\frac{Sin\ x + Cos\ x}{Sin\ x - Cos\ x} = \frac{6}{5}$ है, तो $\frac{tan^2x+1}{tan^2x-1}$ का मान:
CHSL 19-03-2020 (Morning shift)
(a) $\frac{61}{35}$
(b) $\frac{61}{60}$
(c) $\frac{35}{61}$
(d) $\frac{60}{61}$

Q.93. If $Sin\ x = \frac{3}{5}$, $0 \le x \le 90°$, then the value of $Cot\ x.Sec\ x$ is:
यदि $Sin\ x = \frac{3}{5}$, $0 \le x \le 90°$ है, तो Cot x.Secx का मान:
CHSL 19-03-2020 (Morning shift)
(a) $\frac{3}{5}$
(b) $\frac{5}{3}$
(c) $\frac{4}{5}$

(d) $\frac{3}{4}$

Q.94. If $2cot\theta = 3$, then $\frac{\sqrt{13}Cos\theta-3tan\theta}{3tan\theta+\sqrt{13}\,Sin\theta}$ is:

यदि $2cot\theta$, तो $\frac{\sqrt{13}Cos\theta-3tan\theta}{3tan\theta+\sqrt{13}\,Sin\theta}$ का मान:

CHSL 19-03-2020 (afternoon shift)

(a) 3/4
(b) 1/4
(c) 2/3
(d) 1/5

Q.95. If $2x = sin\theta$ and $\frac{2}{x} = cos\theta$, then the value of $4(x^2 + \frac{1}{x^2})$ is:

यदि $2x = sin\theta$ और $\frac{2}{x} = cos\theta$ तो $4(x^2 + \frac{1}{x^2})$ का मान है:

CHSL 19-03-2020 (afternoon shift)

(a) 2
(b) 0
(c) 4
(d) 1

Q.96. If x = tan40°, then the value of 2tan50° will be:

यदि x = tan40° x, तो 2tan50° be का मान होगा:

CHSL 19-03-2020 (afternoon shift)

(a) $\frac{1}{2x}$
(b) 2x
(c) $\frac{1}{x}$
(d) $\frac{2}{x}$

Q.97. $\frac{\sqrt{Cosecx-1}}{\sqrt{Cosecx+1}}$ is equal to:

$\frac{\sqrt{Cosecx-1}}{\sqrt{Cosecx+1}}$ के बराबर:

CHSL 19-03-2020 (Evening shift)

(a) $secx - tanx$
(b) $tanx - secx$
(c) $secx.tanx$
(d) $tanx + secx$

Q.98. The value of $\frac{Cos29°.cosec61°tan45°+2sin35°sec55°}{3sin^242°+3sin^248}$ is

$\frac{Cos29°.cosec61°tan45°+2sin35°sec55°}{3sin^242°+3sin^248}$ का मान है:

CHSL 19-03-2020 (Evening shift)

(a) 3
(b) 0
(c) 2
(d) 1

Q.99. If $x\,sin30°cos60° = sin45°.cos45°$, then the value of x is:

यदि $x\,sin30°cos60° = sin45°.cos45°$, तो x का मान है:

CHSL 19-03-2020 (Evening shift)

(a) 1
(b) 2
(c) 0
(d) 3

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Q100. The value of $\frac{cosec^230°sin^245° + sec^260°}{tan60°cosec^245°-sec^260°tan\,45°}$ is:

$\frac{cosec^230°sin^245° + sec^260°}{tan60°cosec^245°-sec^260°tan\,45°}$ का मान है:

CGL-2019 Tier-II (15-10-2020)

(a) $3(2 + \sqrt{3})$
(b) $2(\sqrt{3} - 2)$
(c) $-2\sqrt{3} - 2$
(d) $-3(2 + \sqrt{3})$

Q101. $\frac{sin\square\square[(1-tan\square\square)tan\square\square+sec^2\square\square]}{(1-sin\square\square)tan\square\square(1+tan\square\square)(sec\square\square+tan\square\square)}$ is equal to:

$\frac{sin\square\square[(1-tan\square\square)tan\square\square+sec^2\square\square]}{(1-sin\square\square)tan\square\square(1+tan\square\square)(sec\square\square+tan\square\square)}$ बराबर है

CGL-2019 Tier-II (15-10-2020)

(a)1
(b) $cosec\theta\ sec\theta$
(c) $sin\theta\ cos\theta$
(d) -1

Q102. cos A(sec A-cos A)(cot A+tan A)=?

cos A(sec A-cos A)(cot A+tan A)=?

CGL-2019 Tier-II (15-10-2020)

(a) sec A
(b) cot A
(c) sin A
(d) tan A

Q103. If sin 3A=cos(A+10), where 3A is an acute angle, then what is the value of $2cosec\frac{3A}{2} + 6sin^23A - \frac{3}{2}tan^23A$?

यदि sin 3A=cos(A+10), जहां 3A एक न्यून कोण है,तो $2cosec\frac{3A}{2} + 6sin^23A - \frac{3}{2}tan^23A$ का मान क्या है?

CGL-2019 Tier-II (15-10-2020)

(a) $\frac{7}{4}$
(b)4
(c) $\frac{17}{2}$
(d) 5

Q104. $(\frac{1}{cos\theta} - \frac{1}{sin\theta}) + \frac{1}{cosec\theta-cot\theta} - \frac{1}{sec\theta+tan\theta}$ =?

$(\frac{1}{cos\theta} - \frac{1}{sin\theta}) + \frac{1}{cosec\theta-cot\theta} - \frac{1}{sec\theta+tan\theta}$ =?

CGL-2019 Tier-II (15-10-2020)

(a) $sec\theta\ cosec\theta$
(b) $sin\theta\ tan\theta$
(c) $cosec\theta\ cot\theta$
(d) $sin\theta\ cos\theta$

105. In ΔPQR, $\angle Q = 90°$. If cot R= $\frac{1}{3}$, then what is the value of $\frac{secP(cosR+sinP)}{cosec\,R\,(sinR-cosecP)}$?

ΔPQR में $\angle Q = 90°$. यदि cot R= $\frac{1}{3}$, तो $\frac{secP(cosR+sinP)}{cosec\,R\,(sinR-cosecP)}$ का मान ज्ञात कीजिए ?

CGL-2019 Tier-II (15-10-2020)

(a) $\frac{2}{7}$
(b) $-\frac{2}{7}$
(c) $\frac{2}{3}$
(d) $-\frac{2}{3}$

Pinnacle

Q106. If $\sec\theta = \frac{a}{b}, b \neq 0$, then $\frac{1-\tan^2\theta}{2-\sin^2\theta} = ?$

यदि $\sec\theta = \frac{a}{b}, b \neq 0$, तो $\frac{1-\tan^2\theta}{2-\sin^2\theta}$?

CGL-2019 Tier-II (15-10-2020)

(a) $\frac{a^2(2b^2+a^2)}{b^2(a^2-b^2)}$

(b) $\frac{a^2(2b^2+a^2)}{b^2(a^2+b^2)}$

(c) $\frac{a^2(2b^2-a^2)}{b^2(a^2+b^2)}$

(d) $\frac{a^2(2b^2-a^2)}{a^2(a^2+b^2)}$

Q107. The value of $\frac{\sec^2\theta(2+\tan^2\theta+\cot^2\theta)\div(\sin^2\theta-\tan^2\theta)}{(\operatorname{cosec}^2\theta+\sec^2\theta)(1+\cot^2\theta)^2}$ is:

$\frac{\sec^2\theta(2+\tan^2\theta+\cot^2\theta)\div(\sin^2\theta-\tan^2\theta)}{(\operatorname{cosec}^2\theta+\sec^2\theta)(1+\cot^2\theta)^2}$ का मान ज्ञात कीजिए

CGL-2019 Tier-II (15-10-2020)

(a) -1

(b) 1

(c) -2

(d) 2

Q108. The value of $\frac{2\sin^2 38°\sec^2 52°+\cos 64°\sin 26°+\sin^2 64°}{\tan^2 23°+\cot^2 23°-\sec^2 67°-\operatorname{cosec}^2 67°}$ is:

$\frac{2\sin^2 38°\sec^2 52°+\cos 64°\sin 26°+\sin^2 64°}{\tan^2 23°+\cot^2 23°-\sec^2 67°-\operatorname{cosec}^2 67°}$ का मान ज्ञात कीजिए ?

CGL-2019 Tier-II (15-10-2020)

(a) -2

(b) $\frac{3}{2}$

(c) 2

(d)- $\frac{3}{2}$

Q109. The value of $\frac{\cos^6\theta+\sin^6\theta+3\sin^2\theta\cos^2\theta}{\operatorname{cosec}\theta\sec\theta(\sin\theta+\cos\theta-1)(\sin\theta+\cos\theta+1)}$ is :

$\frac{\cos^6\theta+\sin^6\theta+3\sin^2\theta\cos^2\theta}{\operatorname{cosec}\theta\sec\theta(\sin\theta+\cos\theta-1)(\sin\theta+\cos\theta+1)}$ का मान ज्ञात कीजिए

CGL-2019 Tier-II (15-10-2020)

(a) 1

(b) 2

(c) $\frac{1}{2}$

(d) 3

Q110. If x = sec 57°then $\cot^2 33° + \sin^2 57° + \sin^2 33° + \operatorname{cosec}^2 57°\cos^2 33° + \sec^2 33°\sin^2 57°$ is equal to :

यदि x = sec 57° तो $\cot^2 33° + \sin^2 57° + \sin^2 33° +$ का $\operatorname{cosec}^2 57°\cos^2 33° + \sec^2 33°\sin^2 57°$ मान क्या होगा ?

CGL-2019 Tier-II (16-10-2020)

(a) $x^2 + 2$

(b) $2x^2 + 1$

(c) $x^2 + 1$

(d) $\frac{1}{x^2+1}$

Q111. The value of $(\tan^2 A + \cot^2 A - 2) - \sec^2 A \operatorname{cosec}^2 A$ is :

$(\tan^2 A + \cot^2 A - 2) - \sec^2 A \operatorname{cosec}^2 A$ का मान क्या होगा

CGL-2019 Tier-II (16-10-2020)

(a) -4

(b) -1

(c) 1

(d) 4

Q112. The value of $\frac{5\cos^2 60° + 4\sec^2 30° - \tan^2 45°}{\tan^2 60° - \sin^2 30° - \cos^2 45°}$ is:

$\frac{5\cos^2 60° + 4\sec^2 30° - \tan^2 45°}{\tan^2 60° - \sin^2 30° - \cos^2 45°}$ का मान क्या होगा

CGL-2019 Tier-II (16-10-2020)

(a) $\frac{19}{9}$

(b) $\frac{67}{27}$

(c) $\frac{22}{9}$

(d) $\frac{67}{24}$

Q113. Ifcos (2θ +54°) = sin θ , 0°<(2 θ +54°)<90°,then what is the value of $\frac{1}{\tan 5\theta + \operatorname{cosec}\frac{5\theta}{2}}$?

यदि cos (2θ +54°) = sin θ , 0°<(2 θ +54°)<90°, $\frac{1}{\tan 5\theta + \operatorname{cosec}\frac{5\theta}{2}}$ का मान क्या होगा

CGL-2019 Tier-II (16-10-2020)

(a) $2 + \sqrt{3}$

(b) $3\sqrt{2}$

(c) $2\sqrt{3}$

(d) $2 - \sqrt{3}$

Q114. If cosec θ =b/a, then $\frac{\sqrt{3}\cot\theta + 1}{\tan\theta + \sqrt{3}}$ is equal to:

यदि cosec θ =b/a, $\frac{\sqrt{3}\cot\theta + 1}{\tan\theta + \sqrt{3}}$ का मान क्या होगा

CGL-2019 Tier-II (16-10-2020)

(a) $\frac{\sqrt{b^2-a^2}}{a}$

(b) $\frac{\sqrt{a^2+b^2}}{a}$

(c) $\frac{\sqrt{a^2+b^2}}{b}$

(d) $\frac{\sqrt{b^2-a^2}}{b}$

Q115. $\frac{\sin^2\theta}{\cos\theta(1+\cos\theta)} + \frac{1+\cos\theta}{\cos\theta} = ?$

$\frac{\sin^2\theta}{\cos\theta(1+\cos\theta)} + \frac{1+\cos\theta}{\cos\theta}$ का मान क्या होगा

CGL-2019 Tier-II (16-10-2020)

(a) 2cos θ

(b) sec θ

(c) 2sec θ

(d) cosec θ

Q116. In Δ ABC, right angled at B, if tanA = $\frac{1}{2}$, then the value of $\frac{\sin A(\cos C + \cos A)}{\cos C(\sin C - \sin A)}$ is:

Δ ABCमें, B एक समकोण है यदि tanA = $\frac{1}{2}$ तो $\frac{\sin A(\cos C + \cos A)}{\cos C(\sin C - \sin A)}$ का मान क्या होगा ?

CGL-2019 Tier-II (16-10-2020)

(a) $2\sqrt{5}$

(b) 3

(c) 2

(d) 1

Q117. The value of $\frac{\sin\theta + \cos\theta - 1}{\sin\theta - \cos\theta + 1} \times \sqrt{\frac{1+\sin\theta}{1-\sin\theta}}$ is:

$\frac{\sin\theta + \cos\theta - 1}{\sin\theta - \cos\theta + 1} \times \sqrt{\frac{1+\sin\theta}{1-\sin\theta}}$ का मान क्या होगा?

CGL-2019 Tier-II (16-10-2020)

(a) 1

(b) -1

(c) -2
(d) 2

Q118. $\frac{\sec A\,(\sec A + \tan A)(1 - \sin A)}{(\operatorname{cosec}^2 A - 1)\sin^2 A}$ is equal to :
$\frac{\sec A\,(\sec A + \tan A)(1 - \sin A)}{(\operatorname{cosec}^2 A - 1)\sin^2 A}$ का मान क्या होगा?
CGL-2019 Tier-II (16-10-2020)
(a) $\sec^2 A$
(b) $\cos^2 A$
(c) $\cot A$
(d) $\cos A$

Q119. If $(\sin\theta + \operatorname{cosec}\theta)^2 + (\cos\theta + \sec\theta)^2 = k + \tan^2\theta + \cot^2\theta$, then they value of k is equal to:
यदि $(\sin\theta + \operatorname{cosec}\theta)^2 + (\cos\theta + \sec\theta)^2 = k + \tan^2\theta + \cot^2\theta$, तो k का मान ज्ञात करे:
CGL-2019 Tier-II (18-10-2020)
(a) 7
(b) 2
(c) 9
(d) 5

Q120. If $\cos\theta = \frac{5}{13}$, then the value of $\tan^2\theta + \sec^2\theta$ is equal to :
यदि $\cos\theta = \frac{5}{13}$ तो $\tan^2\theta + \sec^2\theta$ का मान ज्ञात करे:
CGL-2019 Tier-II (18-10-2020)
(a) $\frac{323}{25}$
(b) $\frac{313}{25}$
(c) $\frac{303}{25}$
(d) $\frac{233}{25}$

Q121. If $\sin\theta + \sin^2\theta = 1$, then the value of $\cos^2\theta + \cos^4\theta$ is equal to:
यदि $\sin\theta + \sin^2\theta = 1$ तो $\cos^2\theta + \cos^4\theta$ का मान किसके बराबर है
CGL-2019 Tier-II (18-10-2020)
(a) 0
(b) $\frac{1}{2}$
(c) 5
(d) 1

Q.122. If sin(x+y) = cos(x-y), then the value of $\cos^2 x$ is:
यदि sin(x+y) = cos(x-y) तो $\cos^2 x$ का मान ज्ञात करे
CGL-2019 Tier-II (18-10-2020)
(a) 5
(b) 3
(c) $\frac{1}{2}$
(d) $\frac{1}{4}$

Q.123. If $\frac{\cos^2\theta}{\cot^2\theta - \cos^2\theta} = 3$, where $0° < \theta < 90°$ then the value of θ is:
यदि $\frac{\cos^2\theta}{\cot^2\theta - \cos^2\theta} = 3$ तो θ का मान ज्ञात करे: जहा $0° < \theta < 90°$
CGL-2019 Tier-II (18-10-2020)
(a) 50°
(b) 60°
(c) 30°
(d) 45°

Q.124. If $\frac{\sec\theta + \tan\theta}{\sec\theta - \tan\theta} = 2\frac{51}{79}$, then the value of sin θ is equal to:
यदि $\frac{\sec\theta + \tan\theta}{\sec\theta - \tan\theta} = 2\frac{51}{79}$ तो θ का मान ज्ञात करे:
CGL-2019 Tier-II (18-10-2020)
(a) $\frac{65}{144}$
(b) $\frac{35}{72}$
(c) $\frac{91}{144}$
(d) $\frac{39}{72}$

Q.125. If sec θ + tan θ = 3, then the value of sec θ is:
यदि sec θ + tan θ = 3 तो $\sec\theta$ का मान ज्ञात करे:
CGL-2019 Tier-II (18-10-2020)
(a) $\frac{5}{3}$
(b) $\frac{4}{3}$
(c) $\frac{3}{5}$
(d) $\frac{3}{4}$

Q.126. If $\alpha + \beta = 90°$ and $\alpha = 2\beta$, then the value of $3\cos^2\alpha - 2\sin^2\beta$ is equal to:
यदि $\alpha + \beta = 90°$ and $\alpha = 2\beta$ तो $3\cos^2\alpha - 2\sin^2\beta$ का मान ज्ञात करे:
CGL-2019 Tier-II (18-10-2020)
(a) $\frac{1}{4}$
(b) $\frac{3}{2}$
(c) $\frac{4}{3}$
(d) $\frac{3}{4}$

Q127..If cosec 39° = x, then the value of $\frac{1}{\operatorname{cosec}^2 51°} + \sin^2 39° + \tan^2 51° - \frac{1}{\sin^2 51° \sec^2 39°}$ is:
यदि cosec 39° = x and $\alpha = 2\beta$ तो $\frac{1}{\operatorname{cosec}^2 51°} + \sin^2 39° + \tan^2 51° - \frac{1}{\sin^2 51° \sec^2 39°}$ का मान ज्ञात करे:
CGL-2019 Tier-II (18-10-2020)
(a) $\sqrt{x^2 - 1}$
(b) $\sqrt{1 - x^2}$
(c) $1 - x^2$
(d) $x^2 - 1$

Q.128. If 3sinx + 4cosx = 2, then the value of 3cosx - 4 sinx is equal to:
यदि 3sinx + 4cosx = 2 तो 3cosx - 4sinx का मान ज्ञात करे:
CGL-2019 Tier-II (18-10-2020)
(a) $\sqrt{21}$
(b) $\sqrt{23}$
(c) 21
(d) $\sqrt{29}$

Q129. If $4(\operatorname{cosec}^2 57° - \tan^2 33°) - \cos 90° - y\tan^2 66° \tan^2 24° = \frac{y}{2}$, then the value of y is:
यदि $4(\operatorname{cosec}^2 57° - \tan^2 33°) - \cos 90° - y\tan^2 66° \tan^2 24° = \frac{y}{2}$, तो y का मान ज्ञात करे |
CGL-2019 Tier-II (18-10-2020)
(a) $\frac{3}{8}$
(b) 8

(c) $\frac{1}{3}$
(d) $\frac{8}{3}$

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Q130. If $4 - 2sin^2\theta - 5cos\theta = 0$, $0° < \theta < 90°$, then the value of $\cos\theta + \tan\theta$ is:
यदि $4 - 2sin^2\theta - 5cos\theta = 0$, $0° < \theta < 90°$, तो $\cos\theta + \tan\theta$ का मान ज्ञात करे |
CPO 23-11-2020 (Morning shift)
(a) $\frac{2+\sqrt{3}}{2}$
(b) $\frac{2-\sqrt{3}}{2}$
(c) $\frac{1+2\sqrt{3}}{2}$
(d) $\frac{1-2\sqrt{3}}{2}$

Q131. If sec 3x = cosec(3x - 45°), where 3x ia an acute angle, then x is equal to:
यदि sec 3x = cosec(3x - 45°) तो x का मान ज्ञात करे जहाँ 3x एक न्यून कोण है
CPO 23-11-2020 (Evening shift)
(a) 35°
(b) 27.5°
(c) 22.5°
(d) 45°

Q132. The value of $\frac{sin^2 30° + cos^2 60° - sec35°.sin55°}{sec\ 60° + cosec\ 30°}$ is equal to :
$\frac{sin^2 30° + cos^2 60° - sec35°.sin55°}{sec\ 60° + cosec\ 30°}$ का मान क्या होगा
CPO 23-11-2020 (Evening shift)
(a) $\frac{1}{8}$
(b) $-\frac{1}{4}$
(c) $-\frac{1}{8}$
(d) $\frac{1}{4}$

Q133.If sin 3x =cos(3x- 45°), 0° <3x<90°, then x is equal to:
यदि sin 3x =cos(3x- 45°),0° <3x<90°, तो x का मान ज्ञात करे
CPO 24-11-2020 (Morning shift)
(a) 27.5°
(b) 35°
(c) 22.5°
(d) 45°

Q134. the value of $\frac{sin^2 30° + cos^2 60° + sec45°.sin45°}{sec\ 60° + cosec\ 30°}$ is:
$\frac{sin^2 30° + cos^2 60° + sec45°.sin45°}{sec\ 60° + cosec\ 30°}$ का मान ज्ञात करे |
CPO 24-11-2020 (Morning shift)
(a) $\frac{1}{4}$
(b) $-\frac{1}{4}$
(c) $-\frac{3}{8}$
(d) $\frac{3}{8}$

Q135.. The value of $\frac{sin^2 52° + 2 + sin^2 38°}{4cos^2 43° - 5 + 4cos^2 47°}$ is:
$\frac{sin^2 52° + 2 + sin^2 38°}{4cos^2 43° - 5 + 4cos^2 47°}$ का मान ज्ञात करे |
CPO 24-11-2020 (Evening shift)
(a) 3
(b) $\frac{1}{3}$
(c) -3
(d) $-\frac{1}{3}$

Q136. If 4θ is an acute angle, and $\cot 4\theta = \tan(\theta - 5°)$, then what is the value of θ ?
यदि $\cot 4\theta = \tan(\theta - 5°)$ तो θ का मान ज्ञात करे जहाँ 4θ एक न्यून कौन है
CPO 24-11-2020 (Evening shift)
(a) 45°
(b) 19°
(c) 21°
(d) 24°

Q137. If $4(cosec^2 57 - tan^2 33) - cos90 + y \times tan^2 66 \times tan^2 24 = \frac{y}{2}$, then the value of y is:
यदि $4(cosec^2 57 - tan^2 33) - cos90 + y \times tan^2 66 \times tan^2 24 = \frac{y}{2}$, तो y का मान ज्ञात करे
CPO 25-11-2020 (Morning shift)
(a) 4
(b) 8
(c) -4
(d) -8

Q138.. If $4 - 2sin^2\theta - 5cos\theta = 0$, $0° < \theta < 90°$, then the value of $cos\theta - tan\theta$ is:
यदि $4 - 2sin^2\theta - 5cos\theta = 0$, $0° < \theta < 90°$, तो $cos\theta - tan\theta$ का मान ज्ञात करे
CPO 25-11-2020 (Morning shift)
(a) $\frac{2+\sqrt{3}}{2}$
(b) $\frac{2-\sqrt{3}}{2}$
(c) $\frac{1+2\sqrt{3}}{2}$
(d) $\frac{1-2\sqrt{3}}{2}$

Q139. Solve for θ :
$cos^2\theta - sin^2\theta = \frac{1}{2}$, $0 < \theta < 90°$
यदि $cos^2\theta - sin^2\theta = \frac{1}{2}$, $0 < \theta < 90°$ तो θ का मान ज्ञात करे
CPO 25-11-2020 (Evening shift)
(a) 60°
(b) 45°
(c) 40°
(d) 30°

SOLUTION

Variety Questions

Sol 1. (b)
Put $\theta = 60°$
$4-2\,sin^2\theta - 5cos\theta \Rightarrow 4-2$
$sin^2 60 - 5cos60$

$= 4-2\left(\frac{\sqrt{3}}{2}\right)^2 - 5 \times \frac{1}{2} = 4-4 = 0$

(condition satisfied)

$\sin\theta + \tan\theta \Rightarrow \sin 60 + \tan 60$

$= \frac{\sqrt{3}}{2} + \sqrt{3} = \frac{3\sqrt{3}}{2}$

Sol 2. (c) Put $\theta = 45$

$\frac{2+\tan^2\theta+\cot^2\theta}{\sec\theta.\operatorname{cosec}\theta} \Rightarrow \frac{2+1+1}{\sqrt{2}.\sqrt{2}} = 2$

Going through the options only option C satisfies the given condition

$\sec\theta.\operatorname{Cosec}\theta = \sqrt{2}.\sqrt{2} = 2$

Sol 3. (d)

Given, $\cos\theta = \frac{2p}{1+p^2} = \frac{Base}{Hypotenuse}$

So, Perpendicular, P =

$\sqrt{(1+p^2)^2 - 2p^2} = 1 - p^2$

Therefore, $\tan\theta = \frac{1-p^2}{2p}$

Sol 4. (b)

$\cos^2\theta = 3\cot^2\theta - 3\cos^2\theta$

$\Rightarrow 4\cos^2\theta = 3\cot^2\theta$

$\Rightarrow \sin^2\theta = \frac{3}{4}$

$\Rightarrow \sin\theta = \frac{\sqrt{3}}{2}$

$\Rightarrow \theta = 60°$

$\left(\frac{1}{2}\sec\theta + \sin\theta\right)^{-1} = \frac{1}{\left(\frac{1}{2}\times 2 + \frac{\sqrt{3}}{2}\right)}$

$= \frac{2}{\sqrt{3}+2} = 2(2-\sqrt{3})$

Sol 5. (b)

$\left[\frac{\sin\theta - 2\sin^3\theta}{2\cos^3\theta - \cos\theta}\right]^2 + 1$

$\Rightarrow \left[\frac{\sin\theta(1-2\sin^2\theta)}{\cos\theta(2\cos^2\theta-1)}\right]^2 + 1$

$\Rightarrow \left[\frac{\sin\theta.\cos 2\theta}{\cos\theta.\cos 2\theta}\right]^2 + 1$

$\Rightarrow \tan^2\theta + 1 = \sec^2\theta$

Sol 6. (c) $\frac{P^2+1}{1-P^2}$

$\sec\theta - \tan\theta = P$

$\sec\theta + \tan\theta = \frac{1}{P}$

$2\sec\theta = P + \frac{1}{P}$

$\cos\theta = \frac{2P}{P^2+1}$

$\cos^2\theta = \left[\frac{2P}{P^2+1}\right]^2$

$1 - \sin^2\theta = \frac{4P^2}{2P^2+1+P^4}$

$\sin^2\theta = 1 - \frac{4P^2}{2P^2+1+P^4}$

$= \frac{2P^2+1+P^4-4P^2}{2P^2+1+P^4}$

$\sin\theta = \frac{1-P^2}{P^2+1}$

$\operatorname{cosec}\theta = \frac{P^2+1}{1-P^2}$

Sol 7. (a)

Put $\theta = 90$

$\cos 90° = 0$

$\sin 90° = 1$

$\sqrt{3}\cos\theta + \sin\theta = \sqrt{3}(0) + 1 = 1$

condition satisfied.

Sol 8. (c)

Put $\theta = 45$,

$\frac{\sin\theta - \cos\theta + 1}{\sin\theta + \cos\theta - 1} = \frac{\frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} + 1}{\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + 1} = \frac{1}{\sqrt{2}-1} =$

$\sqrt{2}+1$

Going through the options

$\sec\theta + \tan\theta = \sqrt{2}+1$

Sol 9. (b)

Put $\theta = 45$

$\sqrt{\sec^2\theta + \operatorname{cosec}^2\theta} \times \sqrt{\tan^2\theta - \sin^2\theta}$

$\Rightarrow$

$\sqrt{(\sqrt{2})^2 + (\sqrt{2})^2} \times \sqrt{1 - \left(\frac{1}{\sqrt{2}}\right)^2}$

$= \sqrt{2}$

Going through options

$\sin\theta \sec^2\theta \Rightarrow \frac{1}{\sqrt{2}} \times (\sqrt{2})^2 = \sqrt{2}$

Sol 10. (a)

$\cos^2\theta - 3\cos\theta + 2 = \sin^2\theta$

$\Rightarrow \cos^2\theta - 3\cos\theta + 2 = 1 - \cos^2\theta$

$\Rightarrow 2\cos^2\theta - 3\cos\theta + 1 = 0$

$\Rightarrow 2\cos^2\theta - 2\cos\theta - \cos\theta + 1 = 0$

$\Rightarrow 2\cos\theta(\cos\theta - 1) - 1(\cos\theta - 1) = 0$

$\Rightarrow \cos\theta = 1$ or $\frac{1}{2}$

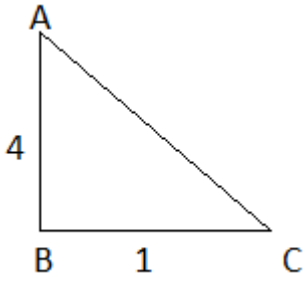
Clearly $\theta = 60$, (as $0° < \theta < 90°$)

$2\operatorname{cosec}\theta + 4\cot\theta \Rightarrow 2\left(\frac{2}{\sqrt{3}}\right) + 4\left(\frac{1}{\sqrt{3}}\right) = \frac{8\sqrt{3}}{3}$

Sol 11. (c)

$\sin\theta = 4\cos\theta$

$\Rightarrow \tan\theta = 4$



In the given figure

$\tan\theta = \frac{AB}{BC} = \frac{4}{1}$

$AC^2 = 4^2 + 1^2$

$AC = \sqrt{17}$

$\sin\theta\cos\theta = \frac{AB}{AC} \times \frac{BC}{AC} = \frac{4}{\sqrt{17}} \times \frac{1}{\sqrt{17}} = \frac{4}{17}$

Sol 12. (b)

$\frac{\cos\theta}{1-\sin\theta} + \frac{\cos\theta}{1+\sin\theta} = 4$

$\Rightarrow \cos\theta\left(\frac{1}{1-\sin\theta} + \frac{1}{1+\sin\theta}\right) = 4$

$\Rightarrow \cos\theta\left(\frac{1+\sin\theta+1-\sin\theta}{1-\sin^2\theta}\right) = 4$

$\Rightarrow \cos\theta = \frac{1}{2}$

Clearly $\theta = 60°$

So,

$\tan\theta + \operatorname{cosec}\theta \Rightarrow \sqrt{3} + \frac{2}{\sqrt{3}}$

$= \frac{3+2}{\sqrt{3}} = \frac{5\sqrt{3}}{3}$

Sol 13. (a) $(1+$

$\tan^2\theta) + (1 + (\tan^2\theta)^{-1}) = k$

$\Rightarrow (1+\tan^2\theta) + (1+\cot^2\theta) = k$

$\Rightarrow \sec^2\theta + \operatorname{cosec}^2\theta = k$

$\Rightarrow \frac{1}{\cos^2\theta} + \frac{1}{\sin^2\theta} = k$

$\Rightarrow \frac{\sin^2\theta+\cos^2\theta}{\sin^2\theta.\cos^2\theta} = k$

$\Rightarrow \sec^2\theta.\operatorname{cosec}^2\theta = k$

$\Rightarrow \sec\theta.\operatorname{cosec}\theta = \sqrt{k}$ ans

Alternate

Put $\theta = 45$

$(1+\tan^2\theta) + (1 + (\tan^2\theta)^{-1}) = k$

$\Rightarrow (1+1)+(1+1) = k$

$\Rightarrow 4 = k$

$\Rightarrow 2 = \sqrt{k}$

Going through options

Option A :

$\text{cosec}\theta \sec\theta = \sqrt{2}.\sqrt{2} = 2$
Clearly option A is the right answer.

Sol 14. (b)
$sin^2 30^0\ cos^2 45^0 + 4tan^2 30^0 + \frac{1}{2}sin^2 90^0$ + 2cos90°
$\Rightarrow (\frac{1}{2})^2 \times (\frac{1}{\sqrt{2}})^2 + 4 \times (\frac{1}{\sqrt{3}})^2 + \frac{1}{2} \times (1)^2 + 2 \times 0$
$\Rightarrow \frac{1}{8} + \frac{4}{3} + \frac{1}{2} = \frac{47}{24}$

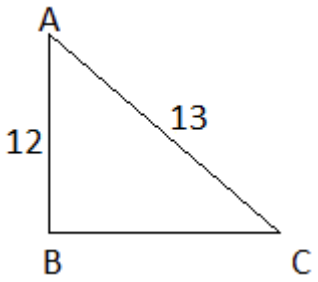
Sol 15. (a)
$\frac{3\ sin\ \theta - 4\ cos\ \theta}{3\ sin\ \theta + 4\ cos\ \theta}$
$\Rightarrow \frac{3\ tan\theta - 4}{3\ tan\theta + 4}$
$\Rightarrow \frac{3(\frac{2}{3}) - 4}{3(\frac{2}{3}) + 4} = \frac{-1}{3}$

Sol 16. (c)
Given, Sec4θ = Cosec (θ + 20°)
Clearly,
$(4\theta + \theta + 20) = 90$
$5\theta = 70$
$\theta = 14$

Sol 17. (b)
Applying componendo and dividendo
$\frac{tan\theta + sin\theta}{tan\theta - sin\theta} = \frac{k+1}{k-1} \Rightarrow \frac{tan\theta}{sin\theta} = \frac{k}{1}$
$\Rightarrow \frac{sin\theta}{cos\theta.sin\theta} = k$
$\Rightarrow \text{Sec}\,\theta = k$

Sol 18. (b)
$sin^2 38^0 + sin^2 52^0 + sin^2 30^0 - tan^2 45^0$
$\Rightarrow 1 + (\frac{1}{2})^2 - (1)^2$
$\ldots\ldots\ldots\ldots (sin^2\theta + sin^2\varphi = 1$, if $\theta + \varphi = 90)$
$\Rightarrow 1 + \frac{1}{4} - 1 = \frac{1}{4}$

Sol 19. (d)



$\text{Cosec}\,\theta = \frac{AC}{AB} = \frac{13}{12}$
$AB^2 + BC^2 = AC^2$
$BC = \sqrt{13^2 - 12^2} = 5$

$\text{Sin}\,\theta = \frac{12}{13}$, $Cos\theta = \frac{5}{13}$ and $\tan\theta = \frac{12}{5}$
$\text{Sin}\theta + \text{Cos}\theta - \tan\theta = \frac{12}{13} + \frac{5}{13} - \frac{12}{5} = -\frac{71}{65}$

Sol 20. (a)
$\frac{sin44^0}{cos46^0} + sin^2 60^0 - cos^2 45^0 + sec\ 60^0$
$\Rightarrow 1 + (\frac{\sqrt{3}}{2})^2 - (\frac{1}{\sqrt{2}})^2 + 2 = \frac{13}{4}$

Sol 21. (c)
$3\ cos^2 A + 7\ sin^2 A = 4$
$\Rightarrow 3\ cos^2 A + 7\ sin^2 A = 4(cos^2 A + sin^2 A)$
$\Rightarrow 3\ sin^2 A = cos^2 A$
$\Rightarrow cot^2 A = 3$
$\Rightarrow \text{cotA} = \sqrt{3}$

Sol 22. (a)
$\frac{cos^2\theta}{cot^2\theta - cos^2\theta} = 3$
$\Rightarrow \frac{cos^2\theta}{\frac{cos^2\theta}{sin^2\theta} - cos^2\theta} = 3$
$\Rightarrow \frac{cos^2\theta}{(\frac{1}{sin^2\theta} - 1)cos^2\theta} = 3$
$\Rightarrow \frac{cos^2\theta}{(\frac{1}{sin^2\theta} - 1)cos^2\theta} = 3$
$\Rightarrow tan^2\theta = 3$
$\Rightarrow tan\,\theta = \sqrt{3}$
$\theta = 60^\circ$
$\text{cot}\theta + \text{cosec}\theta \Rightarrow \frac{1}{\sqrt{3}} + \frac{2}{\sqrt{3}} = \sqrt{3}$

Sol 23. (b)
$\frac{1}{sin\theta} - \frac{cot^2\theta}{1 + cosec\theta} \Rightarrow \text{cosec}\,\theta - \frac{cosec^2\theta - 1}{1 + cosec\theta}$
$\Rightarrow \text{cosec}\,\theta - \frac{(cosec\,\theta - 1)(cosec\,\theta + 1)}{1 + cosec\theta}$
$\Rightarrow \text{cosec}\,\theta - \text{cosec}\,\theta + 1 = 1$

Sol 24. (b)
$(\frac{1}{1+sin^2\theta} + \frac{1}{1+cosec^2\theta})$
$\Rightarrow (\frac{1}{1+sin^2\theta} + \frac{1}{1+\frac{1}{sin^2\theta}})$
$\Rightarrow (\frac{1}{1+sin^2\theta} + \frac{sin^2\theta}{1+sin^2\theta}) = 1$

Sol 25. (b)
$\frac{1}{secx - tanx} - \frac{1}{cosx} \Rightarrow \frac{(secx + tan)}{(secx - tanx)(secx + tanx)}$ - Secx
$\Rightarrow$ secx + tanx - secx
$\ldots\ldots (sec^2 x - tan^2 x = 1)$
= tanx

Sol 26. (a)
$tan^2\theta - 3\text{sec}\theta + 3 = 0$
$\Rightarrow sec^2\theta - 1 - 3\text{sec}\theta + 3 = 0$
$\Rightarrow sec^2\theta - 3\text{sec}\theta + 2 = 0$
$\Rightarrow sec^2\theta - 2\text{sec}\theta - \text{sec}\,\theta + 2 = 0$
$\Rightarrow \text{sec}\,\theta(sec\,\theta - 2) - 1(\text{sec}\,\theta - 2) = 0$
$\Rightarrow (sec\,\theta - 1)(\text{sec}\,\theta - 2) = 0$
$\Rightarrow \text{sec}\,\theta = 1$ or 2
Cleary $\theta = 60$ or 0
But $\theta \neq 0$,so $\theta = 60$
$\sin\theta + \cot\theta = \frac{\sqrt{3}}{2} + \frac{1}{\sqrt{3}} = \frac{3+2}{2\sqrt{3}} = \frac{5\sqrt{3}}{6}$

Sol 27. (a)
$\cot\theta = \sqrt{7}$
$cot^2\theta = 7$ also $tan^2\theta = \frac{1}{7}$
$\frac{cosec^2\theta - sec^2\theta}{cosec^2\theta + sec^2\theta} \Rightarrow \frac{(1+cot^2\theta) - (1+tan^2\theta)}{(1+cot^2\theta) + (1+tan^2\theta)}$
$\Rightarrow \frac{(1+7) - (1+\frac{1}{7})}{(1+7) + (1+\frac{1}{7})} = \frac{48}{64} = \frac{3}{4}$

Sol 28. (a)
$\sin\theta = \frac{a}{\sqrt{a^2+b^2}}$
$\cos\theta = \sqrt{1 - (\frac{a}{\sqrt{a^2+b^2}})^2} = \frac{b}{\sqrt{a^2+b^2}}$

Pinnacle

$\sec\theta + \tan\theta$

$\Rightarrow \frac{1}{\cos\theta} + \frac{\sin\theta}{\cos\theta}$

$\Rightarrow \frac{1+\sin\theta}{\cos\theta}$

$\Rightarrow \frac{1+\frac{a}{\sqrt{a^2+b^2}}}{\frac{b}{\sqrt{a^2+b^2}}} = \frac{\sqrt{a^2+b^2}+a}{b}$

Sol 29. (c)

$(\frac{2\tan 30^0}{1-\tan^2 30^0}) \Rightarrow (\frac{2\times\frac{1}{\sqrt{3}}}{1-(\frac{1}{\sqrt{3}})^2})$

$\Rightarrow \frac{2}{\sqrt{3}} \times \frac{3}{2} = \sqrt{3}$

Sol 30. (b)

$\frac{1}{\text{cosec}\,\theta-1} + \frac{1}{\text{cosec}\,\theta+1} = 2\sec\theta$

$\Rightarrow \frac{(\text{cosec}\theta+1)+(\text{cosec}\theta-1)}{(\text{cosec}\theta+1)(\text{cosec}\theta-1)} = 2\sec\theta$

$\Rightarrow \frac{2\text{cosec}\theta}{\text{cosec}^2\theta-1)} = 2\sec\theta$

$\Rightarrow \frac{2\text{cosec}\theta}{\cot^2\theta} = 2\sec\theta$

$\Rightarrow \frac{2\sin^2\theta}{\text{Sin}\theta.\cos^2\theta} = 2\times\frac{1}{\cos\theta}$

$\Rightarrow \tan\theta = 1$

$\theta = 45$

$(\cot\theta + \cos\theta) \Rightarrow 1+\frac{1}{\sqrt{2}} = \frac{\sqrt{2}+1}{\sqrt{2}} = \frac{2+\sqrt{2}}{2}$

Sol 31. (a)

$\cos^2\theta - \sin^2\theta - 3\text{Cos}\theta + 2 = 0$

$\Rightarrow \cos^2\theta - (1-\cos^2\theta) - 3\text{Cos}\theta + 2 = 0$

$\Rightarrow 2\cos^2\theta - 3\cos\theta + 1 = 0$

$\Rightarrow 2\cos^2\theta - 2\cos\theta - \cos\theta + 1 = 0$

$\Rightarrow 2\cos\theta(\cos\theta - 1) - 1(\cos\theta - 1) = 0$

$\Rightarrow \cos\theta = 1$ or $\frac{1}{2}$

Clearly $\theta = 60^\circ$ $(0^\circ < \theta < 90^\circ)$

$4\text{Cosec}\theta + \text{Cot}\theta \Rightarrow 4(\frac{2}{\sqrt{3}}) + \frac{1}{\sqrt{3}} = 3\sqrt{3}$

Sol 32. (c)

$\frac{(\sec\theta+\tan\theta)(1-\sin\theta)}{\text{cosec}\theta(1+\cos\theta)(\text{cosec}\theta-\cot\theta)}$

$\Rightarrow \frac{(\frac{1}{\cos\theta}+\frac{\sin\theta}{\cos\theta})(1-\sin\theta)}{(\text{cosec}\theta+\text{cosec}\theta.\cos\theta)(\text{cosec}\theta-\cot\theta)}$

$\Rightarrow \frac{(\frac{1}{\cos\theta})(1+\sin\theta)(1-\sin\theta)}{(\text{cosec}\theta+\cot\theta)(\text{cosec}\theta-\cot\theta)}$

$\Rightarrow \frac{\frac{\cos^2\theta}{\cos\theta}}{\text{cosec}^2\theta-\cot^2\theta} = \cos\theta$

Sol 33. (d)

$\text{Cot}\theta = \frac{1}{\sqrt{3}}$, clearly $\theta = 60^\circ$

$\frac{2-\sin^2\theta}{1-\cos^2\theta} + \text{cosec}^2\theta + \sec\theta \Rightarrow$

$\frac{2-(\frac{\sqrt{3}}{2})^2}{1-(\frac{1}{2})^2} + (\frac{2}{\sqrt{3}})^2 + 2$

$\Rightarrow \frac{5}{3} + \frac{4}{3} + 2 = 5$

Sol 34. (b)

Given, $\text{Cosec}\,31^\circ = x$

$\Rightarrow \sin 31^\circ = \frac{1}{x}$

$\Rightarrow \cos^2 31^\circ = \frac{x^2-1}{x^2}$

$\sin^2 59 + \frac{1}{\text{cosec}^2 31} + \tan^2 59 - \frac{1}{\sin^2 59.\text{cosec}^2 59}$

$\Rightarrow \sin^2 59 + \sin^2 31 + \tan^2(90-31) - 1$

$\Rightarrow \cot^2 31 \Rightarrow \frac{\cos^2 31^\circ}{\sin^2 31^\circ}$

$\Rightarrow \frac{x^2-1}{x^2} \times \frac{x^2}{1} = x^2 - 1$ ans

Sol 35. (d)

$\sqrt{\frac{1-\cos\theta}{1+\cos\theta}} \times \sqrt{\frac{\text{cosec}\theta-\cot\theta}{\text{cosec}\theta+\cot\theta}} = \frac{1-r}{1+r}$

$\Rightarrow \sqrt{\frac{1-\cos\theta}{1+\cos\theta}} \times \sqrt{\frac{\frac{1}{\sin\theta}-\frac{\cos\theta}{\sin\theta}}{\frac{1}{\sin\theta}+\frac{\cos\theta}{\sin\theta}}} = \frac{1-r}{1+r}$

$\Rightarrow \sqrt{\frac{1-\cos\theta}{1+\cos\theta}} \times \sqrt{\frac{1-\cos\theta}{1+\cos\theta}} = \frac{1-r}{1+r}$

$\Rightarrow \frac{(1-\cos\theta)}{(1+\cos\theta)} = \frac{1-r}{1+r}$

Comparing both the terms

r = cos θ ans

Sol 36. (b) sin (A+B) = sin 60°

$\Rightarrow A + B = 60^\circ$ --- (i)

tan (A-B) = tan 30°

$\Rightarrow A - B = 30^\circ$ --- (ii)

On equating eq. (i) and (ii), we get

A = 45° and B = 15°

Therefore, 2A + 3B = 90° + 45° = 135°

Sol 37. (c)

Let A = 45

$(\text{cosec}A - \sin A)^2 + (\sec A - \cos A)^2 - (\cot A - \tan A)^2$

$\Rightarrow (\text{cosec}45 - \sin 45)^2 + (\sec 45 - \cos 45)^2 - (\cot 45 - \tan 45)^2$

$\Rightarrow (\sqrt{2} - \frac{1}{\sqrt{2}})^2 + (\sqrt{2} - \frac{1}{\sqrt{2}})^2 - (1-1)^2$

$\Rightarrow \frac{1}{2} + \frac{1}{2} - 0 = 1$

Sol 38. (c)

$x = a\cos\theta + b\sin\theta$

Squaring both sides

$x^2 = a^2\cos^2\theta + b^2\sin^2\theta + 2ab.\sin\theta.\cos\theta$ ……(1)

$y = a\sin\theta - b\cos\theta$

Squaring both sides

$y^2 = a^2\sin^2\theta + b^2\cos^2\theta - 2ab.\sin\theta.\cos\theta$ …….(2)

Add both the equations

$x^2 + y^2 = a^2\cos^2\theta + b^2\sin^2\theta + 2ab.\sin\theta.\cos\theta + a^2\sin^2\theta + b^2\cos^2\theta - 2ab.\sin\theta.\cos\theta$

$= a^2(\cos^2\theta + \sin^2\theta) + b^2(\cos^2\theta + \sin^2\theta)$

$= a^2 + b^2$

Sol 39. (c) $1 + \frac{\tan^2 A}{1+\sec A} = 1 + \frac{\sec^2 A - 1}{1+\sec A} = 1 + \sec A - 1 = \sec A$

Sol 40. (b)

Put $\theta = 30$

$3\sin\theta = 2\cos^2\theta \Rightarrow 3\times\frac{1}{2} = 2\times(\frac{\sqrt{3}}{2})^2$

$\Rightarrow \frac{3}{2} = \frac{3}{2}$

Condition satisfied

$(\tan^2\theta + \sec^2\theta - \text{cosec}^2\theta) \Rightarrow (\frac{1}{\sqrt{3}})^2 + (\frac{2}{\sqrt{3}})^2 - (2)^2$

$\Rightarrow \frac{1}{3} + \frac{4}{3} - 4 = -\frac{7}{3}$

Sol 41. (c)

$[\frac{\sin^2 24^\circ + \sin^2 66^\circ}{\cos^2 24^\circ + \cos^2 66^\circ} + \sin^2 61^\circ + \cos 61^\circ.\sin 29^\circ$

$\Rightarrow \frac{1}{1} + \sin^2 61 + \cos 61.\sin(90-61)$

$\Rightarrow 1 + \sin^2 61 + \cos^2 61$

$\Rightarrow 1 + 1 = 2$

Pinnacle

Sol 42. (a)

$\frac{cot\,\theta}{(1-sin\,\theta)\,(sec\,\theta+tan\,\theta)}$

$\Rightarrow \frac{cot\,\theta}{(1-sin\,\theta)\,(\frac{1}{cos\theta}+\frac{sin\theta}{cos\theta})}$

$\Rightarrow \frac{\frac{cos\theta}{sin\theta}}{(1-sin\,\theta)\,(\frac{1+sin\theta}{cos\theta})}$

$\Rightarrow \frac{\frac{cos\theta}{sin\theta}}{(\frac{cos^2\theta}{cos\theta})}$

$\Rightarrow \frac{cos\theta}{sin\theta\times cos\theta}$

$\Rightarrow$ cosec θ

Sol 43. (d)

$\frac{tan\,13^0\,tan\,37^0\,tan\,45^0\,tan\,53^0\,tan\,77^0}{2cosec^2 60^0(cos^2 60^0-3cos 60^0+2)}$

$\Rightarrow \frac{1\times1\times1}{2(\frac{2}{\sqrt3})^2[(\frac{1}{2})^2-3(\frac{1}{2})+2]}$

…[tan θ. tan(90- θ)= 1)]

$\Rightarrow \frac{1}{\frac{8}{3}\times\frac{3}{4}} = 0.5$

Sol 44. (b)

$3\,cos^2A+6\,(1-cos^2A)=3$

$\Rightarrow 3\,cos^2A+6-6cos^2A)=3$

$\Rightarrow 3\ cos^2A=3$

$\Rightarrow$ cosA = 1

Clearly $A=0^\circ$

Alternate:

$3\,cos^2A+6\,Sin^2A=3$

Put $A=0$

$3\,cos^2A+6\,Sin^2A \Rightarrow 3\ (1)^2+6(0)$

$=3$

Condition satisfied, clearly option (c) is the correct answer.

Sol 45.(c)

$\frac{(cos9+sin81)(sec9+cosec81)}{sin56.sec34+cos25.cosec65}$

$\Rightarrow$

$\frac{[cos(90-81)+sin81][(sec(90-81)+cosec81]}{sin56.\,sec(90-56)+cos(90-65).cosec65}$

$\Rightarrow \frac{2sin81.2cosec81]}{sin56.\,cosec56+sin65.cosec65}$

$\Rightarrow \frac{4\times1}{1+1}=2$

Sol 46. (d)

$(\frac{Sin\theta}{1+cos\theta}+\frac{1+cos\theta}{sin\theta})(\frac{1}{tan\theta+cot\theta})$

$\Rightarrow (\frac{sin^2\theta+(1+cos\theta)^2}{sin\theta(1+cos\theta)})(\frac{1}{\frac{Sin\theta}{cos\theta}+\frac{cos\theta}{sin\theta}})$

$\Rightarrow (\frac{sin^2\theta+1+cos^2\theta+2cos\theta}{sin\theta(1+cos\theta)})(\frac{1}{\frac{sin^2\theta+cos^2\theta}{sin\theta.cos\theta}})$

$\Rightarrow \frac{2+2cos\theta}{sin\theta(1+cos\theta)}(\frac{sin\theta.cos\theta}{1})$

$\Rightarrow \frac{2(1+cos\theta)}{sin\theta.(1+cos\theta)}\times sin\theta.cos\theta =$

$2\cos\theta$

Sol 47. (d)

$3-2\,sin^2\theta-3Cos\theta=0$

$\Rightarrow 3-2(1-cos^2\theta)-3\cos\theta=0$

$\Rightarrow 2\,cos^2\theta-3\cos\theta+1=0$

$\Rightarrow 2\,cos^2\theta-2\cos\theta-\cos\theta+1=0$

$\Rightarrow 2\cos\theta(\cos\theta-1)-1(\cos\theta-1)=0$

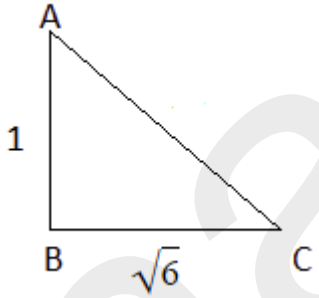
$\Rightarrow \cos\theta=1$ or $\frac{1}{2}$

Clearly $\theta=60^\circ$

$(2Cosec\theta+\tan\theta) \Rightarrow 2(\frac{2}{\sqrt3})+\sqrt3$

$\Rightarrow \frac{4}{\sqrt3}+\sqrt3=\frac{7\sqrt3}{3}$

Sol 48. (c)



$Cot\,\theta=\frac{BC}{AB}\ \frac{\sqrt6}{1}$

$AB^2+BC^2=AC^2$

$AC=\sqrt{1^2+(\sqrt6)^2}=\sqrt7$

So, $cosec\,\theta=\frac{\sqrt7}{1}=\sqrt7$

$sec\,\theta=\frac{\sqrt7}{\sqrt6}$

$\frac{cosec^2\theta+sec^2\theta}{cosec^2\theta-sec^2\theta} \Rightarrow \frac{(\sqrt7)^2+(\frac{\sqrt7}{\sqrt6})^2}{(\sqrt7)^2-(\frac{\sqrt7}{\sqrt6})^2}$

$\Rightarrow \frac{7+\frac{7}{6}}{7-\frac{7}{6}}=\frac{49}{35}=\frac{7}{5}$

Sol 49. (c)

Put $\theta=30^\circ$

$Sin\theta.\,sec^2\theta \Rightarrow \frac{1}{2}\times(\frac{2}{\sqrt3})^2=\frac{2}{3}$

Condition satisfied. Clearly $\theta=30^\circ$

$(tan^2\theta+cos^2\theta) \Rightarrow (\frac{1}{\sqrt3})^2+(\frac{\sqrt3}{2})^2$

$\Rightarrow \frac{1}{3}+\frac{3}{4}=\frac{13}{12}$

Sol 50. (c)

$\frac{(sin\theta-cosec\theta)(cos\theta-sec\theta)}{tan^2\theta-sin^2\theta}=r^3$

Put $\theta=30^\circ$

$\frac{(sin\theta-cosec\theta)(cos\theta-sec\theta)}{tan^2\theta-sin^2\theta}=r^3 \Rightarrow$

$\frac{(\frac{1}{2}-2)(\frac{\sqrt3}{2}-\frac{2}{\sqrt3})}{(\frac{1}{\sqrt3})^2-(\frac{1}{2})^2}=r^3$

$\Rightarrow \frac{(\frac{-3}{2})(\frac{3-4}{2\sqrt3})}{\frac{1}{3}-\frac{1}{4}}=r^3$

$\Rightarrow \frac{(\frac{3}{4\sqrt3})}{\frac{1}{12}}=r^3$

$\Rightarrow r^3=3\sqrt3$

$\Rightarrow r=\sqrt3$

Going through options

$\cot\theta \Rightarrow \cot 30^\circ=\sqrt3$

Clearly r = cot θ ans

Sol 51. (c)

Given, $\sec\theta=4x$ and $\tan\theta=\frac{4}{x}$

Squaring both sides

$sec^2\theta=16x^2$ …..(1) and $tan^2\theta=\frac{16}{x^2}$ ....(2)

Subtracting 2 from 1

$sec^2\theta-tan^2\theta=16x^2-\frac{16}{x^2}$

$1=2(8x^2-\frac{8}{x^2})$

$\frac{1}{2}=8(x^2-\frac{1}{x^2})$

Sol 52. (b)

Given $\theta=9^\circ$

cot θ cot 2θ cot 3θ cot 4θ cot 5θ cot 6θ cot 7θ cot 8θ cot 9θ

$\Rightarrow$ cot 9 cot 18 cot 27 cot 36 cot 45 cot 54 cot 63 cot 72 cot 81

$\Rightarrow 1\times1\times1\times1\times1$

…(cot θ cot φ = 1, if $\theta+\varphi=90^\circ$)

= 1

Sol 53. (a)

Given, $\sin(\alpha+\beta)=1$, $\cos(\alpha-\beta)=\frac{1}{2}$

$\sin(\alpha+\beta)=\sin90$

$\Rightarrow \alpha+\beta=90$ ….(1)

Similarly,

$\alpha-\beta=60$ …..(2)

Adding (1) and (2)

$2\alpha=150$

$\alpha=75^\circ$

Pinnacle

From eq (1)
$\beta = 90-75 = 15^\circ$

Sol 54. (a)
There are total 20 terms and value of $\sin\theta$ can't be greater than 1. Clearly for the sum of 20 terms being 20 value of each term must be 1. So each angle must be 90°.
$\Rightarrow (\alpha_1 + \alpha_2 + \alpha_3 .... \alpha_{20}) = 90^\circ \times 20 = 1800$

Sol 55. (d)
$\tan 30^\circ . \tan 60^\circ \Rightarrow \frac{1}{\sqrt{3}} \times \sqrt{3} = 1$
$\sin 30^\circ \Rightarrow \frac{1}{2}$
$\tan 45^\circ \Rightarrow 1$
$\cos 30^\circ \Rightarrow \frac{\sqrt{3}}{2}$
Clearly $\cos 30^\circ$ is an irrational quantity.

Sol 56. (c)
$\sin\theta + \text{cosec}\,\theta = 2$
Put $\theta = 90^\circ$
$\sin\theta + \text{cosec}\,\theta = 2 \Rightarrow 1+1 = 2$

$\Rightarrow 2 = 2$ condition satisfied
$sin^{153}\theta + cosec^{253}\theta = 1^{153} + 1^{253} = 2$

Sol 57. (b)
Given, $\cos x = \frac{-\sqrt{3}}{2}$
$cos^2 x = (\frac{-\sqrt{3}}{2})^2 = \frac{3}{4}$
And $sin^2 x = 1 - cos^2 x$
$= 1 - \frac{3}{4} = \frac{1}{4}$
Now,
$4\,cot^2 x - 3\,cosec^2 x \Rightarrow$
$4(\frac{cos^2 x}{sin^2 x}) - 3(\frac{1}{sin^2 x})$
$\Rightarrow 4(\frac{3/4}{1/4}) - 3(\frac{1}{1/4})$
$\Rightarrow 12 - 12 = 0$

Practice Questions

Sol 1. (a)
$12\,cot^2\theta - 31\,cosec\,\theta + 32 = 0$
$\Rightarrow$
$12(cosec^2\theta - 1) - 31\,cosec\,\theta + 32 = 0$
$\Rightarrow 12\,cosec^2\theta - 12$
$- 31\,cosec\,\theta + 32 = 0$
$\Rightarrow 12\,cosec^2\theta -$
$31\,cosec\,\theta + 20 = 0$
$\Rightarrow 12\,cosec^2\theta -$
$16\,cosec\,\theta - 15\,cosec\,\theta + 20 = 0$
$\Rightarrow 4\,cosec\,\theta ($
$3\,cosec\,\theta - 4) - 5(3\,cosec\,\theta - 4) = 0$
$\Rightarrow cosec\,\theta = \frac{4}{3}$ or $\frac{5}{4}$
We know that
$(cosec^2\theta - 1) = cot^2\theta$
$cot^2\theta = (\frac{4}{3})^2 - 1$ or $(\frac{5}{4})^2 - 1$
$\cot\theta = \frac{\sqrt{7}}{3}$ or $\frac{3}{4}$
$\tan\theta = \frac{1}{cot\theta} = \frac{3}{\sqrt{7}}$ or $\frac{4}{3}$
$= \frac{3\sqrt{7}}{7}$ or $\frac{4}{3}$

Sol 2. (a)
$(\frac{tan\theta - sec\theta + 1}{tan\theta + sec\theta - 1})sec\theta = \frac{1}{k}$
Put $\theta = 60$
$(\frac{\sqrt{3} - 2 + 1}{\sqrt{3} + 2 - 1})2 = \frac{1}{k}$
$k = \frac{\sqrt{3}+1}{2(\sqrt{3}-1)}$
$= \frac{\sqrt{3}+1}{2(\sqrt{3}-1)} \times \frac{\sqrt{3}+1}{(\sqrt{3}+1)}$
$= \frac{(\sqrt{3}+1)^2}{2[(\sqrt{3})^2 - (1)^2]}$
$= 1 + \frac{\sqrt{3}}{2}$
Going through options
$1 + \sin\theta \Rightarrow 1 + \sin 60$
$\Rightarrow 1 + \frac{\sqrt{3}}{2}$
Clearly option (a) is the correct answer.

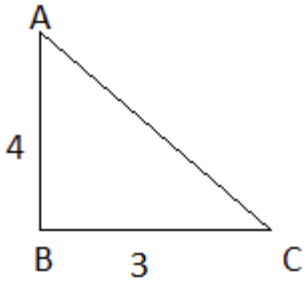
Sol 3. (d)
$\Rightarrow \frac{tan\theta}{1 - cot\theta} + \frac{cot\theta}{1 - tan\theta} = 1 + k$
$\Rightarrow \frac{tan\theta}{1 - \frac{1}{tan\theta}} + \frac{1}{(1 - tan\theta)tan\theta} = 1 + k$
$\Rightarrow \frac{tan^2\theta}{tan\theta - 1} - \frac{1}{(tan\theta - 1)tan\theta} = 1 + k$
$\Rightarrow \frac{tan^3\theta - 1}{tan\theta(tan\theta - 1)} = 1 + k$
$\Rightarrow \frac{(tan^2\theta + 1 + tan\theta)(tan\theta - 1)}{tan\theta(tan\theta - 1)} = 1 + k$
$\Rightarrow \frac{(tan^2\theta + 1 + tan\theta)}{tan\theta} = 1 + k$
$\Rightarrow \tan\theta + \cot\theta + 1 = 1 + k$
$\Rightarrow \tan\theta + \cot\theta = k$
$\Rightarrow \frac{Sin\theta}{Cos\theta} + \frac{Cos\theta}{Sin\theta} = k$
$\Rightarrow \frac{Sin^2\theta + Cos^2\theta}{Sin\theta . Cos\theta} = k$
$\Rightarrow \text{Cosec}\,\theta . \text{Sec}\,\theta = k$

Sol 4. (d)
Put $\theta = 60$
$2\,sin^2\theta = 3\cos\theta$
$\Rightarrow 2(\frac{\sqrt{3}}{2})^2 = 3 \times \frac{1}{2}$
$\Rightarrow \frac{3}{2} = \frac{3}{2}$
Clearly option D is the correct answer.

Sol 5. (a)
$sin^2 60^0 - cos^2 45^0 + sec 60^0 + cos^2 40^0 + cos^2 50^0$
$\Rightarrow (\frac{\sqrt{3}}{2})^2 - (\frac{1}{\sqrt{2}})^2 + 2 + 1 .....($
$cos^2\theta + cos^2\varphi = 1$, if $\theta + \varphi = 90)$
$\Rightarrow \frac{1}{4} + 3 = \frac{13}{4}$

Sol 6. (d)
$\frac{4\,sin\theta - cos\theta}{4\,sin\theta + cos\theta} \Rightarrow \frac{4\,tan\theta - 1}{4\,tan\theta + 1}$
$\Rightarrow \frac{4(\frac{3}{4}) - 1}{4(\frac{3}{4}) + 1} = \frac{1}{2}$

Sol 7. (d)



$\text{Cot}\,\theta = \frac{BC}{AB} = \frac{3}{4}$
$AB^2 + BC^2 = AC^2$
$AC = \sqrt{3^2 + 4^2} = 5$
$\text{Sin}\,\theta = \frac{4}{5}$, $\text{Cos}\,\theta = \frac{3}{5}$ and $\tan\theta = \frac{4}{3}$
$\sin\theta + cos\,\theta - tan\,\theta = \frac{4}{5} + \frac{3}{5} - \frac{4}{3}$
$= \frac{1}{15}$

Sol 8. (d)
$sec^2 28^0 - cot^2 62^0 + sin^2 60^0 + cosec^2 30^0$

Pinnacle

$\Rightarrow sec^2 28^0 - tan^2 28^0 + sin^2 60^0 + cosec^2 30^0$

$\Rightarrow 1 + \left(\frac{\sqrt{3}}{2}\right)^2 + (2)^2 = \frac{23}{4}$

Sol 9. (b)

Given, $\tan 4\theta = \cot(2\theta + 30°)$

Clearly $4\theta + 2\theta + 30 = 90°$

$6\theta = 60°$

$\theta = 10°$

Sol 10. (c)

$cot^2 62^0 - sec^2 28^0 + cosec^2 30^0 + tan^2 60^0$

$\Rightarrow$

$tan^2 28^0 - sec^2 28^0 + cosec^2 30^0 + tan^2 60^0$

$\Rightarrow -1 + 2^2 + (\sqrt{3})^2 = 6$

Sol 11. (a)

Given, $\text{Sin}\theta = \text{Cos}(50° + \theta)$

Clearly, $\theta + 50° + \theta = 90°$

$\theta = 20°$

Sol 12. (a)

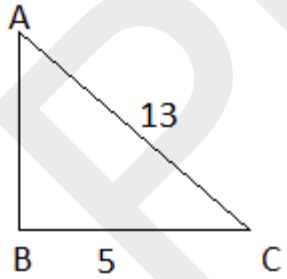
$sin^2 48^0 + sin^2 42^0 - sec^2 30^0 + tan^2 60^0$

$\Rightarrow 1 - \left(\frac{2}{\sqrt{3}}\right)^2 + (\sqrt{3})^2$

$\ldots\ldots\ldots\ldots (sin^2\theta + sin^2\varphi = 1$, if $\theta + \varphi = 90)$

$\Rightarrow 1 - \frac{4}{3} + 3 = \frac{8}{3}$

Sol 13. (a)



$\text{Sec}\,\theta = \frac{AC}{BC} = \frac{13}{5}$

$AB^2 + BC^2 = AC^2$

$AB = \sqrt{13^2 - 5^2} = 12$

$\text{Sin}\theta = \frac{12}{13}$, $\text{Cos}\theta = \frac{5}{13}$ and $\tan\theta = \frac{12}{5}$

$\tan\theta - \text{Sin}\theta + \text{Cos}\theta \Rightarrow \frac{12}{5} - \frac{12}{13} + \frac{5}{13} = \frac{121}{65}$

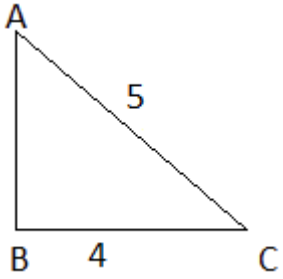
Sol 14. (a)

$5\theta + 50° - 3\theta = 90°$

$2\theta = 40°$

$\theta = 20°$

Sol 15. (b)



$\text{Cos}\,\theta = \frac{BC}{AC} = \frac{4}{5}$

$AB^2 + BC^2 = AC^2$

$AB = \sqrt{5^2 - 4^2} = 3$

$\text{Sin}\,\theta = \frac{3}{5}$

$sin^2\theta\, cos\theta + cos^2\theta\, sin\,\theta \Rightarrow$

$\left(\frac{3}{5}\right)^2 \times \frac{4}{5} + \left(\frac{4}{5}\right)^2 \times \frac{3}{5}$

$\Rightarrow \frac{48}{125} + \frac{36}{125} = \frac{84}{125}$

Sol 16. (b)

Given, $\tan 4\theta = \cot(40^0 - 2\theta)$

So, $4\theta + 40^0 - 2\theta = 90^0$

$2\theta = 50^0$

$\theta = 25^0$

Sol 17. (b)

$sin^2 20^0 + sin^2 70^0 - tan^2 45^0 + sec 60^0$

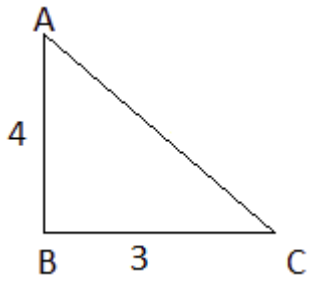
$\Rightarrow 1 - 1 + 2 = 2$

$\ldots\ldots (sin^2\theta + sin^2\varphi = 1,$ when $\theta + \varphi = 90^0)$

Sol 18. (c)

$3\sin\theta = 4\cos\theta$

$\Rightarrow \tan\theta = \frac{4}{3}$



$\tan\theta = \frac{AB}{BC} = \frac{4}{3}$

$AB^2 + BC^2 = AC^2$

$AC = \sqrt{4^2 + 3^2} = 5$

So, $\sin\theta = \frac{AB}{AC} = \frac{4}{5}$ and $\cos\theta = \frac{BC}{AC} = \frac{3}{5}$

$tan^2\theta + \sin\theta - \cos\theta \Rightarrow \left(\frac{4}{3}\right)^2 + \frac{4}{5} - \frac{3}{5} = \frac{89}{45}$

Sol 19. (d)

Given, $\text{cosec}3\theta = \sec(20^0 + 2\theta)$

So, $3\theta + 20^0 + 2\theta = 90^0$

$5\theta = 70^0$

$\theta = 14^0$

Sol 20. (b)

$sec^2 29^0 - cot^2 61^0 + sin^2 60^0 + cosec^2 30^0$

$\Rightarrow 1 + \left(\frac{\sqrt{3}}{2}\right)^2 + 2^2$

$\ldots\ldots\ldots (sec^2\theta - cot^2\varphi = 1,$ $\theta + \varphi = 90^0)$

$\Rightarrow 1 + \frac{3}{4} + 4 = \frac{23}{4}$

Sol 21. (c)

Given, $\text{Cosec}4\theta = \text{Sec}(60° - 2\theta)$

So, $4\theta + (60° - 2\theta) = 90°$

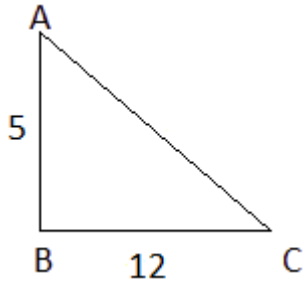
$2\theta = 30°$

$\theta = 15°$

Sol 22. (b)

$12\,\text{Sin}\,\theta = 5\,\text{Cos}\,\theta$

$\Rightarrow \tan\theta = \frac{5}{12}$



Pinnacle

$\tan\theta = \frac{AB}{BC} = \frac{5}{12}$

$AB^2 + BC^2 = AC^2$

$AC = \sqrt{5^2 + 12^2} = 13$

So, $\sin\theta = \frac{AB}{AC} = \frac{5}{13}$, $\cos\theta = \frac{BC}{AC} = \frac{12}{13}$ and $\cot\theta = \frac{BC}{AB} = \frac{12}{5}$

$\text{Sin}\,\theta + \text{Cos}\,\theta - \text{Cot}\,\theta = \frac{5}{13} + \frac{12}{13} - \frac{12}{5} = -\frac{71}{65}$

Sol 23. (d)

$\sin^2 42° + \sin^2 48° + \tan^2 60° - \text{cosec}30°$

$\Rightarrow 1 + (\sqrt{3})^2 - 2$

$\ldots\ldots(sin^2\theta + sin^2\varphi = 1,$ when $\theta + \varphi = 90^0$)

$= 2$

Sol 24. (b)

Given, $\sin 3\theta = \cos(20° - \theta)$

So, $3\theta + (20° - \theta) = 90°$

$2\theta = 70°$

$\theta = 35°$

Sol 25. (c)

Given, $3\sin\theta = 2\cos\theta$

$\tan\theta = \frac{2}{3}$

Dividing both numerator and denominator in question term by $\cos\theta$

$\frac{4sin\theta - cos\theta}{4cos\theta + sin\theta} \Rightarrow \frac{4tan\theta - 1}{4 + tan\theta}$

$\Rightarrow \frac{4(\frac{2}{3}) - 1}{4 + (\frac{2}{3})} = \frac{5}{14}$

Sol 26. (d)

$2\sin\theta = 5\cos\theta$

$\tan\theta = \frac{5}{2}$

Dividing both numerator and denominator in question term by $\cos\theta$ then,

$\frac{sin\theta + cos\theta}{sin\theta - cos\theta} \Rightarrow \frac{tan\theta + 1}{tan\theta - 1}$

$\Rightarrow \frac{\frac{5}{2} + 1}{\frac{5}{2} - 1} = \frac{7}{3}$

Sol 27. (c)

$\sin^2 32° + \sin^2 58° - \sin 30° + \sec^2 60°$

$\Rightarrow 1 - (\frac{1}{2}) + (2)^2$

$\ldots\ldots(sin^2\theta + sin^2\varphi = 1,$ when $\theta + \varphi = 90^0$)

$= 4.5$

Sol 28. (d)

Given, $\text{cosec}2\theta = \sec(3\theta - 15°)$

So, $2\theta + (3\theta - 15°) = 90°$

$5\theta = 105°$

$\theta = 21°$

Sol 29. (c)

Given, $\tan x = \cot(45° + 2x)$

Clearly,

$x + 45° + 2x = 90°$

$x = 15°$

CHSL

Sol 30. (b)

$2cos^2\theta - 5\text{Cos}\theta + 2 = 0$

$\Rightarrow 2cos^2\theta - 4\text{Cos}\theta - \text{Cos}\theta + 2 = 0$

$\Rightarrow 2cos\,\theta(\text{Cos}\theta - 2) - 1(\text{Cos}\theta - 2) = 0$

$\Rightarrow cos\,\theta = \frac{1}{2}$

$\theta = 60^\circ$

$\text{Cosec}\theta + \text{Cot}\theta \Rightarrow \text{Cosec}\,60^\circ + \text{Cot}\,60^\circ = \frac{2}{\sqrt{3}} + \frac{1}{\sqrt{3}} = \sqrt{3}$

Sol 31. (c)

$\frac{1}{sec\theta - tan\theta} - \frac{1}{cos\theta} = \text{Sec}\theta \times k$

$\Rightarrow \frac{sec\theta + tan\theta}{(sec\theta - tan\theta)(sec\theta + tan\theta)} - \text{Sec}\theta = \text{Sec}\theta \times k$

$\Rightarrow \frac{sec\theta + tan\theta}{sec^2\theta - tan^2\theta} - \text{Sec}\theta = \text{Sec}\theta \times k$

$\Rightarrow \text{Sec}\theta + \tan\theta - \text{Sec}\theta = \text{Sec}\theta \times k$

$\Rightarrow \tan\theta = \text{Sec}\theta \times k$

$\Rightarrow k = \sin\theta$

Sol 32. (c)

$[\frac{sin^2 25 + sin^2 65}{cos^2 24 + cos^2 66} + sin^2 71 + cos 71.\, Sin 19\,]$

$\Rightarrow \frac{1}{1} + sin^2 71 + cos 71.\, Sin(90 - 71)$

$\ldots..(sin^2\theta + sin^2\varphi = 1$ and $cos^2\theta + cos^2\varphi = 1$, if $\theta + \varphi = 90)$

$\Rightarrow \frac{1}{1} + sin^2 71 + cos^2 71$

$\Rightarrow 2$

Sol 33.(c)

Given, $3\text{Sin}\theta = 2\,cos^2\theta$

Put $\theta = 30^\circ$

$3\text{Sin}\theta = 2\,cos^2\theta \Rightarrow 3 \times \frac{1}{2} = 2 \times (\frac{\sqrt{3}}{2})^2$

$\Rightarrow \frac{3}{2} = \frac{3}{2}$

Condition satisfied.

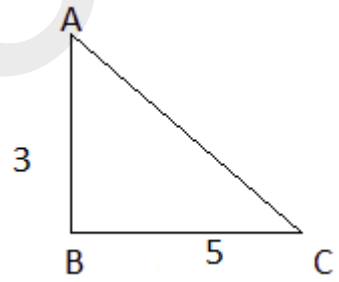
$(\tan\theta + \text{Cos}\theta + \text{Sin}\theta) \Rightarrow \tan 30 + \text{Cos}30 + \text{Sin}30$

$\Rightarrow \frac{1}{\sqrt{3}} + \frac{\sqrt{3}}{2} + \frac{1}{2} = \frac{2 + 3 + \sqrt{3}}{2\sqrt{3}}$

$\Rightarrow \frac{5\sqrt{3} + 3}{6}$

Sol 34. (d)

Given, $\tan\theta = \frac{3}{5}$



$\tan\theta = \frac{AB}{BC} = \frac{3}{5}$

$AB^2 + BC^2 = AC^2$

$AC = \sqrt{3^2 + 5^2} = \sqrt{34}$

So, $\text{Sin}\,\theta = \frac{AB}{AC} = \frac{3}{\sqrt{34}}$ and $\cos\theta = \frac{BC}{AC} = \frac{5}{\sqrt{34}}$

$\sin\theta\cos\theta = \frac{3}{\sqrt{34}} \times \frac{5}{\sqrt{34}} = \frac{15}{\sqrt{34}}$

Sol 35. (a)

$\frac{1}{1 - sin\theta} + \frac{1}{1 + sin\theta} = 4\text{Sec}\theta$

$\Rightarrow \frac{1 + sin\theta + 1 - sin\theta}{(1 - sin\theta)(1 + sin\theta)} = 4\text{Sec}\theta$

$\Rightarrow \frac{2}{1 - sin^2\theta} = 4\text{Sec}\theta$

$\Rightarrow \frac{2}{cos^2\theta} = 4\text{Sec}\theta$

$\Rightarrow \text{Sec}\,\theta = 2$

Clearly $\theta = 60^\circ$

$3\text{Cot}\theta + \text{Cosec}\theta \Rightarrow 3(\frac{1}{\sqrt{3}}) + \frac{2}{\sqrt{3}}$

$\Rightarrow \frac{5}{\sqrt{3}} = \frac{5\sqrt{3}}{3}$

Pinnacle

Sol 36. (d)

$$\frac{4\tan^2 30 + \frac{1}{4}\sin^2 90 + \frac{1}{8}\cot^2 60 + \sin^2 30.\cos^2 45}{\sin 60.\cos 30 - \cos 60.\sin 30}$$

$$\Rightarrow \frac{4(\frac{1}{\sqrt{3}})^2 + \frac{1}{4}(1) + \frac{1}{8}(\frac{1}{\sqrt{3}})^2 + (\frac{1}{2})^2.(\frac{1}{\sqrt{2}})^2}{\frac{\sqrt{3}}{2}\times\frac{\sqrt{3}}{2} - \frac{1}{2}\times\frac{1}{2}}$$

$$\Rightarrow \frac{\frac{4}{3}+\frac{1}{4}+\frac{1}{24}+\frac{1}{8}}{\frac{3}{4}-\frac{1}{4}}$$

$$\Rightarrow \frac{\frac{42}{24}}{\frac{1}{2}} = 3\frac{1}{2}$$

Sol 37.(c)

$$(\frac{1}{1+\text{cosec}\theta} - \frac{1}{1-\text{cosec}\theta})\cos\theta = 2$$

$$\Rightarrow \frac{1-\text{cosec}\theta-1-\text{cosec}\theta}{(1+\text{cosec}\theta)(1-\text{cosec}\theta)} \times \cos\theta = 2$$

$$\Rightarrow \frac{-2\text{cosec}\theta}{-\cot^2\theta} \times \cos\theta = 2$$

$$\Rightarrow \frac{1}{\cot^2\theta\times\sin\theta} \times \cos\theta = 1$$

$$\Rightarrow \cot\theta = 1$$

Clearly $\theta = 45^\circ$

$$\sin^2\theta + \cot^2\theta + \sec^2\theta \Rightarrow$$

$$(\frac{1}{\sqrt{2}})^2 + (1)^2 + (\sqrt{2})^2 = 3\frac{1}{2}$$

Sol 38. (b)

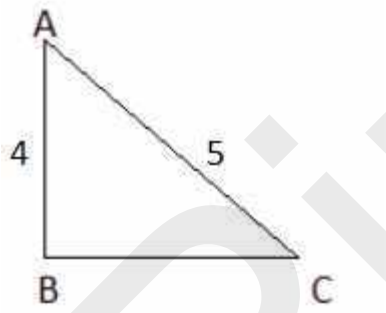
Given, tanx = cot (60+6x)

$\Rightarrow$ x+60+6x = 90

$\Rightarrow$ x = $\frac{30}{7}$

Sol 39. (d)

cosec $\theta = \frac{125}{100} = \frac{5}{4}$



$$\text{cosec}\theta = \frac{AC}{AB} = \frac{125}{100} = \frac{5}{4}$$

$$AB^2 + BC^2 = AC^2$$

BC = $\sqrt{5^2 - 4^2} = 3$

$\sin\theta = \frac{4}{5}$, $\tan\theta = \frac{4}{3}$, $\cos\theta = \frac{3}{5}$

and $\cot\theta = \frac{3}{4}$

$$\frac{4\tan\theta - 5\cos\theta}{\sec\theta + 4\cot\theta} \Rightarrow \frac{4(\frac{4}{3})-5(\frac{3}{5})}{\frac{5}{3}+4(\frac{3}{4})}$$

$$\Rightarrow \frac{\frac{16}{3}-3}{\frac{5}{3}+3} = \frac{1}{2}$$

Sol 40. (c)

Given, $2\cos^2\theta = 3\sin\theta$

let $\theta = 30^\circ$

$$2\cos^2\theta = 3\sin\theta \Rightarrow 2(\frac{\sqrt{3}}{2})^2 = 3\times\frac{1}{2}$$

$\Rightarrow \frac{3}{2} = \frac{3}{2}$ condition satisfied

$$(\text{cosec}^2\theta - \cot^2\theta + \cos^2\theta) \Rightarrow$$

$$(\text{cosec}^2 30 - \cot^2 30 + \cos^2 30)$$

$$\Rightarrow 2^2 - (\sqrt{3})^2 + (\frac{\sqrt{3}}{2})^2 = \frac{7}{4} = 1\frac{3}{4}$$

Sol 41. (d)

$$\frac{\sec\theta(1-\sin\theta)(\sec\theta+\tan\theta)}{(\sec\theta-\tan\theta)^2} = \frac{1+k}{1-k}$$

$$\Rightarrow \frac{(\sec\theta-\sec\theta.\sin\theta)(\sec\theta+\tan\theta)}{(\sec\theta-\tan\theta)^2} = \frac{1+k}{1-k}$$

$$\Rightarrow \frac{(\sec\theta-\tan\theta)(\sec\theta+\tan\theta)}{(\sec\theta-\tan\theta)^2} = \frac{1+k}{1-k}$$

$$\Rightarrow \frac{\sec^2\theta-\tan^2\theta}{(\sec\theta-\tan\theta)^2} = \frac{1+k}{1-k}$$

$$\Rightarrow \frac{1}{(\sec\theta-\tan\theta)^2} = \frac{1+k}{1-k}$$

$$\Rightarrow \frac{1}{(\frac{1}{\cos\theta}-\frac{\sin\theta}{\cos\theta})^2} = \frac{1+k}{1-k}$$

$$\Rightarrow \frac{\cos^2\theta}{(1-\sin\theta)^2} = \frac{1+k}{1-k}$$

$$\Rightarrow \frac{1-\sin^2\theta}{(1-\sin\theta)^2} = \frac{1+k}{1-k}$$

$$\Rightarrow \frac{(1-\sin\theta)(1+\sin\theta)}{(1-\sin\theta)^2} = \frac{1+k}{1-k}$$

$$\Rightarrow \frac{1+\sin\theta}{1-\sin\theta} = \frac{1+k}{1-k}$$

Clearly k = $\sin\theta$

Sol 42. (a)

Put p=1

$$\cos\theta = \frac{2(1)}{1^2+1} = 1$$

For $\cos\theta = 1$, $\sin\theta = 0$

Going through options

$$\frac{p^2-1}{p^2+1} \Rightarrow \frac{1^2-1}{1^2+1} = 0$$

Condition satisfied clearly option a is the right answer.

Sol 43.(a)

Given, tanx = cot(65+9x)

$\Rightarrow$ x+65+9x = 90

$\Rightarrow$ x = $\frac{25}{10}$ = 2.5°

Sol 44. (b)

Put p=1

$$\cos\theta = \frac{2(1)}{1^2+1} = 1$$

For $\cos\theta = 1$, $\tan\theta = 0$

Going through options

$$\frac{p^2-1}{2p} \Rightarrow \frac{1^2-1}{2(1)} = 0$$

Condition satisfied, Clearly option b is the correct answer.

Sol 45. (d)

$$2\sin^2\theta + 5\cos\theta - 4 = 0$$

$$\Rightarrow 2(1-\cos^2\theta) + 5\cos\theta - 4 = 0$$

$$\Rightarrow 2\cos^2\theta - 5\cos\theta + 2 = 0$$

$$\Rightarrow 2\cos^2\theta - 4\cos\theta - \cos\theta + 2 = 0$$

$$\Rightarrow 2\cos\theta(\cos\theta - 2) - 1(\cos\theta - 2) = 0$$

$\Rightarrow \cos\theta = \frac{1}{2}$

So, $\theta = 60^\circ$

$\tan\theta + \sin\theta \Rightarrow \tan 60 + \sin 60$

$\Rightarrow \sqrt{3} + \frac{\sqrt{3}}{2} = \frac{3\sqrt{3}}{2}$

Sol 46. (d)

Put p=2

$$\cos\theta = \frac{2(2)}{2^2+1} = \frac{4}{5}$$

For $\cos\theta = \frac{4}{5}$, $\text{cosec}\theta = \frac{5}{3}$

Going through options

$$\frac{p^2+1}{p^2-1} \Rightarrow \frac{2^2+1}{2^2-1} = \frac{5}{3}$$

Condition satisfied clearly option d is the correct answer.

Sol 47. (b)

$$2\sin^2\theta + 5\cos\theta - 4 = 0$$

$$\Rightarrow 2(1-\cos^2\theta) + 5\cos\theta - 4 = 0$$

$$\Rightarrow 2\cos^2\theta - 5\cos\theta + 2 = 0$$

$$\Rightarrow 2\cos^2\theta - 4\cos\theta - \cos\theta + 2 = 0$$

$$\Rightarrow 2\cos\theta(\cos\theta - 2) - 1(\cos\theta - 2) = 0$$

$\Rightarrow \cos\theta = \frac{1}{2}$

So, $\theta = 60^\circ$

$$\cot\theta + \text{cosec}\theta \Rightarrow \frac{1}{\sqrt{3}} + \frac{2}{\sqrt{3}} = \sqrt{3}$$

Sol 48. (c)

$$12\cot^2\theta - 31\text{cosec}\theta + 32 = 0$$

$$\Rightarrow 12(\text{cosec}^2\theta - 1) - 31\text{cosec}\theta + 32 = 0$$

$$\Rightarrow 12\,\text{cosec}^2\theta - 31\text{cosec}\theta + 20 = 0$$

$$\Rightarrow 12\,\text{cosec}^2\theta - 16\text{cosec}\theta - 15\text{cosec}\theta + 20 = 0$$

$$\Rightarrow 4\,\text{cosec}\,\theta(3\text{cosec}\theta - 4) - 5(3\text{cosec}\theta - 4) = 0$$

$\Rightarrow \text{cosec}\,\theta = \frac{4}{3}$ or $\frac{5}{4}$

$\sin\theta = \frac{1}{\text{cosec}\theta} = \frac{3}{4}$ or $\frac{4}{5}$

Pinnacle

Sol 49. (a)

$\cos x = \frac{-1}{2}$

Clearly, x=240

$4\tan^2 x + 3\operatorname{cosec}^2 x \Rightarrow 4$

$(\sqrt{3})^2 + 3(\frac{-2}{\sqrt{3}})^2 = 16$

Sol 50. (c)

$6(\sec^2 59 - \cot^2 31) + \frac{2}{3}\sin 90 - 3\tan^2 56 \text{ y } \tan^2 34 = \frac{y}{3}$

$\Rightarrow 6(1) + \frac{2}{3}(1) - 3y(1)^2 = \frac{y}{3}$

$\Rightarrow \frac{20}{3} - 3y = \frac{y}{3}$

$\Rightarrow \frac{20}{3} = \frac{y}{3} + 3y$

$\Rightarrow \frac{20}{3} = \frac{10y}{3}$

$\Rightarrow y = 2$

Sol 51. (a)

$6(\sec^2 59 - \cot^2 31) - \frac{2}{3}\sin 90 - 3\tan^2 56 \text{ y } \tan^2 34 = \frac{y}{3}$

$\Rightarrow 6(1) - \frac{2}{3}(1) - 3y(1)^2 = \frac{y}{3}$

$\Rightarrow \frac{16}{3} - 3y = \frac{y}{3}$

$\Rightarrow \frac{16}{3} = \frac{y}{3} + 3y$

$\Rightarrow \frac{16}{3} = \frac{10y}{3}$

$\Rightarrow y = \frac{8}{5}$

Sol 52.(c)

Given, $\sec\theta = 3x$ and $\tan\theta = \frac{3}{x}$

Squaring both sides

$\sec^2\theta = 9x^2$ ……..(1) and $\tan^2\theta = \frac{9}{x^2}$ ……(2)

Subtracting 2 from 1

$\Rightarrow \sec^2\theta - \tan^2\theta = 9x^2 - \frac{9}{x^2}$

$\Rightarrow 1 = 9(x^2 - \frac{1}{x^2})$

Sol 53. (b)

$\cos x = \frac{-1}{2}$

Clearly x=240

$2\tan^2 x + 3\operatorname{cosec}^2 x \Rightarrow 2$

$(\sqrt{3})^2 + 3(\frac{-2}{\sqrt{3}})^2 = 10$

Sol 54. (a)

$\cos x = \frac{-1}{2}$

Clearly x=240

$2\tan^2 x - 3\operatorname{cosec}^2 x \Rightarrow 2$

$(\sqrt{3})^2 - 3(\frac{-2}{\sqrt{3}})^2 = 2$

Sol 55. (a)

$2(\operatorname{cosec}^2 39 - \tan^2 51) - \frac{2}{3}\sin 90 - \tan^2 56 \text{ y } \tan^2 34 = \frac{y}{3}$

$\Rightarrow 2[\operatorname{cosec}^2 39 - \tan^2(90 - 39)] - \frac{2}{3}(1) - y(\tan 56 \tan 34)^2 = \frac{y}{3}$

$\Rightarrow 2[\operatorname{cosec}^2 39 - \cot^2 39] - \frac{2}{3} - y(1)^2 = \frac{y}{3}$

$\Rightarrow 2[1] - \frac{2}{3} - y = \frac{y}{3}$

$\Rightarrow \frac{4}{3} = \frac{y}{3} + y$

$\Rightarrow \frac{4}{3} = \frac{4y}{3}$

$\Rightarrow y=1$

Sol 56. (a)

Given, $\operatorname{cosec}\theta = 3x$ and $\cot\theta = \frac{3}{x}$

Squaring both sides

$\operatorname{cosec}^2\theta = 9x^2$ ……(1) and

$\cot^2\theta = \frac{9}{x^2}$ …..(2)

Subtracting 2 from 1

$\Rightarrow \operatorname{cosec}^2\theta - \cot^2\theta = 9x^2 - \frac{9}{x^2}$

$\Rightarrow 1 = 9(x^2 - \frac{1}{x^2})$

Multiplying both sides by $\frac{2}{3}$

$\Rightarrow \frac{2}{3} = 9 \times \frac{2}{3}(x^2 - \frac{1}{x^2})$

$\Rightarrow \frac{2}{3} = 6(x^2 - \frac{1}{x^2})$

Sol 57. (c)

Given, $\sin\theta = 3x$ and $\cos\theta = \frac{3}{x}$

Squaring both sides

$\sin^2\theta = 9x^2$ ……(1) and

$\cos^2\theta = \frac{9}{x^2}$ …..(2)

Adding 2 from 1

$\Rightarrow \sin^2\theta + \cos^2\theta = 9x^2 + \frac{9}{x^2}$

$\Rightarrow 1 = 9(x^2 + \frac{1}{x^2})$

Multiplying both sides by $\frac{2}{3}$

$\Rightarrow \frac{2}{3} = 9 \times \frac{2}{3}(x^2 + \frac{1}{x^2})$

$\Rightarrow \frac{2}{3} = 6(x^2 + \frac{1}{x^2})$

Sol 58. (a)

$\cos x = \frac{-\sqrt{3}}{2}$

Clearly x=210

$2\cot^2 x - 3\sec^2 x \Rightarrow 2$

$(\sqrt{3})^2 + 3(\frac{-2}{\sqrt{3}})^2 = 10$

Sol 59. (b)

$4(\operatorname{cosec}^2 66 - \tan^2 24) + \frac{1}{2}\sin 90 - 4\tan^2 66 \text{ y } \tan^2 24 = \frac{y}{2}$

$\Rightarrow 4[\operatorname{cosec}^2 66 - \tan^2(90 - 66)] + \frac{1}{2}(1) - 4y(\tan 66.\tan 24)^2 = \frac{y}{2}$

$\Rightarrow 4(1) + \frac{1}{2}(1) - 4y = \frac{y}{2}$

$\Rightarrow \frac{9}{2} = \frac{y}{2} + 4y$

$\Rightarrow \frac{9}{2} = \frac{9y}{2}$

$\Rightarrow y=1$

Sol 60.(d)

Given, $\cos x = \frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$

Clearly x = 210

$2\cot^2 x - 3\sec^2 x \Rightarrow 2(-\sqrt{3})^2 - 3(-\frac{2}{\sqrt{3}})^2$

$\Rightarrow 6 - 4 = 2$

Sol 61. (c)

Given, $\cot\theta = 5x$ and $\operatorname{cosec}\theta = \frac{5}{x}$

Squaring both sides

$\cot^2\theta = 25x^2$ ……..(1) and

$\operatorname{cosec}^2\theta = \frac{25}{x^2}$ …….(2)

Subtracting equations 2 from 1

$\cot^2\theta - \operatorname{cosec}^2\theta = 25x^2 - \frac{25}{x^2}$

$\Rightarrow -1 = 25(x^2 - \frac{1}{x^2})$

Multiplying both sides by $\frac{1}{5}$

$\Rightarrow -1 \times \frac{1}{5} = 25 \times \frac{1}{5}(x^2 - \frac{1}{x^2})$

$\Rightarrow 5(x^2 - \frac{1}{x^2}) = -\frac{1}{5}$

Sol 62. (b)

$4(\operatorname{cosec}^2 65 - \tan^2 25) - \sin 90 - \tan^2 63 \text{ y } \tan^2 27 = \frac{y}{2}$

$\Rightarrow 4[\operatorname{cosec}^2 65 - \tan^2(90 - 65)] - 1 - y(\tan 63.\tan 27)^2 = \frac{y}{2}$

$\Rightarrow 4[\operatorname{cosec}^2 65 - \cot^2 65] - 1 - y(1)^2 = \frac{y}{2}$

$\Rightarrow 3 - y = \frac{y}{2}$

$\Rightarrow 3 = y + \frac{y}{2}$

$\Rightarrow y=2$

Pinnacle

Sol 63. (d)

Given, cosx = $\frac{-\sqrt{3}}{2}$ and $\pi < x < \frac{3\pi}{2}$

Clearly, x=210

$2\,cot^2x + 3\,cosec^2x \Rightarrow 2\,cot^2210 + 3\,cosec^2210$

$\Rightarrow 2(\sqrt{3})^2 + 3(-2)^2 = 18$

Sol 64.(b)

$7(cosec^2 55 - tan^2 35) + 2\sin 90 - tan^2 52 \text{ y } tan^2 38 = \frac{y}{2}$

$\Rightarrow 7[cosec^2 55 - tan^2(90 - 55)] + 2(1) - y(tan 52.\, tan 38)^2 = \frac{y}{2}$

$\Rightarrow 7[cosec^2 55 - cot^2 55] + 2 - y(1)^2 = \frac{y}{2}$

$\Rightarrow 7(1) + 2 - y = \frac{y}{2}$

$\Rightarrow 9 = \frac{y}{2} + y$

$\Rightarrow y = 6$

Sol 65.(d)

$\cos\theta = 4x$ and $\sin\theta = \frac{4}{x}$

Squaring both sides

$cos^2\theta = 16x^2$ ……(1) and

$sin^2\theta = \frac{16}{x^2}$ …….(2)

Adding both 1 and 2

$\Rightarrow cos^2\theta + sin^2\theta = 16x^2 + \frac{16}{x^2}$

$\Rightarrow 1 = 16(x^2 + \frac{1}{x^2})$

$\Rightarrow \frac{1}{16} = (x^2 + \frac{1}{x^2})$

Sol 66. (a)

$7(cosec^2 57 - tan^2 33) + 2\sin 90 - tan^2 52 \text{ y } tan^2 38 = \frac{y}{2}$

$\Rightarrow 7[cosec^2 57 - tan^2(90 - 57)] + 2(1) - y(tan 52.\, tan 38)^2 = \frac{y}{2}$

$\Rightarrow 7[cosec^2 57 - cot^2 57] + 2 - y(1)^2 = \frac{y}{2}$

$\Rightarrow 7(1) + 2 - 4y = \frac{y}{2}$

$\Rightarrow 9 = \frac{9y}{2}$

$\Rightarrow y = 2$

Sol 67. (a)

Given, $\sec\theta = 8x$ and $\tan\theta = \frac{8}{x}$

Squaring both sides

$sec^2\theta = 64x^2$ ……(1) and

$tan^2\theta = \frac{64}{x^2}$ …….(2)

Subtracting 2 from 1

$\Rightarrow sec^2\theta - tan^2\theta = 64x^2 - \frac{64}{x^2}$

$\Rightarrow 1 = 64(x^2 - \frac{1}{x^2})$

Multiplying both sides by $\frac{1}{4}$

$\Rightarrow 1 \times \frac{1}{4} = 64 \times \frac{1}{4}(x^2 - \frac{1}{x^2})$

$\Rightarrow \frac{1}{4} = 16(x^2 - \frac{1}{x^2})$

Sol 68. (d)

Given, $5\sin\theta + 12\cos\theta = 13$

Trick :

Here, 5,12 and 13 are triplets. In such questions coefficient of $\sin\theta$ will be perpendicular and coefficient of $\cos\theta$ will be base and the coefficient on the right side of sign "=" will be hypotenuse.

$\Rightarrow \tan\theta = \frac{perpendicular}{base} = \frac{5}{12}$

Sol 69. (c)

Values of $\cos\theta$, $\cot\theta$ and $\text{cosec}\,\theta$ continuously decreases.

Only value of $\tan\theta$ continuously increases.

Sol 70. (b)

Given, $3(cosec^2\theta + cot^2\theta) = 5$

$\Rightarrow 3(cosec^2\theta + cot^2\theta) = 5(cosec^2\theta - cot^2\theta)$

$\Rightarrow 8\,cot^2\theta = 2\,cosec^2\theta$

$\Rightarrow \cos\theta = \frac{1}{2}$

Clearly $\theta = 60^\circ$

Sol 71. (a)

Given, $4(2\,sin^2\theta + 7cos^2\theta) = 13$

$\Rightarrow 4(2\,sin^2\theta + 7cos^2\theta) = 13(sin^2\theta + cos^2\theta)$

$\Rightarrow 8\,sin^2\theta + 28cos^2\theta = 13\,sin^2\theta + 13cos^2\theta$

$\Rightarrow 5\,sin^2\theta = 15cos^2\theta$

$\Rightarrow tan^2\theta = 3$

$\Rightarrow \tan\theta = \sqrt{3}$

Sol 72. (d)

$\frac{sin^3 21 + cos^3 19}{sin\,21 + cos 19} + sin^2 69 + cos^2 71 + \frac{1}{sec 69.\, cosec 71}$

$\Rightarrow \frac{(sin 21 + cos 19)(sin^2 21 + cos^2 19 - sin 21.cos 19)}{(sin\,21 + cos 19)} + sin^2 69 + cos^2 71 + \cos 69.\,\text{Sin}71$

$\Rightarrow sin^2 21 + cos^2 19 - \cos 19.\,\text{Sin}21 + sin^2(90 - 21) + cos^2(90 - 19) + \cos(90 - 21).\,\text{Sin}(90 - 19)$

$\Rightarrow sin^2 21 + cos^2 19 - \cos 19.\,\text{Sin}21 + cos^2 21 + sin^2 19 + \sin 21.\,\text{Cos}19$

$\Rightarrow 1 + 1 = 2$

Sol 73.(a)

$sec^2\theta + 4\,tan^2\theta = 6$

$\Rightarrow sec^2\theta + 4\,tan^2\theta = 6(sec^2\theta - tan^2\theta)$

$\Rightarrow sec^2\theta + 4\,tan^2\theta = 6\,sec^2\theta - 6tan^2\theta)$

$\Rightarrow 5sec^2\theta = 10\,tan^2\theta$

$\Rightarrow 5 \times \frac{1}{cos^2\theta} = 10 \times \frac{sin^2\theta}{cos^2\theta}$

$\Rightarrow \sin\theta = \frac{1}{\sqrt{2}}$

Clearly $\theta = 45^\circ$

Alternate :

$sec^2\theta + 4\,tan^2\theta = 6$

Put $\theta = 45$

$sec^2\theta + 4\,tan^2\theta \Rightarrow sec^2 45 + 4\,tan^2 45$

$\Rightarrow (\sqrt{2})^2 + 4(1)^2 = 6$ condition satisfied

Clearly $\theta = 45^\circ$

Sol 74. (d)

$\sqrt{\frac{1-sinx}{1+sinx}} = \text{a-tanx}$

$\Rightarrow \sqrt{\frac{1-sinx}{1+sinx} \times \frac{1-sinx}{1-sinx}} = \text{a-tanx}$

$\Rightarrow \sqrt{\frac{(1-sinx)^2}{1-sin^2 x}} = \text{a-tanx}$

$\Rightarrow \frac{(1-sinx)}{cos\,x} = \text{a-tanx}$

$\Rightarrow \text{secx-tanx} = \text{a-tanx}$

Clearly a = secx

Sol 75.(a)

$cosec^2 30 + sin^2 45 + sec^2 60 + tan^2 30$

$\Rightarrow 2^2 + (\frac{1}{\sqrt{2}})^2 + 2^2 + (\frac{1}{3})^2$

$\Rightarrow 8 + \frac{1}{2} + \frac{1}{3} = \frac{53}{6}$

Sol 76.(a)

Given, $\sqrt{3}\cos\theta + \sin\theta = 1$

Put $\theta = 90^\circ$

$\Rightarrow \sqrt{3}\cos 90^\circ + \sin 90^\circ = 1$

$\Rightarrow \sqrt{3}(0) + 1 = 1$

$\Rightarrow 1 = 1$ condition satisfied.

Clearly option A is right answer.

Sol 77. (c)

There are total 20 terms and value of $\cos\theta$ can't be greater than 1. Clearly for the sum of 20 terms being 20 value of each term must be 1. So each angle must be 0°.

$\Rightarrow (\alpha_1 + \alpha_2 + \alpha_3 .... \alpha_{20}) = 0^\circ \times 20 = 0$

Sol 78. (c)

Given, $\tan\theta + \cot\theta = 2$

Put $\theta = 45$

$\tan\theta + \cot\theta \Rightarrow \tan 45 + \cot 45$

$\Rightarrow 1 + 1 = 2$

Condition satisfied clearly $\theta = 45$ is the right answer.

Sol 79. (a)

$\frac{sin^2 31^\circ + sin^2 59^\circ}{sec^2 35^\circ - cot^2 55^\circ} + tan\ 29^\circ . cot\ 61^\circ - cosec^2 61^\circ$

$\Rightarrow \frac{1}{1} + tan(90^\circ - 61^\circ) . cot\ 61^\circ - cosec^2 61^\circ$

…….(

$sin^2\theta + sin^2\varphi = 1$ and

$sec^2\theta - cot^2\varphi = 1$, if

$\theta + \varphi = 90$)

$\Rightarrow \frac{1}{1} + cot^2 61^\circ - cosec^2 61^\circ$

$\Rightarrow 1 - 1 = 0$

Sol 80.(d)

$sin^2 36^\circ + tan^2 60^\circ + sec^2 30^\circ + sin^2 54^\circ$

$\Rightarrow sin^2 36^\circ + sin^2 54^\circ + (\sqrt{3})^2 + (\frac{2}{\sqrt{3}})^2$

$\Rightarrow 1 + 3 + \frac{4}{3} = \frac{16}{3}$

Sol 81. (b)

$2\ sin^2\theta + 3\sin\theta - 2 = 0$

$\Rightarrow 2\ sin^2\theta + 4\sin\theta - \sin\theta - 2 = 0$

$\Rightarrow 2\ sin\ \theta(\sin\theta + 2) - 1(\sin\theta + 2) = 0$

$\Rightarrow sin\ \theta = \frac{1}{2}$

Clearly $\theta = 30^\circ$

CPO

Sol 82(d)

$5\ cos\theta - 12\ sin\theta = 0$

$tan\theta = \frac{5}{12} = \frac{perpendicular}{base}$

Hypotenuse $= \sqrt{5^2 + 12^2} = 13$

$\Rightarrow sin\theta = \frac{5}{13}$ and $cos\theta = \frac{12}{13}$

Put the values in question term

$\frac{2sin\theta + cos\theta}{cos\theta - sin\theta} = \frac{2(\frac{5}{13}) + \frac{12}{13}}{\frac{12}{13} - \frac{5}{13}} = 3\frac{1}{7}$

Sol 83. (b)

$sin\ 18^0 - cos\ 72^0 \Rightarrow$

$sin\ (90 - 72)^0 - cos\ 72^0 \Rightarrow$

$cos\ 72^0 - cos\ 72^0 = 0$

Sol 84. (a)

$\frac{sin\ 30^0 - cos\ 60^0 + cot^2 45^0}{cos\ 30^0 - tan\ 45^0 + sin\ 90^0} = \frac{\frac{1}{2} - \frac{1}{2} + (1)^2}{\frac{\sqrt{3}}{2} - 1 + 1} = \frac{2}{\sqrt{3}}$

Sol 85. (b)

$\tan 3x = \cot(30^0 + 2x)$

$3x = 90^\circ - (30^0 + 2x)$

$3x = 60^0 - 2x$

$x = 12^0$

Sol 86. (c)

$\sec 2x = \operatorname{cosec}(3x - 45^\circ)$

$\Rightarrow \sec 2x = \sec(90^\circ - 3x + 45^\circ)$

$\Rightarrow 2x = -3x + 135^\circ$

$\Rightarrow 5x = 135^\circ$

Therefore, $x = 27^\circ$

Sol 87. (a)

$\frac{sin^2 60^\circ + cos^2 30^\circ - sec\ 35^\circ . sin\ 55^\circ}{sec\ 60^\circ + cosec\ 30^\circ} = \frac{\frac{3}{4} + \frac{3}{4} - 1}{2 + 2} = \frac{\frac{6}{4} - 1}{4} = \frac{1}{8}$

Sol 88. (b)

$tan\ x = tan\{90^\circ - (45^\circ + 2x)\}$

$\Rightarrow x = 90^\circ - 45^\circ - 2x$

$\Rightarrow 3x = 45^\circ \quad \therefore x = 15^\circ$

Sol 89. (a) $[\frac{sin^2 24^\circ + sin^2 66^\circ}{cos^2 24^\circ + cos^2 66^\circ} + sin^2 61^\circ + cos\ 61^\circ\ sin\ 29^\circ]$

$= [\frac{sin^2 24^\circ + cos^2 24^\circ}{sin^2 66^\circ + cos^2 66^\circ} + sin^2 61^\circ + cos^2 61^\circ]$

$= [1 + 1] = 2$

Sol 90. (b)

$sin^2 30^\circ . cos^2 45^\circ + 2 . tan^2 30^\circ - sec^2 60^\circ$

$= \frac{1}{4} \times \frac{1}{2} + 2 \times \frac{1}{3} - 4$

$= \frac{3 + 16 - 96}{24} = -\frac{77}{24}$

Sol 91. (d)

$\cos\theta = \frac{1}{\sqrt{10}} = \frac{B}{H}$

$\Rightarrow P = 3$

Therefore, $\tan\theta = \frac{3}{1} = 3$

Sol 92. (a) $2.sin3\theta = 1$

$\Rightarrow sin3\theta = \frac{1}{2}$

$\Rightarrow 3\theta = 30^\circ$

Therefore, $\theta = 10^\circ$

Sol 93. (c)

$\frac{4}{3}\ tan^2\ 60^0 + 3\ cos^2\ 30^0 - 2\ sec^2\ 30^0 - \frac{3}{4}\ cot^2\ 60^0$

$\Rightarrow \frac{4}{3}(\sqrt{3})^2 + 3(\frac{\sqrt{3}}{2})^2 - 2(\frac{2}{\sqrt{3}})^2 - \frac{3}{4}(\frac{1}{\sqrt{3}})^2$

$= 4 + \frac{9}{4} - \frac{8}{3} - \frac{1}{4}$

$= \frac{48 + 27 - 32 - 3}{12} = \frac{10}{3}$

Sol 94. (c)

$4\ sin^2\ 30^0 + 3\ cot^2\ 60^0 \Rightarrow 4(\frac{1}{2})^2 + 3(\frac{1}{\sqrt{3}})^2 = 2$

Sol 95. (c)

$\cos^2 45° + \sin^2 30° - \sin^2 60° \Rightarrow \frac{1}{2} + \frac{1}{4} - \frac{3}{4} = 0$

Sol 96. (b)

$cot^2 A - \frac{1}{\sin^2 A} \Rightarrow cot^2 A - cosec^2 A = -(cosec^2 A - cot^2 A) = -1$

Sol 97. (a)

$(1 + cot^2\theta)(1 - cos^2\theta) = cosec^2\theta . sin^2\theta = 1$

Sol 98. (a) $4\tan\theta = 3$

$\Rightarrow tan\theta = \frac{3}{4}$

Therefore, $\frac{5\sin\theta - 3\cos\theta}{5\sin\theta + 3\cos\theta} = \frac{5\tan\theta - 3}{5\tan\theta + 3} = \frac{5\times\frac{3}{4} - 3}{5\times\frac{3}{4} + 3} = \frac{1}{9}$

Sol 99. (c) $\frac{cosec\ 31^0}{sec\ 59^0} = 1$

Sol 100. (a)

Given, $\sin\theta = \frac{p^2-1}{p^2+1}$

$\Rightarrow cos\theta = \sqrt{1 - sin^2\theta}$

$\Rightarrow cos\theta = \sqrt{1 - \left(\frac{p^2-1}{p^2+1}\right)^2}$

$\Rightarrow cos\theta = \sqrt{\frac{p^4+1+2p^2-p^4-1+2p^2}{(p^2+1)^2}}$

$\Rightarrow cos\theta = \sqrt{\frac{4p^2}{(p^2+1)^2}}$

$\Rightarrow cos\theta = \frac{2p}{p^2+1}$

Alternate :

Put p=1

$\Rightarrow \sin\theta = 0$ so, $\cos\theta = 1$

Going through the options only option A satisfies the condition.

$\cos\theta = \frac{2P}{1+P^2} = \frac{2(1)}{1+1} = 1$

So, option A is the correct answer.

Sol 101. (a)

$\frac{cos^2\theta}{cot^2\theta - cos^2\theta} = 3$

$\Rightarrow cos^2\theta = 3cot^2\theta - 3cos^2\theta$

$\Rightarrow 4cos^2\theta = 3cot^2\theta$

$\Rightarrow \frac{cos^2\theta}{cot^2\theta} = \frac{3}{4}$

$\Rightarrow sin^2\theta = \frac{3}{4}$

$\Rightarrow \sin\theta = \frac{\sqrt{3}}{2}$

$\Rightarrow \theta = 60°$

Now, $\cot\theta + \text{cosec}\,\theta = \cot 60° + \text{cosec}\ 60°$

$= \frac{1}{\sqrt{3}} + \frac{2}{\sqrt{3}} = \frac{3}{\sqrt{3}} = \sqrt{3}$

Sol 102. (b)

Put $x = 0°$

$a = \frac{2sinx}{1+sinx+cosx} = \frac{2(0)}{1+0+1} = 0$

and $b = \frac{c}{1+sinx} = \frac{c}{1+0} = c$

$\Rightarrow a = b$ when $c = 0$

Going through options only option b satisfies the condition.

$c = 1 + \sin x - \cos x = 1 + 0 - 1 = 0$

Clearly option b satisfies the condition.

Sol 103. (b)

Given, $\frac{cos\alpha}{sin\alpha + cos\beta} + \frac{cos\beta}{sin\beta - cos\alpha} = \frac{x}{sin\alpha - cos\beta} + \frac{cos\beta}{sin\beta + cos\alpha}$

Put $\alpha = 0°$ and $\beta = 45°$

$\Rightarrow \frac{1}{1/\sqrt{2}} + \frac{1}{\sqrt{2}(\frac{1}{\sqrt{2}} - 1)} = \frac{-x}{1/\sqrt{2}} + \frac{1}{\sqrt{2}(\frac{1}{\sqrt{2}} + 1)}$

$\Rightarrow \sqrt{2} + \frac{1}{1-\sqrt{2}} = -\sqrt{2}x + \frac{1}{1+\sqrt{2}}$

$\Rightarrow \sqrt{2}(1 + x) = 2\sqrt{2}$

$\Rightarrow x = 1$

Now, Going through options

$\cos\beta = \cos 45 = \frac{1}{\sqrt{2}}$

$\cos\alpha = \cos 0 = 1$

$\sin\beta = \sin 45 = \frac{1}{\sqrt{2}}$

$\sin\alpha = \sin 0 = 0$

Clearly option B is the correct answer.

SSC CGL TIER II QUESTIONS

Sol 1. (a)

Given, $\sin\theta = \sqrt{3}\cos\theta$

$\Rightarrow \tan\theta = \sqrt{3}$

$\Rightarrow \theta = 60°$

Put the value of θ in the question term

$2sin^2\theta + sec^2\theta + sin\theta sec\theta + cosec\theta$

$\Rightarrow 2sin^2 60 + sec^2 60 + sin60.sec60 + cosec60$

$\Rightarrow 2(\frac{\sqrt{3}}{2})^2 + (2)^2 + \frac{\sqrt{3}}{2} \times 2 + \frac{2}{\sqrt{3}}$

$\Rightarrow \frac{3}{2} + 4 + \sqrt{3} + \frac{2}{\sqrt{3}}$

$\Rightarrow \frac{10+11\sqrt{3}}{2\sqrt{3}} = \frac{33+10\sqrt{3}}{6}$

Sol 2. (c)

Put $\theta = 45°$

$(cos^6\theta + sin^6\theta - 1)(tan^2\theta + cot^2\theta + 2) \Rightarrow (cos^6 45 + sin^6 45 - 1)(tan^2 45 + cot^2 45 + 2)$

$\Rightarrow \{(\frac{1}{\sqrt{2}})^6 + (\frac{1}{\sqrt{2}})^6 - 1\}\{(1)^2 + (1)^2 + 2\}$

$\Rightarrow \{\frac{1}{8} + \frac{1}{8} - 1\}\{4\} = -3$

Sol 3. (a)

Put $A = 90°$

$\frac{(2SinA)(1+SinA)}{1+SinA+CosA} \Rightarrow \frac{(2Sin90)(1+Sin90)}{1+Sin90+Cos90}$

$\Rightarrow \frac{2(1)(1+1)}{1+1+0} = 2$

Now go through options

Choose option (a)

$1 + \text{SinA} - \text{CosA} \Rightarrow 1 + \text{Sin90} - \text{Cos90}$

$\Rightarrow 1 + 1 - 0 = 2$

Condition satisfied hence option A is the correct answer.

Note: We can check other options also but no option will satisfy the condition.

Sol 4.(c)

$\frac{(cos9° + sin81°)(sec9° + cosec81°)}{sin56° sec34° + cos25° cosec65°}$

$\Rightarrow \frac{(cos(90° - 81°) + sin81°)(sec90° - 81°) + cosec81°)}{sin56° sec34° + cos25° cosec65°}$

$\Rightarrow \frac{(sin81° + sin81°)(cosec81° + cosec81°)}{sin56° sec34° + cos25° cosec65°}$

We know that

If $a + b = 90°$ then,

Sin a. Sec b = 1

Cos a. Cosec b = 1

$\Rightarrow \frac{(2sin81°)(2cosec81°)}{1+1} = \frac{4}{2} = 2$

Sol 5. (c)

Given,

$cos^2\theta - sin^2\theta = \frac{1}{2} \Rightarrow 1 - sin^2\theta - sin^2\theta = \frac{1}{2}$

$\Rightarrow 2sin^2\theta = \frac{1}{2}$

$\Rightarrow \sin\theta = \frac{1}{2}$

$\Rightarrow \theta = 30^\circ$

$tan^2 2\theta + sin^2 3\theta \Rightarrow tan^2 2(30) + sin^2 3(30)$

$\Rightarrow tan^2 60 + sin^2 90)$

$\Rightarrow 3+1 = 4$

Sol 6. (d)

$\text{cosec}(65^\circ + \theta) - \sec(25^\circ - \theta) + tan^2 20^\circ - cosec^2 70^\circ$

$\Rightarrow \text{cosec}(65^\circ + \theta) - \sec(90 - (65^\circ + \theta)) + tan^2 20^\circ - cosec^2(90 - 20^\circ)$

$\Rightarrow \text{cosec}(65^\circ + \theta) - \text{cosec}(65^\circ + \theta) + tan^2 20^\circ - sec^2 20^\circ$

$\Rightarrow 0 - (sec^2 20^\circ - tan^2 20^\circ) = -1$

Sol 7. (d)

$\frac{(1+cos\theta)^2 + sin^2\theta}{(cosec^2\theta - 1)sin^2\theta} \Rightarrow \frac{1 + cos^2\theta + 2cos\theta + sin^2\theta}{cot^2\theta . sin^2\theta}$

$\Rightarrow \frac{1+1+2cos\theta}{\frac{cos^2\theta}{sin^2\theta} . sin^2\theta}$

$\Rightarrow \frac{2+2cos\theta}{cos^2\theta}$

$\Rightarrow \frac{2}{cos^2\theta} + \frac{2}{cos\theta} = 2\sec\theta(1+\sec\theta)$

Sol 8. (b)

$\left(\frac{1-tan\theta}{1-cot\theta}\right)^2 + 1$

$\Rightarrow \left(\frac{1-tan\theta}{1-\frac{1}{tan\theta}}\right)^2 + 1$

$\Rightarrow \left\{\frac{tan\theta.(1-tan\theta)}{tan\theta - 1}\right\}^2 + 1$

$\Rightarrow tan^2\theta + 1 = sec^2\theta$

Sol 9.(a)

$\sqrt{\frac{cot\theta + cos\theta}{cot\theta - cos\theta}} \Rightarrow \sqrt{\frac{\frac{cos\theta}{sin\theta} + cos\theta}{\frac{cos\theta}{sin\theta} - cos\theta}}$

$\Rightarrow \sqrt{\frac{(1+sin\theta)cos\theta}{(1-sin\theta)cos\theta}}$

$\Rightarrow \sqrt{\frac{(1+sin\theta)(1+sin\theta)}{(1-sin\theta)(1+sin\theta)}}$

$\Rightarrow \sqrt{\frac{(1+sin\theta)^2}{(1-sin^2\theta)}}$

$\Rightarrow \frac{(1+sin\theta)}{cos\theta} = \sec\theta + \tan\theta$

Sol 10. (c)

Given, $5\sin\theta - 4\cos\theta = 0$

$\Rightarrow 5\sin\theta = 4\cos\theta$

Put the value of $5\sin\theta$ in the question term

$\frac{5sin\theta - 2cos\theta}{5sin\theta + 3cos\theta} \Rightarrow \frac{4cos\theta - 2cos\theta}{4cos\theta + 3cos\theta} = \frac{2}{7}$

Sol 11. (d)

$\left(\frac{sinA}{1-cosA} + \frac{1-cosA}{sinA}\right) \div \left(\frac{cot^2 A}{1+cosecA} + 1\right)$

$\Rightarrow \left(\frac{sin^2 A + (1-cosA)^2}{(1-cosA)sinA}\right) \div \left(\frac{cosec^2 A - 1}{1+cosecA} + 1\right)$

$\Rightarrow \left(\frac{(1-cos^2 A) + (1-cosA)^2}{(1-cosA)sinA}\right) \div \left(\frac{(cosecA - 1)(cosecA + 1)}{1+cosecA} + 1\right)$

$\Rightarrow \left(\frac{(1-cos\,A)\,[(1+cosA) + (1-cosA)]}{(1-cosA)sinA}\right) \div \text{cosecA}$

$\Rightarrow \left(\frac{2 \times sinA}{sinA}\right) = 2$

Sol 12. (b)

$\frac{1+sin\varphi}{1-sin\varphi} = \frac{p^2}{q^2}$

$\Rightarrow \frac{1+sin\varphi}{1-sin\varphi} \times \frac{1+sin\varphi}{1+sin\varphi} = \frac{p^2}{q^2}$

$\Rightarrow \frac{(1+sin\varphi)^2}{1-sin^2\varphi} = \frac{p^2}{q^2}$

$\Rightarrow \frac{1+sin^2\varphi + 2sin\varphi}{cos^2\varphi} = \frac{p^2}{q^2}$

$\Rightarrow sec^2\varphi + tan^2\varphi + 2sec\varphi.tan\varphi = \frac{p^2}{q^2}$

$\Rightarrow (sec\varphi + tan\varphi)^2 = \frac{p^2}{q^2}$

$\Rightarrow sec\varphi + tan\varphi = \frac{p}{q}$ ....(1)

$\Rightarrow sec\varphi - tan\varphi = \frac{q}{p}$ ...(2)

.....{If $sec\varphi + tan\varphi = k$, then $sec\varphi - tan\varphi = \frac{1}{k}$ }

Add (1) and (2)

$\Rightarrow 2sec\varphi = \frac{p}{q} + \frac{q}{p}$

$\Rightarrow sec\varphi = \frac{1}{2}\left(\frac{p}{q} + \frac{q}{p}\right)$

Sol 13. (d)

$\frac{sec\varphi(1-sin\varphi)(sin\varphi+cos\varphi)(sec\varphi+tan\varphi)}{sin\varphi(1+tan\varphi) + cos\varphi(1+cot\varphi)}$

$\Rightarrow \frac{\frac{1}{cos\varphi}(1-sin\varphi)(sin\varphi+cos\varphi)\left(\frac{1}{cos\varphi} + \frac{sin\varphi}{cos\varphi}\right)}{sin\varphi\left(1+\frac{sin\varphi}{cos\varphi}\right) + cos\varphi\left(1+\frac{cos\varphi}{sin\varphi}\right)}$

$\Rightarrow \frac{\frac{1}{cos\varphi}(1-sin\varphi)(sin\varphi+cos\varphi)\left(\frac{1+sin\varphi}{cos\varphi}\right)}{sin\varphi\left(\frac{cos\varphi+sin\varphi}{cos\varphi}\right) + cos\varphi\left(\frac{sin\varphi+cos\varphi}{sin\varphi}\right)}$

$\Rightarrow \frac{\frac{1}{cos^2\varphi}(1-sin^2\varphi)(sin\varphi+cos\varphi)}{\left(\frac{sin\varphi}{cos\varphi}\right) + \left(\frac{cos\varphi}{sin\varphi}\right)(sin\varphi+cos\varphi)}$

$\Rightarrow \frac{\frac{1}{cos^2\varphi} \times cos^2\varphi}{\left(\frac{sin^2\varphi + cos^2\varphi}{sin\varphi.cos\varphi}\right)} = sin\varphi.cos\varphi$

Sol 14. Put $\theta = 45^\circ$

$tan^2\varphi + cot^2\varphi - sec^2\varphi.cosec^2\varphi$

$\Rightarrow$

$tan^2 45 + cot^2 45 - sec^2 45.cosec^2 45$

$\Rightarrow (1)^2 + (1)^2 - (\sqrt{2})^2(\sqrt{2})^2 = -2$

Sol 15. (b)

$(sec\varphi - tan\varphi)^2(1 + sin\varphi)^2 \div sin^2\varphi$

$\Rightarrow \left(\frac{1}{cos\varphi} - \frac{sin\varphi}{cos\varphi}\right)^2 (1 + sin\varphi)^2 \div sin^2\varphi$

$\Rightarrow \left(\frac{1-sin\varphi}{cos\varphi}\right)^2 (1 + sin\varphi)^2 \div sin^2\varphi$

$\Rightarrow \frac{1}{cos^2\varphi}$

$[(1 + sin\varphi)(1 - sin\varphi)]^2 \div sin^2\varphi$

$\Rightarrow \frac{1}{cos^2\varphi}\left[(1 - sin^2\varphi)\right]^2 \div sin^2\varphi$

$\Rightarrow \frac{1}{cos^2\varphi}\left[cos^2\varphi\right]^2 \div sin^2\varphi$

$\Rightarrow \frac{1}{sin^2\varphi}\left[cos^2\varphi\right] = cot^2\varphi$

Sol 16. (b)

Given, $3(cot^2\varphi - cos^2\varphi) = cos^2\varphi$

$\Rightarrow 3\,cot^2\varphi - 3cos^2\varphi) = cos^2\varphi$

$\Rightarrow 3\,cot^2\varphi = 4cos^2\varphi$

$\Rightarrow 3\frac{cos^2\varphi}{sin^2\varphi} = 4cos^2\varphi$

$\Rightarrow sin^2\varphi = \frac{3}{4}$

$\Rightarrow sin\,\varphi = \frac{\sqrt{3}}{2}$

$\Rightarrow \varphi = 60^\circ$

$\Rightarrow (tan^2\varphi + cosec^2\varphi + sin^2\varphi) = (tan^2 60 + cosec^2 60 + sin^2 60)$

$\Rightarrow \left((\sqrt{3})^2 + \left(\frac{2}{\sqrt{3}}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2\right)$

$\Rightarrow 3 + \frac{4}{3} + \frac{3}{4} = \frac{61}{12}$

Sol 17. (c)

$\frac{sin^2\varphi - 3sin\varphi + 2}{cos^2\varphi} = 1$

$\Rightarrow sin^2\varphi - 3sin\varphi + 2 = cos^2\varphi$

$\Rightarrow sin^2\varphi - 3sin\varphi + 2 = 1 - sin^2\varphi$

Pinnacle

$\Rightarrow 2\sin^2\varphi - 3\sin\varphi + 1 = 0$

$\Rightarrow 2\sin^2\varphi - 2\sin\varphi - \sin\varphi + 1 = 0$

$\Rightarrow$

$2\sin\varphi(\sin\varphi - 1) - 1(\sin\varphi - 1) = 0$

$\Rightarrow \sin\varphi = \frac{1}{2}$ or 1

$\Rightarrow \varphi = 30^\circ$

……..(as $0^\circ < \varphi < 90^\circ$, $\varphi \neq 90^\circ$)

$(\cos 2\varphi + \sin 3\varphi + \operatorname{cosec} 2\varphi) \Rightarrow (\cos 60 + \sin 90 + \operatorname{cosec} 60)$

$\Rightarrow \frac{1}{2} + 1 + \frac{2}{\sqrt{3}}$

$\Rightarrow \frac{\sqrt{3}+2\sqrt{3}+4}{2\sqrt{3}} = \frac{9+4\sqrt{3}}{6}$

Sol 18. (b)

$\frac{\sin(78^\circ+\theta) - \cos(12^\circ-\theta) + (\tan^2 70^\circ - \operatorname{cosec}^2 20^\circ)}{\sin 25^\circ \cos 65^\circ + \cos 25^\circ \sin 65^\circ}$

$\Rightarrow$

$\frac{\sin(78^\circ+\theta) - \cos\{90^\circ-(78^\circ+\theta)\} + (\tan^2 70^\circ - \operatorname{cosec}^2\{90^\circ-70^\circ\}}{\sin 25^\circ \cos(90^\circ-25^\circ) + \cos 25^\circ \sin(90^\circ-25^\circ)}$

$\Rightarrow$

$\frac{\sin(78^\circ+\theta) - \sin(78^\circ+\theta)\} + (\tan^2 70^\circ - \sec^2 70^\circ}{\sin 25^\circ . \sin 25^\circ + \cos 25^\circ . \cos 25^\circ}$

$\Rightarrow \frac{0 - 1.(\sec^2 70^\circ - \tan^2 70^\circ)}{\sin^2 25^\circ + \cos^2 25^\circ}$

$\Rightarrow \frac{-1}{1} = -1$

Sol 19.(d)

$\sqrt{\frac{\operatorname{cosec}\varphi - \cot\varphi}{\operatorname{cosec}\varphi + \cot\varphi}} \div \frac{\sin\varphi}{1+\cos\varphi} \Rightarrow$

$\sqrt{\frac{\operatorname{cosec}\varphi - \cot\varphi}{\operatorname{cosec}\varphi + \cot\varphi} \times \frac{\operatorname{cosec}\varphi - \cot\varphi}{\operatorname{cosec}\varphi - \cot\varphi}} \div \frac{\sin\varphi}{1+\cos\varphi}$

$\Rightarrow \sqrt{\frac{(\operatorname{cosec}\varphi - \cot\varphi)^2}{\operatorname{cosec}^2\varphi - \cot^2\varphi}} \div \frac{\sin\varphi}{1+\cos\varphi}$

$\Rightarrow \operatorname{cosec}\varphi - \cot\varphi \div \frac{\sin\varphi}{1+\cos\varphi}$

$\Rightarrow \frac{1}{\sin\varphi} - \frac{\cos\varphi}{\sin\varphi} \div \frac{\sin\varphi}{1+\cos\varphi} \times \frac{1-\cos\varphi}{1-\cos\varphi}$

$\Rightarrow \frac{1}{\sin\varphi} - \frac{\cos\varphi}{\sin\varphi} \div \frac{\sin\varphi}{1+\cos\varphi} \times \frac{1-\cos\varphi}{1-\cos\varphi}$

$\Rightarrow \frac{1-\cos\varphi}{\sin\varphi} \div \frac{(\sin\varphi)(1-\cos\varphi)}{1-\cos^2\varphi} = 1$

Sol 20. (a)

$(\tan 29^\circ \cot 61^\circ - \operatorname{cosec}^2 61^\circ) + \cot^2 54^\circ - \sec^2 36^\circ + (\sin^2 1^\circ + \sin^2 3^\circ + \sin^2 5^\circ + \ldots\ldots + \sin^2 89^\circ)$

$\Rightarrow (\cot(90^\circ - 61^\circ)\cot 61^\circ - \operatorname{cosec}^2 61^\circ) + \cot^2(90^\circ - 36^\circ) - \sec^2 36^\circ + (\sin^2 1^\circ + \sin^2 3^\circ + \sin^2 5^\circ + \ldots\ldots + \sin^2 89^\circ)$

$\Rightarrow (\cot^2 61^\circ - \operatorname{cosec}^2 61^\circ) + (\tan^2 36^\circ - \sec^2 36^\circ) + (\sin^2 1^\circ + \sin^2 3^\circ + \sin^2 5^\circ + \ldots\ldots + \sin^2 89^\circ)$

We know that

$(\sin^2 1^\circ + \sin^2 3^\circ + \sin^2 5^\circ + \ldots\ldots + \sin^2 89^\circ) = \frac{n+1}{2}$

[Here $n = \frac{\theta - \varphi}{2}$ and θ = angle of last term and φ = *angle of first term* . But $\theta + \varphi$ must be 90° for this rule]

$\Rightarrow n = \frac{89-1}{2} = 44$

$\Rightarrow (\sin^2 1^\circ + \sin^2 3^\circ + \sin^2 5^\circ + \ldots\ldots + \sin^2 89^\circ) = \frac{44+1}{2} = 22\frac{1}{2}$

$\Rightarrow (\cot^2 61^\circ - \operatorname{cosec}^2 61^\circ) + (\tan^2 36^\circ - \sec^2 36^\circ) + (\sin^2 1^\circ + \sin^2 3^\circ + + 5^\circ + \ldots\ldots + \sin^2 89^\circ) = -1-1+22\frac{1}{2} = 20\frac{1}{2}$

Sol 21. (b)

Given, $\sec\theta + \tan\theta = p$ …(1)

$\Rightarrow \sec\theta - \tan\theta = \frac{1}{p}$ …(2)

Add (1) and 2

$\Rightarrow 2\sec\theta = p + \frac{1}{p}$

Put p=2

$\Rightarrow \sec\theta = \frac{Hypotenuse}{Base} = \frac{5}{4}$

$\Rightarrow \operatorname{cosec}\theta = \frac{Hypotenuse}{Perpendicular} = \frac{5}{3}$

$\frac{\operatorname{cosec}\theta+1}{\operatorname{cosec}\theta-1} \Rightarrow \frac{\frac{5}{3}+1}{\frac{5}{3}-1} = \frac{\frac{8}{3}}{\frac{2}{3}} = 4$

Going through options

Chose option b

$\Rightarrow p^2 = 2^2 = 4$

Condition satisfied.

We can put this value in any option no other option will satisfy the condition. Hence option b is the correct option.

Sol 22. (d)

$\operatorname{cosec}(67^\circ + \theta) - \sec(23^\circ - \theta) + \cos 15^\circ \cos 35^\circ \operatorname{cosec} 55^\circ \cos 60^\circ \operatorname{cosec} 75^\circ$

$\Rightarrow \operatorname{cosec}(67^\circ + \theta) - \sec\{90^\circ - (67^\circ + \theta)\} + \cos(90^\circ - 75^\circ)\cos(90^\circ - 55^\circ)\operatorname{cosec} 55^\circ \cos 60^\circ \operatorname{cosec} 75^\circ$

$\Rightarrow \operatorname{cosec}(67^\circ + \theta) - \operatorname{cosec}(67^\circ + \theta) + \sin 75^\circ . \sin 55^\circ . \operatorname{cosec} 55^\circ . \operatorname{cosec} 75^\circ \times \frac{1}{2}$

$\Rightarrow 0 + 1 \times 1 \times \frac{1}{2} = \frac{1}{2}$

Sol 23. (c)

Given, $2\cos^2\theta + 3\sin\theta = 3$

$\Rightarrow 2(1 - \sin^2\theta) + 3\sin\theta = 3$

$\Rightarrow 2 - 2\sin^2\theta + 3\sin\theta - 3 = 0$

$\Rightarrow 2\sin^2\theta - 3\sin\theta + 1 = 0$

$\Rightarrow 2\sin^2\theta - 2\sin\theta - \sin\theta + 1 = 0$

$\Rightarrow 2\sin\theta(\sin\theta - 1) - 1(\sin\theta - 1) = 0$

$\Rightarrow \sin\theta = \frac{1}{2}$ or 1

$\Rightarrow \theta = 30^\circ$

$\sin^2 2\theta + \cos^2\theta + \tan^2 2\theta + \operatorname{cosec}^2 2\theta$

$\Rightarrow$

$\sin^2 60 + \cos^2 30 + \tan^2 60 + \operatorname{cosec}^2 60$

$\Rightarrow$

$\left(\frac{\sqrt{3}}{2}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2 + (\sqrt{3})^2 + \left(\frac{2}{\sqrt{3}}\right)^2 = \frac{70}{12} = \frac{35}{6}$

Sol 24. (b)

Put $\theta = 45^\circ$

$(1 + \cot\theta - \operatorname{cosec}\theta)(1 + \cos\theta + \sin\theta)\sec\theta \Rightarrow (1 + \cot 45 - \operatorname{cosec} 45)(1 + \cos 45 + \sin 45)\sec 45$

$\Rightarrow (1 + 1 - \sqrt{2})(1 + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}})\sqrt{2}$

$\Rightarrow (2 - \sqrt{2})(2 + \sqrt{2}) = 2$

Sol 25. (b)

$\frac{\sec^2\theta}{\operatorname{cosec}^2\theta} + \frac{\operatorname{cosec}^2\theta}{\sec^2\theta} - (\sec^2\theta + \operatorname{cosec}^2\theta)$

$\Rightarrow \frac{\sin^2\theta}{\cos^2\theta} + \frac{\cos^2\theta}{\sin^2\theta} - (\sec^2\theta + \operatorname{cosec}^2\theta)$

$\Rightarrow \tan^2\theta + \cot^2\theta - (\sec^2\theta + \operatorname{cosec}^2\theta)$

Pinnacle

$\Rightarrow -(sec^2\theta - tan^2\theta) - (cosec^2\theta - cot^2\theta) = -2$

Sol 26. (d)

Put $\theta = 90^\circ$

$\frac{2(sin^6\theta + cos^6\theta) - 3(sin^4\theta + cos^4\theta)}{cos^4\theta - sin^4\theta - 2cos^2\theta}$

$\Rightarrow \frac{2(sin^690 + cos^690) - 3(sin^490 + cos^490)}{cos^490 - sin^490 - 2cos^290}$

$\Rightarrow \frac{2\{(1)^6 + 0\} - 3\{(1)^4 + 0\}}{0 - (1)^4 - 2(0)} = 1$

Sol 27. (d)

$sin^264^\circ + cos64^\circ sin26^\circ + 2cos43^\circ cosec47^\circ$

$\Rightarrow sin^264^\circ + cos64^\circ sin(90^\circ - 64^\circ) + 2cos43^\circ cosec(90^\circ - 43^\circ)$

$\Rightarrow sin^264^\circ + cos^264^\circ + 2cos43^\circ sec43^\circ$

$\Rightarrow 1 + 2(1) = 3$

Sol 28. (a)

Put $\theta = 60^\circ$

$\frac{(sin\theta - cos\theta)(1 + tan\theta + cot\theta)}{1 + sin\theta cos\theta} \Rightarrow \frac{(sin60 - cos60)(1 + tan60 + cot60)}{1 + sin60.cos60}$

$\Rightarrow \frac{(\frac{\sqrt{3}}{2} - \frac{1}{2})(1 + \sqrt{3} + \frac{1}{\sqrt{3}})}{1 + (\frac{\sqrt{3}}{2}).(\frac{1}{2})}$

$\Rightarrow \frac{(\frac{\sqrt{3}-1}{2})(\frac{4+\sqrt{3}}{\sqrt{3}})}{\frac{4+\sqrt{3}}{4}} = 2 - \frac{2}{\sqrt{3}}$

Going through options

$\sec\theta - cosec\theta \Rightarrow \sec 60 - cosec\ 60$

$\Rightarrow 2 - \frac{2}{\sqrt{3}}$

Sol 29.(c)

Put $\theta = 45^\circ$

$\frac{sin\theta + cos\theta - 1}{sin\theta - cos\theta + 1} \times \frac{tan^2\theta(cosec^2\theta - 1)}{sec\theta - tan\theta} \Rightarrow \frac{sin45 + cos45 - 1}{sin45 - cos45 + 1} \times \frac{tan^245(cosec^245 - 1)}{sec45 - tan45}$

$\Rightarrow \frac{\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} - 1}{0 + 1} \times \frac{1.\{(\sqrt{2})^2 - 1)}{\sqrt{2} - 1}$

$\Rightarrow (\sqrt{2} - 1) \times \frac{1}{(\sqrt{2} - 1)} = 1$

Sol 30.(a)

$\frac{sin\theta}{1 + cos\theta} + \frac{1 + cos\theta}{sin\theta} = \frac{4}{\sqrt{3}}$

$\Rightarrow \frac{sin^2\theta + (1 + cos\theta)^2}{sin\theta(1 + cos\theta)} = \frac{4}{\sqrt{3}}$

$\Rightarrow \frac{sin^2\theta + 1 + cos^2\theta + 2cos\theta}{sin\theta(1 + cos\theta)} = \frac{4}{\sqrt{3}}$

$\Rightarrow \frac{1 + 1 + 2cos\theta}{sin\theta(1 + cos\theta)} = \frac{4}{\sqrt{3}}$

$\Rightarrow \frac{2(1 + cos\theta)}{sin\theta(1 + cos\theta)} = \frac{4}{\sqrt{3}}$

$\Rightarrow sin\theta = \frac{\sqrt{3}}{2}$

$\Rightarrow \theta = 60^\circ$

$(tan\theta + sec\theta)^{-1} \Rightarrow \frac{1}{(tan\theta + sec\theta)}$

$\Rightarrow \frac{1}{(tan60 + sec60)}$

$\Rightarrow \frac{1}{\sqrt{3} + 2} \times \frac{2 - \sqrt{3}}{2 - \sqrt{3}} = 2 - \sqrt{3}$

SSC CGL TIER I

Sol 1. (a) $x = 4cosA + 5sinA$

$y = 4sinA - 5cosA$

$x^2 = 16cos^2A + 25sin^2A + 40\ cosA\ sinA$

$y^2 = 16sin^2A + 25cos^2A - 40\ cosA\ sinA$

$x^2 + y^2 = 16(cos^2A + sin^2A) + 25(sin^2A + cos^2A) = 41$

Sol 2. (b) $tanA = \frac{5}{6}$

Now, $sinA = 5/a$

And $cosA = 6/a$

Put value of sinA and cosA in the given expression: $\frac{8\ sinA - 4\ cosA}{cosA + 2\ sinA}$

$\frac{8(5) - 4(6)}{(6) + 2(5)} = 1$

Sol 3. (b) We know that, if x+y = 45° than (1+ tanx)(1+ tany) = 2

Here A+B= 45°

Then,

2(1+ tanA)(1+ tanB)= 4

Sol 4. (a) $2sin\theta + 15\ cos^2\theta = 7$, $0^\circ < \theta < 90^\circ$

$\Rightarrow 2sin\theta + 15(1 - sin^2\theta) = 7$

$\Rightarrow 15\ sin^2\theta - 2sin\theta - 8 = 0$

$\Rightarrow sin\theta = \frac{-(-2) \pm \sqrt{4 - 4(15)(-8)}}{30}$

$= \frac{2 \pm \sqrt{484}}{30} = \frac{2 \pm 22}{30}$

$\Rightarrow sin\theta = \frac{4}{5}$ or $-\frac{2}{3}$

As θ is between 0° and 90°, sinθ will be positive.

$cos\theta = \frac{3}{5}$, $tan\theta = \frac{4}{3}$ and $sec\theta = \frac{5}{3}$

Put values in: $tan\theta + cos\theta + sec\theta$

We get; $\frac{4}{3} + \frac{3}{5} + \frac{5}{3} = 3\frac{3}{5}$

Sol 5. (b) It is given that

$\frac{sec\theta - tan\theta}{sec\theta + tan\theta} = \frac{3}{5}$

$\Rightarrow \sec\theta = 4\tan\theta$

$\Rightarrow \frac{1}{cos\theta} = 4\ \frac{sin\theta}{cos\theta}$

$\Rightarrow sin\theta = \frac{1}{4}$

$cosec\ \theta = 4$

$\cot\theta = \sqrt{15}$

$\frac{cosec\theta + cot\theta}{cosec\theta - cot\theta} = \frac{4 + \sqrt{15}}{4 - \sqrt{15}}$

On rationalising; we get:

$\frac{cosec\theta + cot\theta}{cosec\theta - cot\theta} = 31 + 8\sqrt{15}$

Sol 6. (b) Put θ= 5° in given equation:

cosec(85°+θ)-sec(5°-θ)-tan(55°+θ)+cot(35°-θ)

We get:

Cosec 90°- sec0° - tan60° + cot30°

$\Rightarrow 1 - 1 - \sqrt{3} + \sqrt{3}$

$\Rightarrow 0$

Sol 7. (a) $\frac{tan\ 30^\circ + tan\ 60^\circ}{cos\ 30^\circ}$

$\tan30^\circ = 1/\sqrt{3}$

$\tan60^\circ = \sqrt{3}$

$Cos\ 30^\circ = \sqrt{3}/2$

Put above values,

We get

$\frac{tan\ 30^\circ + tan\ 60^\circ}{cos\ 30^\circ} = 8/3$

Sol 8. (d) It is given that

$2\ sin\theta - 8\ cos^2\theta + 5 = 0$

And $0^\circ < \theta < 90^\circ$

$cos^2\theta = 1 - sin^2\theta$

$2\ sin\theta - 8\ cos^2\theta + 5 = 0$

$2\ sin\theta - 8(1 - sin^2\theta) + 5 = 0$

$8sin^2\theta + 2\ sin\theta - 3 = 0$

Solve the quadratic equation, we get

$Sin\theta = \frac{1}{2}$ or $-\frac{3}{4}$

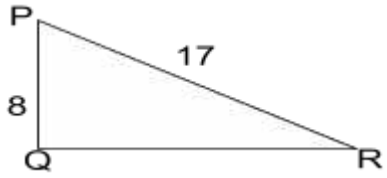
Sinθ can not be negative for $0^\circ < \theta < 90^\circ$

Thus θ= 30°

Now, tan 2θ + cosec 2θ = tan 60°+ cosec 60°

$= \sqrt{3} + \frac{2}{\sqrt{3}} = \frac{5}{\sqrt{3}} = \frac{5\sqrt{3}}{3}$

Sol 9. (d) QR= $\sqrt{(17)^2 - (8)^2}$ =15



Cot θ = $\frac{QR}{PQ} = \frac{15}{8}$

Sol 10. (c) sec θ - tan θ = $\frac{x}{y}$ …(1)

Then sec θ + tan θ = $\frac{y}{x}$ …(2) as

($sec^2\theta - tan^2\theta = 1$)

Add (1) and (2), we get:

$2\sec\theta = \frac{x^2+y^2}{xy}$

$\sec\theta = \frac{x^2+y^2}{2xy}$

$\cos\theta = \frac{2xy}{x^2+y^2}$

$\sin\theta = \sqrt{1-\left(\frac{2xy}{x^2+y^2}\right)^2} = \frac{y^2-x^2}{x^2+y^2}$

Sol 11. (b) $5\sin^2\theta+14\cos\theta=13$, $0°<\theta<90°$

Put $\sin^2\theta = 1 - \cos^2\theta$

We get: $5\cos^2\theta-14\cos\theta+8=0$

$\cos\theta = \frac{14\pm\sqrt{196-160}}{10} = \frac{14\pm6}{10} = \frac{4}{5}$

$\sin\theta = \frac{3}{5}$

$\frac{sec\theta+cot\theta}{cosec\theta+tan\theta} = \frac{\frac{5}{4}+\frac{4}{3}}{\frac{5}{3}+\frac{3}{4}} = \frac{31}{29}$

Sol 12. (b) $\frac{tan30°cosec60°+tan60°sec30°}{sin^2 30°+4cot^2 45°-sec^2 60°}$

$= \frac{\frac{1}{\sqrt{3}}\times\frac{2}{\sqrt{3}}+\sqrt{3}\times\frac{2}{\sqrt{3}}}{\frac{1}{4}+4(1)-4} \Rightarrow \frac{\frac{2}{3}+2}{\frac{1}{4}} \Rightarrow \frac{32}{3}$

Sol 13.(c) $7\sin^2\theta-\cos^2\theta+2\sin\theta=2$, $0°<\theta<90°$

Put, $\cos^2\theta = 1-\sin^2\theta$

We get:

$7\sin^2\theta-(1-\sin^2\theta)+ 2\sin\theta = 2$

$8\sin^2\theta+2\sin\theta-3 = 0$

$\sin\theta = \frac{-2\pm\sqrt{4+96}}{16} = \frac{-2\pm10}{16}$

As $0°<\theta<90°$; $\sin\theta$ is positive

$\sin\theta = \frac{1}{2} \Rightarrow \theta = 30°$

Now put values in $\frac{sec2\theta+cot2\theta}{cosec2\theta+tan2\theta} =$

$\frac{sec\,60°+cot\,60°}{cosec\,60°+tan\,60°} = \frac{2+\frac{1}{\sqrt{3}}}{\frac{2}{\sqrt{3}}+\sqrt{3}} = \frac{1}{5}($

$1+2\sqrt{3})$

Sol 14. (d) $3\sec^2\theta\tan^2\theta + \tan^6\theta - \sec^6\theta = ?$

We know that: $\sec^2\theta-\tan^2\theta = 1$

Cubing both sides we get:

$\sec^6\theta - \tan^6\theta - 3\sec^2\theta\tan^2\theta = 1$

Thus,

$3\sec^2\theta\tan^2\theta + \tan^6\theta - \sec^6\theta = -1$

Sol 15. (c) put θ = 45° in

$\frac{tan^2\theta-sin^2\theta}{2+tan^2\theta+cot^2\theta} = \frac{tan^2 45°-sin^2 45°}{2+tan^2 45°+cot^2 45°} = \frac{1}{8}$

Only option (c) satisfies.

Sol 16. (b) $\sec\theta+\tan\theta = p$

Then, $\sec\theta-\tan\theta = \frac{1}{p}$ ...

($\sec^2\theta-\tan^2\theta = 1$)

$p + \frac{1}{p} = 2\sec\theta$

$p - \frac{1}{p} = 2\tan\theta$

$\frac{p^2-1}{p^2+1} = \frac{p-\frac{1}{p}}{p+\frac{1}{p}} = \sin\theta$

Sol 17. (a) $7\cos^2\theta+3\sin^2\theta=6$, $0°<\theta<90°$

$\sin^2\theta = 1-\cos^2\theta$

$4\cos^2\theta = 3$

$\cos\theta = \frac{\sqrt{3}}{2} \Rightarrow \theta = 30°$

$\frac{cot^2 2\theta+sec^2 2\theta}{tan^2 2\theta-sin^2 2\theta} = \frac{cot^2 60+sec^2 60}{tan^2 60-sin^2 60} = \frac{\frac{1}{3}+4}{3-\frac{3}{4}}$

$= \frac{52}{27}$

Sol 18. (b)

$\frac{(cos9°+sin81°)(sec9°+cosec81°)}{2sin^2 63°+1+2sin^2 27°} =$

$\frac{(cos9°+cos9°)(sec9°+sec9°)}{2sin^2 63°+1+2cos^2 63°} =$

$\frac{(2cos9°)(2sec9°)}{2(sin^2 63°+cos^2 63°)+1} = \frac{4}{3}$

Sol 19. (d) $12\cos^2\theta-2\sin^2\theta+3\cos\theta = 3$, $0°<\theta<90°$

Put $\sin^2\theta = 1 - \cos^2\theta$

We get:

$14\cos2\theta + 3\cos\theta - 5 = 0$

$\cos\theta = \frac{1}{2} \Rightarrow \theta = 60°$

$\frac{cosec\theta+sec\theta}{tan\theta+cot\theta} = \frac{cosec\,60°+sec\,60°}{tan\,60°+cot\,60°} =$

$\frac{\frac{2}{\sqrt{3}}+2}{\sqrt{3}+\frac{1}{\sqrt{3}}} = \frac{1+\sqrt{3}}{2}$

Sol 20. (c) $\sin\theta = \frac{4}{5}$

$\Rightarrow \frac{sec\theta+4cot\theta}{4tan\theta-5cos\theta} = \frac{(\frac{5}{3})+4(\frac{3}{4})}{4(\frac{4}{3})-5(\frac{3}{5})} = 2$

Sol 21. (a) $\frac{sec^6\theta-tan^6\theta-3sec^2\theta tan^2\theta+1}{cos^4\theta-sin^4\theta+2sin^2\theta+2}$

$\Rightarrow a^3-b^3 = (a-b)(a^2+b^2+ab)$

$\Rightarrow \frac{sec^6\theta-tan^6\theta-3sec^2\theta tan^2\theta+1}{cos^4\theta-sin^4\theta+2sin^2\theta+2} \Rightarrow$

$\frac{(sec^2\theta-tan^2\theta)(sec^4\theta+tan^4\theta+3sec^2\theta tan^2\theta)-3sec^2\theta tan^2\theta+1}{(cos^2\theta-sin^2\theta)(cos^2\theta+sin^2\theta)+2sin^2\theta+2}$

$\Rightarrow$

$\frac{(sec^4\theta+tan^4\theta+3sec^2\theta tan^2\theta)-3sec^2\theta tan^2\theta+1}{(cos^2\theta-sin^2\theta)+2sin^2\theta+2}$

$\Rightarrow \frac{sec^4\theta+tan^4\theta+1}{cos^2\theta+sin^2\theta+2} \Rightarrow \frac{sec^4\theta+tan^4\theta+1}{3} \Rightarrow$

$\frac{2}{3}$

Sol 22. (b)

$11\sin^2\theta-\cos^2\theta+4\sin\theta-4=0$, $0°<\theta<90°$

$\cos^2\theta = 1 - \sin^2\theta$

$11\sin^2\theta -1 + \sin^2\theta + 4\sin\theta - 4 = 0$

$12\sin^2\theta + 4\sin\theta - 5 = 0$

$\sin\theta = \frac{1}{2} \Rightarrow \theta = 30°$

$\frac{cos2\theta+cot2\theta}{sec2\theta-tan2\theta} = \frac{cos\,60°+cot\,60°}{sec\,60°-tan\,60°} = \frac{\frac{1}{2}+\frac{1}{\sqrt{3}}}{2-\sqrt{3}} =$

$\frac{12+7\sqrt{3}}{6}$

Sol 23. (a)

$\frac{cosec(78°+\theta)-sec(12°-\theta)-tan(67°+\theta)+cot(23°-\theta)}{tan13°tan37°tan45°tan53°tan77°}$

$\Rightarrow$ let $\theta = 12°$

$\Rightarrow \tan\theta \times \tan(90°-\theta) = 1$

$\Rightarrow$

$\frac{cosec(78°+\theta)-sec(12°-\theta)-tan(67°+\theta)+cot(23°-\theta)}{tan13°tan37°tan45°tan53°tan77°}$

$=$

$\frac{cosec(78°+12°)-sec(12°-12°)-tan(67°+12°)+cot(23°-12°)}{tan13°tan37°tan45°tan53°tan77°}$

$=$

$cosec(90°) - sec(0°) - tan(79°) + cot(11°)$

$= 1 - 1 - cot(11°) + cot(11°) = 0°$

Sol 24. (a) $5\cos\theta-12\sin\theta = 0$

$\Rightarrow \tan\theta = \frac{5}{12}$, $\sin\theta = \frac{5}{13}$, $\cos\theta = \frac{12}{13}$

$\Rightarrow \frac{1+sin\theta+cos\theta}{1-sin\theta+cos\theta} = \frac{13+5+12}{13-5+12} = \frac{30}{20} = \frac{3}{2}$

Pinnacle

Sol 25. (d)
$\sqrt{tan^2 60° + sin\ 90°} - 2\ tan\ 45° = \sqrt{3+1} - 2 = 0$

Sol 26. (d) cos 0°cos 30°cos 45°cos 60°cos 90° = 0
[cos 90° = 0]

Sol 27. (d) tanθ-cotθ = cosecθ, 0°<θ<90°
⇒ At θ = 60°, tanθ-cotθ = cosecθ
Then, $\frac{2tan\theta - cos\theta}{\sqrt{3}cot\theta + sec\theta} = \frac{2tan\ 60° - cos\ 60°}{\sqrt{3}cot\ 60° + sec\ 60°}$
$= \frac{2(\sqrt{3})-\frac{1}{2}}{\sqrt{3}(\frac{1}{\sqrt{3}})+2} = \frac{4\sqrt{3}-1}{6}$

Sol 28. (d) xcosA - ysinA = 1 and xsinA + ycosA = 4
⇒ $(x^2+y^2)(sin^2A+cos^2A) = (1+16) = 17$
⇒ $17(x^2+y^2) = 289$

Sol 29. (a) 2sin A + cosec A = 2
$\sqrt{2}$, at A = 45°
Then, $2(sin^4A+cos^4A) = 1$

Sol 30. (b)
$\frac{sin\ 40°}{cos\ 50°} + \frac{cosec\ 50°}{sec\ 40°} - 4cos\ 50°\ cosec\ 40°$
⇒
$\frac{cos\ 50°}{cos\ 50°} + \frac{cosec\ 50°}{cosec\ 50°} - 4cos\ 50°\ sec\ 50°$
⇒ -2

Sol 31. (a) sin 0° sin 30° sin 45° sin 60° sin 90° = 0 (sin 0° = 0)

Sol 32. (a) $(cos^2\theta-1)(1+tan^2\theta)+2\ tan^2\theta = 1$, 0°<θ<90°
$(-sin^2\theta)(sec^2\theta)+2\ tan^2\theta = 1$
$-tan^2\theta+2tan^2\theta = 1$
$tan^2\theta = 1$
θ = 45°

Sol 33. (a)
$\frac{sin\ 30°\ sin\ 60°}{cos\ 60°\ cos\ 30°} - tan\ 45°$
⇒ $\frac{sin\ 30°\ sin\ 60°}{sin\ 30°\ sin\ 60°} - tan\ 45° = 0°$

Sol 34. (c) tan2A = tan[(A+B)+(A-B)] = $\frac{tan(A+B)+tan(A-B)}{1-tan(A+B)\ tan(A-B)}$
cos(A+B) = $\frac{24}{25}$ ⇒ tan(A+B) = $\frac{7}{24}$
sin(A-B) = $\frac{15}{17}$ ⇒ tan(A-B) = $\frac{15}{8}$
tan[(A+B)+(A-B)] = $\frac{\frac{7}{24}+\frac{15}{8}}{1-\frac{7}{24}\times\frac{15}{8}}$ = $\frac{416}{87}$

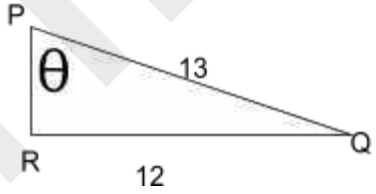
Sol 35. (b) In the third quadrant tanA and cotA are positive.
tanA = $\frac{21}{20}$
⇒ $\frac{5sinA-2cosA}{4cosA-\frac{5}{7}sinA}$; Divide numerator and denominator by cosA.
We get, $\frac{5tanA-2}{4-\frac{5}{7}tanA} = 1$

Sol 36. (c) $4[\frac{(1-secA)^2+(1+secA)^2}{1+sec^2A}] = 4[\frac{(1+sec^2A-2secA)+(1+sec^2A+2secA)}{1+sec^2A}] = 8$

Sol 37. (c) $\frac{1-2sin^2\theta cos^2\theta}{sin^4\theta+cos^4\theta} - 1$
Put θ = 0°, we get
$\frac{1-2sin^2\theta cos^2\theta}{sin^4\theta+cos^4\theta} - 1 = 0$

Sol 38. (a) sin 30°+ cos 30°- tan 45°
⇒ $\frac{1}{2} + \frac{\sqrt{3}}{2} - 1$ ⇒ $\frac{\sqrt{3}-1}{2}$

Sol 39. (a) In ΔPQR, PR = $\sqrt{13^2-12^2} = 5$



cosθ = $\frac{5}{13}$

Sol 40. (c) $3sec^2\theta+tan\theta = 7$
$sec^2\theta = 1+tan^2\theta$
$3tan^2\theta+tan\theta-4 = 0$
tanθ = 45°
$\frac{cosec2\theta+cos\theta}{sin2\theta+cot\theta} = \frac{cosec\ 90°+cos\ 45°}{sin\ 90°+cot\ 45°} = \frac{1+\frac{1}{\sqrt{2}}}{1+1} = \frac{\sqrt{2}+1}{2\sqrt{2}} = \frac{2+\sqrt{2}}{4}$

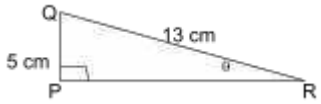
Sol 41. (d) $\frac{sinA+cosA}{cosA} = \frac{17}{12}$
⇒ cosA = $\frac{12}{13}$ and sinA = $\frac{5}{13}$
$\frac{1-cosA}{sinA} = \frac{13-12}{5} = \frac{1}{5}$

Sol 42. (a) cotθ+tanθ = 2secθ
$\frac{cos\theta}{sin\theta} + \frac{sin\theta}{cos\theta} = 2\times\frac{1}{cos\theta}$
$cos^2\theta+sin^2\theta = 2sin\theta$
$1-sin^2\theta+sin^2\theta = 2sin\theta$
$Sin\theta = \frac{1}{2}$ ⇒ θ = 30°
$\frac{tan\ 2\theta - sec\theta}{cot\ 2\theta + cosec\theta} = \frac{tan\ 60° - sec\ 30°}{cot\ 60° + cosec\ 30°} = \frac{\sqrt{3}-\frac{2}{\sqrt{3}}}{\frac{1}{\sqrt{3}}+2} = \frac{3-2}{1+2\sqrt{3}} = \frac{1}{1+2\sqrt{3}} = \frac{2\sqrt{3}-1}{11}$

Sol 43. (b) $5cos^2\theta+1 = 3sin^2\theta$
$5(1-sin^2\theta)+1 = 3sin^2\theta$
$6 = 8sin^2\theta$
sinθ = 60°
$\frac{tan\theta+sec\theta}{cot\theta+cosec\theta} = \frac{tan\ 60°+sec\ 60°}{cot\ 60°+cosec\ 60°} = \frac{\sqrt{3}+2}{\frac{1}{\sqrt{3}}+\frac{2}{\sqrt{3}}} = \frac{\sqrt{3}+2}{\sqrt{3}} = \frac{3+2\sqrt{3}}{3}$

Sol 44. (c) $(\frac{sin\ 27°}{cos\ 63°})-(\frac{cos\ 27°}{sin\ 63°})^2$
⇒ $(\frac{sin\ 27°}{sin\ 27°})-(\frac{sin\ 63°}{sin\ 63°})^2 = 1-1 = 0$

Sol 45. (a) cosec θ = $\frac{QR}{QP}$



cosec θ = $\frac{13}{5}$

Sol 46. (b) $6tan\theta-5\sqrt{3}\ sec\theta+12cot\theta = 0$
⇒ let θ = 60°
⇒ $6tan60°-5\sqrt{3}\ sec 60°+12cot60° = 0$
⇒ $6\sqrt{3}-5\sqrt{3}\times2+12\times\frac{1}{\sqrt{3}} = 0$
⇒ 0 = 0

Sol 47. (b)
([cosecA+cotA]+1)([cosecA-cotA]+1)-2cosecA
⇒
$cosec^2A-cot^2A+cosecA+cotA+cosecA-cotA+1-2cosecA$
⇒ 1+2cosecA+1-2cosecA
⇒ 2

Sol 48. (a) 5cotθ = 3

$\Rightarrow \cot\theta = \frac{3}{5}$

$\Rightarrow \cos\theta = 3x$ and $\sin\theta = 5x$

$\frac{6\sin\theta-3\cos\theta}{7\sin\theta+3\cos\theta} = \frac{30x-9x}{35x+9x} = \frac{21}{44}$

Sol 49. (c) $\frac{2\sin 22^\circ}{\cos 68^\circ} - \frac{2\cot 75^\circ}{5\tan 15^\circ} - \frac{8\tan 45^\circ \tan 20^\circ \tan 40^\circ \tan 50^\circ \tan 70^\circ}{5}$

$= 0$ ($\cos\theta = \sin(90^\circ - \theta)$ and $\tan 45^\circ = 1$)

Sol 50. (b) $\frac{3(1-2\sin^2 x)}{\cos^2 x - \sin^2 x} = \frac{3(\cos 2x)}{\cos 2x} = 3$

Sol 51. (b) $\cos 90^\circ = 0$

Therefore,

$\cos 10^\circ \cos 30^\circ \cos 50^\circ \cos 70^\circ \cos 90^\circ = 0$

Sol 52 (a) $(\operatorname{cosec} 30^\circ - \tan 45^\circ)\cot 60^\circ \tan 30^\circ = (2-1)\left(\frac{1}{\sqrt{3}}\right)\left(\frac{1}{\sqrt{3}}\right) = \frac{1}{3}$

SSC CHSL 2019

1.Sol: (a)

Minimum value of 8

$\operatorname{cosec}^2\theta + 25\sin^2\theta = 2\sqrt{25 \times 8} = 20\sqrt{2}$

2.Sol: (b)

$\frac{\cos\theta + \sin\theta}{\cos\theta - \sin\theta} = 8,$

$\cos\theta + \sin\theta = 8\cos\theta - 8\sin\theta$

$7\cos\theta = 9\sin\theta$

$\cot\theta = \frac{9}{7}$

3.Sol: (c)

$\cot A = k = \frac{B}{P}$, $H = \sqrt{1+k^2}$

$\sin A = \frac{1}{\sqrt{1+k^2}}$

4.Sol (b)

$\tan(A-B) = \frac{\tan A - \tan B}{1+\tan A \tan B}$

$\frac{\tan 60^\circ - \tan 15^\circ}{1+\tan 60^\circ \tan 15^\circ} = \tan(60^\circ - 15^\circ) = \tan(45^\circ) = 1$

5.Sol(c) $3\sec^2 x - 4 = 0,$

$\sec^2 x = \frac{4}{3}$

$\sec x = \frac{2}{\sqrt{3}}$

$x = 30^\circ$

6.Sol (a)

$4\cos^2\theta - 3\sin^2\theta + 2 = 0,$

$4\cos^2\theta - 3 + 3\cos^2\theta + 2 = 0,$

$7\cos^2\theta - 1 = 0,$

$\cos\theta = \frac{1}{\sqrt{7}} = \frac{B}{H}$

B = 1, H = $\sqrt{7}$, P = $\sqrt{6}$

Tan θ = P/B = $\sqrt{6}$

7.Sol (a)

We know that,

$\sin^2\theta^\circ + \cos^2\theta^\circ = 1,$

Therefore,

$\sin^2 45^\circ + \cos^2 45^\circ = 1$

8.Sol (a)

$\frac{\sin\theta - \cos\theta}{\sin\theta + \cos\theta}$

$= \frac{\tan\theta - 1}{\tan\theta + 1}$

Put $\tan\theta = \frac{20}{21}$, we get

$= \frac{-1}{41}$

9.Sol (b)

$\sin x = \frac{P}{H} = \frac{12}{37}$

Here Perpendicular,P = 12, Hypotenuse,H = 37, then Base,B = 35 (by pythagoras theorem)

$\tan x = \frac{P}{B} = \frac{12}{35}$

10.Sol.(B)

Put $\theta = 0^\circ$, then

A = 2-3 = -1

$\cos\alpha = \sqrt{\frac{3+A}{5+A}}$

Put value of A, we get

$\cos\alpha = \frac{1}{\sqrt{2}}$

$\alpha = 45^\circ$

So, $3\alpha = 3 \times 45^\circ = 135^\circ$

11.Sol. (D)

117 Cos ^{2} A + 129 Sin ^{2} A = 120

= 117 Cos ^{2} A + 117 Sin ^{2} A +12 Sin ^{2} A = 120

= 117 + 12 Sin ^{2} A = 120

= 12 Sin ^{2} A = 3

= Sin ^{2} A = ¼

170 Cos ^{2} B + 158 Sin ^{2} B = 161

= 12 Cos ^{2} B + 158 Cos ^{2} B + 158 Sin ^{2} B = 161

= 12 Cos ^{2} B + 158 = 161

= 12 Cos ^{2} B = 3

= Cos ^{2} B = ¼

Cosec ^{2} A Sec ^{2} B = $\frac{1}{\sin^2 A \cos^2 B} = 4 \times 4 = 16$

12.Sol: (d)

If CosA, SinA and CotA are in geometric progression,then

A = CosA × CotA

A = CosA × $\frac{CosA}{SinA}$

$Sin^3 A = Cos^2 A$

After dividing by $Cos^3 A$

$\frac{Sin^3 A}{Cos^3 A} = \frac{1}{CosA}$

$\tan^3 A$ = SecA

$\tan^6 A - \tan^2 A = Sec^2 A - Tan^2 A = 1$

13.Sol:(d)

put $\theta = 30^\circ$

$\frac{(1+\sin\theta-\cos\theta)}{(1+\sin\theta+\cos\theta)} + \frac{(1+\sin\theta+\cos\theta)}{(1+\sin\theta-\cos\theta)} = 4$

$\frac{(1+\frac{1}{2}-\frac{\sqrt{3}}{2})}{(1+\frac{1}{2}+\frac{\sqrt{3}}{2})} + \frac{1+\frac{1}{2}+\frac{\sqrt{3}}{2}}{1+\frac{1}{2}-\frac{\sqrt{3}}{2}} = 4$

$\frac{(3-\sqrt{3})^2 + (3+\sqrt{3})^2}{(3+\sqrt{3})(3-\sqrt{3})} = 4$

$\frac{24}{6} = 4$

4 = 4 (Which satisfy)

14.Sol:(c)

secA= $\frac{\sqrt{11}}{3} = \frac{h}{b}$, P= $\sqrt{2}$

$= \frac{(\frac{\sqrt{11}}{\sqrt{2}})^2 + (\frac{\sqrt{2}}{3})^2}{(\frac{\sqrt{2}}{\sqrt{11}})^2 + (\frac{3}{\sqrt{3}})^2} = \frac{11}{9}$

15.Sol:(a) Put x= 45°

$\sin^3 x - \cos^3 x = (\frac{1}{\sqrt{2}})^3 - (\frac{1}{\sqrt{2}})^3 = 0$

16.Sol:(a)

Put θ =30°

$= \frac{\sqrt{3}}{1+2} + \frac{1+2}{\sqrt{3}} = \frac{4}{\sqrt{3}}$

Put the value of θ, in option (a) which satisfies.

17.Sol:(c)

tanx = $\frac{m}{n} = \frac{p}{b}$

h= $\sqrt{m^2+n^2}$

$\sin x + \cos x = \frac{m+n}{\sqrt{m^2+n^2}}$

18.Sol:(c)

$\cos x = \frac{24}{25} = \frac{B}{H}$

$P = \sqrt{25^2 - 24^2} = 7$

$\cos x + \operatorname{cosec} x = \frac{B}{P} + \frac{H}{P} = \frac{24+25}{7} = 7$

19.Sol: (d)

sum of roots = $\sec\theta + \sin\theta = \frac{-b}{a} = \frac{k}{\sqrt{6}}$

product of roots = $\sec\theta \times \sin\theta = \tan\theta = \frac{c}{a} = \frac{\sqrt{6}}{\sqrt{6}} = 1$

$\tan\theta = 1$

it means, $\theta = 45°$

$\sec\theta + \sin\theta = \frac{k}{\sqrt{6}}$

$\sqrt{2} + \frac{1}{\sqrt{2}} = \frac{k}{\sqrt{6}}$

$\frac{3}{\sqrt{2}} = \frac{k}{\sqrt{6}}$

$k = 3\sqrt{3}$

20.Sol: (c)

$\frac{3\sin x + 2\cos x}{3\sin x - 2\cos x}$, on dividing by cosx

$\frac{3\tan x + 2}{3\tan x - 2}$

$\frac{\frac{9}{2}+2}{\frac{9}{2}-2} = \frac{13}{5}$

21.Sol: (c)

$\frac{4\tan 62°\sec 28°\cot 38°}{\operatorname{cosec} 62°\tan 11°} = 1$

or $A = \frac{\operatorname{cosec} 62°\tan 11°}{\tan 62°\sec 28°\cot 38°}$

$A = \frac{\sec 28°\tan 79°}{\tan 62°\sec 28°\cot 38°}$

$A = \frac{\tan 79°}{\tan 62°\cot 38°}$

22.Sol. (c)

$\tan^4 x - \tan^2 x = 1$

$\tan^4 x = 1 + \tan^2$

$\tan^4 x = \sec^2 x$

$\sin^4 x = \cos^2 x$

Therefore, $\sin^4 x + \sin^2 x = \cos^2 x + \sin^2 x = 1$

23.Sol: (d)

Put x = 90°

$\sin 90° + \operatorname{cosec} 90° = 1+1 = 2$

(which satisfy)

$\sin^{17} x + \operatorname{cosec}^{18} x = 1+1 = 2$

24.Sol: (c)

$\sin\theta - \cos\theta = \frac{7}{17}$

$\frac{p}{h} - \frac{b}{h} = \frac{7}{17}$ (here, H = 17 or its multiple)

We know,

15, 8 and 17 make right angle triangles.

Put, p = 15 and b = 8

$\sin\theta + \cos\theta. = \frac{p}{h} + \frac{b}{h}$

$= \frac{15+8}{17} = \frac{23}{17}$

25.Sol: (b)

$\cos x = -½$

$\cos x = \cos 120°$

$x = 120°$ or $\frac{2\pi}{3}$

26.Sol: (d)

$\frac{\cos x}{1+\sin x} + \frac{1+\sin x}{\cos x}$

$\frac{\cos^2 x + (1+\sin x)^2}{(1+\sin x)\cos x}$

$\frac{2+2\sin x}{(1+\sin x)\cos x}$

$= \frac{2(1+\sin X)}{(1+\sin x)\cos x}$

$= 2\sec x$

27.Sol: (d)

$\cos x = \frac{p}{q} = \frac{b}{h}$

then, $P = \sqrt{q^2 - p^2}$

$\tan x = \frac{\sqrt{q^2-p^2}}{p}$

28.Sol: (a)

$\sin x - \cos x = 0$,

Put, x = 45°

$(\sec x + \operatorname{cosec} x)^2 = (\sqrt{2} + \sqrt{2})^2$

$= 8$

29.Sol: (c)

$\sin x = \frac{2}{3} = \frac{P}{H}$, $b = \sqrt{3^2 - 2^2} = \sqrt{5}$

$\cos x = \frac{\sqrt{5}}{3}$

$\cos 3x = 4\cos^3 x - 3\cos x$

$\cos 3x = 4 \times \frac{5\sqrt{5}}{27} - \sqrt{5}$

$\cos 3x = \frac{20\sqrt{5} - 27\sqrt{5}}{27} = \frac{-7\sqrt{5}}{27} = \frac{-15.652}{27} = -0.5797$

30.Sol: (d)

$\sin^2 35 + \sin^2 55. =$

$\sin^2 35 + \cos^2 35 = 1$

31.Sol: (b)

$\tan\theta + \cot\theta = 6$,

on squaring both sides:

$(\tan\theta + \cot\theta)^2 = 36$

$\tan^2\theta + \cot^2\theta + 2 = 36$

$\tan^2\theta + \cot^2\theta = 34$

32.Sol: (a)

$\frac{\cos^2 30° - \sin^2 30°}{\sin^2 15° + \cos^2 15°} = \frac{\frac{3}{4} - \frac{1}{4}}{1} = \frac{1}{2}$

33.Sol: (c)

$\sec\theta - \tan\theta = 3$,

$\sec\theta + \tan\theta = \frac{1}{3}$

$2\sec\theta = 3 + \frac{1}{3}$

$\sec\theta = \frac{5}{3}$

then, $\cos\theta = \frac{3}{5}$

34.Sol: (b)

$\tan^2 x - 3\sec^2 x + 3 = 0$,

put x = 0°

$\tan^2 x - 3\sec^2 x + 3 = 0$,

0-3+3 = 0 (which satisfy)

35.Sol: (d)

$\cos^2\theta + \cos^4\theta = 1$

$\cos^4\theta = 1 - \cos^2\theta$

$\cos^4\theta = \sin^2\theta$

Or $\cos^2\theta = \sin\theta$

$\sin\theta + \sin^2\theta = \cos^2\theta + \cos^4\theta = 1$

36.Sol: (d)

$\cos(A+B) = 0$, it means $(A+B) = 90°$

$\sin(A-B) = \frac{1}{2}$, it means $(A-B) = 30°$

On solving,

B = 30°

37.Sol: (c)

$\operatorname{cosec}\theta = \frac{x^2 + y^2}{x^2 - y^2} = \frac{h}{p}$

b = 2xy

$\tan\theta = \frac{p}{b} = \frac{x^2 - y^2}{2xy}$

Pinnacle

38.Sol: (d)
$\sin\theta + \operatorname{cosec}\theta = 2$
Put $\theta = 90°$
$\sin^2\theta + \operatorname{cosec}^2\theta = 1+1 = 2.$

39.Sol: (a)
$\sin20° \cos70° + \sin70° \cos20°$
$\sin20° \cos70° + \cos20° \sin70°$
$\sin(20°+70°) = \sin 90° = 1$

40.Sol: (a)
$\tan4A = \cot(A-20°)$
$\tan4A = \tan(90°-A+20°)$
$4A = 110°-A$
$5A = 110°$
$A = 22°$

41.Sol: (d)
$QR = \sqrt{13^2 - 12^2} = 5$
$\sin\theta + tan\theta = \frac{12}{13} + \frac{12}{5} = \frac{60+156}{65} = \frac{216}{65}$

42.Sol: (c)
$\cot35°\cot40°\cot45°\cot50°\cot55°$
$\cot35°\cot40°\cot45°\tan40°\tan35°$
$= 1$

43.Sol: (a)
$2\,sin^2x + 3sinx - 2=0$
$2\,sin^2x - 4sinx + sinx - 2=0$
$2\sin x(\sin x-2) +1(\sin x-2)$
$(2\sin x+1)(\sin x-2)=0$
So $\sin x= \frac{1}{2}$
$x=30°$

44.Sol: (c)
$2\sin^2x+ \sqrt{3}\cos x + 1 = 0$
Go through option: (c)
$\frac{5\Pi}{6} = 150°$
$2\sin^2150°+ \sqrt{3}\cos 150° + 1 = 0$
$2 \times (\frac{1}{2})^2 + \sqrt{3} \times (-\frac{\sqrt{3}}{2}) + 1 = 0$
$\frac{1}{2} - \frac{3}{2} + 1 = 0$ (which satisfy)

45.Sol: (d)
$\tan(63° - \theta) - \cot(27° + \theta) + \frac{cosec^2\,70 - tan^2\,20}{sec^2\,37 - cot^2\,53}$ is:
$\tan(63° - \theta)-\tan(63° - \theta)+ \frac{cosec^2\,70 - tan^2\,20}{sec^2\,37 - cot^2\,53}$
(here 70+20 = 90 and 53+37 = 90, we can put 45°)
$= 0+ \frac{2-1}{2-1}$
$= 1$

46.Sol: (b)
$x = \operatorname{cosec}A + \cos A$
Put $A = 45°$
$x = \sqrt{2} + \frac{1}{\sqrt{2}} = \frac{3}{\sqrt{2}}$
$y = \operatorname{cosec}A - \cos A$
$= \sqrt{2} - \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$
$x+y = \frac{3}{\sqrt{2}} + \frac{1}{\sqrt{2}} = 2\sqrt{2}$
$x-y = \frac{3}{\sqrt{2}} - \frac{1}{\sqrt{2}} = \sqrt{2}$
$(\frac{2}{x+y})^2+(\frac{x-y}{2})^2 - 1$
$= (\frac{2}{2\sqrt{2}})^2+(\frac{\sqrt{2}}{2})^2 - 1.$
$= 0$

47.Sol: (c)
$3b\,\operatorname{cosec}\theta = a\sec\theta$
$b = \frac{a\sec\theta}{3\,Cosec\,\theta}$
$3a\sec\theta - b\,\operatorname{cosec}\theta = 8$
$3a\sec\theta - \frac{a\sec\theta}{3\,Cosec\,\theta} \times \operatorname{cosec}\theta = 8$
$8a\sec\theta = 24$
$a\sec\theta = 3$
$a = 3\cos\theta$
$3b\,\operatorname{cosec}\theta = a\sec\theta$
$3b\,\operatorname{cosec}\theta = 3$
$b\,\operatorname{cosec}\theta = 1$
$b = \sin\theta$
$9b^2 + a^2$
$9(sin^2\theta) +(3\cos\theta)^2$
$= 9sin^2\theta + 9cos^2\theta$
$= 9$

48.Sol: (b)
$\operatorname{cosec}^2x - 2 = 0$
$\operatorname{cosec}^2x = 2$
$\operatorname{cosec}x = \sqrt{2}$
$x = 45°$

49.Sol: (a)
$\sin 60° \cos30° - \cos60° \sin30°$
$\frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} - \frac{1}{2} \times \frac{1}{2}$
$\frac{3}{4} - \frac{1}{4} = \frac{1}{2}$

50.Sol: (a)
$Sin^4\theta + Cos^4\theta + 2Sin^2\theta Cos^2\theta$
$= (sin^2\theta + cos^2\theta)^2 = 1$

51.Sol: (a)
$\sec A = \frac{5}{3}, = \frac{h}{b}$
$p = \sqrt{5^2 - 3^2} = 4$
$\cot A = \frac{3}{4}$

52.Sol: (d)
$\cos A = 2 \sin A$
$\frac{CosA}{SinA} = 2$
$\tan A =2 = \frac{p}{b}$
$h = \sqrt{2^2 + 1} = \sqrt{5}$
$\operatorname{cosec} A = \frac{\sqrt{5}}{1} = \sqrt{5}$

53.Sol: (b)
$\cos 3\theta = sin\,(\theta - 34°),$
$\cos 3\theta = Cos\,(90° - \theta + 34°),$
$3\theta = 90° - \theta + 34°$
$4\theta = 124°$
$\theta = 31°$

54.Sol: (b)
$\sqrt{3}cos\theta = sin\,\theta,$
$tan\,\theta = \sqrt{3}$
$\theta = 60°$
$\frac{4sin^2\theta - 5\cos\theta}{3\cos\theta + 1} = \frac{4\times\frac{3}{4} - \frac{5}{2}}{\frac{3}{2}+1} = \frac{1}{5}$

55.Sol: (a)
$\Rightarrow x\,sin\theta = y\,cos\theta$
$\Rightarrow x\,sin^3\theta + ycos^3\theta = sin\theta\,cos\theta$
$\Rightarrow x\,sin^3\theta + \frac{x\,sin\theta}{cos\theta} \times cos^3\theta = sin\theta\,cos\theta$
$\Rightarrow x\,sin^3\theta + x\,sin\theta \times cos^2\theta = sin\theta\,cos\theta$
$\Rightarrow x\,sin\theta(sin^2\theta + cos^2\theta) = sin\theta\,cos\theta$
$\Rightarrow x\,sin\theta = sin\theta\,cos\theta$
$\Rightarrow x = cos\theta$
$\Rightarrow x\,sin\theta = y\,cos\theta$
$\Rightarrow cos\theta.\ sin\theta = ycos\theta$

Pinnacle

$\Rightarrow y = \sin\theta$

$\Rightarrow x^2 + y^2 = \sin^2\theta + \cos^2\theta = 1$

56.Sol.(b)

if $\tan 2\theta . \tan 3\theta = 1$

It means, $2\theta + 3\theta = 90^\circ$

$\theta = 18^\circ$

57.Sol.(a)

$\sin(A+B) = \frac{\sqrt{3}}{2}$

$A+B = 60^\circ$

$\cos(A-B) = \frac{\sqrt{3}}{2}$

$(A-B) = 30^\circ$

On solving,

$A = 45^\circ$ and $B = 15^\circ$

58.Sol: (b)

$\cot\theta = \frac{3}{\sqrt{5}}$

$\tan^2\theta = \frac{5}{9}$

$\frac{6\sec^2\theta - \frac{5}{3}\operatorname{cosec}^2\theta}{\frac{3}{5}\sec^2\theta + \frac{4}{3}\operatorname{cosec}^2\theta}$

On multiplying by $\sin^2\theta$

$\frac{6\tan^2\theta - \frac{5}{3}}{\frac{3}{5}\tan^2\theta + \frac{4}{3}} = \frac{6\times\frac{5}{9} - \frac{5}{3}}{\frac{3}{5}\times\frac{5}{9} + \frac{4}{3}} = 1$

59.Sol: (d)

$\cot A = \tan(2A - 45^\circ)$

$\cot A = \cot(90^\circ - 2A + 45^\circ)$

$A = 90^\circ - 2A + 45^\circ$

$3A = 135^\circ$

$A = 45^\circ$

$\tan A = \tan 45^\circ = 1$

60.Sol: (d)

$\sin^2 38^\circ - \cos^2 52^\circ$

$\sin^2 38^\circ - \sin^2 38^\circ = 0$

61.Sol: (b)

We know,

$\sec^2 B - \tan^2 B = 1$

$\sec^2 B - \tan^2 B = (\sec B + \tan B)(\sec B - \tan B)$

$1 = r(\sec B - \tan B)$

$(\sec B - \tan B) = \frac{1}{r}$

62.Sol. (c) :

$\frac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta} = 3$

$\frac{\sin\theta}{\cos\theta} = 2$

$\frac{3\sin\theta + 4\cos\theta}{8\cos\theta - 3\sin\theta} = \frac{6+4}{8-6} = 5$

63.Sol (b) :

if $\sin A = \cos B$, then $A + B = 90^\circ$

Therefore , $7x + 11x = 90^\circ$

$x = 5^\circ$

$\tan 9x = \tan 45^\circ = 1$

64.Sol.(a)

$\frac{\cos A}{\operatorname{Cosec} A + 1} + \frac{\cos A}{\operatorname{Cosec} A - 1} = 2$

$\frac{\cos A(2\operatorname{cosec} A)}{\operatorname{cosec}^2 - 1} = 2$

$\frac{\sin A}{\cos A} = 1$

$\tan A = 1$

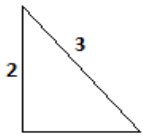
$A = 45^\circ$

65.Sol (d):

$\frac{\sec\theta + \tan\theta}{\sec\theta - \tan\theta} = 5$

$\frac{\sec\theta}{\tan\theta} = \frac{3}{2}$

$\sin\theta = 3/2$



$H = 3, P = 2, B = \sqrt{5}$

$\frac{3\cos^2\theta + 1}{3\cos^2\theta - 1} = \frac{\frac{5}{3}+1}{\frac{5}{3}-1} = \frac{8}{2} = 4$

66.Sol (d)

$\sin(\theta + 30^\circ) = \frac{3}{\sqrt{12}} = \frac{\sqrt{3}}{2}$,

$\sin(\theta + 30^\circ) = \sin 60^\circ$

$\theta = 30^\circ$

67.Sol (a)

$\sin(A-B) = \frac{1}{2} = \sin 30^\circ$

$A - B = 30^\circ$……...1

$\cos(A+B) = \frac{1}{2} = \cos 60^\circ$

$A + B = 60^\circ$……...2

By eq (1) and (2),

$A = 45^\circ$

68.Sol (d)

$\alpha + \beta = 90^\circ$

$2\beta + \beta = 90^\circ$

$\beta = 30^\circ$

$\alpha = 60^\circ$

$\cos^2\alpha + \sin^2\beta = \cos^2 60 + \sin^2 30$

$= 1/2$

69.Sol (a)

$\sec\theta + \tan\theta = 2 + \sqrt{5}$ ……..1

$\sec\theta - \tan\theta = 1/(2 + \sqrt{5}) = \sqrt{5} - 2$.....2

Add eq 1 and eq 2, we get

$2\sec\theta = 2\sqrt{5}$

$\sec\theta = \sqrt{5} = \frac{H}{B}$

$H = \sqrt{5}$, B = 1 therefore P = 2

$\sin\theta = \frac{p}{H} = \frac{2}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$

70.Sol (b)

$x\cos\theta - y\sin\theta = 2$

$x\sin\theta - y\cos\theta = 4$

$x^2 + y^2 = 2^2 + 4^2$

$x^2 + y^2 = \mathbf{20}$

71.Sol(a):

$\tan\theta + \cot\theta = 2$

Put $\theta = 45^\circ$, we get LHS = RHS

$\tan^{100}\theta + \cot^{100}\theta$

1+1 = 2

72.Sol (a)

$\cot A + \operatorname{Cosec} A = 3$

$\operatorname{Cosec} A - \cot A = 3$

By solving both above equations, we get

$\operatorname{Cosec} A = 5/3 = H/P$

Here we get H = 5, P = 3, then B = 4

Cos A = B/H = ⅘

73.Sol (d)

$\operatorname{cosec}\theta = \frac{13}{12} = \frac{H}{P}$

So, Base, B = 5

$\frac{2\sin\theta - 3\cos\theta}{4\sin\theta - 9\cos\theta} = \frac{2\times\frac{12}{5} - 3}{4\times\frac{12}{5} - 9} = 9/3 = 3$

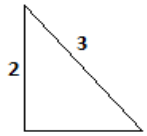
74.Sol (d):

$\frac{\sec\theta + \tan\theta}{\sec\theta - \tan\theta} = 5$

$\frac{\sec\theta}{\tan\theta} = \frac{3}{2}$

$\sin\theta = 3/2$

Pinnacle



H = 3, P = 2, B = $\sqrt{5}$

$\frac{3cos^2\theta+1}{3cos^2\theta-1} = \frac{\frac{5}{3}+1}{\frac{5}{3}-1} = \frac{8}{2} = 4$

75.Sol (d)

$sin(\theta + 30°) = \frac{3}{\sqrt{12}} = \frac{\sqrt{3}}{2}$,

$sin(\theta + 30°) = sin\ 60°$

$\theta = 30°$

76.Sol (a)

sin(A-B) = $\frac{1}{2}$ = sin 30°

A-B = 30°……...1

cos(A+B) = $\frac{1}{2}$ = cos 60°

A + B = 60°……...2

By eq (1) and (2),

A = 45°

77.Sol . (d)

cos 27° = x

sin 63° = cos 27° = x

cos 63° = $\sqrt{1 - x^2}$

Tan63° = $\frac{x}{\sqrt{1-x^2}}$

78.Sol. (b)

Given:- sin(3x - 40°) = cos(3y + 40°)

⇒ sin(3x - 40°) = sin [90° - (3y + 40°)]

⇒ 3x - 40° = 90° - 3y - 40°

⇒ 3x + 3y = 90° + 40° - 40°

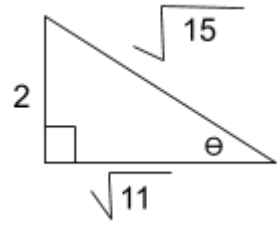
⇒ 3(x + y) = 90°

⇒ x + y = 30°

tan (x + y) = tan 30° = $\frac{1}{\sqrt{3}}$

79.Sol. (d)

tan θ = $\frac{2}{\sqrt{11}}$



cosec θ = $\frac{\sqrt{15}}{2}$, sec θ = $\frac{\sqrt{15}}{\sqrt{11}}$

⇒ $\frac{2cosec^2\theta-3sec^2\theta}{3cosec^2\theta+4sec^2\theta}$ =

$\frac{2(\frac{\sqrt{15}}{2})^2-3(\frac{\sqrt{15}}{\sqrt{11}})^2}{3(\frac{\sqrt{15}}{2})^2+4(\frac{\sqrt{15}}{\sqrt{11}})^2} = \frac{2(\frac{1}{4})-3(\frac{1}{11})}{3(\frac{1}{4})+4(\frac{1}{11})} =$

$\frac{22-12}{33+16} = \frac{10}{49}$

Sol 80. (b)

$\frac{Cos30°-sin30°}{Sin60°+Cos60°} \Rightarrow \frac{\frac{\sqrt{3}}{2}-\frac{1}{2}}{\frac{\sqrt{3}}{2}+\frac{1}{2}} = \frac{\sqrt{3}-1}{\sqrt{3}+1}$

$= \frac{\sqrt{3}-1}{\sqrt{3}+1} \times \frac{\sqrt{3}-1}{\sqrt{3}-1} = \frac{(\sqrt{3}-1)^2}{3-1} =$

$\frac{3+1-2\sqrt{3}}{2} = \frac{4-2\sqrt{3}}{2} = 2 - \sqrt{3}$

Sol 81. (c)

$sec^2x - 3secx + 2 = 0$

$\Rightarrow \sec x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(2)}}{2}$

$\Rightarrow \sec x = \frac{-(-3) \pm \sqrt{9-8}}{2}$

$\Rightarrow \sec x = \frac{3 \pm 1}{2}$

$\Rightarrow \sec x = \frac{4}{2}, \frac{2}{2}$

$\Rightarrow \sec x = 2, 1$

x = 60°

Sol 82. (d)

$cosec\theta + cot\theta = 2$ … (i)

We know:- $cosec^2\theta - cot^2\theta = 1$

$\Rightarrow (cosec\theta - cot\theta)(cosec\theta + cot\theta) = 1$

$\Rightarrow cosec\theta - cot\theta = ½$ … (ii)

(i) + (ii) ⇒ 2 cosec θ = 2 + ½

2 cosec θ = $\frac{5}{2}$

⇒ cosec θ = $\frac{5}{4}$

⇒ sin θ = $\frac{4}{5}$

Sol 83. (d)

$(\sin\theta + cos\theta)^2 = 2,\ 0° < \theta < 90°$

$\Rightarrow \sin^2\theta + \cos^2\theta + 2\sin\theta.\cos\theta = 2$

$\Rightarrow 1 + 2\sin\theta.\cos\theta = 2$

$\Rightarrow 2\sin\theta.\cos\theta = 1$

$\Rightarrow \sin\theta.\cos\theta = ½$

At θ = $\frac{\pi}{4}$, $\sin\frac{\pi}{4}.\cos\frac{\pi}{4} = ½$

Sol 84. (a)

cosecA = $\frac{25}{7}$

sin A = $\frac{7}{25}$

cos A = $\frac{24}{25}$

Tan A = $\frac{7}{24}$

Sol 85. (a)

cos 225° = cos (180 + 45)° = -

cos 45° = - $\frac{1}{\sqrt{2}}$ = - $\frac{1}{1.414}$ = - 0.7071

Sol 86. (b)

cotθ = $\frac{80}{39} = \frac{b}{p}$ then H = 89

Cosecθ = $\frac{89}{39}$

Sol 87.(b)

$Sin3\theta = 3Sin\theta - 4sin^3\theta$

$= 3 \times \frac{4}{5} - 4 \times \frac{64}{125}$

$= \frac{12}{5} - \frac{256}{125}$

$= \frac{44}{125}$

Sol 88. (a)

tan a = $\frac{2}{\sqrt{13}} = \frac{p}{b}$ then h = $\sqrt{17}$

cosecA = $\frac{\sqrt{17}}{2}$, secA = $\frac{\sqrt{17}}{\sqrt{13}}$

$cosec^2A = \frac{17}{4}$, $sec^2A = \frac{17}{13}$

$\frac{cosec^2a+2sec^2a}{cosec^2a-3sec^2a} = \frac{\frac{17}{4}-\frac{34}{13}}{\frac{17}{4}-\frac{51}{13}} = \frac{357}{17} = 21$

Sol 89. (b)

Given: a sinA + b cosA = c …. (i)

Let, a cosA - b sinA = x …. (ii)

On squaring and adding both equations; we get:-

$a^2 + b^2 = c^2 + x^2$

$x = \sqrt{a^2 + b^2 - c^2}$

Sol 90. (b)

$\frac{1-tan\ A}{1+tan\ A} = \frac{tan\ 3°\ tan\ 15°\ tan\ 30°\ tan\ 75°\ tan\ 87°}{tan\ 27°tan\ 39°\ tan\ 51°\ tan\ 60°\ tan\ 63°}$

⇒

$\frac{1-tan\ A}{1+tan\ A} = \frac{tan\ 3°\ tan\ 15°\ tan\ 30°\ cot\ 15°\ cot\ 3°}{tan\ 27°tan\ 39°\ cot\ 39°\ tan\ 60°\ cot\ 27°}$

⇒ $\frac{1-tan\ A}{1+tan\ A} = \frac{tan\ 30°}{tan\ 60°}$

Pinnacle

$\Rightarrow \frac{\frac{1}{\tan A}-\frac{\tan A}{\tan A}}{\frac{1}{\tan A}+\frac{\tan A}{\tan A}} = \frac{\frac{1}{\sqrt{3}}}{\sqrt{3}}$

$\Rightarrow \frac{\cot A - 1}{\cot A + 1} = \frac{1}{3}$

$\Rightarrow 3 \cot A - 3 = \cot A + 1$

$\Rightarrow 2 \cot A = 4$

$\Rightarrow \cot A = 2$

Sol 91. (d)

$\frac{Sin\ 30°\ Cos\ 60°\ + Cos\ 45°\ Sin\ 45°}{tan\ 60°\ Cot\ 30°} =$

$\frac{(\frac{1}{2})(\frac{1}{2}) + (\frac{1}{\sqrt{2}})(\frac{1}{\sqrt{2}})}{(\sqrt{3})(\sqrt{3})} = \frac{\frac{1}{4}+\frac{1}{2}}{3} = \frac{\frac{3}{4}}{3}$

$= \frac{1}{4}$

Sol 92. (b)

$\frac{Sin\ x + Cos\ x}{Sin\ x - Cos\ x} = \frac{6}{5}$

Divide by cos x :-

$\Rightarrow \frac{\tan x + 1}{\tan x - 1} = \frac{6}{5}$

$\Rightarrow 5(\tan x + 1) = 6(\tan x - 1)$

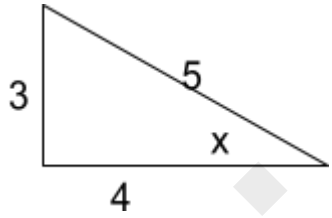
$\Rightarrow 5\tan x + 5 = 6\tan x - 6$

$\Rightarrow \tan x = 11$

$\frac{tan^2 x + 1}{tan^2 x - 1} = \frac{11^2+1}{11^2-1} = \frac{121+1}{121-1} = \frac{122}{120} = \frac{61}{60}$

Sol 93. (b)

$Sin\ x = \frac{3}{5}$ …. (given)

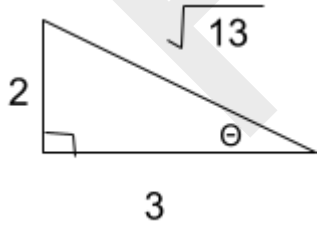


$Cot\ x.Sec\ x = (\frac{4}{3})(\frac{-5}{4}) = \frac{-5}{3}$

Sol 94. (b)

$2cot\theta = 3$ (given)

$cot\theta = \frac{3}{2}$



$\frac{\sqrt{13}Cos\theta - 3tan\theta}{3tan\theta + \sqrt{13}\ Sin\theta}$

$\Rightarrow \frac{\sqrt{13}\times(\frac{3}{\sqrt{13}}) - 3\times(\frac{2}{3})}{3\times(\frac{2}{3}) + \sqrt{13}\times(\frac{2}{\sqrt{13}})}$

$\Rightarrow \frac{3-2}{2+2} = \frac{1}{4}$

Sol 95. (d)

Given: $2x = sin\theta$ and $\frac{2}{x} = cos\theta$

$\sin^2\theta + \cos^2\theta = 1$

$(2x)^2 + (\frac{2}{x})^2 = 1$

$4x^2 + \frac{4}{x^2} = 1$

Thus,

$4(x^2 + \frac{1}{x^2}) = 1$

Sol 96. (d)

x = tan40° …. (given)

Then, 2tan50° = 2 cot 40° = $\frac{2}{x}$

97.Sol: (a)

$\frac{\sqrt{Cosecx-1}}{\sqrt{Cosecx+1}}$ (on rationalization)

$\frac{\sqrt{Cosecx-1}}{\sqrt{Cosecx+1}} \times \frac{\sqrt{Cosecx-1}}{\sqrt{Cosecx-1}}$

$= \frac{Cosecx-1}{\sqrt{Cosec^2x-1}}$

$= \frac{Cosecx-1}{cot\ x}$

$= \frac{cosec\ x}{cot\ x} - \frac{1}{cot\ x}$

$= secx - tanx$

98.Sol: (d)

$\frac{Cos29°.cosec61°tan45°+2sin35°sec55°}{3sin^2 42° + 3sin^2 48}$

$\frac{Cos\ 29°.Sec\ 29°tan\ 45°+2\ sin\ 35°\ Cosec\ 35°}{3sin^2 42° + 3sin^2 48}$

$\frac{1+2}{3(Sin^2 42° + Cos^2 42°)}$

$= \frac{3}{3}$

$= 1$

99.Sol: (b)

$x\ sin30°cos60° = sin45°.cos45°,$

$x \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}}$

$x \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{2}$

$x = 2$

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100.Sol: (d)

Puting value of all trigonometric functions

$\frac{(2)^2.(\frac{1}{\sqrt{2}})^2 + (2)^2}{\sqrt{3}\ (\sqrt{2})^2 - (2)^2.1}$

$\frac{4 * \frac{1}{2} + 4}{2\sqrt{3} - 4}$

$\frac{6}{2(\sqrt{3}-2)}$

$\frac{3}{\sqrt{3}-2}$

$-\frac{3}{2-\sqrt{3}}$ on rationalisation

$-3(2+\sqrt{3})$

101.Sol: (a)

$\frac{sin\theta[(1-tan\theta)tan\theta + sec^2\theta]}{(1-sin\theta)tan\theta(1+tan\theta)(sec\theta+ta}$

$\Rightarrow \frac{sin\theta[tan\theta - tan^2\theta + sec^2\theta]}{(sec\theta - tan\theta)sin\theta(1+tan\theta)(sec\theta}$

$\Rightarrow \frac{sin\theta(1+tan\theta)}{sin\theta(1+tan\theta)}$

$\Rightarrow 1$

102.Sol:(d)

cos A(sec A-cos A)(cot A+tan A)

$cos\ A\ (\frac{1}{cos\ A} - cos\ A)(\frac{cos\ A}{sin\ A} + \frac{sin A}{cos A})$

$cos\ A(\frac{1-cos^2 A}{cos\ A})(\frac{cos^2 A + sin^2 A}{sin\ A\ cos\ A})$

$cos\ A\ (\frac{sin^2 A}{cos\ A})(\frac{1}{sin\ A\ cos\ A})$

$\frac{sin\ A}{cos\ A} = tan\ A$

103.Sol: (b)

3A +A+10=90°

A = 20°

$2cosec\ 30°$

$+ 6sin^2 60° - \frac{3}{2}tan^2 60°$

$2 \times 2 + 6 \times \frac{3}{4} - \frac{3}{2} \times 3$

$= 4$

104.Sol:(a)

Solving separately

$(\frac{1}{cos\theta} - \frac{1}{sin\theta}) = \sec\theta - cosec\theta$

We know that

$cosec^2\theta - cot^2\theta = 1$

$\frac{1}{cosec\theta - cot\theta} = cosec\theta + cot\theta$

Similarly $\frac{1}{sec\theta + tan\theta} = sec\theta - tan\theta$

Now combining

$\sec\theta - cosec\theta + cosec\theta + cot\theta - \sec\theta + \tan\theta$

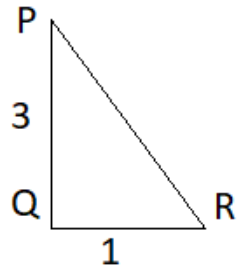
$\cot\theta + \tan\theta$

$\frac{sin\theta}{cos\theta} + \frac{cos\theta}{sin\theta} = \frac{sin^2\theta + cos^2}{sin\theta\ cos\theta} = \frac{1}{sin\theta\ cos\theta}$

$= sec\theta\ cosec\theta$

105.Sol:(b)

Pinnacle



$PR = \sqrt{3^2 + 1^2} = \sqrt{10}$

$\frac{secP(cosR+sinP)}{cosec\,R\,(sinR-cosecP)} = \frac{\frac{\sqrt{10}}{3}(\frac{1}{\sqrt{10}}+\frac{1}{\sqrt{10}})}{\frac{\sqrt{10}}{3}(\frac{3}{\sqrt{10}}-\frac{\sqrt{10}}{1})} =$

$\frac{\frac{2}{3}}{\frac{\sqrt{10}}{3}(-\frac{7}{\sqrt{10}})} = \frac{\frac{2}{3}}{-\frac{7}{3}} = -\frac{2}{7}$

106.Sol:(c)

$\sec\theta = \frac{a}{b} = \frac{hypotenuse}{base}$

Perpendicular $= \sqrt{a^2 - b^2}$

$\tan\theta = \frac{\sqrt{a^2-b^2}}{b}$

$\sin\theta = \frac{\sqrt{a^2-b^2}}{a}$

$\frac{1-tan^2\theta}{2-sin^2\theta} = \frac{1-\frac{a^2-b^2}{b^2}}{2-\frac{a^2-b^2}{a^2}} = \frac{a^2(2b^2-a^2)}{b^2(a^2+b^2)}$

107.Sol:(a)

$\frac{sec^2\theta(1+tan^2\theta+1+cot^2\theta)\div(sin^2\theta-tan^2\theta)}{(cosec^2\theta+sec^2\theta)(1+cot^2\theta)^2}$

$\frac{sec^2\theta(sec^2\theta+cosec^2\theta)}{(sin^2\theta-tan^2\theta)(cosec^2\theta+sec^2\theta)(cosec^2\theta)^2}$

$\frac{sec^2\theta}{(sin^2\theta-tan^2\theta)(cosec^2\theta)^2}$

Put value = 45° or(change each and every function into sin θ and cos θ)

$\frac{2}{-\frac{1}{2}\times 4} = -1$

108.Sol:(d)

$\frac{2\,sin^2 38°\,sec^2 52°+cos\,64°\,sin\,26°+sin^2 64°}{tan^2 23°+cot^2 23°-sec^2 67°-cosec^2 67°}$

$\frac{2\,sin^2 38°\,\frac{1}{sin^2 38°}+cos\,64°\,cos\,64°+sin^2 64°}{tan^2 23°+cot^2 23°-cosec^2\,23°-cosec^2 23°}$

$\frac{2\,sin^2+cos^2\,64°+sin^2 64°}{-2}$

$\frac{2+1}{-2}$

$-\frac{3}{2}$

109.Sol:(c)

$\frac{cos^6\theta+sin^6\theta+3sin^2\theta\,cos^2\theta\times 1}{cosec\theta\,sec\theta(sin\theta+cos\theta-1)(sin\theta+cos\theta+1)}$

$\frac{cos^6\theta+sin^6\theta+3sin^2\theta\,cos^2\theta\times(sin^2\theta+cos^2\theta)}{cosec\theta\,sec\theta(sin^2\theta+cos^2\theta+2sin\theta cos\theta-1)}$

$\frac{(sin^2\theta+cos^2\theta)^3}{cosec\theta\,sec\theta(\,2sin\theta cos\theta\,)}$

$\frac{(1)^3}{\frac{1}{sin\theta\,cos\theta}(\,2sin\theta cos\theta\,)}$

$\frac{1}{2}$

110.Sol:(a)

$sin^2 33° = cos^2(90° - 33°)$

$sin^2 33° = cos^2(57°)$

$cot^2 33° + sin^2 57° + cos^2(57°) +$

$cosec^2 57° cos^2 33° + sec^2 33° sin^2 57°$

$\Rightarrow cot^2 33° + 1 + sec^2 33° cos^2 33° +$

$sec^2 33° cos^2 33°$

$\Rightarrow cot^2 33° + 1 + 2sec^2 33° cos^2 33°$

$\Rightarrow tan^2 57° + 1 + 2$

$\Rightarrow sec^2 57° + 2$

$\Rightarrow x^2 + 2$

111Sol:(a)

Put A = 45°

$(1 + 1 - 2) - \sqrt{2} \times \sqrt{2}$

$-2 \times 2 = -4$

112.Sol:(b)

$\frac{5cos^2 60° + 4sec^2 30° - tan^2 45°}{tan^2 60° - sin^2 30° - cos^2 45°}$

$\frac{5\frac{1}{4} + 4\frac{4}{3} - 1}{3 - \frac{1}{4} - \frac{1}{2}} = \frac{\frac{5}{4} + \frac{16}{3} - 1}{2\frac{1}{4}} = \frac{67}{27}$

113.Sol:(d)

According to the question

$2\theta + 54° + \theta = 90°$

$\theta = 12°$

$\frac{1}{tan5\theta + cosec\frac{5\theta}{2}}$

$\frac{1}{tan\,60° + cosec\,30°}$

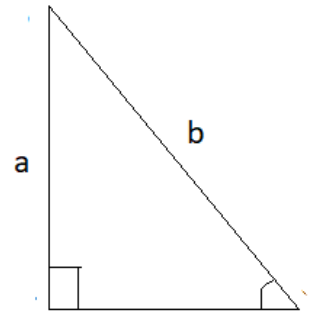
$\frac{1}{\sqrt{3}+2}$

$\frac{1}{\sqrt{3}+2} \times \frac{\sqrt{3}-2}{\sqrt{3}-2}$

$\frac{\sqrt{3}-2}{-1}$

$2 - \sqrt{3}$

114.Sol:(a)



Base $= \sqrt{b^2 - a^2}$

$\cot\theta = \frac{\sqrt{b^2-a^2}}{a}$

$\tan\theta = \frac{a}{\sqrt{b^2-a^2}}$

$\frac{\sqrt{3}cot\theta + 1}{tan\theta + \sqrt{3}}$

$\frac{\sqrt{3}\,\frac{\sqrt{b^2-a^2}}{a} + 1}{\frac{a}{\sqrt{b^2-a^2}} + \sqrt{3}}$

$= \frac{\sqrt{b^2-a^2}}{a}$

115.Sol:(c)

$\frac{sin^2\theta}{cos\theta(1+cos\theta)} + \frac{1+cos\theta}{cos\theta}$

$\frac{sin^2\theta + (1+cos\theta)^2}{cos\theta(1+cos\theta)}$

$\frac{sin^2\theta + (1+cos^2\theta+2\,cos\theta)}{cos\theta(1+cos\theta)}$

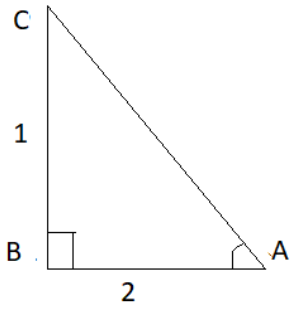
$\frac{1+1+2\,cos\theta}{cos\theta(1+cos\theta)}$

$\frac{2(\,1+cos\theta)}{cos\theta(1+cos\theta)}$

$\frac{2}{cos\theta}$

$= 2\sec\theta$

116 Sol:(b)



$AC = \sqrt{5}$

$\frac{sinA(cosC + cosA)}{cosC(sinC - sinA)}$

$\frac{\frac{1}{\sqrt{5}}(\frac{1}{\sqrt{5}}+\frac{2}{\sqrt{5}})}{\frac{1}{\sqrt{5}}(\frac{2}{\sqrt{5}}-\frac{1}{\sqrt{5}})} = \frac{\frac{3}{\sqrt{5}}}{\frac{1}{\sqrt{5}}} = 3$

117.Sol:(a)

$\frac{sin\theta + cos\theta - 1}{sin\theta - cos\theta + 1} \times \sqrt{\frac{1+sin\theta}{1-sin\theta}}$

Put θ = 45°

$\frac{\frac{1}{\sqrt{2}}+\frac{1}{\sqrt{2}}-1}{\frac{1}{\sqrt{2}}-\frac{1}{\sqrt{2}}+1} \times \sqrt{\frac{1+\frac{1}{\sqrt{2}}}{1-\frac{1}{\sqrt{2}}}}$

$\frac{\sqrt{2}-1}{1} \times \sqrt{\frac{\sqrt{2}+1}{\sqrt{2}-1} \times \frac{\sqrt{2}+1}{\sqrt{2}+1}}$

$\sqrt{2}-1 \times \sqrt{2}+1 = 2 - 1 = 1$

118.Sol:(a)
Using options we can clearly say that answer is A

119.Sol:(a)
$(\sin\theta + \text{cosec}\,\theta)^2 +$
$(cos\theta + sec\theta)^2 = k +$
$tan^2\theta + cot^2\theta,$
$Sin^2\theta + cosec^2\theta + 2\sin\theta\,\text{cosec}\,\theta +$
$cos^2\theta + sec^2\theta + 2\cos\theta\sec\theta = k +$
$tan^2\theta + cot^2\theta$
$5+1+tan^2\theta+1+cot^2\theta = tan^2\theta +$
$cot^2\theta + k$
k=7

120.Sol:(b)
$\cos\theta = \frac{5}{13}$
P=12, B=5, H=13
$\tan\theta = 12/5$
$tan^2\theta + sec^2\theta$
$1 + 2\,tan^2\theta$
1+288/25
313/25

121.Sol:(d)
$sin\theta + sin^2\theta = 1,$
$sin\theta = 1 - sin^2\theta = cos^2\theta$
$cos^2\theta + cos^4\theta$
Put the value of $cos^2\theta$ in this equation.
$sin\theta + sin^2\theta = 1$

122.Sol:(c)
sin(x+y) = cos(x-y)
This condition satisfies only when,
(x+y)+(x-y)= 90°
2x= 90°
x= 45°
$cos^2 45° = \frac{1}{2}$

123.Sol:(b)
$\frac{cos^2\theta}{cot^2\theta - cos^2\theta} = 3$
$\frac{cos^2\theta}{\frac{cos^2\theta}{sin^2\theta} - cos^2\theta} = 3$
$\frac{sin^2\theta}{1 - sin^2\theta} = 3$
$tan^2\theta = 3$
$\tan\theta = \sqrt{3}$
$\theta = 60°$

124.Sol:(a)
$\frac{sec\theta+tan\theta}{sec\theta-tan\theta} = \frac{209}{79}$
Applying componendo dividendo
$\frac{2sec\theta}{2tan\theta} = \frac{288}{130}$
$\frac{1}{sin\theta} = \frac{288}{130}$
$\sin = \frac{65}{144}$

125.Sol:(a)
$\sec\theta + \tan\theta = 3$-----(i)
$sec^2\theta + tan^2\theta = 1$
$\sec\theta - \tan\theta = \frac{1}{3}$ ----(ii)
Add eq.(i) and (ii)
$2\sec\theta = \frac{10}{3}$
$\sec\theta = \frac{5}{3}$

126.Sol:(a)
$\alpha + \beta = 90°$ and $\alpha = 2\beta$
$\alpha = 60°$ and $\beta = 30°$
$3\,cos^2\alpha - 2\,sin^2\beta$
$3 \times \frac{1}{4} - 2 \times \frac{1}{4}$
$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$

127.Sol:(d)

$\frac{1}{cosec^2 51°} + sin^2 39° + tan^2 51° - \frac{1}{sin^2 51°\, sec^2 39°}$

$sin^2 51° + sin^2 39° + tan^2 51° - \frac{1}{sin^2 51°\, cosec^2 51°}$
$sin^2 51° + sin^2 39° + tan^2 51° - 1$
$cos^2 39° + sin^2 39° + tan^2 51° - 1$
$1 + tan^2 51° - 1$
$tan^2 51°$
$sec^2 51° - 1$
$cosec^2 51° - 1$
$x^2 - 1$

128.Sol.(A)
3sinx + 4cosx = 2
3cosx - 4 sinx = y (let)
Squaring and adding both eq
$9 + 16 = 4 + y^2$
$Y = \sqrt{21}$

129.Sol:(d)
4(
$cosec^2 57° - tan^2 33°) - cos 90° -$
$y tan^2 66° tan^2 24° = \frac{y}{2}$
We know $\text{cosec}^2\theta = 1 + \cot^2\theta$
And TanATanB=1 if(A+B=90°)
So. $4(1+\cot^2 57° - \cot^2 57°)$
$-\text{Cos}90° - y \times 1$
$= 4 - y = \frac{y}{2}$
$\frac{3y}{2} = 4$
So $y = \frac{8}{3}$

130.Sol:(c)
$4 - 2\sin^2\theta - 5\cos\theta = 0$
$4 - 2(1 - \cos^2\theta) - 5\cos\theta = 0$
$2 + 2\cos^2 - 5\cos\theta = 0$
$2\cos^2\theta - 4\cos\theta - cos\theta + 2 = 0$
Solving this we get
$\cos\theta = 2$ *or* $\cos\theta = \frac{1}{2}$
So we can say $\cos\theta = 60°$
As asked in the question $\text{Cos}\,\theta$
$+\text{Tan}\,\theta = \frac{1}{2} + \sqrt{3}$
$= \frac{1+2\sqrt{3}}{2}$

Sol:131..(c)
sec 3x = cosec(3x - 45°)
3x + 3x - 45° = 90°
6x = 135°
x = 22.5°

Sol:132.(c)
$\frac{sin^2 30° + cos^2 60° - sec 35°\, sin 55°}{sec\ 60° + cosec\ 30°}$
$\frac{sin^2 30° + cos^2 60° - sec 35° cos 35°}{sec\ 60° + cosec\ 30°}$
$\frac{\frac{1}{4} + \frac{1}{4} - 1}{2 + 2}$
$\frac{-\frac{1}{2}}{4}$
$-\frac{1}{8}$

Pinnacle

Sol:133.(c)
sin 3x =cos(3x- 45°),
3x + 3x - 45° = 90°
6x = 135°
x = 22.5°

134.Sol(c)
$\frac{sin^2 30° + cos^2 60° + sec45°.sin45°}{sec\ 60° + cosec\ 30°}$
$\frac{sin^2 30° + cos^2 60° + sec45°cos45°}{sec\ 60° + cosec\ 30°}$
$\frac{\frac{1}{4} + \frac{1}{4} + 1}{2 + 2}$
$\frac{\frac{3}{2}}{4}$
$\frac{3}{8}$

135.Sol:(c)
$\frac{sin^2 52° + 2 + sin^2 38°}{4cos^2 43° - 5 + 4cos^2 47°}$
$\frac{sin^2 52° + 2 + cos^2 52°}{4cos^2 43° - 5 + 4sin^2 43°}$
$\frac{1 + 2}{4cos^2 43° + 4sin^2 43° - 5}$
$\frac{3}{-1}$
= -3

136.Sol:(b)
cot 4 θ = tan(θ – 5°)
If cot θ = tan α
Then (θ + α) =90°
Here 4 θ +(θ – 5°)=90°
5 θ =95°
θ =19°

137.Sol:(d)
$4(cosec^2 57 - tan^2 33) - cos90 + y \times tan^2 66 \times tan^2 24 = \frac{y}{2}$,
We know $cosec^2 \theta = 1+cot^2 \theta$
And TanATanB=1 if(A+B=90°)
So. 4(1+cot²57°- cot²57°)
-Cos90°+y × 1= $\frac{y}{2}$
= 4+y= $\frac{y}{2}$
$\frac{y}{2}$ =-4
y=-8

138.Sol:(d)
$-2sin^2\theta - 5cos\theta + 4 = 0$
$-2sin^2 \theta -5cos \theta + 4 =0$
$4-2(1-cos^2 \theta) -5cos \theta =0$
$2+2cos^2-5cos \theta =0$
$2cos^2 \theta -4cos \theta - cos\theta + 2 = 0$
Solving this we get
$cos \theta = 2$ *or* $cos\ \theta = \frac{1}{2}$
So we can say cos θ = 60° becoz
value of cos
θ *lies in the range* – 1 *to* 1 So 2
is not feasible
As asked in the question Cos θ
$-Tan \theta = \frac{1}{2} - \sqrt{3}$
$= \frac{1-2\sqrt{3}}{2}$

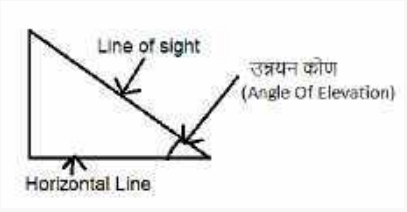
139.Sol:(d)
$cos^2\theta - sin^2\theta = \frac{1}{2}$
$cos2 \theta = \frac{1}{2}$
2 θ =60°
θ =30°

Pinnacle

Height and Distance

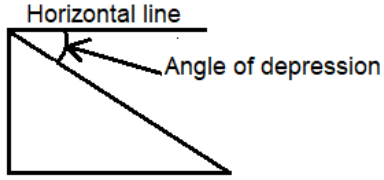
In this chapter following concepts / terminologies will be used.

उन्नयन कोण (Angle Of Elevation) :- जब किसी वस्तु को धरातल से ऊपर की ओर देखा जाता है तो धरातल के साथ बने कोण को उन्नयन कोण कहते है।



The angle made by the line of sight with the horizontal line is called the angle of elevation.

अवनमन कोण**(Angle Of Depression)** जब किसी वस्तु का निचे की ओर झुकते हुए कोण बन रहा है तो उसे अवनमन कोण कहते है।



The angle made by the line of sight with the vertical line is called the angle of elevation.

Note: Angle of elevation and angle of depression are always equal.

In this chapter trigonometry ratio and concepts will be used which we have discussed in detail in the trigonometry chapter.

Q1. The shadow of a tower, when the angle of elevation of the sun is 60° is found to be 15 m shorter than when it is 45°. Then height of the tower is

जब सूर्य का उन्नयन कोण 60° है तो एक टावर की परछाईं इसके 45° होने की तुलना में 15 मीटर छोटी पायी जाती है | इस टावर की ऊंचाई क्या है ?

SSC CPO - 16 March 2019(Morning)

(a) 41.5 m
(b) 35.5m
(c) 26.5m
(d) 20.5m

Q2. A boy is standing near a pole which is 2.7 m high and the angle of elevation is 30° The distance of the boy from the pole is

एक लड़का एक स्तम्भ के पास खड़ा है जो 2.7 मीटर ऊंचा है और इसका उन्नयन कोण 30° है,लड़के की स्तम्भ से दूरी ज्ञात कीजिये ? ($\sqrt{3}$ =1.73)

SSC CPO - 16 March 2019(Morning)

(a) 4.42 m
(b) 4.53 m
(c) 4.68 m
(d) 4.63 m

Q3. At a certain time of a day a tree 5.4 m height casts a shadow of 9 m. If a pole casts a shadow of 13.5 m at the same time, the height of the pole is:

दिन के किसी समय में 5.4 मीटर ऊँचे पेड़ की 9 मीटर की परछाईं बनती है | यदि इसी समय एक खंभे की परछाईं 13.5 मीटर की है, तो खंभे की ऊंचाई ज्ञात करें |

SSC CPO - 16 March 2019(Morning)

(a) 8.1m
(b) 9.9m
(c) 7.2m
(d) 6.3m

Q4. From the top of a 12 m high building, the angle of elevation of the top of the tower is 60° and the angle of depression of the foot of the tower is θ, such that $\tan\theta = \frac{3}{4}$. What is the height of tower

12 मी ऊँचे भवन के शीर्ष से टावर के शीर्ष का उन्नयन कोण 60° है और टावर के तल का अवनमन कोण θ इस प्रकार है कि $\tan\theta = \frac{3}{4}$ है | इस टावर की ऊंचाई क्या है ? ($\sqrt{3}$ =1.73)

SSC CPO - 12 March 2019(Evening)

(a) 41.41
(b) 36.22
(c) 39.68
(d) 37.95

Q5. A ladder leaning against a wall makes an angle θ with the horizontal ground such that $\sin\theta = \frac{12}{13}$. If the foot of the ladder is 7.5 m from a wall, then what is the height of the point from where the top of the ladder touches the wall?

किसी दीवार पर झुकी हुई एक सीढ़ी क्षैतिज भूमि के साथ θ कोण बनाती है जो इस प्रकार है कि $\sin\theta = \frac{12}{13}$ है | यदि सीढ़ी का तल दीवार से 7.5 मीटर है, तो उस बिंदु की ऊंचाई ज्ञात करें जहाँ से सीढ़ी का शीर्ष भाग दीवार को स्पर्श करता है |

SSC CPO - 12 March 2019(Evening)

(a) 15m
(b) 8m
(c) 18m
(d) 12 m

Q6. From the top of a 120m high tower, the angle of depression of the top of a pole is 45^0 and the angle of depression of the foot of the pole is θ,such that $\tan\theta = \frac{3}{2}$, What is the height of the pole?

120 मी ऊँची मीनार के शीर्ष से किसी खंभे के शीर्ष का अवनमन कोण 45^0 और खंभे के तल का अवनमन कोण θ इस प्रकार है कि

$\tan\theta = \frac{3}{2}$ है | इस खंभे की ऊंचाई क्या है ?

SSC CPO - 13 March 2019(Evening)

(a)60m
(b)75m
(c)80m
(d)40m

Q7. The length of the shadow of a vertical pole on the ground is 24m. If the angle of elevation of the sun at that time is θ, such that $\sin\theta = \frac{5}{13}$, then what is the height of the pole? / एक लंबवत खंभे की भूमि पर परछाई की लंबाई 24 मीटर है | यदि उस समय सूर्य के उन्नयन का कोण θ इस प्रकार है कि $\sin\theta = \frac{5}{13}$ है, तो खंभे की ऊंचाई ज्ञात करें |

SSC CPO - 13 March 2019(Evening)

(a)8m
(b)10m
(c)12m
(d)18m

Q8. From the top of a 10 m high building, the angle of elevation of the top of a tower is 60° and the angle of depression of the foot of the tower is Θ, such that $\tan\Theta = \frac{2}{3}$. What is the height of the tower to nearest metres?
10 मी ऊँची इमारत से किसी मीनार के शीर्ष का उन्नयन कोण 60° है तथा मीनार के तल का अवनमन कोण Θ इस प्रकार है कि $\tan\Theta = \frac{2}{3}$ है | निकटतम मीटर तक मीनार की ऊंचाई ज्ञात करें |

SSC CPO - 13 March 2019(Morning)

(a) 34 m
(b) 35 m
(c) 36m
(d) 33m

Q9. A ladder leaning against a wall makes an angle α with the horizontal ground such that $\tan\alpha = \frac{3}{4}$. If the foot of the ladder is 5 m away from the wall, what is the length of the ladder?
किसी दीवार पर झुकी हुई एक सीढ़ी क्षैतिज भूमि के साथ कोण α इस प्रकार बनाती है कि $\tan\alpha = \frac{3}{4}$ है | यदि सीढ़ी का तल दीवार से 5 मीटर दूर है तो सीढ़ी की लंबाई ज्ञात करें |

SSC CPO - 12 March 2019(Morning)

(a) 5.25 m
(b) 3.75 m
(c) 6.25 m
(d) 4.5 m

Q10. From the top of 75 m high tower, the angle of depression of two points P and Q on opposite side of the base of the tower on level ground is θ and φ, such that $\tan\theta = \frac{3}{4}$ and $\tan\varphi = \frac{5}{8}$. What is the distance between the points P and Q?
75 मी ऊँची मीनार के शीर्ष से मीनार के तल के विपरीत दिशा में भूमि पर स्थित दो बिन्दुओं P और Q का अवनमन कोण θ तथा φ इस प्रकार है कि $\tan\theta = \frac{3}{4}$ और $\tan\varphi = \frac{5}{8}$ है | बिंदु P और Q के बीच दूरी ज्ञात करें |

SSC CPO - 13 March 2019(Morning)

(a) 190 m
(b) 200 m
(c) 180 m
(d) 220 m

Q11. The angle of elevation of top of a tower from a point P, on the ground is θ such that $\tan\theta = \frac{12}{5}$. If distance of the point P, from the base of the tower is 75 m, what is the height of the tower?
भूमि पर स्थित एक बिंदु P से किसी मीनार के शीर्ष का उन्नयन कोण θ इस प्रकार है कि $\tan\theta = \frac{12}{5}$ है| यदि मीनार के तल से बिंदु P की दूरी 75 मीटर है, तो मीनार की ऊंचाई क्या है ?

SSC CPO - 13 March 2019(Morning)

(a) 160 m
(b) 200 m
(c) 190 m
(d) 180 m

Q12. From the top of 120 m high lighthouse, the angle of depression of two ships on opposite side of the base of the lighthouse is 30^0 and 60^0. What is the distance between the ships? (rounded off)
120 मी ऊँची लाइट हाउस के शीर्ष से इसके आधार के विपरीत दिशाओं में दो जहाज़ो का अवनमन कोण 30^0 और 60^0 है | जहाज़ों के बीच की दूरी ज्ञात करें |

SSC CPO - 14 March 2019(Morning)

(a)327 m
(b)127 m
(c)277 m
(d)177 m

Q13. The string of a kite is 30m long and it makes an angle 60^0 with the horizontal. The height of the kite above the ground is:
पतंग की डोर 30 मी लंबी है और यह क्षैतिज से 60^0 का कोण बनाती है। जमीन के ऊपर पतंग की ऊंचाई है:

SSC CPO - 14 March 2019(Morning)

(a)$10\sqrt{3}$ m
(b)15 m
(c)7.5 m
(d)$15\sqrt{3}$ m

Q14. From a point P on a level ground, the angle of elevation of the top of a tower is 30^0. If the tower is 270 m high, the distance of point P from the foot of the tower is:

भूमि पर स्थित किसी बिंदु P से एक मीनार के शीर्ष का उन्नयन कोण 30^0 है | यदि यह मीनार 270 मीटर ऊँची है, तो मीनार के तल से बिंदु P की दूरी ज्ञात करें |

SSC CPO - 16 March 2019(Evening)

(a) 467.65m
(b) 476.65m
(c) 376.65m
(d) 367.65m

Q15. When the sun's angle of depression changes from 30^0 to 60^0, the length of the shadow of a tower decreases by 70m. What is the height of the tower?

जब सूर्य का अवनमन कोण 30^0 से बदल कर 60^0 हो जाता है, तो एक मीनार की परछाईं की लंबाई 70 मीटर कम हो जाती है | मीनार की ऊंचाई क्या है ?

SSC CPO - 16 March 2019(Evening)

(a)36.55m
(b)65.55m
(c)45.65m
(d)60.55m

Q16. A and B standing on the same side of a wall and observe that the angles of elevation to the top of the wall are 45^0 and 60^0 respectively. If the height of the wall is 50 m, the distance between A and B is : (Use $\sqrt{3}$ =1.73 and $\sqrt{2}$=1.41)

A और B किसी दीवार के एक ही तरफ खड़े हैं तथा देखते हैं कि दीवार के शीर्ष का उन्नयन कोण क्रमशः 45^0 और 60^0 है | यदि इस दीवार की ऊंचाई 50 मीटर है, तो A और B के बीच दूरी ज्ञात करें|

SSC CPO - 15 March 2019(Morning)

(a)25.07m
(b)21.10m
(c)17.38m
(d)14.65m

Q17.If the height of a pole and the distance between the pole and a man standing nearby are equal, what would be the angle.

यदि किसी खंभे की ऊंचाई तथा खंभे एवं पास ही में खड़े एक व्यक्ति के बीच की दूरी बराबर है, तो कोण क्या होगा ?

SSC CPO - 15 March 2019(Morning)

(a)60°
(b)90°
(c)30°
(d)45°

Q18. The angle of elevation of a flying drone from a point on the ground is 60^0. After flying for 5 seconds the angle of elevation drops to 30^0. If the drone is flying horizontally at a constant height of $1000\sqrt{3}$ m, the distance travelled by the drone is:

भूमि पर स्थित किसी बिंदु से एक उड़ते हुए ड्रोन का उन्नयन कोण 60^0 है | 5 सेकंड तक उड़ने के बाद उन्नयन कोण कम होकर 30^0 हो जाता है | यदि ड्रोन क्षैतिज रूप से $1000\sqrt{3}$ मीटर की निश्चित ऊंचाई पर उड़ान भर रहा है, तो ड्रोन द्वारा तय की गयी दूरी ज्ञात करें |

SSC CPO - 16 March 2019(Afternoon)

(a)2000m
(b)1000m
(c)3000m
(d)4000m

Q19.A girl 1.2 m tall can just see the sun over a 3.62 m tall wall which is 2.42 m away from her. The angle of elevation of the sun is:

1.2 मीटर लंबी एक लड़की 3.62 मीटर लंबी दीवार के ऊपर केवल सूर्य को देख पाती है जो उससे 2.42 मीटर दूर है | सूर्य का उन्नयन कोण है|

SSC CPO - 16 March 2019(Afternoon)

(a)60°
(b)30°
(c) 90°
(d)45°

Q20. A ladder attached to the wall makes an angle of 60 to the horizontal of the land. If the lower end of the ladder is 10 meters away from the wall, what will be the length of the ladder?

दीवार के सहारे लगी हुई एक सीढ़ी, भूमि के क्षैतिज 60 का कोण बनाती है | यदि सीढ़ी का नीचला सिरा दीवार से 10 m दूर है , तो सीढ़ी की लम्बाई क्या होगी ?

SSC CPO - 14 March 2019(Evening)

(a) 20 m
(b) 40 m
(c) 17.3 m
(d) 34.6 m

Q21. The top of a broken tree touches the ground at 60 degree angle, 45 meters away from the root of the tree. What will be the total height of the tree? (Use 3 = 1.73 and 2 = 1.41)

टूटे हुए एक पेड़ का शीर्ष पेड़ की जड़ से 45 m दूर 60° के कोण पर भूमि को स्पर्श करता है | पेड़ की कुल ऊंचाई क्या होगी ? ($\sqrt{3}$=1.73 और $\sqrt{2}$=1.41 का उपयोग कीजिये)

SSC CPO - 14 March 2019(Evening)

(a) 153.45 m
(b) 141.3 m
(c) 167.85 m
(d) 137.24 m

Q22. What is the angle of elevation of the sun from the top of a pillar, when its height is equal to the length of its shadow?

किसी खम्बे के शीर्ष से सूर्य का उन्नयन कोण क्या है जब इसकी ऊँचाई इसकी छाया की लम्बाई के बराबर हो ?

SSC CPO - 15 March 2019(Evening)

(a) 30^0

(b) 90^0

(c) 45^0

(d) 60^0

Q23. From the top of a hill 96 m high, the angles of depression of two cars parked on the same side of the hill (at same level as the base of the hill) are 30^0 and 60^0 respectively. The distance between the cars is: (use $\sqrt{3} = 1.73$ and round off to nearest whole number)

96 m ऊँची पहाड़ की चोटी से, पहाड़ी की एक ही दिशा में खड़ी की गई दो कारों के अवनयन कोण (पहाड़ी के आधार रूप में समान स्तर पर) क्रमश: 30^0 और 60^0 हैं | कारों के बीच की दूरी कितनी है?($\sqrt{3} = 1.73$ का प्रयोग कीजिए और निकटतम पूर्ण संख्या में पूर्णांकित कीजिए)

SSC CPO - 15 March 2019(Evening)

(a)220 m

(b)165 m

(c)111 m

(d)243 m

SSC CGL TIER II

Q1. From the top of a tower, the angles of depression of two objects on the ground on the same side of it, are observed to be 60° and 30° respectively and the distance between the objects is $400\sqrt{3}$ m. The height (in m) of the tower is :

किसी मीनार के शीर्ष से, भूमि पर इसके एक ही तरफ स्थित दो वस्तुओं का अवनमन कोण क्रमशः 60° और 30° पाया जाता है तथा वस्तुओं के बीच की दूरी $400\sqrt{3}$ मीटर है | इस मीनार की ऊंचाई (मीटर में) है :

SSC CGL TIER II (11 September 2019)

(a) 800

(b) $800\sqrt{3}$

(c) 600

(d) $600\sqrt{3}$

Q2. From a point exactly midway between the foot of two towers P and Q, the angles of elevation of their tops are 30° and 60° respectively. The ratio of the height of P to that of Q is :

दो मीनारों P और Q के ठीक बीच स्थित एक बिंदु से उनके शीर्ष के उन्नयन कोण क्रमशः 30° और 60° हैं | P और Q की ऊंचाई का अनुपात है :

SSC CGL TIER II (12 September 2019)

(a) 1:3

(b) 1:2

(c) $1:2\sqrt{3}$

(d) $2:3\sqrt{3}$

Q3. P and Q are two points on the ground on either side of a pole. The angles of elevation of the top of the pole as observed from P and Q are 60° and 30° respectively and the distance between them is $84\sqrt{3}$. What is the height (in m) of the pole ?

P तथा Q एक खंभे के किसी भी एक तरफ भूमि पर स्थित दो बिंदु हैं | P और Q से देखने पर खंभे के शीर्ष का उन्नयन कोण क्रमशः 60° और 30° है तथा उनके बीच की दूरी $84\sqrt{3}$ है | इस खंभे की ऊंचाई कितनी है ?

SSC CGL TIER II (13 September 2019)

(a) 63

(b) 73.5

(c) 52.5

(d) 60

SSC CGL 2019 TIER I

Q1. Seema flies a kite on a 16 m string at an inclination of 60°. What is the height (h) of the kite above the ground?

सीमा 60° के झुकाव पर 16 मीटर के धागे से एक पतंग उड़ाती है | भूमि से पतंग की ऊंचाई कितनी है ?

SSC CGL 9 March 2020 (Morning)

(a) $6\sqrt{3}$ m

(b) $4\sqrt{3}$ m

(c) $16\sqrt{3}$ m

(d) $8\sqrt{3}$ m

SSC CGL 2019

Q1.. As observed from the top of a lighthouse, $120\sqrt{3}$ m above the sea level, the angle of depression of a ship sailing towards it from 30° to 60° . The distance travelled by the ship during the period of observation is :

एक प्रकाशस्तंभ के शीर्ष से जो की, समुद्र तल से $120\sqrt{3}$ मीटर ऊपर है, उसकी ओर आ रहे जहाज का अवनमन कोण 30° से 60° हो जाता है अवलोकन की अवधि के दौरान जहाज द्वारा तय की जाने वाली दूरी ज्ञात कीजिये

CGL 2019 Tier-II (15-11-2020)

(a) 240m

(b) $240\sqrt{3}m$

(c) $180\sqrt{3}m$

(d) 180m

Q2.. From the top of a hill 240m high the angle of depression of the top and of the bottom of a pole are 30° and 60°, respectively. The difference (in m) between the height of the pole and its distance from the hill is :

एक पहाड़ी के शीर्ष जो 240 मीटर ऊँचा है| से एक खम्भे के ऊपर और

निचे के तल पर कोण क्रमश 30° और 60° है। खम्भे की ऊँचाई और पहाड़ी से उसकी दूरी के बीच का अंतर (m) है

CGL 2019 Tier-II (16-11-2020)

(a) $80(2-\sqrt{3})$

(b) $120(\sqrt{3}-1)$

(c) $120(2-\sqrt{3})$

(d) $80(\sqrt{3}-1)$

Q3. The length of the shadow of the vertical tower on level ground increases by 10m when the altitude of the sun changes from 45° to 30°. The height of the tower is:

समतल भूमि पर खड़ी मीनार की छाया की लंबाई 10 मीटर तक बढ़ जाती है जब सूर्य की ऊँचाई 45° से 30° of तक बदल जाती है। टॉवर की ऊंचाई है:

CGL 2019 Tier-II (18-11-2020)

(a) $10(\sqrt{3}+1)$m

(b) $10\sqrt{3}$ m

(c) $5\sqrt{3}$ m

(d) $5(\sqrt{3}+1)$m

SSC CPO 2019

Q4.. A ladder leaning against a wall makes an θ wit the horizontal ground such that $\cos\theta = \frac{5}{13}$, If the height of the top of the ladder from the wall is 18m, then what is the distance (in cm) of the foot of the ladder from the wall?

एक दीवार के खिलाफ झुकाव वाली सीढ़ी एक क्षैतिज जमीन से ऐसे बनाती है कि $\cos = \frac{5}{13}$, यदि दीवार से सीढ़ी के शीर्ष की ऊंचाई 18 मीटर है, तो दिवार से सीढ़ी के आधार की दूरी ज्ञात करे |

CPO 23-11-2020 (Morning shift)

(a) 19.5

(b) 13

(c) 7.5

(d) 18

Q5. A person was standing on a road near a mall. He was 1425 m away from the mall and able to see the top of the mall from the road in such a way that the top of the tree, which is in between him and the mall, was exactly in the line of sight with the top of the mall. The tree height is 10m and it is 30m away from him. How tall (in m) is the mall?

एक व्यक्ति एक मॉल के पास सड़क पर खड़ा था। वह मॉल से 1425 मीटर दूर था और सड़क से मॉल के शीर्ष को इस तरह से देखने में सक्षम था कि पेड़ का शीर्ष, जो उसके और मॉल के बीच में है, बिल्कुल शीर्ष के साथ दृष्टि की रेखा में था उन सब का। पेड़ की ऊंचाई 10 मीटर है और यह उससे 30 मीटर दूर है। मॉल कितना लंबा (मीटर में) है|

CPO 23-11-2020 (Morning shift)

(a) 475

(b) 300

(c) 425

(d) 525

Q6. The length of the shadow of a vertical pole on the ground is 18m. If the angle of elevation of the sun at that time is θ, such that $\cos\theta = \frac{12}{13}$, then what is the height (in m) of the pole?

भूतल पर एक अधोलंब खम्भे की परछाईं की लंबाई 18 मी है। यदि उस समय सूर्य की ऊँचाई का उन्नयन कोण ऐसे है , जैसे कि $\cos\theta = \frac{12}{13}$ है, तो खम्भे की ऊँचाई (ऊँचाई) क्या है?

CPO 23-11-2020 (Evening shift)

(a) 18

(b) 9

(c) 7.5

(d) 12

Q7. The length of the shadow of a vertical pole on the ground is 36m. If the angle of elevation of the sum at that time is θ, such that $\sec\theta = \frac{13}{12}$, then what is the height (in cm) of the pole ?

भूतल पर एक अधोलंब खम्भे की परछाईं की लंबाई 36 मी है। यदि उस समय सूर्य की ऊँचाई का उन्नयन कोण ऐसे है , जैसे कि $\cos\theta = \frac{12}{13}$ है, तो खम्भे की ऊँचाई (ऊँचाई) क्या है?

CPO 24-11-2020 (Morning shift)

(a) 12

(b) 18

(c) 9

(d) 15

Q8. Asha and Suman's mud forts have heights 9cm and 16cm. Their tops are 25cm apart from each other, then the distance between two forts is:

आशा और सुमन मिट्टी के किलों की ऊंचाई 9 सेमी और 16 सेमी है। उनके शीर्ष एक दूसरे से 25 सेमी अलग हैं, फिर दो किलों के बीच की दूरी है|

CPO 24-11-2020 (Morning shift)

(a) 16

(b) 25

(c) 7

(d) 24

Q9. Let A and B be two towers with same base. From the midpoint of the line joining their feet, The angle of elevation of the tops of A and B are 30° and 60°, respectively. The ratio of the height of B and A is :

A और B एक ही आधार के साथ दो टॉवर हैं। उनके आधार से जुड़ने वाली रेखा के मध्य बिंदु से, A और B के शीर्ष की ऊंचाई क्रमशः 30° और 60° है। B और A की ऊँचाई का अनुपात ज्ञात करे |

CPO 24-11-2020 (Evening shift)

(a) 3 : 1

(b) 1 : $\sqrt{3}$
(c) 1 : 2
(d) 1 : 3

Q10.. A ladder is resting against a wall. The angle between the foot of the ladder and the wall is 60°, and the foot of the ladder is 3.6m away from the wall. The length of the ladder (in m) is:
एक सीढ़ी एक दीवार के सहारे खड़ी है। सीढ़ी और दीवार के बीच का कोण 60° है, और सीढ़ी का आधार दीवार से 3.6 मीटर दूर है। सीढ़ी की लंबाई (मीटर में) ज्ञात करे |
CPO 24-11-2020 (Evening shift)
(a) 14.4
(b) 5.4
(c) 3.6
(d) 7.2

Q11. A person was standing on a road near a mall. He was 1215m away from the mall and able to see the top of the mall from the road in such a way that the top of a tree, which is in between him and the mall, was exactly in line of sight with the top of the mall. The tree height is 20m and it is 60m away from him. How tall (in m) is the mall?
एक व्यक्ति एक मॉल के पास सड़क पर खड़ा था। वह मॉल से 1215 मीटर दूर था और सड़क से मॉल के शीर्ष को इस तरह से देखने में सक्षम था कि एक पेड़ की चोटी, जो उसके और मॉल के बीच में है, बिल्कुल शीर्ष के साथ दृष्टि की कतार में थी मॉल। पेड़ की ऊंचाई 20 मीटर है और यह उससे 60 मीटर दूर है। मॉल कितना लंबा (मीटर में) है
CPO 25-11-2020 (Morning shift)
(a) 405
(b) 250
(c) 300
(d) 375

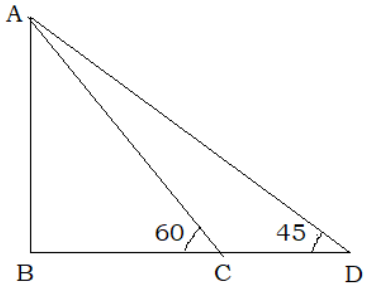
Q12. A ladder leaning against a wall make an angle θ with the horizontal ground such that $tan\theta = \frac{12}{5}$. If the height of the top of the ladder from the wall is 24m, then what is the distance (in m) of the foot of the ladder from the wall?
एक दीवार के खिलाफ झुकाव वाली सीढ़ी एक क्षैतिज जमीन से θ बनाती है ऐसे कि $\tan\theta = \frac{12}{5}$, यदि दीवार से सीढ़ी के शीर्ष की ऊंचाई 24 मीटर है, तो दिवार से सीढ़ी के आधार की दूरी ज्ञात करे |
CPO 25-11-2020 (Morning shift)
(a) 18
(b) 7.5
(c) 10
(d) 19.5

Q13. Let A and B be two towers with the same base. From the mid point of the line joining their feet, the angle of elevation of the tops of A and b are 30° and 45°, respectively. The ratio of the heights of A and B is;
A और B एक ही आधार के साथ दो टॉवर हैं। उनके आधार से जुड़ने वाली रेखा के मध्य बिंदु से, A और B के शीर्ष के कोण क्रमशः 30 और 45। हैं। A और B की ऊंचाइयों का अनुपात है ज्ञात करे |
CPO 25-11-2020 (Evening shift)
(a) $\sqrt{3}$: 1
(b) 1 ; 3
(c) 3 : 1
(d) 1 : $\sqrt{3}$

Q14. A ladder is resting against a wall, The angle between the foot of the ladder and the wall is 45° and the foot of the ladder is 6.6m away from the wall. The length of the ladder is:
एक सीढ़ी एक दीवार के खिलाफ खड़ी है, सीढ़ी के आधार और दीवार के बीच का कोण 45 है और सीढ़ी का आधार की दीवार से दूरी 6.6 मीटर है। सीढ़ी की लंबाई ज्ञात करे |
CPO 25-11-2020 (Evening shift)
(a) $6.6 \times \sqrt{2}$
(b) $2.2 \times \sqrt{2}$
(c) $3.6 \times \sqrt{2}$
(d) $3.3 \times \sqrt{2}$

SOLUTION:

Sol 1. (b)



In ΔABC, we know that
For angle C = 60°
AB = $\sqrt{3}$ unit and BC = 1 unit
In ΔABD, we know that
For angle D = 45°
AB = 1 unit and BD = 1 unit
Balancing the values for AB
AB = $\sqrt{3}$ unit, BD = $\sqrt{3}$ unit and BC = 1 unit
According to the question
BD-BC = $\sqrt{3}$ -1 unit
$\Rightarrow$ $\sqrt{3}$ -1 unit = 15
1 unit = $\frac{15}{\sqrt{3}-1}$
Height of the tower (AB) = $\sqrt{3}$ unit = $\frac{15}{\sqrt{3}-1}$ x $\sqrt{3}$ = $\frac{45+15\sqrt{3}}{2}$ = 35.49

Sol 2. (c)

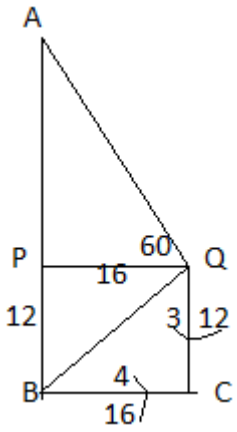
From figure, 1----2.7
Therefore, $\sqrt{3}$ ----2.7 × 1.73 = 4.68 m



Sol 3. (a)

Let the height of pole be h.
ATQ: $\frac{h}{13.5} = \frac{5.4}{9}$ $\therefore h = 8.1\ m$

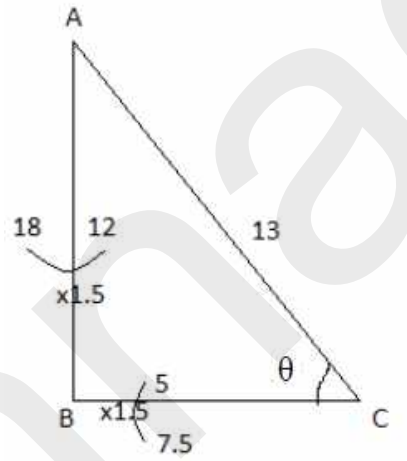
Sol 4. (c) From the figure:



∠AQP=60, ∠QBC= θ
So, AP = $16\sqrt{3}$ = 27.68

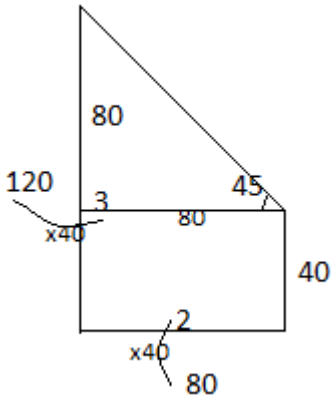
Therefore, Height of tower = 27.68+12 = 39.68 m

Sol 5. (c) From the figure given below:



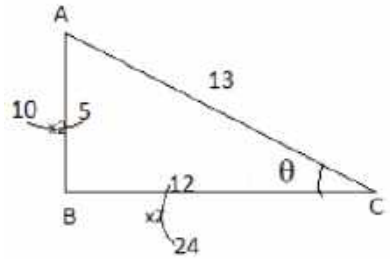
Therefore, The height of the top of the ladder from the base = 18m

Sol 6. (d) From the figure given below,



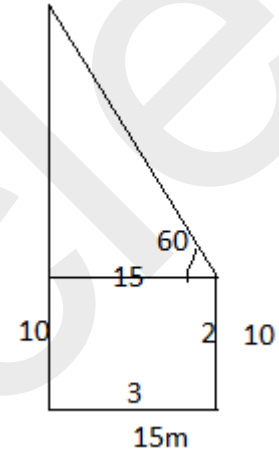
Height of the pole is 40m.

Sol 7. (b) From the figure given below:



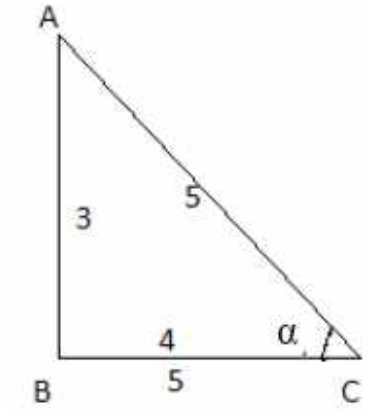
Height of pole = 10m

Sol 8. (c)



Height of the tower = 10 + 15 $\sqrt{3}$ = 35.95 = 36 m

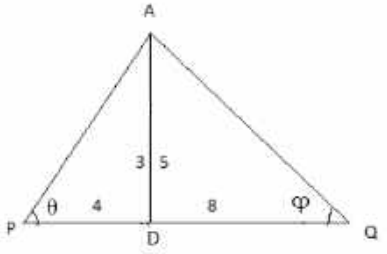
Sol 9. (c) Let Ab be the wall and Ac be the ladder.



When, 4 ----- 5
Then, 5 ----- $\frac{25}{4}$ = 6.25 *m*

Sol 10. (d)

Pinnacle

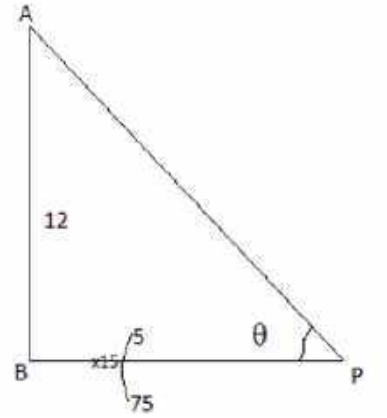


Let AD = 15, So, PD = 20 and QD = 24

Since, AD=15----75

Therefore, PQ = (24+20)x5 = 220m

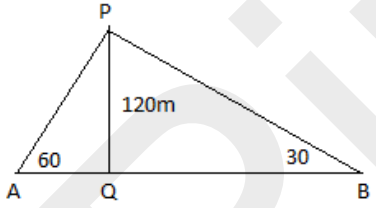
Sol 11. (d)



From above figure, PB = 75

Therefore, the Height of the tower = $\frac{75}{5} \times 12 = 180\ m$

Sol 12. (c)



AQ = 120/ $\sqrt{3}$ = 40 $\sqrt{3}$ =69.2m

BQ = 120 $\sqrt{3}$ = 207.6m

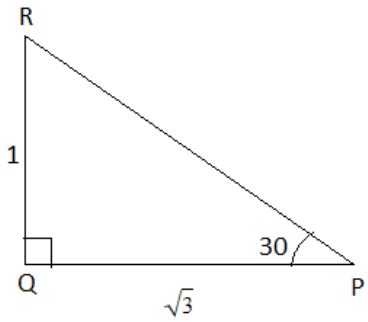
Therefore, AB = 69.2+207.6 = 276.8 = 277 m

Sol13. (d) $\sin 60 = \frac{P}{H}$

$\Rightarrow \frac{\sqrt{3}}{2} = \frac{P}{30}$

Therefore, P = 15 $\sqrt{3}$

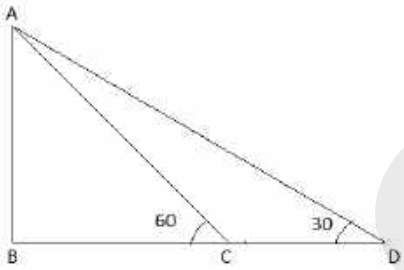
Sol 14. (a)



RQ = 1 unit = 270 m

PQ = $\sqrt{3}$ unit = 270 × $\sqrt{3}$ = 467.65 m

Sol 15. (d)



In triangle ABC

$\frac{AB}{BC} = \tan 60$

$\frac{AB}{BC} = \sqrt{3}$

AB = $\sqrt{3}$ BC

…….(1)

In triangle ABD

$\frac{AB}{BD} = \tan 30$

$\frac{AB}{BD} = \frac{1}{\sqrt{3}}$

AB = $\frac{BD}{\sqrt{3}}$

……..(2)

AB = $\frac{(BC+70)}{\sqrt{3}}$

……(BD = BC + 70)

$\sqrt{3}$ BC = $\frac{(BC+70)}{\sqrt{3}}$

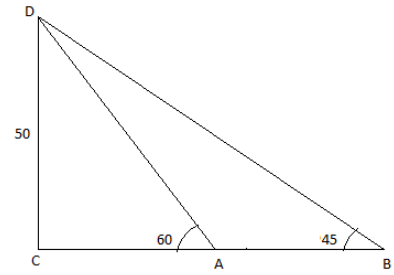
3BC = BC + 70

BC = 35

From equation (1)

AB = 35 $\sqrt{3}$ = 60.55 m

Sol 16. (b)



Δ DCA

$\frac{DC}{AC} = \tan 60$

AC = $\frac{50}{\sqrt{3}}$

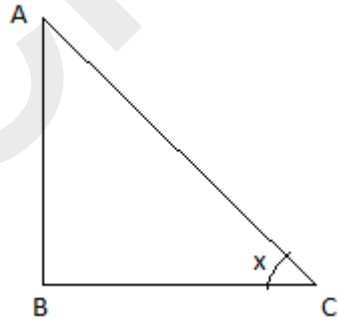
Δ DCB

$\frac{DC}{BC} = \tan 45$

BC = 50

AB = 50- $\frac{50}{\sqrt{3}}$ = 21.10m

Sol 17. (d)



$\frac{AB}{BC} = \tan x$

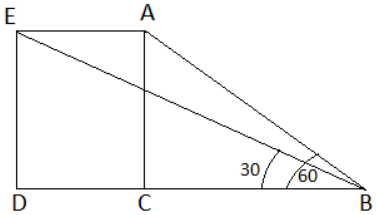
AB=BC (given)

tanx = 1

x = $tan^{-1}1$

x= 45°

Sol 18. (a)



$\frac{AC}{BC} = \tan 60$

$\frac{1000\sqrt{3}}{BC} = \sqrt{3}$

BC = 1000

$\frac{ED}{BD} = \tan 30$

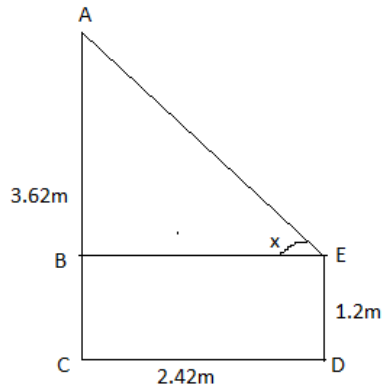
$\frac{1000\sqrt{3}}{BD} = \frac{1}{\sqrt{3}}$

BD = 3000

Pinnacle

Distance covered by DC = BD-BC = 3000-1000 = 2000

Sol 19. (d)



BC = DE = 1.2
AB = 3.62-1.2 = 2.42
$\frac{AB}{BE}$ = tanx
$\frac{2.42}{2.42}$ = tanx
x = $tan^{-1}1$
x=45

Sol 20. (a) From given situation,
cos60 = $\frac{10}{l}$
$\Rightarrow \frac{1}{2} = \frac{10}{l}$
$\Rightarrow l = 20m$

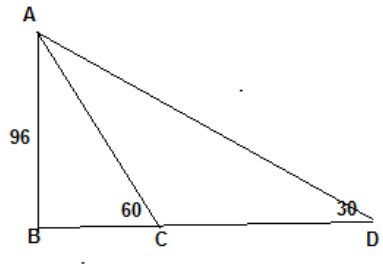
Sol 21. (c)



In the given triangle, AB = $45\sqrt{2}$
AC=90
Therefore, Length of tree = $45\sqrt{2}$ +90 = 167.85 m

Sol 22. (c) If the height and length of a shadow are equal. Then, the angle is 45.

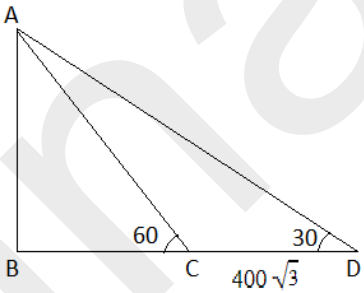
Sol 23. (c)



In the given figure, if AB = $\sqrt{3}$
Then, BC = 1 and BD = 3
So, CD = 3-1 = 2
$\sqrt{3}$ ----- 96
1 -------- 32$\sqrt{3}$
Therefore, the distance between the cars = 2x32$\sqrt{3}$ = 110.72 = 111 m (approx)

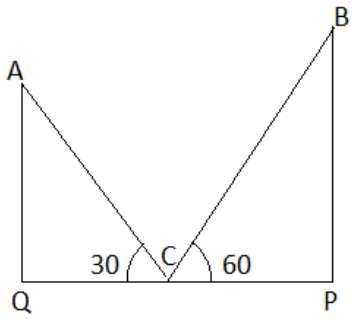
SSC CGL TIER II

Sol 1. (c)
Distance between the two objects (CD) = 400$\sqrt{3}$



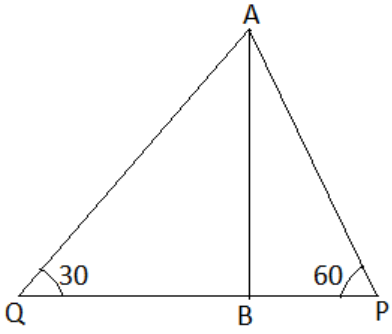
∠CAD =∠CDA = 30°
AC = CD = 400$\sqrt{3}$
…..(∠CAD =∠CDA)
In ΔABC
∠ACB = 60°
From trigonometric property
BC = 1 unit, AC = 2 unit and AB = $\sqrt{3}$ unit
Now,
2 unit = 400$\sqrt{3}$
1 unit = 200$\sqrt{3}$
Height of the tower (AB) = $\sqrt{3}$ unit = 200$\sqrt{3}$ × $\sqrt{3}$ = 600 meters

Sol 2. (a)



In ΔAQC
∠ACQ = 30°
From trigonometric property
AQ = 1 unit, AC = 2 unit and QC = $\sqrt{3}$ unit
In ΔBPC
∠BCP = 60°
From trigonometric property
PC = 1 unit, BC = 2 unit and BP = $\sqrt{3}$ unit
QC = PC
…….(Given)
Balancing the ratio for QC and PC
$\Rightarrow PC = \sqrt{3}$ *unit*, $BC = 2\sqrt{3}$ *unit and* $BP = 3$ *unit*
Required ratio = AQ : BP
= 1 : 3

Sol 3. (a)



In ΔAQB
∠AQB = 30°
From trigonometric property
AB = 1 unit, AQ = 2 unit and QB = $\sqrt{3}$ unit
In ΔABP
∠BPA = 60°
From trigonometric property

BP = 1 unit, AP = 2 unit and AB = $\sqrt{3}$ unit

Balancing the values for AB

$\Rightarrow QB = 3\ unit,\ AQ = 2\sqrt{3}\ unit$ and $AB = \sqrt{3} unit$

PQ = QB+BP = 3+1 = 4 unit

According to the question

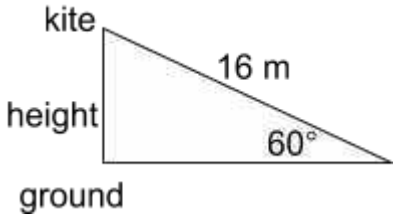
4 unit = $84\sqrt{3}$

1 unit = $21\sqrt{3}$

AB = $\sqrt{3} unit$ = $21\sqrt{3} \times \sqrt{3} = 63$ m

SSC CGL 2019 TIER I

Sol 1. (d) $\sin 60° = \frac{height}{16}$

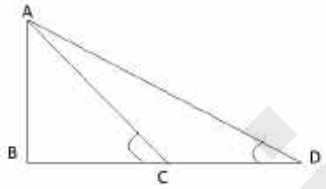


$\frac{\sqrt{3}}{2} = \frac{height}{16}$

Height = $8\sqrt{3}$ m

SSC CGL 2019

Sol:1. (a)



∠ACB=60°

∠ADB=30°

In triangle ABD

AB = $120\sqrt{3}$

$\tan 30° = \frac{AB}{BD}$

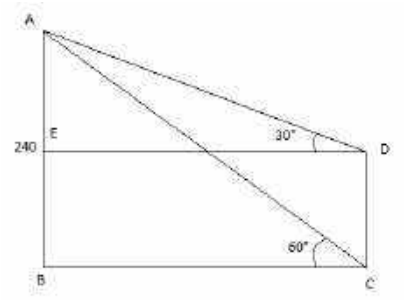
BD = $120\sqrt{3} \times \sqrt{3}$ =360

$\tan 60° = \frac{AB}{BC}$

BC = $120\sqrt{3} \times (1/\sqrt{3}) = 120$

CD = BD - BC = 360 -120 = 240m

Sol:2.(a)



$\tan 60° = \frac{240}{AC}$

$AC = 80\sqrt{3}$

$\tan 30° = \frac{AE}{ED}$

$\frac{1}{\sqrt{3}} = \frac{AE}{80\sqrt{3}}$

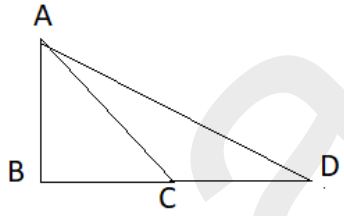
AE = 80

DC = 160

DC - AE = 160 - $80\sqrt{3}$

DC - AE = $80(2 - \sqrt{3})$

Sol:3.(d)



Height of tower=AB=x

∠C=45° ,∠D=30°

CD=10m,BD=10+X

In triangle ABC

tan 45°=x/BC

BC=X

In triangle ABD

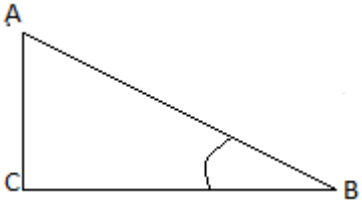
Tan 30°=AB/BD

$1/\sqrt{3} = X/(X+10)$

$X=5(\sqrt{3}+1)$m

SSC CPO 2019

Sol:4.(c)



It is given that cos θ =base/hypotenuse = $\frac{BC}{AB} = \frac{5}{13}$

From pythagoras triplet(5,12,13)we can say AC=12metres

But in the question AC=18 metres given

Distance of the foot of ladder from the wall=BC

Comparing the given data

$\frac{12}{18} = \frac{5}{BC}$

So BC is equal to $\frac{90}{12}$ =7.5 metres

Sol:5.(a)



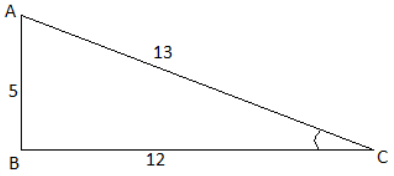
From the figure we can clearly see that $\frac{x}{1425} = \frac{10}{30}$ (similarity of triangles)

So the value of X will be 475 metres

Sol:6.(c)

If∠C = θ°

And $\cos\theta = \frac{12}{13}$



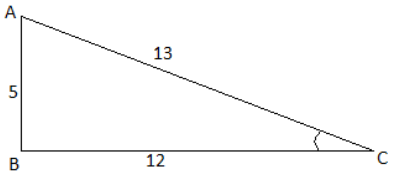
If shadow = 18m

Then height = $\frac{18}{12} \times 5 = 7.5$m

Sol:7.(d)

If∠C = θ°

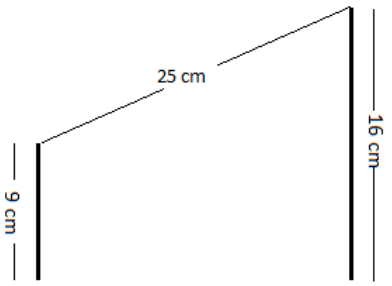
And $\cos\theta = \frac{12}{13}$



If shadow = 36m

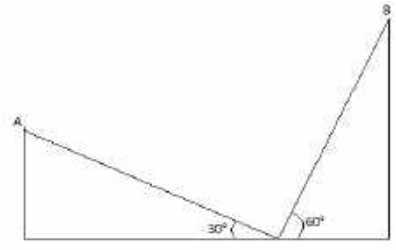
Then height = $\frac{36}{12} \times 5 = 15$ m

Sol: 8.(d)



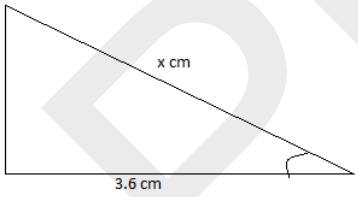
Difference in height = 7cm
Difference in top = 25 cm
By pythagoras theorem base = $\sqrt{25^2 - 7^2}$ = 24cm

9.Sol:(a)



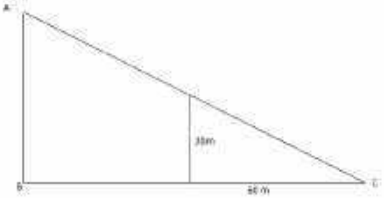
Angle of elevation of A=30°
Angle of elevation of B=60°
As we know $\tan\theta = \frac{height}{base}$
And the angle of elevation is drawn from the midpoint so base for both A and B is equal
So height of B: height of A= tan60°:tan30°
$= \frac{\sqrt{3}}{\frac{1}{\sqrt{3}}} = 3:1$

10..Sol:(d)



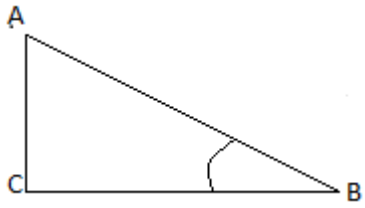
Applying $\cos 60° = \frac{1}{2}$ in the triangle we can easily find out x $= 3.6 \times 2 = 7.2$

11.Sol(a)



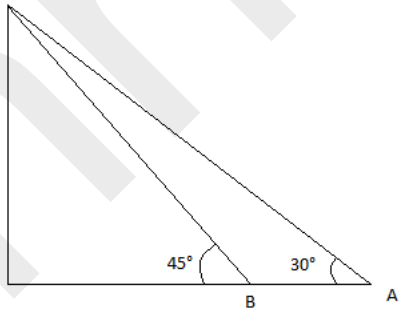
BC= 1215 given
and we have to find out the length of AB
By similarity in the above triangle we can easily say that
$\frac{X}{1215} = \frac{20}{60}$
So X= 405 metres

12.Sol:(c)



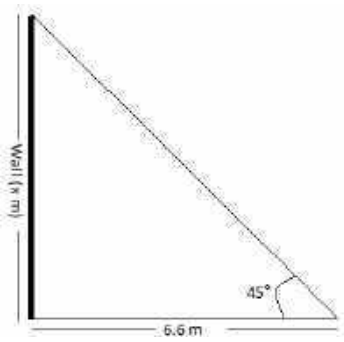
Given $\tan\theta = \frac{12}{5}$
height of the top of the ladder from the wall = 24m i.e AC=24
We have to find out the length of BC
So by applying $\tan\theta$ in the above right angled triangle
$\frac{12}{5} = \frac{24}{BC}$
So BC= 10 metres

13.Sol:(d)



Angle of elevation of A=30°
Angle of elevation of B=45°
As we know $\tan\theta = \frac{height}{base}$
And the angle of elevation is drawn from the midpoint so base for both A and B is equal
So height of A: height of B= tan30°:tan 45°
$= \frac{\frac{1}{\sqrt{3}}}{1} = \frac{1}{\sqrt{3}}$

14.Sol:. (a)



$\tan 45° = \frac{x}{6.6}$
x = 6.6m
So, the length of ladder = $\sqrt{6.6^2 + 6.6^2} = 6.6\sqrt{2}$ m

Pinnacle

COORDINATE GEOMETRY / निर्देशांक ज्यामिति

Q1. The graphs of the equations 3x+y-5=0 and 2x-y-5=0 intersect at the point P(α, β). What is the value of ($3\alpha + \beta$) ?
समीकरण 3x+y-5=0 तथा 2x-y-5=0 के आरेख एक बिंदु P (α, β) पर एक-दूसरे को काटते हैं | ($3\alpha + \beta$) का मान क्या है ?
SSC CGL Tier II- 11 September 2019
(a) 4
(b) -4
(c) 3
(d) 5

Q2. The graph of the equation x-7y = -42, intersects the y-axis at P(α, β) and the graph of 6x+y-15=0, intersects the x-axis at Q(γ, δ). What is the value of $\alpha + \beta + \gamma + \delta$?
समीकरण x-7y = -42 का आरेख y-अक्ष को P (α, β) पर काटता है तथा समीकरण 6x+y-15=0 का आरेख x-अक्ष को Q(γ, δ) पर काटता है | $\alpha + \beta + \gamma + \delta$ का मान क्या है ?
SSC CGL Tier II- 11 September 2019
(a) $\frac{17}{2}$
(b) 6
(c) $\frac{9}{2}$
(d) 5

Q3. The point of intersection of the graphs of the equations 3x-5y=19 and 3y-7x+1=0 is P(α, β) . What is the value of ($3\alpha - \beta$) ?
समीकरण 3x-5y=19 तथा 3y-7x+1=0 के आरेखों का प्रतिच्छेद बिंदु P(α, β) है | ($3\alpha - \beta$) का मान क्या है ?
SSC CGL Tier II- 12 September 2019
(a) -2
(b) -1
(c) 1
(d) 0

Q4. The graphs of the equations 2x+3y=11 and x-2y+12=0 intersects at P($x_{1,}\ y_{1}$) and the graph of the equation x-2y+12=0 intersects the x-axis at Q($x_{2,}\ y_{2}$). What is the value of ($x_1 - x_2 + y_1 + y_2$) ?
समीकरणों 2x+3y=11 तथा x-2y+12=0 के आरेख एक दूसरे को P ($x_{1,}\ y_{1}$) पर काटते हैं तथा समीकरण x-2y+12=0 का आरेख x-अक्ष को Q ($x_{2,}\ y_{2}$) पर काटता है | ($x_1 - x_2 + y_1 + y_2$) का मान क्या है ?
SSC CGL Tier II- 12 September 2019
(a) 13
(b) -11
(c) 15
(d) -9

Q5. What is the area (in square units) of the triangular region enclosed by the graphs of the equations x+y = 3, 2x+5y=12 and the x axis?
समीकरण x+y = 3, 2x+5y=12 के आरेखों तथा x -अक्ष के द्वारा घेरे गए त्रिभुजाकार क्षेत्र का क्षेत्रफल (वर्ग इकाई में) क्या होगा ?
SSC CGL Tier II- 13 September 2019
(a) 2
(b) 3
(c) 4
(d) 6

Q6. The graph of the equations 5x-2y+1=0 and 4y-3x+5=0, intersect at the point P(α, β). What is the value of ($2\alpha - 3\beta$)?
समीकरण 5x-2y+1=0 और 4y-3x+5=0 के आरेख एक-दूसरे को बिंदु P(α, β) पर काटते हैं | ($2\alpha - 3\beta$) का मान क्या होगा ?
SSC CGL Tier II- 13 September 2019
(a) 4
(b) 6
(c) -4
(d) -3

SSC CHSL 2019
Q1. The equation of circle with centre (1, -2) and radius 4cm is:
केंद्र (1, -2) और त्रिज्या 4 सेमी वाले वृत्त का समीकरण है:
CHSL 17-03-2020 (Afternoon shift)
(a) $x^2 + y^2 + 2x - 4y = 16$
(b) $x^2 + y^2 - 2x + 4y = 16$
(c) $x^2 + y^2 + 2x - 4y = 11$
(d) $x^2 + y^2 - 2x + 4y = 11$

Q2. What is the equation of a circle with centre of origin and radius is 6 cm?
मूल केंद्र और त्रिज्या 6 सेमी वाले एक वृत्त का समीकरण क्या है?
CHSL 17-03-2020 (Evening shift)
(a) x2 + y2 - x - y = 36
(b) x2 + y2 - x = 36
(c) x2 + y2 - y = 36
(d) x2 + y2 - 36 = 0

SSC CGL 2019 TIER-II
Q3. The graph of the equations 3x-20y-2=0 and 11x-5y+61=0 intersect at P(a,b). What is the value of $(a^2 + b^2 - ab)/(a^2 - b^2 + ab)$?
3x-20y-2 = 0 और 11x-5y 61 = 0 समीकरणों के आरेख P(a, b) पर एक दूसरे को प्रतिच्छेद करते हैं। $(a^2 + b^2 - ab)/(a^2 - b^2 + ab)$ का मान क्या है?
CGL 2019 Tier-II (15-11-2020)
(a) $\frac{37}{35}$
(b) $\frac{31}{41}$
(c) $\frac{5}{7}$
(d) $\frac{41}{31}$

Q4. The area in (sq units) of the triangle formed by the graphs of

8x + 3y = 24, 2x + 8 = y and the x-axis is:
8x + 3y = 24, 2x + 8 = y और x-अक्ष के आरेख द्वारा निर्मित त्रिभुज का क्षेत्रफल (वर्ग इकाइयों में) है:
CGL 2019 Tier-II (15-11-2020)
(a) 28
(b) 14
(c) 15
(d)24

Q5. What is the area (in sq. units) of the triangle formed by the graph of the equation 2x + 5y -12 = 0, x + y = 3 and y = 0?
समीकरण 2x + 5y -12 = 0, x + y = 3 और y = 0 के आरेख द्वारा निर्मित त्रिभुज का क्षेत्रफल (वर्ग इकाइयों में) क्या है?
CGL 2019 Tier-II (16-11-2020)
(a) 6
(b) 5
(c) 3
(d) 2

Q6. The graph of the linear equation 3x - 2y = 8 and 4x + 3y = 5 intersect at the point (α, β). What is the value of $(2\alpha - \beta)$?
रैखिक समीकरण 3x - 2y = 8 और 4x - 3y = 5 का आरेख बिंदु (α, β) पर प्रतिच्छेद करता है। $(2\alpha - \beta)$ का मान क्या है?
CGL 2019 Tier-II (16-11-2020)
(a) 4
(b) 6
(c) 3
(d) 5

Q.7 What is the reflection of the point (5,-3) in the line Y = 3?
रेखा Y = 3 में, बिंदु (5, -3) का प्रतिबिंब क्या है:
CGL 2019 Tier-II (18-11-2020)
(a) (5,-6)
(b) (-5,3)
(c) (5,9)
(d) (5,3)

Q.8 The graphs of the linear equations 4x-2y=10 and 4x+ky=2 intersect at a point (a,4). The value of k is equal to:
रैखिक समीकरणों 4x-2y = 10 और 4x +ky = 2 के आरेख एक बिंदु (a, 4) पर एक-दूसरे को काटते हैं। k का मान ज्ञात करे।
CGL 2019 Tier-II (18-11-2020)
(a) 3
(b) -3
(c) -4
(d) 4

Pinnacle

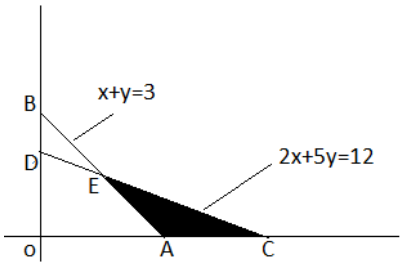
Sol 1.(d)
Given, 3x+y-5=0 and 2x-y-5=0
3x+y=5 ……(1)
2x-y = 5 ……..(2)
Add equation 1 and 2
$\Rightarrow 5x = 10$
$\Rightarrow x = 2$
Put the value of x in any of the equation
3x+y=5 $\Rightarrow$ 3(2)+y=5
$\Rightarrow y = -1$
So, intersecting point the given lines $\{P(\alpha, \beta)\} = (2,-1)$
$\Rightarrow (3\alpha + \beta) = \{3(2) + (-1)\} = 5$

Sol 2.(a)
Given,
x-7y = -42 …..(1)
And
6x+y-15=0 …….(2)
On y axis, x=0
Put this value in equation (1)
$\Rightarrow$ 0-7y = -42
$\Rightarrow y = 6$
$\Rightarrow P(\alpha, \beta) = (0, 6)$
On x axis, y=0
Put this value in equation (2)
$\Rightarrow$ 6x+0 = 15
$\Rightarrow x = \frac{5}{2}$
$\Rightarrow Q(\gamma, \delta) = (\frac{5}{2}, 0)$
$\Rightarrow$ *the value of* $\alpha + \beta + \gamma + \delta =$ $0+6+\frac{5}{2}+0 = \frac{17}{2}$

Sol 3. (b)
Given,
3x-5y=19 ……(1)
and 3y-7x+1=0
7x-3y = 1 ……..(2)
Multiply equation (1) by 3 and equation (2) by 5 and subtract eq (1) from
$\Rightarrow 26x = -52$
$\Rightarrow x = -2$
Put the value of x in any of the equations
3(-2) -5y = 19
$\Rightarrow y = -5$
$\Rightarrow P(\alpha, \beta) = (-2, -5)$
$(3\alpha - \beta) \Rightarrow 3(-2) - (-5) = -1$

Sol 4. (c)
Given,
2x+3y=11 …….(1)
and x-2y+12=0
2y-x = 12 ……..(2)
Multiply equation (2) by 2 and add it in equation (1)
$\Rightarrow 7y = 35$
$\Rightarrow y = 5$ and x = -2
$\Rightarrow P(x_1, y_1) = (-2, 5)$
Now,
x-2y+12=0
At x axis y = 0
$\Rightarrow x = -12$
$Q(x_2, y_2) = (-12,0)$
$(x_1 - x_2 + y_1 + y_2) \Rightarrow$ $\{-2-(-12)+5+0\} = 15$

Sol 5. (b)
In x+y=3
put x=0 $\Rightarrow y = 3$
put y=0 $\Rightarrow x = 3$
Line formed by the equation will be AB
In 2x+5y=12
put x=0 $\Rightarrow y = 2.4$
put y=0 $\Rightarrow x = 6$
Line formed by the equation will be CD
AB and CD will intersect at point E.
Given, x+y=3 ……(1)
and 2x+5y = 12 …….(2)
Multiply equation (1) by 2 and subtract it from equation (2)
$\Rightarrow 3y = 6$
$\Rightarrow y = 2$
Put the value of y in any of the equations
x+2=3
$\Rightarrow x = 1$
So, E(x,y) = (1,2)



Area formed by the the equations x+y = 3, 2x+5y=12 and the x axis is the shaded region or ΔEAC
Now, AC = OC-OA = 6-3 = 3
Height of the triangle will be the y coordinate of point E = 2
Required area = $\frac{1}{2} \times Base \times Height = \frac{1}{2} \times 3 \times 2 =$ 3 square units.

Sol 6. (a)
Given,
5x-2y+1=0
2y-5x = 1
……..(1)
and
4y-3x+5=0
3x-4y = 5 ……..(2)
Multiply eq(1) by 2 and add it in eq (2)
$-7x = 7$
$\Rightarrow x = -1$
Put this value in any of the equation
5(-1) - 2y + 1 = 0
$\Rightarrow y = -2$
$\Rightarrow P(\alpha, \beta) = (-1, -2)$
$\Rightarrow (2\alpha - 3\beta) = \{2(-1) - 3(-2)$ $=4$

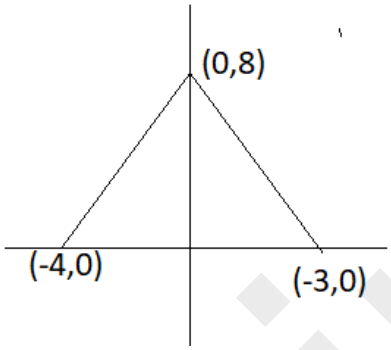
SSC CHSL 2019
Sol 1. (d)
Center = (1,-2) and radius = 4 cm
Equation of circle $\Rightarrow (x - 1)^2 + (y + 2)^2 = (4)^2$
$x^2 + 1 - 2x + y^2 + 4 + 4y = 16$
$\Rightarrow x^2 - 2x + y^2 + 4y = 16 - 5$
$\Rightarrow x^2 + y^2 - 2x + 4y = 11$

Sol 2. (d)
Center = (1,-2) and radius = 4 cm
Equation of circle $\Rightarrow (x - 0)^2 + (y + 0)^2 = (6)^2$
$x^2 + y^2 = 36$
$\Rightarrow$ x2 + y2 - 36 = 0

SSC CGL 2019 TIER-II

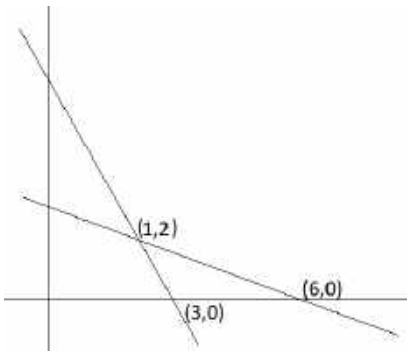
Sol:3.(b)
The point where both the lines meet is the only point which satisfy both the equation
On solving both the eq a = 6 and b = 1
$(a^2 + b^2 - ab)/(a^2 - b^2 + ab) = \frac{36+1-6}{36-1+6} = \frac{31}{41}$

Sol:4.(a)
Points of intersection
By 8x + 3y = 24, 2x + 8 = y is (0,8)
y=0 , 2x + 8 = y is (-4,0)
y=0, 8x + 3y = 24 is (3,0)



Height = 8
Base = 7
Area = $\frac{1}{2} \times 8 \times 7 = 28$

Sol:5.(c)
Points of intersection
By 2x + 5y -12 = 0 and x + y = 3 is (1,2)
y=0 and 2x + 5y -12 = 0 is (6,0)
y=0 and x + y = 3 is (3,0)



Base = 3
Height = 2
Area = $\frac{1}{2} \times 3 \times 2 = 3$

Sol:6.(d)
On solving both the eq
$\alpha = 2$
$\beta = -1$
$(2\alpha - \beta) = 5$

Sol:7.(c)
y= 3 is parallel to x axis so on reflection x axis will not change
Perpendicular distance of (5,-3) from y = 3 = 6 units
6 units on the other side of the line (y = 3) = 3 + 6 = 9
So the point = (5, 9)

Sol:8.(c)
They intersect at y = 4
So
4x-2(4)=10
x = 4.5
4x+ky=2
4(4.5)+k(4)=2
k = -4

Pinnacle

DATA INTERPRETATION

Variety Questions

Q1.The table shows the production of different types of cars (in thousands).
यह तालिका अलग-अलग प्रकार के कारों का उत्पादन (हज़ार में) दर्शाती है |

Years / Cars	2012	2013	2014	2015	2016
A	30	35	48	45	56
B	42	48	40	38	56
C	48	36	38	35	44
D	51	24	30	46	54
E	20	42	40	35	43

If the data related to the production of cars of type E is represented by a pie chart, then the central angle of the sector representing the data of production of cars in 2013 will be: यदि E प्रकार की कारों के उत्पादन से संबंधित आंकड़ों को एक पाई-चार्ट के द्वारा प्रदर्शित किया जाए, तो 2013 में कारों के उत्पादन के आंकड़ों को दर्शाने वाले खंड का केंद्रीय कोण होगा :

SSC CGL 4 June 2019 (Morning)

(a)102°
(b)84°
(c)70°
(d)80°

Q2.The table shows the production of different types of cars (in thousands).
यह तालिका अलग-अलग प्रकार के कारों का उत्पादन (हज़ार में) दर्शाती है |

Years / Cars	2012	2013	2014	2015	2016
A	30	35	48	45	56
B	42	48	40	38	56
C	48	36	38	35	44
D	51	24	30	46	54
E	20	42	40	35	43

What is the ratio of the total production of cars of type A in 2014 and type C in 2013 taken together to the total production of cars of type B in 2016 and type E in 2015 taken together?
2014 में A प्रकार की कारों और 2013 में C प्रकार की कारों के कुल उत्पादन का 2016 में B प्रकार की कारों और 2015 में E प्रकार की कारों के कुल उत्पादन के साथ अनुपात ज्ञात करें |

SSC CGL 4 June 2019 (Morning)

(a)12:13
(b)11:12
(c)10:11
(d)12:11

Q3.The table shows the production of different types of cars (in thousands)
यह तालिका अलग-अलग प्रकार के कारों का उत्पादन (हज़ार में) दर्शाती है |

Years / Cars	2012	2013	2014	2015	2016
A	30	35	48	45	56
B	42	48	40	38	56
C	48	36	38	35	44
D	51	24	30	46	54
E	20	42	40	35	43

The total production of type B cars in 2012, 2014 and 2015 taken together is approximately what percent more than the total production of type A cars in 2013 and 2016 taken together?
2012, 2014 और 2015 में B प्रकार की कारों का कुल उत्पादन 2013 एवं 2016 में A प्रकार की कारों के कुल उत्पादन से लगभग कितना प्रतिशत अधिक है ?

SSC CGL 4 June 2019 (Morning)

(a)31.9
(b)33.2
(c)36.3
(d)34.4

Q4.The table shows the production of different types of cars (in thousands)
यह तालिका अलग-अलग प्रकार के कारों का उत्पादन (हज़ार में) दर्शाती है |

Years / Cars	2012	2013	2014	2015	2016
A	30	35	48	45	56
B	42	48	40	38	56
C	48	36	38	35	44
D	51	24	30	46	54
E	20	42	40	35	43

The number of years, in which the production of cars of type B is less than the average production of type D cars over the years is:
कितने वर्ष B प्रकार की कारों का उत्पादन इन वर्षों के दौरान D प्रकार की कारों के औसत उत्पादन से कम रहा है ?

SSC CGL 4 June 2019 (Morning)

(a)4
(b)1
(c)3
(d)2

Q5. The table below shows the percentage of students and the ratio of boys and girls in different colleges. Total students = 1800
नीचे दी गयी तालिका छात्रों का प्रतिशत तथा अलग-अलग कॉलेजों में लड़कों एवं लड़कियों का अनुपात दर्शाती है | कुल छात्र = 1800

College	% Students	Boys : Girls
A	20	4 : 5
B	18	1 : 2
C	14	4 : 3
D	22	6 : 5
E	10	2 : 3
F	16	9 : 7

What is the percentage of girls in colleges D, E and F taken together, (nearest to one decimal place)?
कॉलेज D, E और F को मिला कर लड़कियों का प्रतिशत कितना है ? (एक दशमलव स्थान के निकटतम)

SSC CGL 10 June 2019 (Evening)

(a) 47.9%
(b) 48.1%
(c) 48.5%
(d) 48.3%

Q6. The table below shows the percentage of students and the ratio of boys and girls in different colleges. Total students = 1800

नीचे दी गयी तालिका छात्रों का प्रतिशत तथा अलग-अलग कॉलेजों में लड़कों एवं लड़कियों का अनुपात दर्शाती है | कुल छात्र = 1800

College	% Students	Boys : Girls
A	20	4 : 5
B	18	1 : 2
C	14	4 : 3
D	22	6 : 5
E	10	2 : 3
F	16	9 : 7

If 10% of the girls from college A are transferred to college E, then what is the increase in the percentage of girls in college E?

यदि कॉलेज A की 10% लड़कियाँ कॉलेज E में स्थानांतरित कर दी जाएँ, तो कॉलेज E में लड़कियों के प्रतिशत में कितनी वृद्धि होगी ?

SSC CGL 10 June 2019 (Evening)

(a) 4%
(b) 4.4%
(c) 4.6%
(d) 4.2%

Q7. The table below shows the percentage of students and the ratio of boys and girls in different colleges. Total students = 1800

नीचे दी गयी तालिका छात्रों का प्रतिशत तथा अलग-अलग कॉलेजों में लड़कों एवं लड़कियों का अनुपात दर्शाती है | कुल छात्र = 1800

College	% Students	Boys : Girls
A	20	4 : 5
B	18	1 : 2
C	14	4 : 3
D	22	6 : 5
E	10	2 : 3
F	16	9 : 7

What is the ratio of boys and girls in the colleges A and B taken together?

कॉलेज A और B को मिलाकर लड़कों तथा लड़कियों का अनुपात क्या है ?

SSC CGL 10 June 2019 (Evening)

(a) 45 : 71
(b) 37 : 52
(c) 43 : 67
(d) 67 : 104

Q8. The table below shows the percentage of students and the ratio of boys and girls in different colleges. Total students = 1800

नीचे दी गयी तालिका छात्रों का प्रतिशत तथा अलग-अलग कॉलेजों में लड़कों एवं लड़कियों का अनुपात दर्शाती है | कुल छात्र = 1800

College	% Students	Boys : Girls
A	20	4 : 5
B	18	1 : 2
C	14	4 : 3
D	22	6 : 5
E	10	2 : 3
F	16	9 : 7

In which college is the percentage difference between the number of boys and girls minimum?

किस कॉलेज में लड़कों तथा लड़कियों की संख्या में प्रतिशत अंतर न्यूनतम है ?

SSC CGL 10 June 2019 (Evening)

(a) A
(b) E
(c) C
(d) D

Q9. The table below indicates the percentage of students and the ratio of boys and girls in the various streams of a college.
(Total students = 2600)

नीचे दी गयी तालिका छात्रों का प्रतिशत तथा कॉलेज के विभिन्न विषयों में लड़कों तथा लड़कियों का अनुपात दर्शाती है |
(कुल छात्र = 2600)

Stream	CE	CS	IT	ME	EC
% Students	20%	18%	21%	22%	19%
Boys : Girls	3 : 2	4 : 5	3 : 4	6 : 5	9 : 10

What is the ratio of students studying in CS and IT?

CS और IT में पढ़ रहे छात्रों का अनुपात क्या है ?

SSC CGL 11 June 2019 (Afternoon)

(a) 9 : 11
(b) 12 : 13
(c) 6 : 7
(d) 11 : 13

Q10. The table below indicates the percentage of students and the ratio of boys and girls in the various streams of a college.
(Total students = 2600)

नीचे दी गयी तालिका छात्रों का प्रतिशत तथा कॉलेज के विभिन्न विषयों में लड़कों तथा लड़कियों का अनुपात दर्शाती है |
(कुल छात्र = 2600)

Stream	CE	CS	IT	ME	EC
% Students	20%	18%	21%	22%	19%
Boys : Girls	3 : 2	4 : 5	3 : 4	6 : 5	9 : 10

What is the ratio of boys and girls in the college?

कॉलेज में लड़कों एवं लड़कियों का अनुपात क्या है ?

SSC CGL 11 June 2019 (Afternoon)

(a) 5 : 6
(b) 6 : 7
(c) 1 : 1
(d) 7 : 8

Q11. The table below indicates the percentage of students and the ratio of boys and girls in the various streams of a college.
(Total students = 2600)

नीचे दी गयी तालिका छात्रों का प्रतिशत तथा कॉलेज के विभिन्न विषयों में लड़कों तथा लड़कियों का अनुपात दर्शाती है |
(कुल छात्र = 2600)

Stream	CE	CS	IT	ME	EC
% Students	20%	18%	21%	22%	19%
Boys : Girls	3 : 2	4 : 5	3 : 4	6 : 5	9 : 10

If the data about the number of girls enrolled in the various streams is represented by a pie-chart, what is the central angle of the sector representing the number of girls in the ME stream, to the nearest whole degree?

यदि विभिन्न विषयों में नामांकन लेने वाली लड़कियों की संख्या से संबंधित आंकड़ों को एक पाई-चार्ट के द्वारा दर्शाया जाए, तो ME विषय में लड़कियों की संख्या को दर्शाने वाले खंड का केंद्रीय कोण (निकटतम पूर्ण डिग्री में) क्या होगा ?

SSC CGL 11 June 2019 (Afternoon)

(a) 68^0

Pinnacle

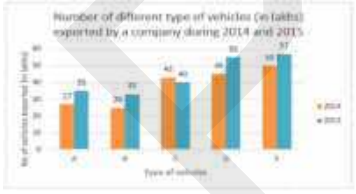
(b) 70^0
(c) 72^0
(d) 74^0

Q12. The table below indicates the percentage of students and the ratio of boys and girls in the various streams of a college.
(Total students = 2600)
नीचे दी गयी तालिका छात्रों का प्रतिशत तथा कॉलेज के विभिन्न विषयों में लड़कों तथा लड़कियों का अनुपात दर्शाती है |
(कुल छात्र = 2600)

Stream	CE	CS	IT	ME	EC
% Students	20%	18%	21%	22%	19%
Boys : Girls	3 : 2	4 : 5	3 : 4	6 : 5	9 : 10

In which stream, is the difference in the percentage of boys and girls minimum?
किस विषय में, लड़कों एवं लड़कियों के प्रतिशत में सबसे कम अंतर है ?
SSC CGL 11 June 2019 (Afternoon)
(a) EC
(b) CS
(c) IT
(d) ME

Q13.The given bar graph presents the number of different types of vehicles (in lakhs) exported by a company during 2014 and 2015.
दिया गया दंड आरेख एक कंपनी के द्वारा 2014 और 2015 में निर्यात किये गए अलग-अलग प्रकार के वाहनों की संख्या (लाख में) को दर्शाता है |



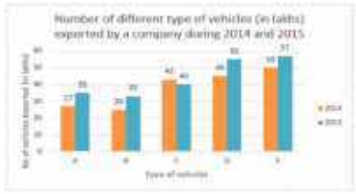
The total number of type B,D and E vehicles exported in 2014 is what percentage of the total number of type A, C, D and E vehicles exported in 2015 (correct to one decimal place)?
2014 में निर्यातित B, D एवं E प्रकार के कुल वाहनों की संख्या 2015 में निर्यात किये गए A, C, D एवं E प्रकार के वाहनों की कुल संख्या का कितना प्रतिशत है ?
SSC CHSL 1 July 2019 (Evening)
(a)62.4%
(b)61.6%
(c)63.8%
(d)64.2%

Q14.The given bar graph presents the number of different types of vehicles (in lakhs) exported by a company during 2014 and 2015.
दिया गया दंड आरेख एक कंपनी के द्वारा 2014 और 2015 में निर्यात किये गए अलग-अलग प्रकार के वाहनों की संख्या (लाख में) को दर्शाता है |



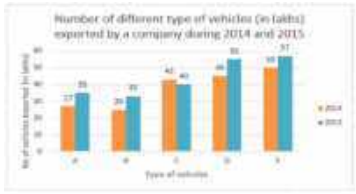
What is the ratio of the total number of type A and C vehicles exported in 2014 to the total number of type B and E vehicles exported in 2015?
2014 में निर्यात किये गए A और C प्रकार के वाहनों की कुल संख्या का 2015 में निर्यात किये गए B एवं E प्रकार के वाहनों की कुल संख्या के साथ अनुपात ज्ञात करें |
SSC CHSL 1 July 2019 (Evening)
(a)8:11
(b)7:9
(c)2:3
(d)5:7

Q15.The given bar graph presents the number of different types of vehicles (in lakhs) exported by a company during 2014 and 2015.
दिया गया दंड आरेख एक कंपनी के द्वारा 2014 और 2015 में निर्यात किये गए अलग-अलग प्रकार के वाहनों की संख्या (लाख में) को दर्शाता है |



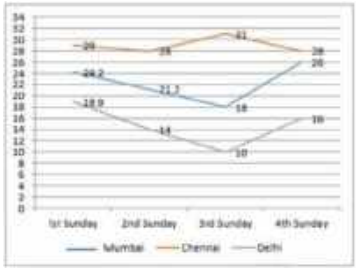
Which type of vehicle showed 32% increase in export in 2015 as compared to that in the previous year?
किस प्रकार के वाहन के निर्यात में पिछले वर्ष की तुलना में 2015 में 32% की वृद्धि देखने को मिली ?
SSC CHSL 1 July 2019 (Evening)
(a)B
(b)A
(c)E
(d)D

Q16.The given bar graph presents the number of different types of vehicles (in lakhs) exported by a company during 2014 and 2015.
दिया गया दंड आरेख एक कंपनी के द्वारा 2014 और 2015 में निर्यात किये गए अलग-अलग प्रकार के वाहनों की संख्या (लाख में) को दर्शाता है |



The average number of type A, B and D vehicles exported in 2015 was x% less than the number of type E vehicles exported in 2014. What is the value of x?
2015 में निर्यात किये गए A, B और D प्रकार के वाहनों की औसत संख्या 2014 में निर्यात किये गए E प्रकार के वाहनों की संख्या से x% कम थी | x का मान क्या है ?
SSC CHSL 1 July 2019 (Evening)
(a)18
(b)24
(c)20
(d)25

Q17. The line diagram shows the temperature of four Sundays of three cities./ यह रेखा आरेख तीन शहरों में चार रविवार का तापमान दर्शाता है |

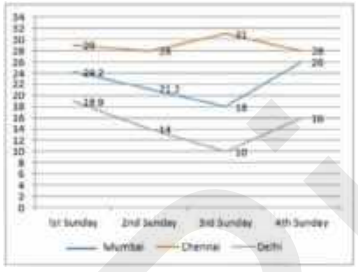


In the given graph, what was the average temperature on the 3rd sunday in all the cities? / इस आरेख में सभी शहरों में तीसरे रविवार का औसत तापमान क्या था ?

SSC CPO 16 March 2019 (Morning)

(a) 24
(b) 25.4
(c) 23
(d) 19.7

Q18. The line graph shows the temperature on four Sundays of three cities.
यह रेखा आरेख तीन शहरों में चार रविवार के तापमान को दर्शाता है |

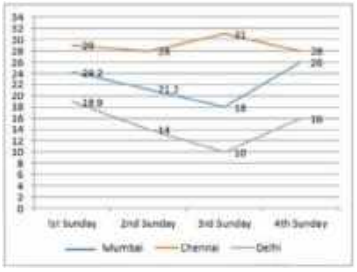


In the given graph, when was the maximum temperature recorded in Delhi?
इसके अनुसार दिल्ली में अधिकतम तापमान कब दर्ज किया गया था ?

SSC CPO 16 March 2019 (Morning)

(a) 4th Sunday/ चौथा रविवार
(b) 1st Sunday/ पहला रविवार
(c) 2nd Sunday/ दूसरा रविवार
(d) 3rd Sunday/ तीसरा रविवार

Q19. The line graph shows the temperature on four Sundays of three cities.
यह रेखा आरेख तीन शहरों में चार रविवार के तापमान को दर्शाता है |



In the given graph, what was the difference in temperature between Delhi and Mumbai on the 2nd Sunday? / इसके अनुसार दूसरे रविवार को दिल्ली और मुंबई के तापमान में क्या अंतर था ?

SSC CPO 16 March 2019 (Morning)

(a) 7.2
(b) 13
(c) 21
(d) 17.2

Q20. The given pie chart shows runs scored by A in 6 matches.
दिया गया पाई चार्ट A के द्वारा 6 मैचों में बनाए गए रनों को दर्शाता है |



In the given pie-chart, if A scored a century in matches 4 and 6, what would have been her average score? / इस पाई चार्ट में यदि A ने चौथे और छठे मैच में शतक लगाया होता तो उसका औसत स्कोर क्या रहता ?

SSC CPO 16 March 2019 (Morning)

(a)93.4
(b)84.5
(c) 89.7
(d)91.2

Q21. The given pie chart shows runs scored by A in 6 matches.
दिया गया पाई चार्ट A के द्वारा 6 मैचों में बनाए गए रनों को दर्शाता है |



In the given pie-chart, what is the increase or decrease in score in match 4 as compared to match 2? / इस पाई चार्ट में मैच 2 की तुलना में मैच 4 के स्कोर में कितनी वृद्धि या कमी हुई है ?

SSC CPO 16 March 2019 (Morning)

(a) +27
(b) -60
(c) +60
(d) -27

Q22. The given pie chart shows runs scored by A in 6 matches.
दिया गया पाई चार्ट A के द्वारा 6 मैचों में बनाए गए रनों को दर्शा ता है |



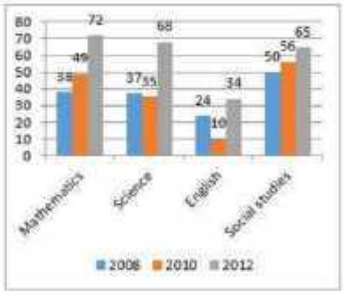
In the given pie-chart, what is the average runs scored in all matches?
इस पाई चार्ट के अनुसार सभी मैचों का औसत स्कोर क्या है ?

SSC CPO 16 March 2019 (Morning)

(a) 85
(b) 90
(c) 88

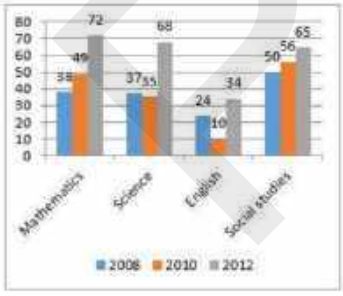
(d) 84

Q23. The given bar graph shows the number of marks scored by a student in each subject in three years.
दिया गया दंड आरेख एक छात्र के द्वारा तीन वर्षों में प्रत्येक विषय में लाये गए अंकों को दर्शाता है |



In the given chart, what is the percentage increase in marks in Mathematics in 2012 compared to 2008 (round off) ? / इस आरेख में वर्ष 2008 की तुलना में वर्ष 2012 में गणित के अंकों में कितने प्रतिशत की वृद्धि हुई है ? **SSC CPO 16 March 2019 (Morning)**
(a) 95
(b) 92
(c) 100
(d) 89

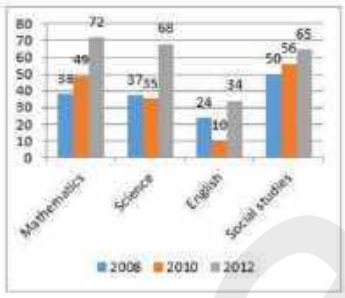
Q24. The given bar chart shows the number of marks covered by a student in three years. / दिया गया दंड आरेख एक छात्र के द्वारा तीन वर्षों में प्राप्त अंकों को दर्शाता है |



In the given chart, in which subject was the lowest marks scored in 2010?
इस दंड आरेख के अनुसार वर्ष 2010 में किस विषय में सबसे कम अंक आये थे ?

SSC CPO 16 March 2019 (Morning)
(a) English / अंग्रेजी
(b) Social Studies/ सामाजिक अध्ययन
(c) Science/ विज्ञान
(d) Mathematics/ गणित

Q 25. The given bar graph shows the number of marks scored by a student in each subject in three years. / दिया गया बार ग्राफ तीन वर्षों में प्रत्येक विषय में एक छात्र द्वारा प्राप्त किये गए अंकों की संख्या को दर्शाता है।



In the given chart, the number of marks in social studies in 2012 is 13% of the school strength. The number of students is:
दिए गए चार्ट में, यदि वर्ष 2012 में सामाजिक अध्ययन में अंकों की संख्या स्कूल की के छात्रों की संख्या का 13% है। छात्रों की संख्या कितनी है?
SSC CPO 16 March 2019 (Morning)

(a) 400
(b) 500
(c) 580
(d) 540

Q26. The given bar chart shows the details of cycle sales by a company between January and May for years 2017 and 2018.
दिया गया दंड आरेख वर्ष 2017 एवं 2018 में एक कंपनी के द्वारा जनवरी से लेकर मई तक साइकिल बिक्री की जानकारी देता है |



In the given bar-chart, which month sales show the maximum decrease in 2018 as compared to 2017?
दिए गए दंड आरेख में, किस माह की बिक्री 2017 की तुलना में 2018 में अधिकतम कमी को दर्शाती है ?
SSC CPO 13 March 2019 (Morning)
(a)May/ मई
(b)February/फरवरी
(c)April/ अप्रैल
(d)January/ जनवरी

Q27. The given bar chart shows the details of cycle sales by a company between January and May for years 2017 and 2018.
दिया गया दंड आरेख वर्ष 2017 एवं 2018 में एक कंपनी के द्वारा जनवरी से लेकर मई तक साइकिल बिक्री की जानकारी देता है |



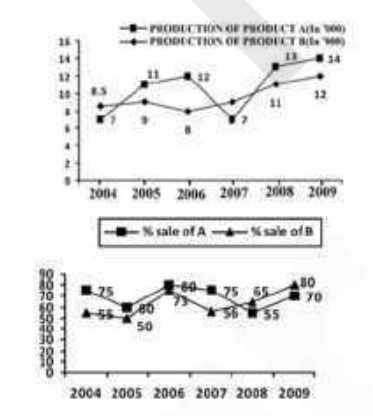
In the given bar-chart, which month sale shows the maximum increase in 2018 as against 2017? / दिए गए दंड आरेख के अनुसार किस महीने की बिक्री 2017 की तुलना में 2018 में अधिकतम वृद्धि दर्शाती है ?
SSC CPO 13 March 2019 (Morning)
(a)April/ अप्रैल
(b)March/ मार्च
(c)January/ जनवरी
(d)May/ मई

Q28. The given bar chart shows the details of cycle sales by a company between January and May for years 2017 and 2018.
दिया गया दंड आरेख वर्ष 2017 एवं 2018 में एक कंपनी के द्वारा जनवरी से लेकर मई तक साइकिल बिक्री की जानकारी देता है |



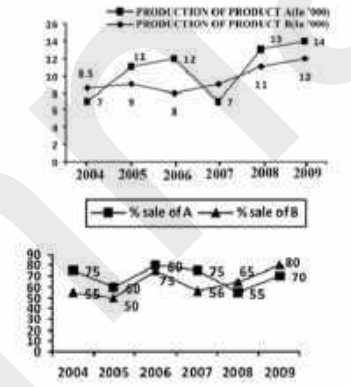
In the given bar-chart, what is the total increase or decrease in percentage sale in 2018?
दिए गए बार-चार्ट में, 2018 में प्रतिशत बिक्री में कुल वृद्धि या कमी क्या है?
SSC CPO 13 March 2019 (Morning)
(a)1.5% increase
(b)3% increase
(c)3% decrease
(d)1.5% decrease

Q29. The line graph shows the production of product A and B (in thousands) during the period 2004 to 2009 and the second line Graph shows the percentage sale of these products.
यह पंक्ति आलेख 2004 से 2009 की अवधि के दौरान वस्तु A एवं B के उत्पादन (हज़ार में) को दर्शाता है तथा दूसरा पंक्ति आलेख इन वस्तुओं की प्रतिशत बिक्री को दर्शाता है |



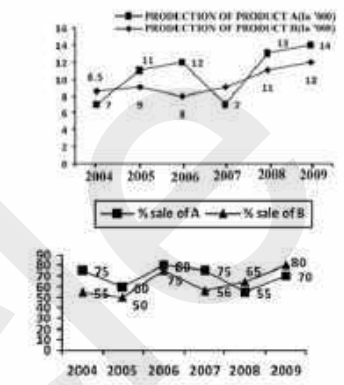
In the given line graph, what is the total sale of Products A and B in the year 2007?
दिए गए पंक्ति आलेख के अनुसार वर्ष 2007 में वस्तु A एवं B की कुल बिक्री क्या रही ?
SSC CPO 16 March 2019 (Evening)
(a)10290
(b)13460
(c)11500
(d)12490

Q30. The line graph shows the production of product A and B (in thousands) during the period 2004 to 2009 and the second line graph shows the percentage sale of these products.
यह पंक्ति आलेख 2004 से 2009 की अवधि के दौरान वस्तु A एवं B के उत्पादन (हज़ार में) को दर्शाता है तथा दूसरा पंक्ति आलेख इन वस्तुओं की प्रतिशत बिक्री को दर्शाता है |



In the given line graph, what is the total sale of Product B in the year 2004 and 2008 together?
दिए गए पंक्ति आलेख के अनुसार, वर्ष 2004 एवं 2008 को मिलाकर वस्तु B की कुल बिक्री ज्ञात करें |
SSC CPO 16 March 2019 (Evening)
(a)11950
(b)12500
(c)14600
(d)11825

Q31. The line graph shows the production of product A and B (in thousands) during the period 2004 to 2009 and the second line graph shows the percentage sale of these products.
यह पंक्ति आलेख 2004 से 2009 की अवधि के दौरान वस्तु A एवं B के उत्पादन (हज़ार में) को दर्शाता है तथा दूसरा पंक्ति आलेख इन वस्तुओं की प्रतिशत बिक्री को दर्शाता है |



In the given line graph, what is the total sale of Product A in the year 2005 and 2009 taken together?
दिए गए पंक्ति आलेख के अनुसार, वर्ष 2005 तथा 2009 को मिलाकर वस्तु A की कुल बिक्री कितनी है ?
SSC CPO 16 March 2019 (Evening)
(a)16400
(b)14600
(c)17500
(d)18500

Q32. The given pie-chart shows the numbers of tourists for the year-2015, travelling from India and to India.
दिया गया पाई चार्ट वर्ष 2015 में भारत से और भारत की यात्रा करने वाले पर्यटकों की संख्या दर्शाता है |



In the given pie-chart, if 1657850 is the total number of tourists visiting India, how many visited from Australia:

दिए गए पाई चार्ट के अनुसार, यदि भारत की यात्रा करने वाले कुल पर्यटकों की संख्या 1657850 है, तो ऑस्ट्रेलिया से कितने लोगों ने यात्रा किया ?

SSC CPO 15 March 2019 (Morning)

(a)563669
(b)589320
(c)457602
(d)331570

Q33. The given pie-chart shows the numbers of tourists for the year-2015, travelling from India and to India.
दिया गया पाई चार्ट वर्ष 2015 के दौरान भारत से तथा भारत की यात्रा करने वाले पर्यटकों की संख्या दर्शाता है |

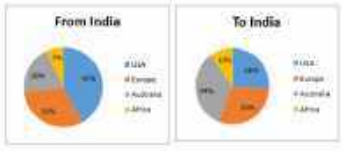


In the given pie-chart, from which country tourists have come to India more than Indians going to that country:
दिए गए पाई चार्ट के अनुसार, उस देश की यात्रा करने वाले भारतीयों की तुलना में किस देश से अधिक पर्यटक भारत आए हैं ?

SSC CPO 15 March 2019 (Morning)

(a)Australia and Africa/ ऑस्ट्रेलिया और अफ्रीका
(b)Europe/ यूरोप
(c)USA/ अमेरिका
(d)Australia only/ केवल ऑस्ट्रेलिया

Q34.The given pie-chart shows the numbers of tourists for the year 2015, travelling from India and to India.
दिया गया पाई चार्ट वर्ष 2015 के दौरान भारत से तथा भारत की यात्रा करने वाले पर्यटकों की संख्या दर्शाता है |



In the given pie-chart, if the number of tourists visiting India is 21,35,600 and the number from India to other countries is 20,45,450. How many more people visit the USA from India than from the USA to India?
दिए गए पाई चार्ट के अनुसार, यदि भारत की यात्रा करने वाले यात्रियों की संख्या 21,35,600 तथा भारत से अन्य देशों की यात्रा करने वाले पर्यटकों की संख्या 20,45,450 है, तो भारत से अमेरिका जाने वाले लोगों की तुलना में कितने अधिक लोग अमेरिका से भारत आये ?

SSC CPO 15 March 2019 (Morning)

(a)303833
(b)358097
(c) 342675
(d)287698

Q35.The table shows Income and expenditure of a person for 3 years (in thousands)
यह तालिका 3 वर्षों के दौरान किसी व्यक्ति के आय एवं व्यय (हज़ार में) को दर्शाती है |

Statement of Income and expenditure

Year	Income	Expense	Savings
2000	110	103	+7
2001	223	214	+9
2002	243	197	+46
2003	189	232	-43

In the given table, if a person invested his savings every year at 8% simple interest, how much interest will be earned at the end of 2003?
दी गयी तालिका के अनुसार, यदि व्यक्ति ने हर वर्ष अपनी बचत 8% साधारण ब्याज पर निवेश कर दी, तो 2003 के अंत में कितना ब्याज प्राप्त होगा ?

SSC CPO 15 March 2019 (Morning)

(a)7.46
(b)6.80
(c) 4.96
(d)5.52

Q36.The table shows Income and expenditure of a person for 3 years (in thousands):
यह तालिका 3 वर्षों के दौरान किसी व्यक्ति के आय एवं व्यय (हज़ार में) को दर्शाती है |

Statement of Income and expenditure

Year	Income	Expense	Savings
2000	110	103	+7
2001	223	214	+9
2002	243	197	+46
2003	189	232	-43

In the given table, what is the percentage of expenditure on income in the year 2002?(round off)
दी गयी तालिका के अनुसार, वर्ष 2002 में आय पर व्यय का प्रतिशत क्या है ?

SSC CPO 15 March 2019 (Morning)

(a) 85%
(b) 78%
(c) 82%
(d) 81%

Q37.The table shows Income and expenditure of a person for 3 years (in thousands):
यह तालिका 3 वर्षों के दौरान किसी व्यक्ति के आय एवं व्यय (हज़ार में) को दर्शाती है |

Statement of Income and expenditure

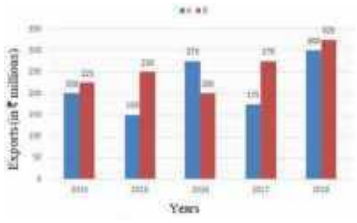
Year	Income	Expense	Savings
2000	110	103	+7
2001	223	214	+9
2002	243	197	+46
2003	189	232	-43

In the given table, if a person reduced his expenditure by 10%

by how much would his total savings increased?
दी गयी तालिका के अनुसार यदि व्यक्ति अपने व्यय में 10% की कमी कर ले, तो उसकी बचत में कुल कितनी वृद्धि होगी ?
SSC CPO 15 March 2019 (Morning)
(a)69.8
(b)83
(c) 74.6
(d)78.2

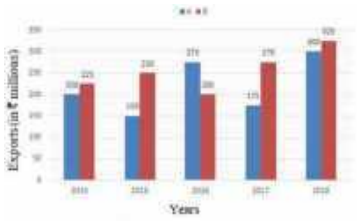
SSC CGL TIER II

Q1. The bar graph shows the exports of Cars of Type A and B (in Rs millions).
यह दंड आरेख A और B प्रकार की कारों का निर्यात (दस लाख रुपये में) दर्शाता है |



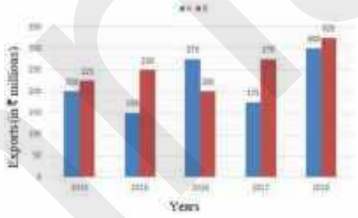
the average exports (per year) of cars of type A over the five years was 10% more than which year's exports of the cars of type A ?
पिछले पांच वर्षों में A प्रकार की कारों का औसत निर्यात (प्रति वर्ष) किस वर्ष A प्रकार की कारों के निर्यात से 10% अधिक था ?
SSC CGL Tier II- 11 September 2019
(a) 2015
(b) 2017
(c) 2014
(d) 2016

Q2. The bar graph shows the exports of Cars of Type A and B (in Rs millions).
यह दंड आरेख A और B प्रकार की कारों का निर्यात (दस लाख रुपये में) दर्शाता है |



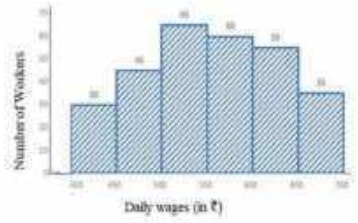
What is the ratio of the total exports of cars of type A in 2014 and 2018 to the total exports of cars of type B in 2015 and 2016?
2014 तथा 2018 में A प्रकार की कारों के कुल निर्यात और 2015 तथा 2016 में B प्रकार की कारों के कुल निर्यात में अनुपात ज्ञात करें |
SSC CGL Tier II- 11 September 2019
(a) 11 : 10
(b) 10 : 9
(c) 5 : 4
(d) 3 : 2

Q3. The bar graph shows the exports of Cars of Type A and B (in Rs millions).
यह दंड आरेख A और B प्रकार की कारों का निर्यात (दस लाख रुपये में) दर्शाता है |



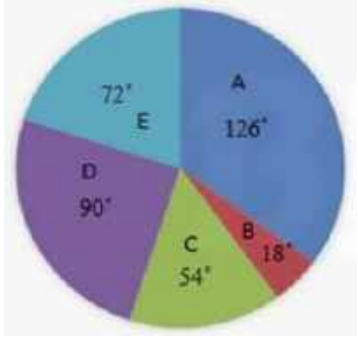
The total exports of cars of type A in 2014 to 2017 is approximately what percentage less than the total exports of cars of type B in 2015 to 2018?
A प्रकार की कारों का 2014 से 2017 तक कुल निर्यात B प्रकार की कारों के 2015 से 2018 तक के कुल निर्यात से लगभग कितना प्रतिशत कम है ?
SSC CGL Tier II- 11 September 2019
(a) 31.3
(b) 30.4
(c) 14.3
(d) 23.8

Q4. Study the graph and answer the question that follows.
आरेख का अध्ययन करें एवं इसके बाद पूछे गए प्रश्नों के उत्तर दें |



What is the ratio of the total number of workers whose daily wages are less than Rs 500 to the total number of workers whose daily wages are Rs600 and above?
500 रुपये से कम दैनिक मजदूरी वाले श्रमिकों की कुल संख्या और 600 रुपये तथा अधिक की दैनिक मजदूरी वाले श्रमिकों की कुल संख्या में अनुपात ज्ञात करें |
SSC CGL Tier II- 11 September 2019
(a) 5 : 6
(b) 6 : 7
(c) 3 : 4
(d) 15 : 11

Q5. The given pie chart shows the breakup of total number of the employees of a company working in different offices (A, B, C, D and E).
Total No. of employees = 2400
दिया गया पाई-चार्ट एक कंपनी के अलग-अलग कार्यालयों (A, B, C, D और E) में कार्य कर रहे कर्मचारियों की कुल संख्या को विच्छेदित कर के दर्शाता है | कर्मचारियों की कुल संख्या = 2400



What is the number of offices in which the number of employees of the company is between 350 and 650?

उन कार्यालयों की संख्या कितनी है जिसमें कंपनी के कर्मचारियों की संख्या 350 से 650 के बीच है ?

SSC CGL Tier II- 11 September 2019

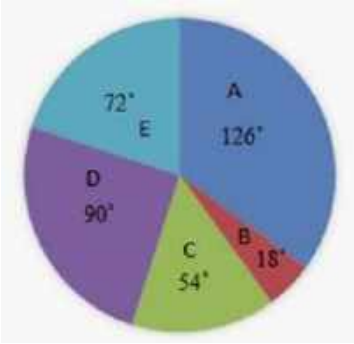
(a) 1
(b) 4
(c) 2
(d) 3

Q6. The given pie chart shows the breakup of total number of the employees of a company working in different offices (A, B, C, D and E).

Total No. of employees = 2400

दिया गया पाई-चार्ट एक कंपनी के अलग-अलग कार्यालयों (A, B, C, D और E) में कार्य कर रहे कर्मचारियों की कुल संख्या को विच्छेदित कर के दर्शाता है |

कर्मचारियों की कुल संख्या = 2400



If the percentage of male employees in office C is 20% and that of female employees in E is 40%, then what is the ratio of the number of female employees in C to that of female employees in E?

यदि कार्यालय C में पुरुष कर्मचारियों का प्रतिशत 20% तथा E में महिला कर्मचारियों की संख्या का प्रतिशत 40% है, तो C में महिला कर्मचारियों की संख्या का E में महिला कर्मचारियों की संख्या के साथ अनुपात ज्ञात करें |

SSC CGL Tier II- 11 September 2019

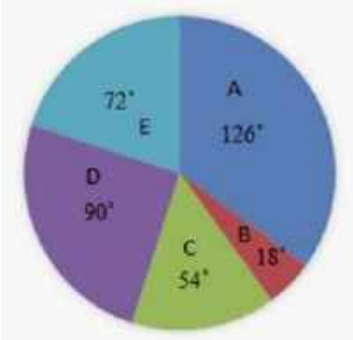
(a) 3 : 2
(b) 5 : 4
(c) 2 : 3
(d) 3 : 8

Q7. The given pie chart shows the breakup of total number of the employees of a company working in different offices (A, B, C, D and E).

Total No. of employees = 2400

दिया गया पाई-चार्ट एक कंपनी के अलग-अलग कार्यालयों (A, B, C, D और E) में कार्य कर रहे कर्मचारियों की कुल संख्या को विच्छेदित कर के दर्शाता है |

कर्मचारियों की कुल संख्या = 2400



If 40% of the number of employees in office A are shifted equally to office B and E, then what is the difference between the number of employees in B and that in C?

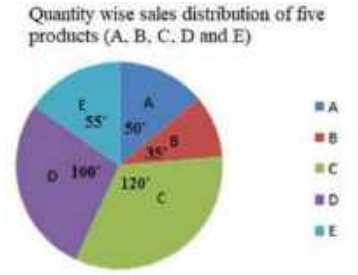
यदि कार्यालय A के 40% कर्मचारियों को बराबर-बराबर B और E में स्थानांतरित कर दिया जाए, तो B एवं C में कर्मचारियों की संख्या के बीच क्या अंतर होगा ?

SSC CGL Tier II- 11 September 2019

(a) 72
(b) 120
(c) 82
(d) 130

Q8. The given pie chart shows the quantity wise sales distribution of five products (A, B, C, D and E) of a company in 2016.

दिया गया पाई चार्ट 2016 में एक कंपनी के पाँच उत्पादों (A, B, C, D और E) की मात्रा वार बिक्री का वितरण दर्शाता है |



If 1500 units of product D were sold in 2016 and the total number of units sold by the company in 2017 was 18% more than that sold in 2016, then the total units sold by the company in 2017 is:

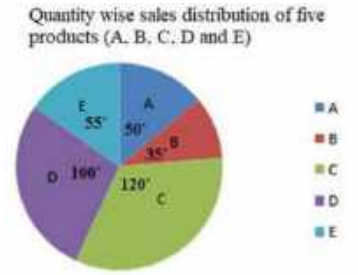
यदि 2016 में वस्तु D की 1500 इकाइयाँ बेचीं गयीं और 2017 में कंपनी द्वारा बेचीं गयी इकाइयों की कुल संख्या 2016 में बेचीं गयी इकाइयों की कुल संख्या से 18% अधिक थी, तो 2017 में कंपनी द्वारा बेची गयी कुल इकाइयों की संख्या है :

SSC CGL Tier II- 12 September 2019

(a) 6336
(b) 6390
(c) 6372
(d) 6354

Q9. The given pie chart shows the quantity wise sales distribution of five products (A, B, C, D and E) of a company in 2016.

दिया गया पाई चार्ट 2016 में एक कंपनी के पाँच उत्पादों (A, B, C, D और E) की मात्रा वार बिक्री का वितरण दर्शाता है |



If 320 units of product A were sold by the company, then how many units of products B and E together were sold by the company?

यदि कंपनी के द्वारा वस्तु A की 320 इकाइयाँ बेची गयीं , तो कंपनी के

द्वारा बेची गयी वस्तु B और E की कुल इकाइयों की संख्या ज्ञात करें |

SSC CGL Tier II- 12 September 2019

(a) 567
(b) 576
(c) 512
(d) 640

Q10. The given pie chart shows the quantity wise sales distribution of five products (A, B, C, D and E) of a company in 2016.

दिया गया पाई चार्ट 2016 में एक कंपनी के पाँच उत्पादों (A, B, C, D और E) की मात्रा वार बिक्री का वितरण दर्शाता है |



In 2016, if a total of 14616 units were sold, then the number of units of products D sold was:

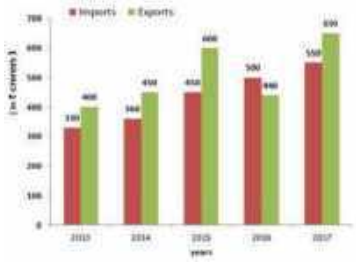
2016 में, यदि कुल 14616 इकाइयाँ बेची गयीं, तो वस्तु B की बेची गयी इकाइयों की संख्या है :

SSC CGL Tier II- 12 September 2019

(a) 4263
(b) 4872
(c) 4060
(d) 4096

Q11. The given bar graph shows the imports and exports (in Rs crores) of steel by a country from 2013 to 2017.

दिया गया दंड आरेख एक देश के द्वारा 2013 से 2017 तक इस्पात के आयात और निर्यात (करोड़ रुपये में) को दर्शाता है |



The total imports of steel in 2014, 2016 and 2017 is what percent less than the total exports in 2013, 2015 and 2017 (correct to one decimal place)?

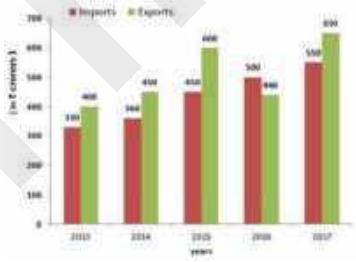
2014, 2016 और 2017 में इस्पात का कुल आयात 2013, 2015 और 2017 में में कुल निर्यात से कितना प्रतिशत कम है ? (एक दशमलव स्थान तक)

SSC CGL Tier II- 12 September 2019

(a) 13.4
(b) 15.8
(c) 16.2
(d) 14.5

Q12. The given bar graph shows the imports and exports (in Rs crores) of steel by a country from 2013 to 2017.

दिया गया दंड आरेख एक देश के द्वारा 2013 से 2017 तक इस्पात के आयात और निर्यात (करोड़ रुपये में) को दर्शाता है |



In how many years were the imports more than 80% of the average exports (per year) of the country during the given 5 years?

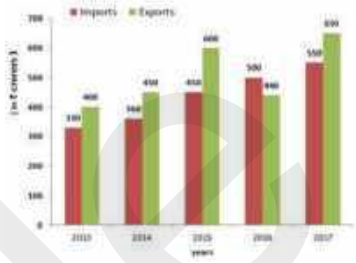
दिए गए 5 वर्षों के दौरान कितने वर्ष देश के आयात देश के औसत निर्यात (प्रति वर्ष) के 80% से अधिक रहे हैं ?

SSC CGL Tier II- 12 September 2019

(a) 4
(b) 2
(c) 1
(d) 3

Q13. The given bar graph shows the imports and exports (in crores) of steel by a country from 2013 to 2017.

दिया गया दंड आरेख एक देश के द्वारा 2013 से 2017 तक इस्पात के आयात और निर्यात (करोड़ रुपये में) को दर्शाता है |



What is the ratio of the total imports in 2015 and 2017 to the total exports in 2013 and 2016 ?

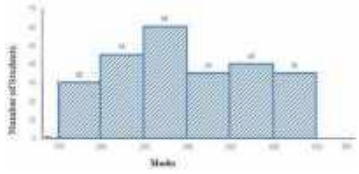
2015 तथा 2017 में किये गए कुल आयात का 2013 तथा 2016 में किये गए कुल निर्यात के साथ अनुपात ज्ञात करें |

SSC CGL Tier II- 12 September 2019

(a) 11:4
(b) 9:8
(c) 25:21
(d) 9:11

Q14. The given graph shows the marks obtained by students in an examination.

दिया गया आरेख किसी परीक्षा में छात्रों के प्राप्तांक दर्शाता है |

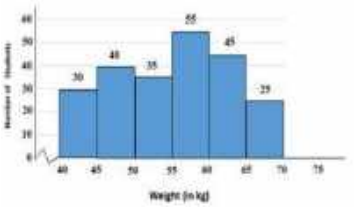


The number of students who obtained less than 300 marks is what percent more than the number of students who obtained 350 or more marks?

300 अंक से कम प्राप्त करने वाले छात्रों की संख्या 350 या इससे अधिक अंक प्राप्त करने वाले छात्रों की संख्या से कितना प्रतिशत अधिक है ?

SSC CGL Tier II- 12 September 2019
(a) 80%
(b) 28%
(c) 44.4%
(d) 22.7%

Q15. The given graph shows the weights of students in a school on a particular day.
दिया गया आरेख एक विद्यालय में किसी विशेष दिन छात्रों का वज़न दर्शाता है |



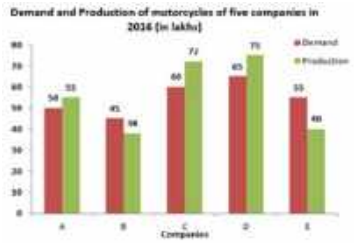
The number of students weighing less than 50 kg is what percent less than the number of students weighing 55 kg or more?
50 किलो ग्राम से कम वज़न वाले छात्रों की संख्या 55 किलो ग्राम या अधिक वज़न वाले छात्रों की संख्या से कितना प्रतिशत कम है ?
SSC CGL Tier II- 13 September 2019
(a) 44
(b) 40
(c) 55
(d) 30

Q16. Study the following bar graph and answer the question given.
निम्नलिखित दंड आरेख का अध्ययन करें तथा दिए गए प्रश्न का उत्तर दें |



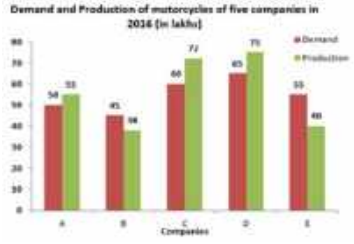
The ratio of the total demand of motorcycles of companies A, C and E to the total production of motorcycles of B and C is:
कंपनी A, C और E की मोटरसाइकिल की कुल मांग और B तथा C की मोटरसाइकिल के कुल उत्पादन के बीच अनुपात ज्ञात करें
SSC CGL Tier II- 13 September 2019
(a) 1 : 1
(b) 2 : 1
(c) 11 : 10
(d) 3 : 2

Q17. Study the following bar graph and answer the question given.
निम्नलिखित दंड आरेख का अध्ययन करें तथा दिए गए प्रश्न का उत्तर दें |



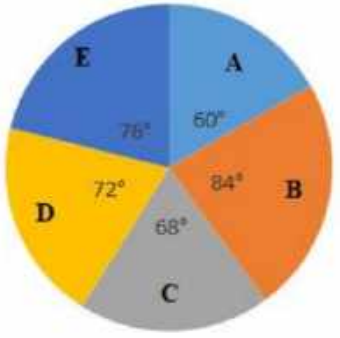
The total production of motorcycles of companies C, D and E is what percent less than the total demand of motorcycles of all the companies during five years?
कंपनी C, D और E की मोटरसाइकिल का कुल उत्पादन पांच वर्षों के दौरान सभी कंपनियों की मोटरसाइकिलों की कुल मांग से कितना प्रतिशत कम है ?
SSC CGL Tier II- 13 September 2019
(a) 43
(b) 32
(c) 38
(d) 47

Q18. Study the following bar graph and answer the question given.
निम्नलिखित आरेख का अध्ययन करें और दिए गए प्रश्न का उत्तर दें |



The number of companies whose production of motorcycles is equal to or more than the average demand of motorcycles (per year) over five years is:
ऐसी कंपनियों की संख्या कितनी है जिसका मोटरसाइकिल उत्पादन इन पांच वर्षों के दौरान मोटरसाइकिलों की औसत मांग (प्रति वर्ष) से अधिक या बराबर रहा है ?
SSC CGL Tier II- 13 September 2019
(a) 4
(b) 2
(c) 1
(d) 3

Q19. The given pie-chart shows the break-up of total marks obtained by a student in five subjects A, B, C, D and E. The maximum marks in each subject is 150 and he obtained a total of 600 marks.
दिया गया पाई-चार्ट एक छात्र के द्वारा पांच विषयों A, B, C, D और E में प्राप्त किये गए कुल अंकों को विच्छेदित करके दर्शाता है | प्रत्येक विषय का अधिकतम अंक 150 है और उसे कुल 600 अंक मिले हैं |

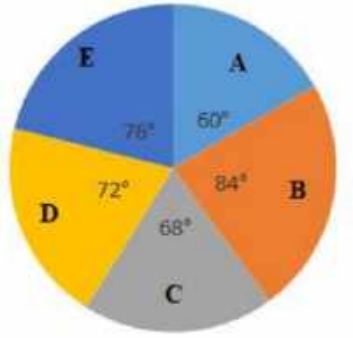


In how many subjects did the student obtain more than his average score?
कितने विषयों में उसने अपने औसत प्राप्तांक से अधिक अंक हासिल किया है ?
SSC CGL Tier II- 13 September 2019
(a) 3
(b) 2
(c) 4

Pinnacle

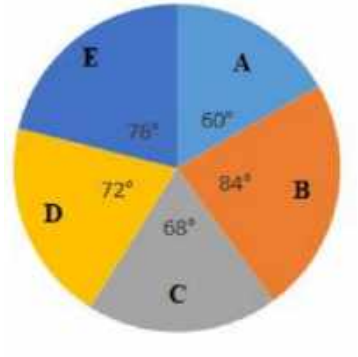
(d) 1

Q20. The given pie-chart shows the break-up of total marks obtained by a student in five subjects A, B, C, D and E. The maximum marks in each subject is 150 and he obtained a total of 600 marks.
दिया गया पाई-चार्ट एक छात्र के द्वारा पांच विषयों A, B, C, D और E में प्राप्त किये गए कुल अंकों को विच्छेदित करके दर्शाता है | प्रत्येक विषय का अधिकतम अंक 150 है और उसे कुल 600 अंक मिले हैं |



The total marks obtained by the student in subjects C and E is approximately how much percent more than what he obtained in A and D together?
इस छात्र द्वारा विषय C और E में प्राप्त किये गए अंक उसके द्वारा A और D में एक साथ प्राप्त किये गए अंक से लगभग कितने प्रतिशत अधिक हैं ?
SSC CGL Tier II- 13 September 2019
(a) 9.09%
(b) 10.25%
(c) 8.33%
(d) 7.26%

Q21. The given pie-chart shows the break-up of total marks obtained by a student in five subjects A, B, C, D and E. The maximum marks in each subject is 150 and he obtained a total of 600 marks.
दिया गया पाई-चार्ट एक छात्र के द्वारा पांच विषयों A, B, C, D और E में प्राप्त किये गए कुल अंकों को विच्छेदित करके दर्शाता है | प्रत्येक विषय का अधिकतम अंक 150 है और उसे कुल 600 अंक मिले हैं |



What is the difference between the marks obtained by the student in subjects B and D?
इस छात्र द्वारा विषय B और D में प्राप्त किये गए अंकों में अंतर ज्ञात करें |
SSC CGL Tier II- 13 September 2019
(a) 20
(b) 27
(c) 30
(d) 12

Practice Questions

Q1.The table shows the production of different types of cars (in thousands)
यह तालिका अलग-अलग प्रकार के कारों का उत्पादन (हज़ार में) दर्शाती है |

Year / Cars	2013	2014	2015	2016	2017
A	35	40	48	50	36
B	39	45	54	60	72
C	52	25	32	54	45
D	50	42	45	46	47
E	36	46	42	48	55

If the data regarding the production of cars of type B is represented by a pie-chart, then the angle of the sector representing the production of cars in 2016 will be:
यदि B प्रकार की कारों के उत्पादन से संबंधित आंकड़ों को एक पाई-चार्ट के द्वारा प्रस्तुत किया जाए, तो 2016 में करों के उत्पादन को दर्शाने वाले खंड का कोण होगा :
SSC CGL 4 June 2019 (Afternoon)
(a)80°
(b)96°
(c)60°
(d)72°

Q2.The table shows the production of different types of cars (in thousands)
यह तालिका अलग-अलग प्रकार के कारों का उत्पादन (हज़ार में) दर्शाती है |

Year / Cars	2013	2014	2015	2016	2017
A	35	40	48	50	36
B	39	45	54	60	72
C	52	25	32	54	45
D	50	42	45	46	47
E	36	46	42	48	55

The total production of cars of types B in 2013, 2014, 2015 and 2017 taken together is what percent less than the total production of all types of cars in 2017? (correct to one decimal place)
2013, 2014, 2015 और 2017 में B प्रकार की कारों का कुल उत्पादन 2017 में सभी प्रकार की कारों के कुल उत्पादन से कितना प्रतिशत कम है ?
SSC CGL 4 June 2019 (Afternoon)
(a)18.2
(b)18.4
(c)15.8
(d)17.6

Q3.The table shows the production of different types of cars (in thousands)
यह तालिका अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Cars	2013	2014	2015	2016	2017
A	35	40	48	50	36
B	39	45	54	60	72
C	52	25	32	54	45
D	50	42	45	46	47
E	36	46	42	48	55

The ratio of the total production of cars of type C and E taken together in 2013 to the total production of cars of type D in

2014 and 2016 and type E in 2017 taken together is:
2013 में C और E प्रकार की कारों के कुल उत्पादन का 2014 और 2016 में D तथा 2017 में E प्रकार की कारों के कुल उत्पादन के साथ अनुपात ज्ञात करें |
SSC CGL 4 June 2019 (Afternoon)
(a)8:13
(b)5:8
(c)13:32
(d)8:11

Q4.The table shows the production of different types of cars (in thousands)

Year / Cars	2013	2014	2015	2016	2017
A	35	40	48	50	36
B	39	45	54	60	72
C	52	25	32	54	45
D	50	42	45	46	47
E	36	46	42	48	55

The production of cars of type A in 2015 and of type C in 2013 taken together is approximately what percent of the total production of cars of type D in five years?
2015 में A प्रकार की कारों का उत्पादन तथा 2013 में C प्रकार की कारों के उत्पादन को मिला दिया जाए, तो ये पांच वर्षों में D प्रकार की कारों के कुल उत्पादन का लगभग कितना प्रतिशत है ?
SSC CGL 4 June 2019 (Afternoon)
(a)40.2
(b)42.4
(c)43.5
(d)42.8

Q5.The table shows the production of different types of cars (in thousands).

Year / Cars	2014	2015	2016	2017	2018
A	64	56	57	63	70
B	48	54	63	64	72
C	33	42	48	57	64
D	25	45	40	55	35
E	40	48	52	61	60

The ratio of the total production of type A cars in 2015 ana type B cars in 2014 taken together to the total production of type C cars in 2017 and type E cars in 2018 taken together is:
2015 में A प्रकार की कारों के उत्पादन और 2014 में B प्रकार की कारों के उत्पादन को मिलाकर इनका अनुपात संयुक्त रूप से 2017 में C प्रकार तथा 2018 में E प्रकार की कारों के उत्पादन के साथ ज्ञात करें |
SSC CGL 4 June 2019 (Evening)
(a)16:19
(b)4:5
(c)8:9
(d)34:39

Q6.The table shows the production of different types of cars (in thousands)

Year / Cars	2014	2015	2016	2017	2018
A	64	56	57	63	70
B	48	54	63	64	72
C	33	42	48	57	64
D	25	45	40	55	35
E	40	48	52	61	60

In the data related to the production of type D cars in represented by a pie chart, then the central angle of the sector representing production of cars in 2015 will be:
यदि D प्रकार की कारों से संबंधित आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो 2015 में कारों के उत्पादन को दर्शाने वाले खंड का केंद्रीय कोण होगा :
SSC CGL 4 June 2019 (Evening)
(a)72°
(b)63°
(c)81°
(d)99°

Q7.The table shows the production of different types of cars (in thousands)

Year / Cars	2014	2015	2016	2017	2018
A	64	56	57	63	70
B	48	54	63	64	72
C	33	42	48	57	64
D	25	45	40	55	35
E	40	48	52	61	60

The total production of type D cars during 2015 to 2017 is what percent less than the total production of type E cars during 2014,2015,2016 and 2018 taken together?
2015 से 2017 के दौरान D प्रकार की कारों का कुल उत्पादन 2014, 2015, 2016 और 2018 में E प्रकार की कारों के कुल उत्पादन से कितना प्रतिशत कम है ?
SSC CGL 4 June 2019 (Evening)
(a)35
(b)32
(c)28
(d)30

Q8.The table shows the production of different types of cars (in thousands)

Cars / Year	2014	2015	2016	2017	2018
A	64	56	57	63	70
B	48	54	63	64	72
C	33	42	48	57	64
D	25	45	40	55	35
E	40	48	52	61	60

The total production of type C cars in 2015 and type E cars in 2018 taken together is what percent of the total production of cars in 2014 and 2017 taken together?
2015 में C तथा 2018 में E प्रकार की कारों का कुल उत्पादन एक साथ 2014 तथा 2017 में कारों के कुल उत्पादन का कितना प्रतिशत है ?
SSC CGL 4 June 2019 (Evening)
(a)22
(b)25
(c)20
(d)27

Q.9. The table shows the production of different types of cars by a company (in thousands) in 5 years.

Car / Year	A	B	C	D	E
2014	52	34	46	46	64
2015	47	45	55	58	42
2016	48	47	56	54	62
2017	43	50	57	67	63
2018	38	40	54	68	70

If the data related to the production of cars in 2018 is represented by pie chart, then the central angle of the sector representing the production of type C cars will be:

Pinnacle

यदि 2018 में कारों के उत्पादन से संबंधित आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो C प्रकार की कारों के उत्पादन को दर्शाने वाले खंड का केंद्रीय कोण होगा :

SSC CGL 6 June 2019 (Morning)

(a) 72^0

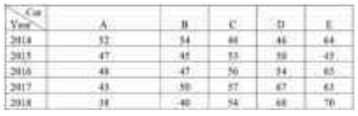
(b) 59^0

(c) 93^0

(d) 91^0

Q10. The table shows the production of different types of cars by a company (in thousands) in 5 years.

यह तालिका एक कंपनी द्वारा 5 वर्षों में अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |



The average production of type D cars in 5 years is what percent less than the production of type E cars in 2018? (Correct to one decimal place)

5 वर्षों में D प्रकार की कारों का औसत उत्पादन 2018 में E प्रकार की कारों के उत्पादन से कितना प्रतिशत कम है ? (एक दशमलव स्थान तक सही)

SSC CGL 6 June 2019 (Morning)

(a) 18.6

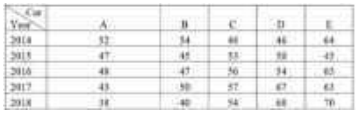
(b) 16.8

(c) 15.9

(d) 17.4

Q11. The table shows the production of different types of cars by a company (in thousands) in 5 years.

यह तालिका एक कंपनी द्वारा 5 वर्षों में अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |



The total production of type B cars in all the five years is what percent more than the total production of type A, B and D cars in 2017?

सभी पांच वर्षों में B प्रकार की कारों का कुल उत्पादन 2017 में A, B और D प्रकार की कारों के कुल उत्पादन से कितना प्रतिशत अधिक है ?

SSC CGL 6 June 2019 (Morning)

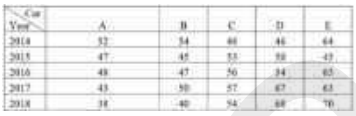
(a) 49.5

(b) 47.5

(c) 57.3

(d) 32.2

Q12. The table shows the production of different types of cars by a company (in thousands) in 5 years.



What is the ratio of the total production of type C cars in 2015 and type D cars in 2017 taken together to the total production of type B cars in 2016 and type A cars in 2017 taken together?

2015 में C प्रकार तथा 2017 में D प्रकार की कारों के कुल उत्पादन का 2016 में B प्रकार एवं 2017 में A प्रकार की कारों के कुल उत्पादन के साथ अनुपात ज्ञात करें |

SSC CGL 6 June 2019 (Morning)

(a) 12 : 11

(b) 13 : 10

(c) 11 : 9

(d) 4 : 3

Q13. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा 5 वर्षों में अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2012	2013	2014	2015	2016
A	54	58	60	63	55
B	40	54	56	61	67
C	46	50	63	73	77
D	33	35	48	45	49
E	47	43	53	48	52

The total production of type E cars in 2012 and 2013 is approximately what percent more than the average production of type A cars during the years 2012 to 2016?

2012 और 2013 में E प्रकार की कारों का कुल उत्पादन 2012 से 2016 के दौरान A प्रकार की कारों के औसत उत्पादन से लगभग कितना प्रतिशत अधिक है ?

SSC CGL 6 June 2019 (Afternoon)

(a) 53.8

(b) 55.2

(c) 52.2

(d) 56.4

Q14. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2012	2013	2014	2015	2016
A	54	58	60	63	55
B	40	54	56	61	67
C	46	50	63	73	77
D	33	35	48	45	49
E	47	43	53	48	52

The total production of all type of cars, except type B, in 2012 is what percent less than the total production of all types of cars in 2016?

2012 में B प्रकार की कारों को छोड़कर सभी प्रकार की कारों का कुल उत्पादन 2016 में सभी प्रकार की कारों के कुल उत्पादन से कितना प्रतिशत कम है ?

SSC CGL 6 June 2019 (Afternoon)

(a) 40

(b) 25.8

(c) 26.7

(d) 42

Q15. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Pinnacle

Year / Car	2012	2013	2014	2015	2016
A	54	58	60	63	55
B	40	54	56	61	67
C	46	50	63	73	77
D	33	35	48	45	49
E	47	43	53	48	52

If the data related to the production of type D cars is represented by a pie chart, then the central angle of the sector representing the production of cars in 2013 will be:

यदि D प्रकार की कारों के उत्पादन से संबंधित आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो 2013 में कारों के उत्पादन को दर्शाने वाले खंड का केंद्रीय कोण होगा :

SSC CGL 6 June 2019 (Afternoon)

(a) 84^0

(b) 75^0

(c) 60^0

(d) 77^0

Q16. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2012	2013	2014	2015	2016
A	54	58	60	63	55
B	40	54	56	61	67
C	46	50	63	73	77
D	33	35	48	45	49
E	47	43	53	48	52

What is the ratio of the total production of type E cars in 2014 and type C cars in 2016 taken together to the total production of type B cars in 2014 and type D cars in 2013 taken together?

2014 में E प्रकार तथा 2016 में C प्रकार की कारों के कुल उत्पादन का 2014 में B प्रकार तथा 2013 में D प्रकार की कारों के कुल उत्पादन के साथ अनुपात ज्ञात करें |

SSC CGL 6 June 2019 (Afternoon)

(a) 9 : 8

(b) 10 : 7

(c) 11 : 8

(d) 11 : 5

Q17. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Cars / Year	2013	2014	2015	2016	2017
A	48	47	50	61	64
B	47	55	58	54	66
C	52	58	62	66	72
D	60	53	56	65	66
E	43	47	54	64	62

The total production of type B cars during 2013 to 2016 is approximately what percent less than the total production of cars in 2017?

2013 से 2016 के दौरान B प्रकार की कारों का कुल उत्पादन 2017 में कारों के कुल उत्पादन से लगभग कितना प्रतिशत कम है ?

SSC CGL 6 June 2019 (Evening)

(a) 32%

(b) 40%

(c) 35%

(d) 38%

Q18. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Cars / Year	2013	2014	2015	2016	2017
A	48	47	50	61	64
B	47	55	58	54	66
C	52	58	62	66	72
D	60	53	56	65	66
E	43	47	54	64	62

The total production of type B cars in 2015 and type C cars in 2013 is what percent more than the total production of type E cars in 2013 and 2014 ? (Correct to one decimal place)

2015 में B प्रकार तथा 2013 में C प्रकार की कारों का कुल उत्पादन 2013 तथा 2014 में E प्रकार की कारों के कुल उत्पादन से कितना प्रतिशत अधिक है ? (एक दशमलव स्थान तक)

SSC CGL 6 June 2019 (Evening)

(a) 23.4

(b) 25.6

(c) 24.8

(d) 22.2

Q19. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Cars / Year	2013	2014	2015	2016	2017
A	48	47	50	61	64
B	47	55	58	54	66
C	52	58	62	66	72
D	60	53	56	65	66
E	43	47	54	64	62

If the data related to the production of type D cars is represented by a pie-chart, then the central angle of the sector representing the production of the cars in 2016 will be:

यदि D प्रकार की कारों से संबंधित आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो 2016 में कारों के उत्पादन को दर्शाने वाले खंड का केंद्रीय कोण होगा :

SSC CGL 6 June 2019 (Evening)

(a) 78^0

(b) 72^0

(c) 67.2^0

(d) 79.2^0

Q20. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Cars / Year	2013	2014	2015	2016	2017
A	48	47	50	61	64
B	47	55	58	54	66
C	52	58	62	66	72
D	60	53	56	65	66
E	43	47	54	64	62

The ratio of the total production of type A cars in 2017 and type D cars in 2015 to the total

production of type B and type E cars in 2013 is:
2017 में A प्रकार तथा 2015 में D प्रकार की कारों के कुल उत्पादन का 2013 में B और E प्रकार की कारों के कुल उत्पादन के साथ अनुपात ज्ञात करें |

SSC CGL 6 June 2019 (Evening)

(a) 8 : 7
(b) 4 : 3
(c) 3 : 4
(d) 7 : 8

Q21. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2012	2013	2014	2015	2016
A	46	48	56	57	64
B	54	61	63	60	70
C	44	45	67	63	76
D	46	49	57	55	72
E	48	55	64	65	68

If the data related to the production of type E cars is represented by a pie-chart, then the central angle of the sector representing production of cars in 2013 will be:
यदि E प्रकार की कारों के उत्पादन से संबंधित आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो 2013 में कारों के उत्पादन को दर्शाने वाले खंड का केंद्रीय कोण होगा :

SSC CGL 7 June 2019 (Morning)

(a) 66^0
(b) 76.8^0
(c) 81.6^0
(d) 78^0

Q22. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2012	2013	2014	2015	2016
A	46	48	56	57	64
B	54	61	63	60	70
C	44	45	67	63	76
D	46	49	57	55	72
E	48	55	64	65	68

The average production of type C cars during 2012 to 2016 is approximately what percent less than the total production of type D cars in 2012 and type E cars in 2014?
2012 से 2016 के दौरान C प्रकार की कारों का औसत उत्पादन 2012 में D प्रकार एवं 2014 में E प्रकार की कारों के कुल उत्पादन से लगभग कितना प्रतिशत कम है ?

SSC CGL 7 June 2019 (Morning)

(a) 46.4%
(b) 49.2%
(c) 48.6%
(d) 42.8%

Q23. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2012	2013	2014	2015	2016
A	46	48	56	57	64
B	54	61	63	60	70
C	44	45	67	63	76
D	46	49	57	55	72
E	48	55	64	65	68

The total production of type E cars in 2015 and type C cars in 2013 taken together is what percent of the total production of type A cars and type D cars taken together during 2012 to 2016?
2015 में E प्रकार तथा 2013 में C प्रकार की कारों के कुल उत्पादन को मिला दिया जाए, तो यह 2012 से 2016 के दौरान A प्रकार और D प्रकार की कारों के कुल उत्पादन का कितना प्रतिशत है ?

SSC CGL 7 June 2019 (Morning)

(a) 21.8%
(b) 21.4%
(c) 20%
(d) 22%

Q24. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2012	2013	2014	2015	2016
A	46	48	56	57	64
B	54	61	63	60	70
C	44	45	67	63	76
D	46	49	57	55	72
E	48	55	64	65	68

The ratio of the total production of type A cars in 2014 and 2016 and type C cars in 2013 taken together to the total production of type B cars and type D cars taken together in 2014 is:
2014 तथा 2016 में A प्रकार एवं 2013 में C प्रकार की कारों के कुल उत्पादन (संयुक्त रूप से) का 2014 में B प्रकार और D प्रकार की कारों के कुल उत्पादन के साथ अनुपात ज्ञात करें |

SSC CGL 7 June 2019 (Morning)

(a) 11 : 8
(b) 17 : 12
(c) 9 : 8
(d) 4 : 3

Q25. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2010	2011	2012	2013	2014
A	46	60	61	57	63
B	40	56	52	68	64
C	54	55	45	60	56
D	42	53	44	56	65
E	68	67	61	64	72

What is the ratio of the total production of type B cars in 2011 and type E cars in 2013 taken together to the total production of type C cars in 2014 and type D cars in 2012 taken together?
2011 में B प्रकार एवं 2013 में E प्रकार की कारों के कुल उत्पादन (संयुक्त रूप से) का 2014 में C प्रकार और 2012 में D प्रकार की कारों के कुल उत्पादन के साथ अनुपात ज्ञात करें |
SSC CGL 7 June 2019 (Afternoon)
(a) 8 : 9
(b) 6 : 5
(c) 5 : 6
(d) 16 : 11

Q26. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2010	2011	2012	2013	2014
A	46	69	61	57	63
B	40	56	52	68	64
C	54	55	45	60	56
D	42	53	44	56	65
E	68	67	61	64	72

If the data related to the production of type C cars is represented by a pie-chart, then the central angle of the sector representing production of cars in 2012 will be:
यदि C प्रकार की कारों के उत्पादन से संबंधित आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो 2012 में कारों के उत्पादन को दर्शाने वाले खंड का केंद्रीय कोण होगा :
SSC CGL 7 June 2019 (Afternoon)
(a) 72^0
(b) $73\frac{1}{3}^0$
(c) 60^0
(d) 80^0

Q27. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2010	2011	2012	2013	2014
A	46	69	61	57	63
B	40	56	52	68	64
C	54	55	45	60	56
D	42	53	44	56	65
E	68	67	61	64	72

The average production of all type of cars in 2014 is approximately what percent less than the total production of type B cars in 2013 and type D cars in 2010 taken together?
2014 में सभी प्रकार की कारों का औसत उत्पादन 2013 में B प्रकार तथा 2010 में D प्रकार की कारों के कुल उत्पादन से लगभग कितना प्रतिशत कम है ?
SSC CGL 7 June 2019 (Afternoon)
(a) 41.8%
(b) 44.9%
(c) 43.2%
(d) 44.4%

Q28. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2010	2011	2012	2013	2014
A	46	69	61	57	63
B	40	56	52	68	64
C	54	55	45	60	56
D	42	53	44	56	65
E	68	67	61	64	72

The total production of type A cars in 2011, and type C cars and type E cars in 2012 taken together is what percent of the total production of type B cars during 2010 to 2014?
2011 में A प्रकार की कारों तथा 2012 में C प्रकार एवं E प्रकार की कारों का कुल उत्पादन (सब को मिलाकर) 2010 से 2014 के दौरान B प्रकार की कारों के कुल उत्पादन का कितना प्रतिशत है ?
SSC CGL 7 June 2019 (Afternoon)
(a) 60.4%
(b) 54.7%
(c) 62.5%
(d) 58.8%

Q29. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Year / Car	2014	2015	2016	2017	2018
A	42	53	44	66	65
B	46	49	57	64	72
C	54	45	45	50	56
D	48	56	63	65	68
E	46	48	56	57	64

If the data related to the production of type D cars is represented by a pie-chart, then the central angle of the sector representing the production of cars in 2017 will be:
यदि D प्रकार की कारों के उत्पादन से संबंधित आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो 2017 में कारों के उत्पादन को दर्शाने वाले खंड का केंद्रीय कोण होगा :
SSC CGL 7 June 2019 (Evening)
(a) 50^0
(b) 75.6^0
(c) 81.6^0
(d) 78^0

Q30. The table shows the production of different types of cars (in thousands).
यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Car \ Year	2014	2015	2016	2017	2018
A	42	53	44	66	65
B	46	49	57	64	72
C	54	45	45	50	56
D	48	56	63	65	68
E	46	48	56	57	64

The average production of cars in 2018 is approximately what percent less than the total production of type D cars in 2015 and type B cars in 2017 taken together?

2018 में कारों का औसत उत्पादन 2015 में D प्रकार और 2017 में B प्रकार की कारों के कुल उत्पादन से लगभग कितना प्रतिशत कम है ?

SSC CGL 7 June 2019 (Evening)

(a) 45.8%
(b) 43.6%
(c) 42.4%
(d) 44.2%

Q31. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Car \ Year	2014	2015	2016	2017	2018
A	42	53	44	66	65
B	46	49	57	64	72
C	54	45	45	50	56
D	48	56	63	65	68
E	46	48	56	57	64

What is the ratio of the total production of type A cars in 2017 and type C cars in 2014 taken together to the total production of type B cars in 2014, type C cars in 2017 and type E cars in 2018 taken together?

2017 में A प्रकार तथा 2014 में C प्रकार की कारों के कुल उत्पादन का 2014 में B प्रकार, 2017 में C प्रकार तथा 2018 में E प्रकार की कारों के कुल उत्पादन के साथ अनुपात ज्ञात करें |

SSC CGL 7 June 2019 (Evening)

(a) 12 : 11
(b) 3 : 4
(c) 2 : 3
(d) 5 : 6

Q32. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Car \ Year	2014	2015	2016	2017	2018
A	42	53	44	66	65
B	46	49	57	64	72
C	54	45	45	50	56
D	48	56	63	65	68
E	46	48	56	57	64

The total production of type A cars in 2016 and type E cars in 2014 taken together is what percent of the total production of type C cars during 2014 to 2018?

2016 में A प्रकार तथा 2014 में E प्रकार की कारों का कुल उत्पादन संयुक्त रूप से 2014 से 2018 के दौरान C प्रकार की कारों के कुल उत्पादन का कितना प्रतिशत है ?

SSC CGL 7 June 2019 (Evening)

(a) 36
(b) 32
(c) 35
(d) 40

Q33. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Cars \ Year	2012	2013	2014	2015	2016
A	46	53	56	58	67
B	50	65	67	66	72
C	43	54	55	47	51
D	47	52	61	65	74
E	48	58	63	64	67

The average production of type A cars during the five years is what percent of the total production of type C cars during the five years?

पांच वर्षों के दौरान A प्रकार की कारों का औसत उत्पादन पांच वर्षों के दौरान C प्रकार की कारों के कुल उत्पादन का कितना प्रतिशत है ?

SSC CGL 10 June 2019 (Morning)

(a) 22.4
(b) 20.6
(c) 21.8
(d) 18.7

Q34. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Cars \ Year	2012	2013	2014	2015	2016
A	46	53	56	58	67
B	50	65	67	66	72
C	43	54	55	47	51
D	47	52	61	65	74
E	48	58	63	64	67

What is the ratio of the total production of type C and D cars in 2012 to the total production of type A cars in 2014 and type E cars in 2015?

2012 में C और D प्रकार की कारों के कुल उत्पादन का 2014 में A प्रकार तथा 2015 में E प्रकार की कारों के कुल उत्पादन के साथ अनुपात ज्ञात करें |

SSC CGL 10 June 2019 (Morning)

(a) 5 : 6
(b) 9 : 11
(c) 3 : 4
(d) 11 : 12

Q35. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Cars \ Year	2012	2013	2014	2015	2016
A	46	53	56	58	67
B	50	65	67	66	72
C	43	54	55	47	51
D	47	52	61	65	74
E	48	58	63	64	67

The total production of type B cars in 2015 and type D cars 2016 is what percent less than the total production of type E cars in five years?

2015 में B प्रकार तथा 2016 में D प्रकार की कारों का कुल उत्पादन

पांच वर्षों में E प्रकार की कारों के कुल उत्पादन से कितना प्रतिशत कम है ?

SSC CGL 10 June 2019 (Morning)

(a) $50\frac{1}{3}$

(b) $52\frac{2}{3}$

(c) $46\frac{2}{3}$

(d) $53\frac{1}{3}$

Q36. The table shows the production of different types of cars (in thousands).

यह तालिका एक कंपनी द्वारा अलग-अलग कारों के उत्पादन (हज़ार में) को दर्शाती है |

Cars \ Year	2012	2013	2014	2015	2016
A	48	53	56	58	67
B	50	65	67	66	72
C	43	54	55	47	51
D	47	52	61	65	74
E	48	58	63	64	67

If the data related to the production of type B cars is represented by a pie chart, then the central angle of the sector representing the production of cars in 2016 is:

यदि B प्रकार की कारों के उत्पादन से संबंधित आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो 2016 में कारों के उत्पादन को दर्शाने वाले खंड का केंद्रीय कोण होगा :

SSC CGL 10 June 2019 (Morning)

(a) 56^0

(b) 81^0

(c) 75^0

(d) 73^0

Q37. The table below shows the number of students enrolled in five colleges over the five years (2010 to 2014).

यह तालिका पांच कॉलेजों में पांच वर्षों (2010 से 2014) के दौरान नामांकन लेने वाले छात्रों की संख्या दर्शाती है |

Colleges \ Year	A	B	C	D	E
2010	400	270	350	430	470
2011	430	300	330	450	490
2012	370	250	360	470	410
2013	410	310	370	420	430
2014	420	290	340	480	480

What is the average number of students studying in college D over the given years?

इन वर्षों में कॉलेज D में पढ़ने वाले छात्रों की औसत संख्या कितनी है ?

SSC CGL 10 June 2019 (Afternoon)

(a) 450

(b) 420

(c) 430

(d) 440

Q38. The table below shows the number of students enrolled in five colleges over the five years (2010 to 2014).

यह तालिका पांच कॉलेजों में पांच वर्षों (2010 से 2014) के दौरान नामांकन लेने वाले छात्रों की संख्या दर्शाती है |

Colleges \ Year	A	B	C	D	E
2010	400	270	350	430	470
2011	430	300	330	450	490
2012	370	250	360	470	410
2013	410	310	370	420	430
2014	420	290	340	480	480

In the year 2014, what percent of students were enrolled in college C (correct to one decimal place)?

वर्ष 2014 में, कितने प्रतिशत छात्रों ने कॉलेज C में नामांकन करवाया था ? (एक दशमलव स्थान तक)

SSC CGL 10 June 2019 (Afternoon)

(a) 16.9%

(b) 17.3%

(c) 16.7%

(d) 17.1%

Q39. The table below shows the number of students enrolled in five colleges over the five years (2010 to 2014).

यह तालिका पांच कॉलेजों में पांच वर्षों (2010 से 2014) के दौरान नामांकन लेने वाले छात्रों की संख्या दर्शाती है |

Colleges \ Year	A	B	C	D	E
2010	400	270	350	430	470
2011	430	300	330	450	490
2012	370	250	360	470	410
2013	410	310	370	420	430
2014	420	290	340	480	480

What is the ratio of the total students enrolled in colleges A and B in the year 2012 to the total students enrolled in colleges D and E in the year 2013?

वर्ष 2012 में कॉलेज A और B में नामांकन लेने वाले कुल छात्रों की संख्या का वर्ष 2013 में कॉलेज D और E में नामांकन लेने वाले कुल छात्रों की संख्या के साथ अनुपात ज्ञात करें |

SSC CGL 10 June 2019 (Afternoon)

(a) 62 : 85

(b) 62 : 88

(c) 63 : 86

(d) 58 : 63

Q40. The table below shows the number of students enrolled in five colleges over the five years (2010 to 2014).

यह तालिका पांच कॉलेजों में पांच वर्षों (2010 से 2014) के दौरान नामांकन लेने वाले छात्रों की संख्या दर्शाती है |

Colleges \ Year	A	B	C	D	E
2010	400	270	350	430	470
2011	430	300	330	450	490
2012	370	250	360	470	410
2013	410	310	370	420	430
2014	420	290	340	480	480

The number of students studying in college E in the year 2013 is approximately what percent of the number of students studying in colleges B, C and D taken together in the year 2013 (nearest to one decimal place)

वर्ष 2013 में कॉलेज E में पढ़ रहे छात्रों की संख्या वर्ष 2013 में कॉलेज B, C एवं D में पढ़ने वाले छात्रों की कुल संख्या का लगभग कितना प्रतिशत है ? (एक दशमलव स्थान के निकटतम)

SSC CGL 10 June 2019 (Afternoon)

(a) 38.2%
(b) 38.6%
(c) 39.1%
(d) 39.4%

Q41. The following table indicates the number of students studying in three disciplines in five colleges:
निम्नलिखित तालिका पांच कॉलेजों के तीन विषयों में पढ़ने वाले छात्रों की संख्या दर्शाती है |

Disciplines	Colleges				
	A	B	C	D	E
Science	300	350	275	400	275
Commerce	250	400	325	275	250
Economics	400	450	250	300	500

What is the ratio of the total number of students studying in the science stream to that of studying in commerce stream in all five colleges taken together?
सभी पांच कॉलेजों में विज्ञान विषय में पढ़ने वाले छात्रों की कुल संख्या और कॉमर्स विषय में पढ़ने वाले छात्रों की कुल संख्या के बीच अनुपात ज्ञात करें |

SSC CGL 11 June 2019 (Morning)
(a) 16 : 15
(b) 16 : 19
(c) 14 : 15
(d) 19 : 15

Q42. The following table indicates the number of students studying in three disciplines in five colleges:
निम्नलिखित तालिका पांच कॉलेजों के तीन विषयों में पढ़ने वाले छात्रों की संख्या दर्शाती है |

Disciplines	Colleges				
	A	B	C	D	E
Science	300	350	275	400	275
Commerce	250	400	325	275	250
Economics	400	450	250	300	500

What percentage of total students are studying in the commerce stream in all five colleges together?
कुल छात्रों में से कितने प्रतिशत छात्र सभी पांच कॉलेजों में कॉमर्स विषय की पढ़ाई कर रहे हैं ?

SSC CGL 11 June 2019 (Morning)
(a) 28%
(b) 30%
(c) 32%
(d) 33%

Q43. The following table indicates the number of students studying in three disciplines in five colleges:
निम्नलिखित तालिका पांच कॉलेजों के तीन विषयों में पढ़ने वाले छात्रों की संख्या दर्शाती है |

Disciplines	Colleges				
	A	B	C	D	E
Science	300	350	275	400	275
Commerce	250	400	325	275	250
Economics	400	450	250	300	500

If a pie-chart is drawn representing the number of students in all five colleges, what is the central angle (correct to the nearest whole number) of the sector representing the students of college B?
यदि सभी पांच कॉलेजों में छात्रों की संख्या को प्रस्तुत करने वाला एक पाई-चार्ट बनाया जाए, तो कॉलेज B के छात्रों को दर्शाने वाले खंड का केंद्रीय कोण (निकटतम पूर्ण संख्या में) क्या होगा ?

SSC CGL 11 June 2019 (Morning)
(a) 80^0
(b) 82^0
(c) 84^0
(d) 86^0

Q44. The following table indicates the number of students studying in three disciplines in five colleges:
निम्नलिखित तालिका पांच कॉलेजों के तीन विषयों में पढ़ने वाले छात्रों की संख्या दर्शाती है |

Disciplines	Colleges				
	A	B	C	D	E
Science	300	350	275	400	275
Commerce	250	400	325	275	250
Economics	400	450	250	300	500

What percentage of students in college B is studying in the science stream, (correct to one decimal place)?
कॉलेज B के कितने प्रतिशत छात्र विज्ञान विषय में पढ़ रहे हैं ? (एक दशमलव स्थान तक)

SSC CGL 11 June 2019 (Morning)
(a) 29.4%
(b) 29.2%
(c) 29.6%
(d) 29.8%

Q45. This table shows the number of students studying in various streams in different colleges.
निम्नलिखित तालिका पांच कॉलेजों के तीन विषयों में पढ़ने वाले छात्रों की संख्या दर्शाती है |

Streams	College				
	A	B	C	D	E
Arts	580	460	320	470	370
Science	620	680	540	360	400
Commerce	480	520	350	520	330

The number of students in the science stream of college C is approximately what percentage of students studying in that college?
कॉलेज C में विज्ञान विषय में छात्रों की संख्या उस कॉलेज में पढ़ने वाले छात्रों की संख्या का लगभग कितना प्रतिशत है ?

SSC CGL 11 June 2019 (Evening)
(a) 42%
(b) 43%
(c) 44%
(d) 45%

Q46. This table shows the number of students studying in various streams in different colleges.
निम्नलिखित तालिका पांच कॉलेजों के तीन विषयों में पढ़ने वाले छात्रों की संख्या दर्शाती है |

Streams	College				
	A	B	C	D	E
Arts	580	460	320	470	370
Science	620	680	540	360	400
Commerce	480	520	350	520	330

What is the ratio of the number of students studying science in colleges A and B together to the number of students studying commerce in colleges D and E together?
कॉलेज A और B में विज्ञान पढ़ रहे छात्रों की कुल संख्या का कॉलेज D और E में कॉमर्स पढ़ रहे छात्रों की कुल संख्या के साथ अनुपात ज्ञात करें |
SSC CGL 11 June 2019 (Evening)
(a) 21 : 17
(b) 23 : 15
(c) 13 : 8
(d) 26 : 17

Q47. This table shows the number of students studying in various streams in different colleges.
निम्नलिखित तालिका पांच कॉलेजों के तीन विषयों में पढ़ने वाले छात्रों की संख्या दर्शाती है |

Streams	College				
	A	B	C	D	E
Arts	580	460	320	470	370
Science	620	680	540	360	400
Commerce	480	520	350	520	330

What is the average of the number of students in the arts stream in all the colleges taken together?
सभी छात्रों में कला विषय में पढ़ने वाले छात्रों की औसत संख्या कितनी है ?
SSC CGL 11 June 2019 (Evening)
(a) 450
(b) 470
(c) 440
(d) 460

Q48. This table shows the number of students studying in various streams in different colleges.
निम्नलिखित तालिका पांच कॉलेजों के तीन विषयों में पढ़ने वाले छात्रों की संख्या दर्शाती है |

Streams	College				
	A	B	C	D	E
Arts	580	460	320	470	370
Science	620	680	540	360	400
Commerce	480	520	350	520	330

If the data about students of the commerce stream in all colleges is represented by a pie-chart, what is the central angle of the sector representing college D, to the nearest degree?
यदि सभी कॉलेजों में कॉमर्स विषय के छात्रों के आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो कॉलेज D को दर्शाने वाले खंड का केंद्रीय कोण (निकटतम डिग्री में) क्या होगा ?
SSC CGL 11 June 2019 (Evening)
(a) 80^0
(b) 82^0
(c) 88^0
(d) 85^0

Q49. The following table shows the percentage distribution of students in various disciplines from five different colleges.
निम्नलिखित तालिका पांच अलग-अलग कॉलेजों के विभिन्न विषयों में छात्रों का प्रतिशत वितरण दर्शाती है |

Disciplines	Colleges				
	A	B	C	D	E
Science	25	35	45	28	35
Economics	35	40	20	42	25
Mathematics	40	25	35	30	40
Total Students	8,000	10,000	15,000	9,000	11,000

What is the percentage of students from the discipline of Mathematics for colleges A and C taken together, (nearest to one decimal place)?
कॉलेज A और C को मिलाकर गणित विषय में छात्रों का प्रतिशत कितना है ? (एक दशमलव स्थान के निकटतम)
SSC CGL 12 June 2019 (Morning)
(a) 37.5
(b) 37.2
(c) 36.9
(d) 36.7

Q50. The following table shows the percentage distribution of students in various disciplines from five different colleges./
निम्नलिखित तालिका पांच अलग-अलग कॉलेजों के विभिन्न विषयों में छात्रों का प्रतिशत वितरण दर्शाती है |

Disciplines	Colleges				
	A	B	C	D	E
Science	25	35	45	28	35
Economics	35	40	20	42	25
Mathematics	40	25	35	30	40
Total Students	8,000	10,000	15,000	9,000	11,000

What is the average number of students from the science discipline of all the colleges taken together?
सभी कॉलेजों को मिलाकर विज्ञान विषय में छात्रों की औसत संख्या कितनी है ?
SSC CGL 12 June 2019 (Morning)
(a) 3762
(b) 3748
(c) 3724
(d) 3642

Q51. The following table shows the percentage distribution of students in various disciplines from five different colleges.
निम्नलिखित तालिका पांच अलग-अलग कॉलेजों के विभिन्न विषयों में छात्रों का प्रतिशत वितरण दर्शाती है |

Disciplines	Colleges				
	A	B	C	D	E
Science	25	35	45	28	35
Economics	35	40	20	42	25
Mathematics	40	25	35	30	40
Total Students	8,000	10,000	15,000	9,000	11,000

The number of students from the discipline of Economics from college B is approximately what percentage of the number of students from the discipline of Science from the college C?
कॉलेज B में अर्थशास्त्र विषय के छात्रों की संख्या कॉलेज C में विज्ञान विषय के छात्रों की संख्या का कितना प्रतिशत है ?
SSC CGL 12 June 2019 (Morning)
(a) 61
(b) 59

Pinnacle

(c) 56
(d) 58

Q52. The following table shows the percentage distribution of students in various disciplines from five different colleges.
निम्नलिखित तालिका पांच अलग-अलग कॉलेजों के विभिन्न विषयों में छात्रों का प्रतिशत वितरण दर्शाती है |

Disciplines	Colleges				
	A	B	C	D	E
Science	25	35	45	28	35
Economics	35	40	20	42	25
Mathematics	40	25	35	30	40
Total Students	8,000	10,000	15,000	9,000	11,000

If the data of the total students' college wise, is represented by a pie-chart, what is the central angle of the sector representing college E (to nearest whole number)?
यदि कॉलेज वार कुल छात्रों के आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो कॉलेज E को दर्शाने वाले खंड का केंद्रीय कोण क्या होगा ? (निकटतम पूर्ण संख्या में)
SSC CGL 12 June 2019 (Morning)
(a) 78^0
(b) 75^0
(c) 79^0
(d) 73^0

Q53. Table shows the production of rice (in million tonnes) of three states over six years.
यह तालिका तीन राज्यों में छः वर्षों में दौरान चावल के उत्पादन (मिलियन टन में) को दर्शाती है |

States	Years					
	2011	2012	2013	2014	2015	2016
A	5.2	5.4	5.8	6.2	6.5	6.9
B	3.8	4.1	4.4	4.8	5.2	5.7
C	4.5	5.2	5.8	6.4	6.7	7.4

What is the ratio of the production of rice in all three states in the year 2014 to that in 2016?
सभी तीन राज्यों में वर्ष 2014 तथा 2016 में उत्पादित चावल की मात्रा में अनुपात ज्ञात करें |
SSC CGL 12 June 2019 (Afternoon)
(a) 85 : 102
(b) 89 : 100
(c) 85 : 103
(d) 87 : 100

Q54. Table shows the production of rice (in million tonnes) of three states over six years.
तालिका में छह वर्षों में तीन राज्यों के चावल के उत्पादन (मिलियन टन में) को दर्शाया गया है |

States	Years					
	2011	2012	2013	2014	2015	2016
A	5.2	5.4	5.8	6.2	6.5	6.9
B	3.8	4.1	4.4	4.8	5.2	5.7
C	4.5	5.2	5.8	6.4	6.7	7.4

If the data related to the total production in all three states over these six years is represented in a pie chart, then what will be the central angle of the sector representing the year 2014 ? (to the nearest whole number)
यदि सभी छः वर्षों में तीनों राज्यों के कुल उत्पादन के आंकड़ों को वृत्त-आरेख (पाई-चार्ट) के रूप में दर्शाया जाए, तो वर्ष 2014 को दर्शाने वाले त्रिज्यखंड (सेक्टर) का केंद्रीय कोण क्या होगा ? (निकटतम पूर्ण संख्या में)
SSC CGL 12 June 2019 (Afternoon)
(a) 61^0
(b) 65^0
(c) 63^0
(d) 59^0

Q55. Table shows the production of rice (in million tonnes) of three states over six years.
यह तालिका तीन राज्यों में छः वर्षों में दौरान चावल के उत्पादन (मिलियन टन में) को दर्शाती है |

States	Years					
	2011	2012	2013	2014	2015	2016
A	5.2	5.4	5.8	6.2	6.5	6.9
B	3.8	4.1	4.4	4.8	5.2	5.7
C	4.5	5.2	5.8	6.4	6.7	7.4

What is the percentage increase in the production of rice in B from 2014 to 2016?
B में 2014 से 2016 तक चावल के उत्पादन में कितने प्रतिशत की वृद्धि हुई है ?
SSC CGL 12 June 2019 (Afternoon)
(a) 17.25
(b) 18.25
(c) 18.75
(d) 17.75

Q56. This table shows the percentage of students passing out of five different colleges over three years. It is given that from each college, 200 students appeared every year.
यह तालिका तीन वर्षों में पांच अलग-अलग कॉलेजों से पास करने वाले छात्रों का प्रतिशत दर्शाती है | यह दिया गया है कि प्रत्येक कॉलेज से हर वर्ष 200 छात्र शामिल हुए |

Years	Colleges				
	A	B	C	D	E
2015	68	65	80	92	72
2016	72	68	88	95	75
2017	74	77	92	98	73

What is the approximate percentage increase in the number of students passing out of college B in the year 2017 as compared to the previous year?
कॉलेज B से वर्ष 2017 में पास करने वाले छात्रों की संख्या में पिछले वर्ष की तुलना में लगभग कितने प्रतिशत की वृद्धि हुई है ?
SSC CGL 12 June 2019 (Evening)
(a) 13.2%
(b) 13.4%
(c) 12.8%
(d) 13%

Q57. This table shows the percentage of students passing out of five different colleges over three years. It is given that from each college, 200 students appeared every year.
यह तालिका तीन वर्षों में पांच अलग-अलग कॉलेजों से पास करने वाले छात्रों का प्रतिशत दर्शाती है | यह दिया गया है कि प्रत्येक कॉलेज से हर वर्ष 200 छात्र शामिल हुए |

Years	Colleges				
	A	B	C	D	E
2015	68	65	80	92	72
2016	72	68	88	95	75
2017	74	77	92	98	73

In which college the average percentage of passing students over the given three years is the least?
किस कॉलेज में दिए गए तीन वर्षों के दौरान पास करने वाले छात्रों का औसत प्रतिशत सबसे कम रहा है ?
SSC CGL 12 June 2019 (Evening)
(a) E
(b) B
(c) F
(d) A

Q58. This table shows the percentage of students passing out of five different colleges over three years. It is given that from each college, 200 students appeared every year.
यह तालिका तीन वर्षों में पांच अलग-अलग कॉलेजों से पास करने वाले छात्रों का प्रतिशत दर्शाती है | यह दिया गया है कि प्रत्येक कॉलेज से हर वर्ष 200 छात्र शामिल हुए |

Years	Colleges				
	A	B	C	D	E
2015	68	65	80	92	72
2016	72	68	88	95	75
2017	74	77	92	98	73

What is the ratio of the number of students passing to those failing from college E in the year 2015?
वर्ष 2015 में कॉलेज E से पास करने वाले छात्रों की संख्या का फेल करने वाले छात्रों की संख्या के साथ अनुपात ज्ञात करें |
SSC CGL 12 June 2019 (Evening)

(a) 4 : 3
(b) 18 : 7
(c) 9 : 5
(d) 17 : 7

Q59. This table shows the percentage of students passing out of five different colleges over three years. It is given that from each college, 200 students appeared every year.
यह तालिका तीन वर्षों में पांच अलग-अलग कॉलेजों से पास करने वाले छात्रों का प्रतिशत दर्शाती है | यह दिया गया है कि प्रत्येक कॉलेज से हर वर्ष 200 छात्र शामिल हुए |

Years	Colleges				
	A	B	C	D	E
2015	68	65	80	92	72
2016	72	68	88	95	75
2017	74	77	92	98	73

If the number of passed out students of all five colleges is represented by a pie chart, what is the central angle (to nearest whole number) of the sector representing the passed out students of college C?
यदि सभी पांच कॉलेजों से पास करने वाले छात्रों की संख्या को एक पाई-चार्ट में प्रस्तुत किया जाए, तो कॉलेज C से पास कर चुके छात्रों को दर्शाने वाले त्रिज्यखंड का केंद्रीय कोण (निकटतम पूर्ण संख्या में) क्या होगा ?
SSC CGL 12 June 2019 (Evening)
(a) 69^0
(b) 79^0
(c) 77^0
(d) 67^0

Q60. The table shows the number of cars sold by three showrooms over a period of six years.
यह तालिका तीन शोरूम द्वारा छः वर्षों की अवधि में बेची गयी कारों की संख्या दर्शाती है |

Showroom	Year					
	2011	2012	2013	2014	2015	2016
A	500	480	520	620	650	630
B	450	420	530	480	520	400
C	400	450	460	520	540	430

If the total number of cars sold by all three showrooms over the years is represented as a pie-chart, what is the central angle of the sector representing the total number of cars sold in the year 2013 (to the nearest whole number)?
यदि तीनों शोरुम द्वारा इन वर्षों के दौरान बेची गयी कारों की कुल संख्या को एक पाई-चार्ट में प्रस्तुत किया जाए, तो वर्ष 2013 में बेची गयी कारों की कुल संख्या को दर्शाने वाले त्रिज्यखंड का केंद्रीय कोण क्या होगा ? (निकटतम पूर्ण संख्या में)
SSC CGL 13 June 2019 (Afternoon)
(a) 58^0
(b) 62^0
(c) 60^0
(d) 56^0

Q61. The table shows the number of cars sold by three showrooms over a period of six years.
यह तालिका तीन शोरूम द्वारा छः वर्षों की अवधि में बेची गयी कारों की संख्या दर्शाती है |

Showroom	Year					
	2011	2012	2013	2014	2015	2016
A	500	480	520	620	650	630
B	450	420	530	480	520	400
C	400	450	460	520	540	430

What is the ratio of the total cars sold by showroom B during the years 2014 and 2016 and the total cars sold by showroom C during 2015 and 2016?
शोरूम B द्वारा 2014 और 2016 के दौरान बेची गयी कारों की कुल संख्या तथा शोरूम C द्वारा 2015 और 2016 के दौरान बेची गयी कारों की कुल संख्या में अनुपात ज्ञात करें |
SSC CGL 13 June 2019 (Afternoon)
(a) 86 : 97
(b) 88 : 97
(c) 85 : 97
(d) 88 : 95

Q62. The table shows the number of cars sold by three showrooms over a period of six years.

यह तालिका तीन शोरूम द्वारा छः वर्षों की अवधि में बेची गयी कारों की संख्या दर्शाती है |

Showroom	Year					
	2011	2012	2013	2014	2015	2016
A	500	480	520	620	650	630
B	450	420	530	480	520	400
C	400	450	460	520	540	430

By what percent did the total number of cars sold by all three showrooms decrease during the year 2016, as compared to that in the year 2015 (nearest to one decimal place)?

वर्ष 2015 की तुलना में वर्ष 2016 में तीनों शोरूम के द्वारा बेची गयी कारों की कुल संख्या में कितने प्रतिशत की कमी आयी है ? (एक दशमलव स्थान के निकटतम)

SSC CGL 13 June 2019 (Afternoon)

(a) 14.6%
(b) 14.8%
(c) 14.4%
(d) 14.9%

Q63. The table shows the number of cars sold by three showrooms over a period of six years.

यह तालिका तीन शोरूम द्वारा छः वर्षों की अवधि में बेची गयी कारों की संख्या दर्शाती है |

Showroom	Year					
	2011	2012	2013	2014	2015	2016
A	500	480	520	620	650	630
B	450	420	530	480	520	400
C	400	450	460	520	540	430

What is the average number of cars sold by showroom A over the given six years (nearest to one decimal place)?

दिए गए छः वर्षों में शोरूम A द्वारा बेची गयी कारों की औसत संख्या कितनी है ? (एक दशमलव स्थान के निकटतम)

SSC CGL 13 June 2019 (Afternoon)

(a) 586.7
(b) 566.7
(c) 594.7
(d) 592.7

Q64. Table shows the percentage distribution of the expenditure incurred on different items for publishing a book.

यह तालिका एक पुस्तक को प्रकाशित करने में अलग-अलग मदों पर हुए व्यय का प्रतिशत वितरण दर्शाती है |

Item of expenditure	Percentage of expenditure
Paper	25
Printing	20
Binding	20
Royalty	15
Promotion	10
Transportation	10

Expenditure on Royalty is less than that on Printing by:

रॉयल्टी पर किया गया खर्च प्रिंटिंग से कितना कम है ?

SSC CGL 13 June 2019 (Evening)

(a) 20%
(b) 25%
(c) 15%
(d) 10%

Q65. Table shows the percentage of marks obtained by seven students in six different subjects in an examination. The numbers in the brackets are the maximum marks in each subject.

यह तालिका एक परीक्षा में छः अलग-अलग विषयों में सात छात्रों के प्राप्तांक का प्रतिशत दर्शाती है | कोष्ठकों में दी गयी संख्या प्रत्येक विषय के लिए अधिकतम अंक है |

Student	Subject (Max. Marks)					
	Maths (150)	Chemistry (130)	Physics (120)	Geography (100)	History (60)	Computer Science (40)
A	90	30	90	60	70	80
B	100	80	80	40	80	70
C	90	60	70	70	90	70
D	80	65	80	80	60	60
E	80	65	85	95	50	90
F	70	75	65	85	40	60
G	65	35	50	77	80	80

What are the average marks obtained by all the seven students in Physics? (Correct to two decimal places)

सभी सात छात्रों द्वारा भौतिकी में प्राप्त किये गए औसत अंक हैं :
(दो दशमलव स्थान तक सही)

SSC CGL 13 June 2019 (Evening)

(a) 91.16
(b) 93.14
(c) 77.26
(d) 89.14

Q66. Table shows the sales of books (in thousands) from six branches of a publishing company during 2000 and 2001.

यह तालिका 2000 से 2001 के दौरान एक प्रकाशन कंपनी की छः शाखाओं के द्वारा पुस्तकों की बिक्री (हज़ार में) को दर्शाती है |

Branches / Year	B1	B2	B3	B4	B5	B6
2000	80	75	95	85	75	70
2001	105	65	110	95	95	80

What is the total sales of books from branches B1, B3 and B6 together for both the years (in thousands)?

दोनों वर्षों में शाखाओं B1, B3 और B6 ने एक साथ कुल कितनी पुस्तकें बेची हैं ? (हज़ार में)

SSC CGL 13 June 2019 (Evening)

(a) 650
(b) 240
(c) 310
(d) 540

Q67. Table shows the annual Expenditure of a Company (in Lakh Rupees) over the years.

यह तालिका इन वर्षों में एक कंपनी के वार्षिक व्यय (लाख रुपये में) को दर्शाती है |

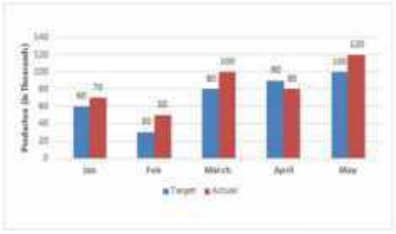
Year / Item of Expenditure	Salary	Fuel and Transport	Bonus	Interest on Loans	Taxes
1998	288	98	3.00	23.4	83
1999	342	112	2.52	32.5	108
2000	324	101	3.84	41.6	74
2001	336	133	3.68	36.4	88
2002	420	142	3.96	49.4	98

What is the average amount of Interest on loans (in Lakh rupees) which the company paid during the period 1998 to 2002?

1998 से 2002 तक कंपनी के द्वारा भुगतान किये गए ऋण पर ब्याज की औसत राशि (लाख रुपये में) कितनी है ?

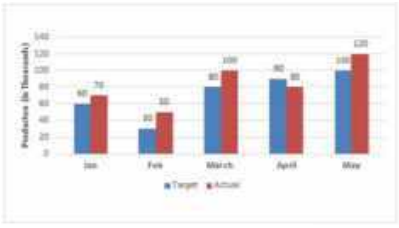
SSC CGL 13 June 2019 (Evening)
(a) 33.72
(b) 34.18
(c) 32.43
(d) 36.66

Q68.The given Bar Graph presents the Target and Actual production of AC Machines (numbers in thousands) of a factory over five months.
दिया गया दंड आरेख पांच महीनों के दौरान एक फैक्ट्री में एसी मशीनों के उत्पादन का लक्ष्य तथा वास्तविक उत्पादन को दर्शाता है |



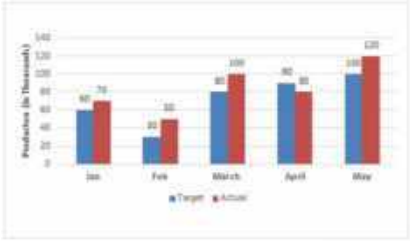
The ratio of the combined target production of AC Machines in January and April to that of the combined actual production of AC Machines in March and April was:
जनवरी और अप्रैल में एसी मशीनों के उत्पादन के संयुक्त लक्ष्य तथा मार्च और अप्रैल में एसी मशीनों के वास्तविक संयुक्त उत्पादन में क्या अनुपात है ?
SSC CHSL 2 July 2019 (Morning)
(a)4:5
(b)3:2
(c)5:6
(d)2:3

Q69.The given Bar Graph presents the Target and Actual production of AC Machines (numbers in thousands) of a factory over five months.
दिया गया दंड आरेख पांच महीनों के दौरान एक फैक्ट्री में एसी मशीनों के उत्पादन का लक्ष्य तथा वास्तविक उत्पादन (संख्या हज़ार में है) को दर्शाता है |



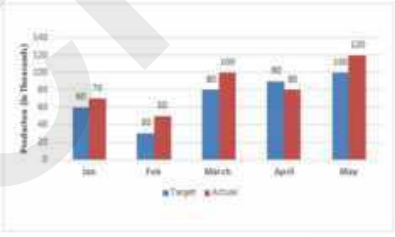
The total target production of AC Machines in February, April and May was what percentage less than the total actual production of AC Machines over all the five months (correct to one decimal place)?
फरवरी, अप्रैल और मई में एसी मशीनों के कुल उत्पादन का लक्ष्य इन पांच महीनों में एसी मशीनों के कुल वास्तविक उत्पादन से कितना प्रतिशत कम है ? (एक दशमलव स्थान तक सही)
SSC CHSL 2 July 2019 (Morning)
(a)46.2%
(b)46.8%
(c)47.1%
(d)47.6%

Q70.The given Bar Graph presents the Target and Actual production of AC Machines (numbers in thousands) of a factory over five months.
दिया गया दंड आरेख पांच महीनों के दौरान एक फैक्ट्री में एसी मशीनों के उत्पादन का लक्ष्य तथा वास्तविक उत्पादन (संख्या हज़ार में है) को दर्शाता है |



The actual production of AC Machines in April was what percentage more than the average target production of AC Machines over five months?
अप्रैल में एसी मशीनों का वास्तविक उत्पादन इन पांच महीनों के दौरान एसी मशीनों के उत्पादन के औसत लक्ष्य से कितना प्रतिशत अधिक था ?
SSC CHSL 2 July 2019 (Morning)
(a)10 $\frac{1}{9}$%
(b)11 $\frac{1}{9}$%
(c)9%
(d)10%

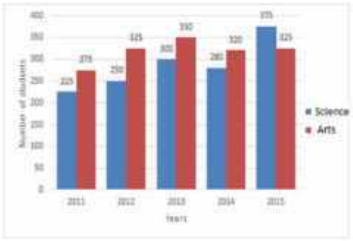
Q71. The given Bar Graph presents the Target and Actual production of AC Machines (numbers in thousands) of a factory over five months.
दिया गया दंड आरेख पांच महीनों के दौरान एक फैक्ट्री में एसी मशीनों के उत्पादन का लक्ष्य तथा वास्तविक उत्पादन (संख्या हज़ार में है) को दर्शाता है |



In which month the actual production of AC Machines was 25% more than the target production?
किस महीने में एसी मशीनों का वास्तविक उत्पादन अपने लक्ष्य से 25% अधिक रहा है ?
SSC CHSL 2 July 2019 (Morning)
(a)February/ फरवरी
(b)March/ मार्च
(c)January/ जनवरी
(d)May/ मई

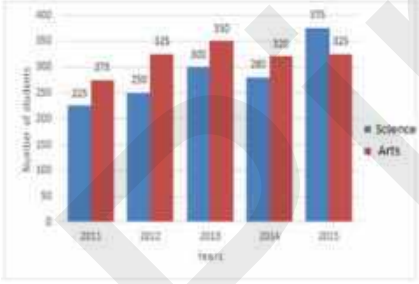
Q72.The given bar graph presents the number of students from Science and Arts streams from a school in different years.
दिया गया दंड आरेख अलग-अलग वर्षों में एक विद्यालय में विज्ञान एवं कला संकाय के छात्रों की संख्या को दर्शाता है |

Pinnacle



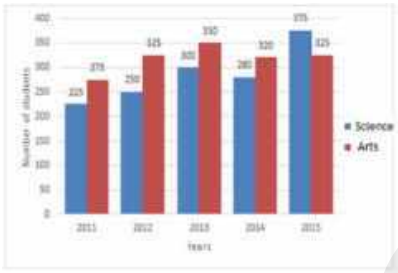
The total number of Arts students in 2011, 2013 and 2015 is what percentage less than that of Science in the given five years (correct to one decimal place)?
2011, 2013 और 2015 में कला छात्रों की कुल संख्या इन पांच वर्षों में विज्ञान के छात्रों की कुल संख्या से कितना प्रतिशत कम थी ? (एक दशमलव स्थान तक सही)
SSC CHSL 2 July 2019 (Afternoon)
(a)34.2%
(b)33.6%
(c)31.45
(d)32.8%

Q73.The given bar graph presents the number of students from Science and Arts streams from a school in different years.
दिया गया दंड आरेख अलग-अलग वर्षों में एक विद्यालय में विज्ञान एवं कला संकाय के छात्रों की संख्या को दर्शाता है |



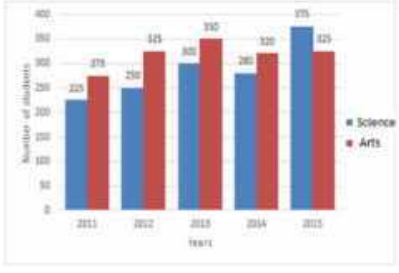
The average number of Science students in 2011, 2013 and 2015 is what percentage more than the number of Arts students in 2011?
2011, 2013 और 2015 में विज्ञान के छात्रों की औसत संख्या 2011 में कला के छात्रों की संख्या से कितना प्रतिशत अधिक है ?
SSC CHSL 2 July 2019 (Afternoon)
(a)11 $\frac{1}{9}$%
(b)9 $\frac{3}{11}$%
(c)9 $\frac{1}{11}$%
(d)8 $\frac{1}{9}$%

Q74.The given Bar graph presents the number of students from Science and Arts streams from a school in different years.
दिया गया दंड आरेख अलग-अलग वर्षों में एक विद्यालय में विज्ञान एवं कला संकाय के छात्रों की संख्या को दर्शाता है |



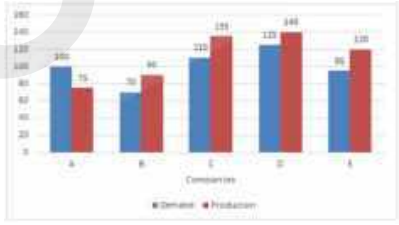
What is the ratio of the total number of Science students in 2011 and 2015 to that of Arts in 2012 and 2015?
2011 तथा 2015 में विज्ञान के छात्रों की कुल संख्या का 2012 तथा 2015 में कला के छात्रों की कुल संख्या के साथ अनुपात ज्ञात करें |
SSC CHSL 2 July 2019 (Afternoon)
(a)9:10
(b)8:9
(c)12:13
(d)11:12

Q75.The given Bar graph presents the number of students from Science and Arts streams from a school in different years.
दिया गया दंड आरेख अलग-अलग वर्षों में एक विद्यालय में विज्ञान एवं कला संकाय के छात्रों की संख्या को दर्शाता है |



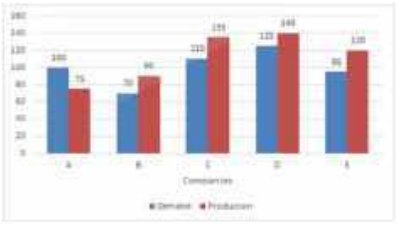
In which year the number of Arts students is 30% more than that of Science?
किस वर्ष कला के छात्रों की संख्या विज्ञान के छात्रों से 30% अधिक रही है ?
SSC CHSL 2 July 2019 (Afternoon)
(a)2013
(b)2014
(c)2012
(d)2011

Q76. The given Bar graph presents the Demand and Production of motorcycles of five companies (in lakhs)
दिया गया दंड आरेख पांच कंपनियों के संबंध में मोटरसाइकिलों की मांग और उत्पादन (लाख में) को दर्शाता है |



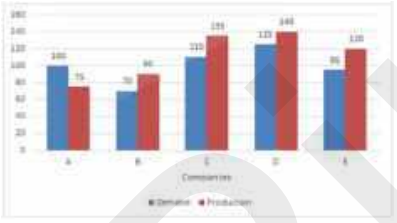
The average Production of motorcycles of companies B, C and E taken together is what percent less than the Demand of motorcycles of D?
कंपनी B, C और E को मिलाकर मोटरसाइकिलों का औसत उत्पादन D की मोटरसाइकिलों की मांग से कितना प्रतिशत कम है ?
SSC CHSL 2 July 2019 (Evening)
(a)8%
(b)8.7%
(c)9.3%
(d)6%

Q77.The given Bar graph presents the Demand and Production of motorcycles of five companies (in lakhs)
दिया गया दंड आरेख पांच कंपनियों के संबंध में मोटरसाइकिलों की मांग और उत्पादन (लाख में) को दर्शाता है |



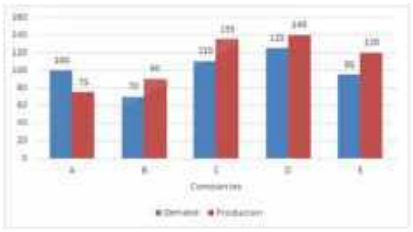
What is the ratio of the total Demand of motorcycles of companies A and D taken together to the Production of motorcycles of company C?
कंपनी A और D को मिलाकर मोटरसाइकिलों की कुल मांग का कंपनी C की मोटरसाइकिलों के उत्पादन के साथ अनुपात ज्ञात करें |
SSC CHSL 2 July 2019 (Evening)
(a)13:9
(b)8:5
(c)5:3
(d)9:7

Q78.The given Bar graph presents the Demand and Production of motorcycles of five companies (in lakhs)
दिया गया दंड आरेख पांच कंपनियों के संबंध में मोटरसाइकिलों की मांग और उत्पादन (लाख में) को दर्शाता है |



The total Production of motorcycles of companies B and D taken together is what percent of the Demand of motorcycles of all the companies taken together?
कंपनी B और D को मिलाकर मोटरसाइकिलों का कुल उत्पादन सभी कंपनियों को मिलाकर मोटरसाइकिलों की कुल मांग का कितना प्रतिशत है ?
SSC CHSL 2 July 2019 (Evening)
(a)46%
(b)38%
(c)48%
(d)40%

Q79.The given Bar graph presents the Demand and Production of motorcycles of five companies (in lakhs)
दिया गया दंड आरेख पांच कंपनियों के संबंध में मोटरसाइकिलों की मांग और उत्पादन (लाख में) को दर्शाता है |



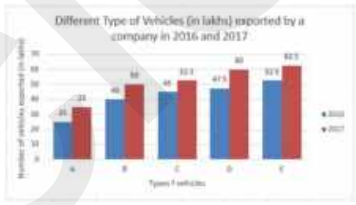
The company in which the Production of motorcycles is approximately 23% more than the Demand is:
वह कंपनी जिसमें मोटरसाइकिलों का उत्पादन, मांग से लगभग 23% अधिक है :
SSC CHSL 2 July 2019 (Evening)
(a)B
(b)C
(c)D
(d)E

Q80.The given Bar Graph presents Different Type of Vehicles (in lakhs) exported by a company in 2016 and 2017.
दिया गया दंड आरेख 2016 और 2017 में एक कंपनी के द्वारा निर्यात किये गए अलग-अलग प्रकार के वाहनों (लाख में) को दर्शाता है |



The export of which type of vehicle in 2017 is approximately 18.3% more than the export of same type of vehicle in 2016?
2017 में किस प्रकार के वाहन का निर्यात 2016 में इसी वाहन के निर्यात से लगभग 18.3% अधिक है ?
SSC CHSL 3 July 2019 (Morning)
(a)C
(b)D
(c)E
(d)B

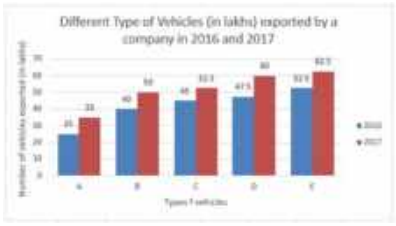
Q81.The given Bar Graph presents Different Type of Vehicles (in lakhs) exported by a company in 2016 and 2017.
दिया गया दंड आरेख 2016 और 2017 में एक कंपनी के द्वारा निर्यात किये गए अलग-अलग प्रकार के वाहनों (लाख में) को दर्शाता है |



What is the ratio of the total number of Vehicles of type D and E exported by the company in 2016 to that of vehicles of type C and E exported in 2017?
2016 में कंपनी के द्वारा निर्यात किये गए D और E प्रकार के वाहनों की कुल संख्या तथा 2017 में निर्यात किये गए C और E प्रकार के वाहनों की कुल संख्या में क्या अनुपात है ?
SSC CHSL 3 July 2019 (Morning)
(a)4:5
(b)20:23
(c)10:11
(d)5:6

Q82.The given Bar Graph presents Different Type of Vehicles (in lakhs) exported by a company in 2016 and 2017.
दिया गया दंड आरेख 2016 और 2017 में एक कंपनी के द्वारा निर्यात किये गए अलग-अलग प्रकार के वाहनों (लाख में) को दर्शाता है |

Pinnacle



The total number of vehicles of type C and E exported by the company in 2017 is what percentage (correct to one decimal place) more than the total number of vehicles of type A, B and C exported in 2016?

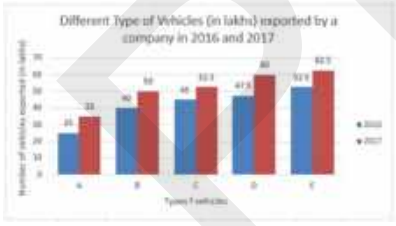
2017 में कंपनी के द्वारा निर्यात किये गए C और E प्रकार के वाहनों की कुल संख्या 2016 में निर्यात किये गए A, B और C प्रकार के वाहनों की कुल संख्या से कितना प्रतिशत अधिक है ? (एक दशमलव स्थान तक)

SSC CHSL 3 July 2019 (Morning)

(a)5.4
(b)4.5
(c)4.1
(d)5.2

Q83.The given Bar Graph presents Different Type of Vehicles (in lakhs) exported by a company in 2016 and 2017.

दिया गया दंड आरेख 2016 और 2017 में एक कंपनी के द्वारा निर्यात किये गए अलग-अलग प्रकार के वाहनों (लाख में) को दर्शाता है |



The average number of all types of vehicles exported by the company in 2016 is what percent less than the number of type B vehicles exported in 2017 ?

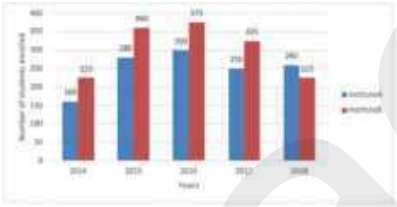
कंपनी के द्वारा 2016 में निर्यात किये गए सभी प्रकार के वाहनों की औसत संख्या 2017 में निर्यात किये गए B प्रकार के वाहनों की संख्या से कितना प्रतिशत कम है ?

SSC CHSL 3 July 2019 (Morning)

(a)15
(b)12
(c)18
(d)16

Q84.The given Bar Graph presents the number of students enrolled for a vocational course in institutes A and B during a period of five years.

दिया गया दंड आरेख A और B संस्थानों में पांच वर्षों की अवधि के दौरान व्यावसायिक पाठ्यक्रमों नामांकन लेने वाले छात्रों की संख्या को दर्शाता है |



The average number of students (per year) enrolled in B during 2015, 2016 and 2018 is what percentage more than the number of students enrolled in A during 2017?

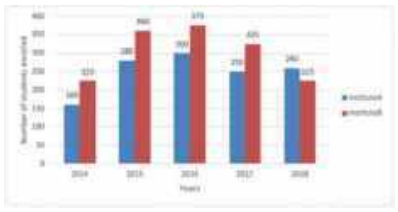
2015, 2016 और 2018 में B में नामांकन (प्रति वर्ष) लेने वाले छात्रों की औसत संख्या 2017 के दौरान A में नामांकन लेने वाले छात्रों की संख्या से कितना प्रतिशत अधिक है ?

SSC CHSL 3 July 2019 (Afternoon)

(a)28
(b)25
(c)30
(d)22

Q85.The given Bar Graph presents the number of students enrolled for a vocational course in institutes A and B during a period of five years.

दिया गया दंड आरेख A और B संस्थानों में पांच वर्षों की अवधि के दौरान व्यावसायिक पाठ्यक्रमों नामांकन लेने वाले छात्रों की संख्या को दर्शाता है |



The total number of students enrolled in A during 2014, 2016 and 2018 is what percentage (correct to one decimal place) of the total number of students enrolled in B during the five years?

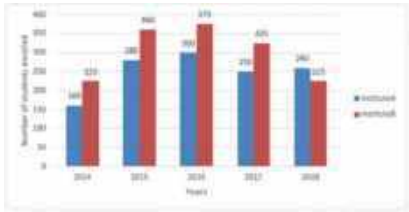
2014, 2016 और 2018 में A में नामांकन लेने वाले छात्रों की कुल संख्या इन पांच वर्षों के दौरान B में नामांकन लेने वाले छात्रों की कुल संख्या का कितना प्रतिशत (एक दशमलव स्थान तक सही) है ?

SSC CHSL 3 July 2019 (Afternoon)

(a)43.4
(b)47.7
(c)44.6
(d)46.8

Q86.The given Bar Graph presents the number of students enrolled for a vocational course in institutes A and B during a period of five years.

दिया गया दंड आरेख A और B संस्थानों में पांच वर्षों की अवधि के दौरान व्यावसायिक पाठ्यक्रमों नामांकन लेने वाले छात्रों की संख्या को दर्शाता है |



What is the ratio of the total numbers enrolled in A during 2015 and 2018 to that of students enrolled in B during 2014 and 2016?

2015 तथा 2018 में A में नामांकन लेने वाले छात्रों की कुल संख्या का

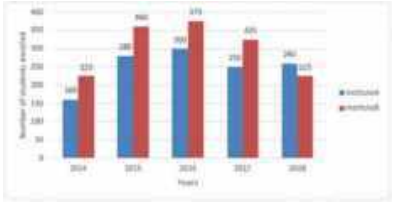
2014 तथा 2016 में B में नामांकन लेने वाले छात्रों की कुल संख्या के साथ अनुपात ज्ञात करें |

SSC CHSL 3 July 2019 (Afternoon)

(a)9:10
(b)16:15
(c)27:25
(d)11:12

Q87. The given Bar Graph presents the number of students enrolled for a vocational course in institutes A and B during a period of five years.

दिया गया दंड आरेख A और B संस्थानों में पांच वर्षों की अवधि के दौरान व्यावसायिक पाठ्यक्रमों नामांकन लेने वाले छात्रों की संख्या को दर्शाता है |



In which year the number of students enrolled in B is x% more, where 25<x<30, than the number of students enrolled in A in the same year?

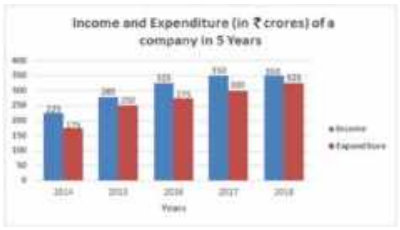
किस वर्ष B में नामांकन लेने वाले छात्रों की संख्या इसी वर्ष A में नामांकन लेने वाले छात्रों की संख्या से x% अधिक है, जहाँ 25 < x < 30 है ?

SSC CHSL 3 July 2019 (Afternoon)

(a)2015
(b)2017
(c)2016
(d)2014

Q88.The given Bar Graph presents Income and Expenditure (in crores of Rupees) of a company for the five years, 2014 to 2018.

दिया गया दंड आरेख पांच वर्षों अर्थात 2014 से 2018 तक एक कंपनी के आय एवं व्यय (करोड़ रुपये में) को दर्शाता है |



The average Income (per year) of the company in five years is what percentage more than its Expenditure in 2015?

पांच वर्षों में कंपनी की औसत आय (प्रति वर्ष) 2015 में इसके व्यय से कितना प्रतिशत अधिक है ?

SSC CHSL 3 July 2019 (Evening)

(a)24.2
(b)20.8
(c)24.6
(d)22.4

Q89.The given Bar Graph presents Income and Expenditure (in crores of Rupees) of a company for the five years, 2014 to 2018.

दिया गया दंड आरेख पांच वर्षों अर्थात 2014 से 2018 तक एक कंपनी के आय एवं व्यय (करोड़ रुपये में) को दर्शाता है |



The total Income of the company in 2015, 2017 and 2018 is approximately what percent less than the total Expenditure in the five years?

2015, 2017 तथा 2018 में कंपनी की कुल आय पांच वर्षों में कुल व्यय से लगभग कितना प्रतिशत कम है ?

SSC CHSL 3 July 2019 (Evening)

(a)26
(b)22
(c)24
(d)21

Q90.The given Bar Graph presents Income and Expenditure (in crores of Rupees) of a company for the five years, 2014 to 2018.

दिया गया दंड आरेख पांच वर्षों अर्थात 2014 से 2018 तक एक कंपनी के आय एवं व्यय (करोड़ रुपये में) को दर्शाता है |



In which year is the Expenditure more than 40% as compared to the Expenditure in the previous year?

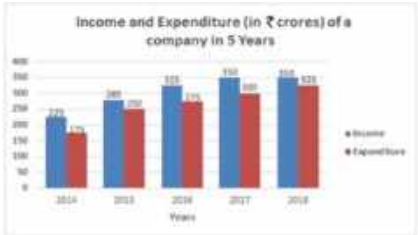
किस वर्ष में व्यय पिछले वर्ष के व्यय की तुलना में 40% अधिक है ?

SSC CHSL 3 July 2019 (Evening)

(a)2016
(b)2015
(c)2018
(d)2017

Q91.The given Bar Graph presents Income and Expenditure (in crores of Rupees) of a company for the five years, 2014 to 2018.

दिया गया दंड आरेख पांच वर्षों अर्थात 2014 से 2018 तक एक कंपनी के आय एवं व्यय (करोड़ रुपये में) को दर्शाता है |



What is the ratio of total Expenditure to total Income of the company in 2014, 2016 and 2017?

2014, 2016 और 2017 में कंपनी के कुल व्यय और कुल आय में क्या अनुपात है ?

SSC CHSL 3 July 2019 (Evening)
(a)13:18
(b)3:4
(c)15:16
(d)5:6

Q92.The given Bar Graph presents the Revenue and Expenditure (in crores of Rupees) of a company during the five year period, 2014-2018.
दिया गया दंड आरेख पांच वर्षों अर्थात 2014 से 2018 तक एक कंपनी के आय एवं व्यय (करोड़ रुपये में) को दर्शाता है |



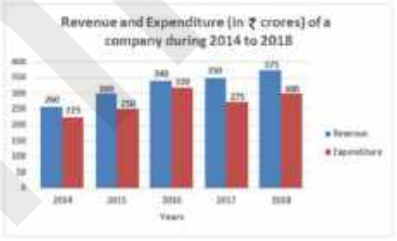
What is the ratio of the total revenue of the company in 2015 and 2018 to that of its expenditure in 2014 and 2018?
2015 तथा 2018 में कंपनी की कुल आय और 2014 तथा 2018 में कंपनी के कुल व्यय में क्या अनुपात है ?
SSC CHSL 4 July 2019 (Morning)
(a)5:4
(b)7:5
(c)9:7
(d)13:10

Q93.The given Bar Graph presents the Revenue and Expenditure (in crores of Rupees) of a company during the five year period, 2014-2018.
दिया गया दंड आरेख पांच वर्षों अर्थात 2014 से 2018 तक एक कंपनी के आय एवं व्यय (करोड़ रुपये में) को दर्शाता है |



The expenditure of the company in 2017 is what percentage less than the average revenue (per year) in 2014, 2015 and 2016?
2017 में कंपनी का व्यय 2014, 2015 और 2016 की औसत आय (प्रति वर्ष) से कितना प्रतिशत कम है ?
SSC CHSL 4 July 2019 (Morning)
(a)11 $\frac{2}{9}$
(b)11 $\frac{1}{9}$
(c)8 $\frac{1}{3}$
(d)12 $\frac{1}{3}$

Q94.The given Bar Graph presents the Revenue and Expenditure (in crores of Rupees) of a company during the five year period, 2014-2018.
दिया गया दंड आरेख पांच वर्षों अर्थात 2014 से 2018 तक एक कंपनी के आय एवं व्यय (करोड़ रुपये में) को दर्शाता है |



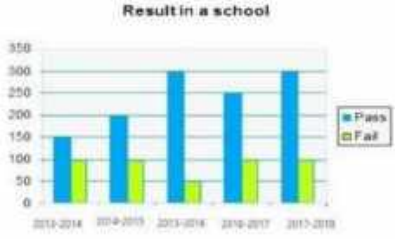
The total expenditure of the company from 2016 to 2018 is what percentage (nearest to an integer) of the total revenue for the five year period?
2016 से 2018 तक कंपनी का कुल व्यय पांच वर्षों की अवधि में कुल आय का कितना प्रतिशत (निकटतम पूर्णांक में) है ?
SSC CHSL 4 July 2019 (Morning)
(a)56
(b)55
(c)54
(d)53

Q95.The given Bar Graph presents the Revenue and Expenditure (in crores of Rupees) of a company during the five year period, 2014-2018.
दिया गया दंड आरेख पांच वर्षों अर्थात 2014 से 2018 तक एक कंपनी के आय एवं व्यय (करोड़ रुपये में) को दर्शाता है |



In which year the percentage increase in the revenue as compared to that in its preceding year is between 5% and 8%?
किस वर्ष आय में प्रतिशत वृद्धि पिछले वर्ष की तुलना में 5% से 8% के बीच है ?
SSC CHSL 4 July 2019 (Morning)
(a)2015
(b)2017
(c)2016
(d)2018

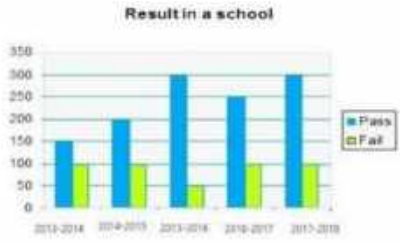
Q96.The given Bar Graph presents the results in terms of number of students for the five academic years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच शैक्षणिक वर्षों : 2013-2014 से 2017-2018 तक छात्रों की संख्या के संदर्भ में परिणामों को प्रस्तुत करता है |



In which year the percentage increase in the total number of students is the highest in

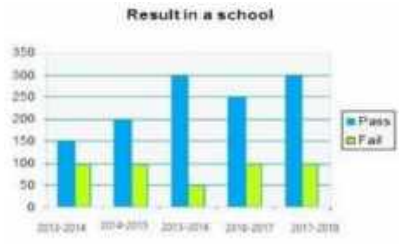
comparison to the previous academic year?
किस वर्ष कुल छात्रों की संख्या में प्रतिशत वृद्धि पिछले शैक्षणिक वर्ष की तुलना में सर्वाधिक है ?
SSC CHSL 4 July 2019 (Afternoon)
(a)2017-2018
(b)2015-2016
(c)2016-2017
(d)2014-2015

Q97.The given Bar Graph presents the results in terms of number of students for the five academic years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच शैक्षणिक वर्षों : 2013-2014 से 2017-2018 तक छात्रों की संख्या के संदर्भ में परिणामों को प्रस्तुत करता है |



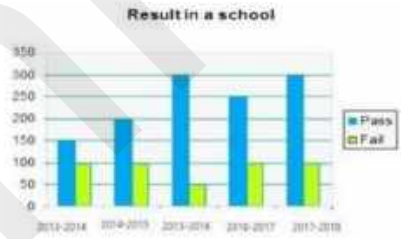
What is the average of failed students in five academic years?
पांच शैक्षणिक वर्षों में असफल छात्रों का औसत क्या है ?
SSC CHSL 4 July 2019 (Afternoon)
(a)75
(b)50
(c)100
(d)90

Q98.The given Bar Graph presents the results in terms of number of students for the five academic years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच शैक्षणिक वर्षों : 2013-2014 से 2017-2018 तक छात्रों की संख्या के संदर्भ में परिणामों को प्रस्तुत करता है |



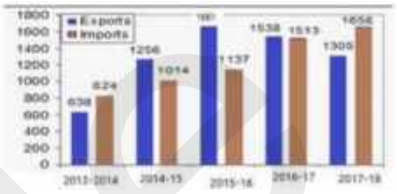
The difference between the number of students passed and those who failed is the highest in which academic year?
किस शैक्षणिक वर्ष में पास करने वाले तथा फेल करने वाले छात्रों की संख्या में सर्वाधिक अंतर है ?
SSC CHSL 4 July 2019 (Afternoon)
(a)2015-2016
(b)2014-2015
(c)2017-2018
(d)2016-2017

Q99. The given Bar Graph presents the results in terms of number of students for the five academic years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच शैक्षणिक वर्षों : 2013-2014 से 2017-2018 तक छात्रों की संख्या के संदर्भ में परिणामों को प्रस्तुत करता है |



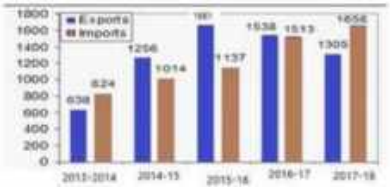
What is the approximate percentage of students passed during five academic years (correct to the nearest integer)?
पांच शैक्षणिक वर्षों के दौरान पास करने वाले छात्रों का प्रतिशत (लगभग) कितना है ? (निकटतम पूर्णांक में)
SSC CHSL 4 July 2019 (Afternoon)
(a)72%
(b)78%
(c)79%
(d)73%

Q100.The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



What is the average of Import (in tonnes) during the five financial years?
पांच वित्तीय वर्षों में आयात का औसत (टन में) कितना है ?
SSC CHSL 4 July 2019 (Evening)
(a)1229.5
(b)1552.4
(c)1229.2
(d)1335.9

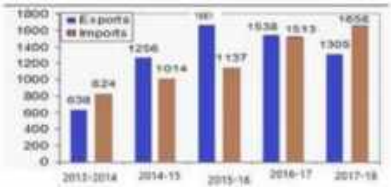
Q101.The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



What is the ratio of total Exports to total Imports during the five financial years?
पांच वित्तीय वर्षों के दौरान कुल निर्यात तथा कुल आयात में क्या अनुपात है ?

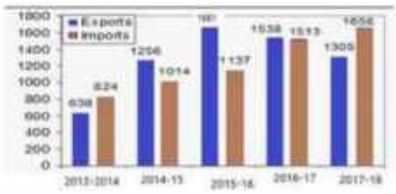
SSC CHSL 4 July 2019 (Evening)
(a)3199:3073
(b)4175:4011
(c)3073:3199
(d)4011:4175

Q102.The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



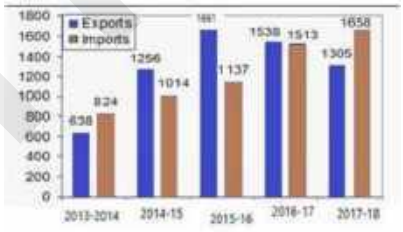
In which financial year the absolute difference between the Exports and the Imports is the highest?
किस वित्तीय वर्ष में, निर्यात तथा आयत के बीच पूर्ण अंतर सबसे अधिक है ?
SSC CHSL 4 July 2019 (Evening)
(a)2017-2018
(b)2014-2015
(c)2015-2016
(d)2016-2017

Q103.The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



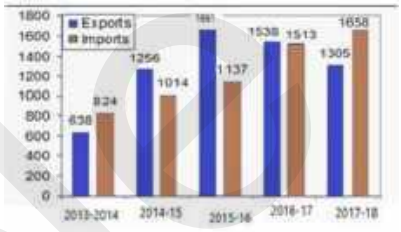
In which financial year the percentage increase in Imports and Exports taken together is the highest in companies to its previous financial year?
किस वित्तीय वर्ष में, कंपनियों में आयात एवं निर्यात को मिलाकर पिछले वर्ष की तुलना में सर्वाधिक प्रतिशत वृद्धि हुई है ?
SSC CHSL 4 July 2019 (Evening)
(a)2016-2017
(b)2014-2015
(c)2017-2018
(d)2015-2016

Q104.The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



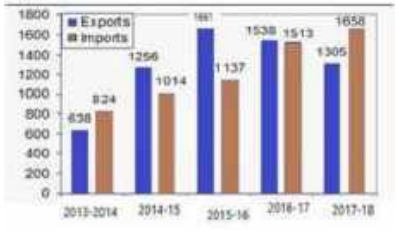
What is the ratio of equal Imports to total Exports during the five financial years?
पांच वित्तीय वर्षों के दौरान बराबर आयात तथा कुल निर्यात में क्या अनुपात है ?
SSC CHSL 5 July 2019 (Morning)
(a)3199:3073
(b)4175:4011
(c)3073:3199
(d)4011:4175

Q105.The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



In which financial year, total of Exports and Imports is the highest?
किस वित्तीय वर्ष में, निर्यात एवं आयात का जोड़ अधिकतम है ?
SSC CHSL 5 July 2019 (Morning)
(a)2017-2018
(b)2015-2016
(c)2016-2017
(d)2014-2015

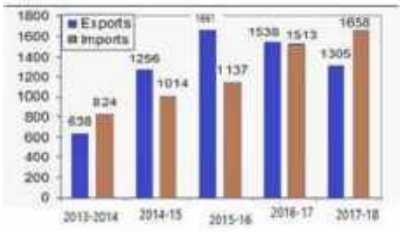
Q106.The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



In which financial year the percentage increase in Imports is

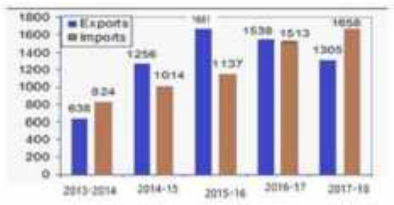
the highest in comparison to its previous financial year?
किस वित्तीय वर्ष में, आयात में प्रतिशत वृद्धि पिछले वर्ष की तुलना में सर्वाधिक हुई है ?
SSC CHSL 5 July 2019 (Morning)
(a)2014-2015
(b)2016-2017
(c)2017-2018
(d)2015-2016

Q107.The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



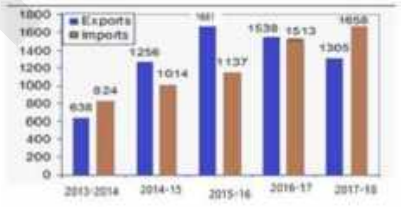
What is the average of Exports (in tonnes) during the five financial years?
पांच वित्तीय वर्षों के दौरान निर्यात (टन) का औसत क्या रहा है ?
SSC CHSL 5 July 2019 (Morning)
(a)1279.6
(b)1279.5
(c)1552.4
(d)1025.9

Q108. The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



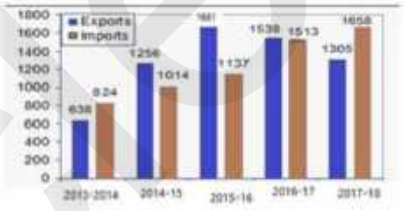
In which financial year the percentage increase in total of Exports and Imports is the highest in comparison to its previous financial year?
किस वित्तीय वर्ष में, निर्यात तथा आयात के जोड़ में प्रतिशत वृद्धि अपने पिछले वर्ष की तुलना में सर्वाधिक है ?
SSC CHSL 5 July 2019 (Afternoon)
(a)2015-2016
(b)2017-2018
(c)2014-2015
(d)2016-2017

Q109. The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



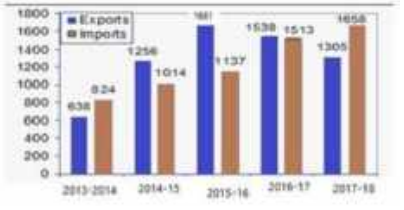
What is the ratio of total Imports to total Exports during 2013-2014, 2015-2016 and 2017-2018 ?
2013-2014, 2015-2016 और 2017-2018 के दौरान कुल आयात एवं कुल निर्यात का अनुपात क्या है ?
SSC CHSL 5 July 2019 (Afternoon)
(a)3634:3073
(b)4011:4175
(c)3619:3604
(d)4175:4011

Q110. The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



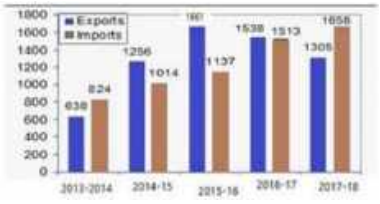
What is the average of total Import and Export (in tonnes) during the five financial year?
पांच वित्तीय वर्षों के दौरान कुल आयात एवं निर्यात का औसत (टन में) क्या है ?
SSC CHSL 5 July 2019 (Afternoon)
(a)2279.5
(b)2508.8
(c)2552.4
(d)2325.9

Q111. The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



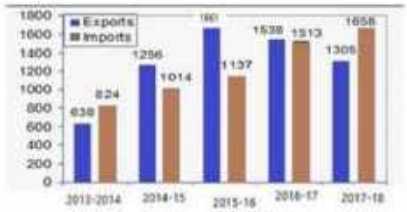
In which financial year the total of the Exports and Imports is the lowest?
किस वित्तीय वर्ष में निर्यात तथा आयात का जोड़ सबसे कम है ?
SSC CHSL 5 July 2019 (Afternoon)
(a)2014-2015
(b)2013-2014
(c)2015-2016
(d)2017-2018

Q112. The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



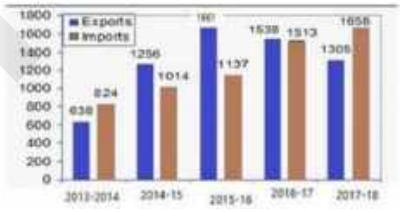
In which financial year, the absolute difference of the Exports to those of Imports is the lowest?
किस वित्तीय वर्ष में, आयात करने वालों के लिए निर्यात का पूर्ण अंतर सबसे कम है?
SSC CHSL 5 July 2019 (Evening)
(a)2016-2017
(b)2015-2016
(c)2014-2015
(d)2013-2014

Q113. The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



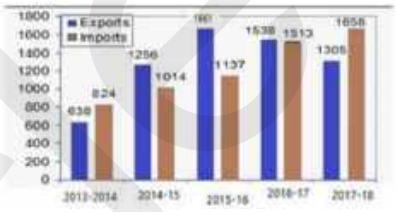
What is the ratio of total Imports to total Exports during 2014-2015,2015-2016 and 2016-2017?
2014-2015, 2015-2016 और 2016-2017 के दौरान कुल आयात तथा कुल निर्यात के बीच अनुपात ज्ञात करें |
SSC CHSL 5 July 2019 (Evening)
(a)4175:4011
(b)3664:4455
(c)4445:3664
(d)4011:4175

Q114. The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018. / दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



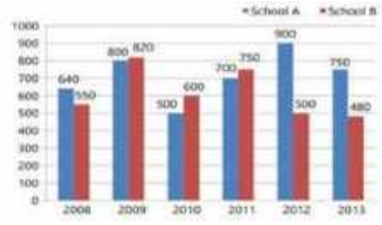
What is the average of absolute difference between Exports and Imports (in tonnes) during the five financial years?
पांच वित्तीय वर्षों के दौरान निर्यातों और आयातों के बीच पूर्ण अंतर का औसत (टन में) क्या है ?
SSC CHSL 5 July 2019 (Evening)
(a)266
(b)260
(c)264
(d)252

Q115.The given Bar Graph presents the Imports and Exports of an item (in tonnes) manufactured by a company for the five financial years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच वित्तीय वर्षों अर्थात 2013-2014 से 2017-2018 तक एक कंपनी के द्वारा निर्मित किसी वस्तु के आयात और निर्यात (टन में) को दर्शाता है |



In which financial year the percentage increase in Imports and Exports taken together is the lowest in comparison to its previous financial year?
किस वित्तीय वर्ष में इसके पिछले वर्ष की तुलना में आयात एवं निर्यात को मिलाकर हुई प्रतिशत वृद्धि सबसे कम है ?
SSC CHSL 5 July 2019 (Evening)
(a)2015-2016
(b)2014-2015
(c)2016-2017
(d)2017-2018

Q116.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



In which year, the absolute difference between the numbers

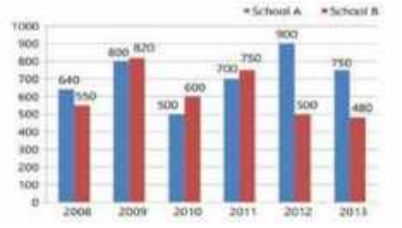
of students in two schools is the highest?
किस वर्ष में, दोनों विद्यालयों में छात्रों की संख्या के बीच पूर्ण अंतर सबसे अधिक है ?
SSC CHSL 8 July 2019 (Morning)
(a)2013
(b)2010
(c)2012
(d)2011

Q117.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



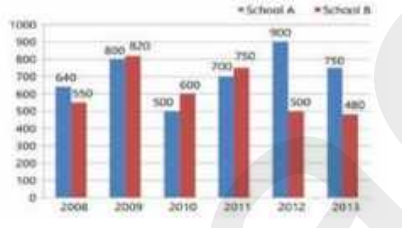
What is the ratio of students taken for all years together from School B to that from school A?
सभी वर्षों को मिलाकर विद्यालय B और विद्यालय A के छात्रों की संख्या में अनुपात ज्ञात करें |
SSC CHSL 8 July 2019 (Morning)
(a)370:429
(b)415:401
(c)429:370
(d)401:415

Q118.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



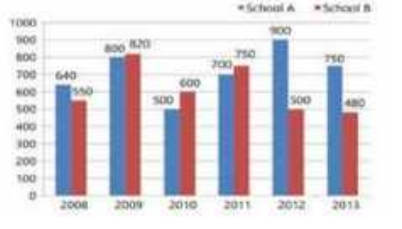
What is the average number of students from school B during the six year period (correct to two decimal places)?
छः वर्षों की अवधि में विद्यालय B के छात्रों की औसत संख्या कितनी रही है ? (दशमलव के दो स्थान तक)
SSC CHSL 8 July 2019 (Morning)
(a)656.17
(b)616.67
(c)664.37
(d)660.17

Q119.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



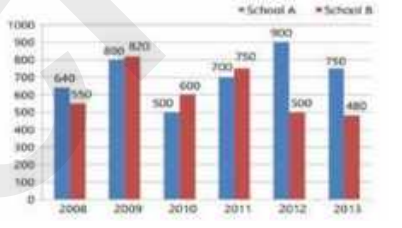
In which year, the percentage increase in students in school B is the highest in comparison to its previous year?
किस वर्ष में, विद्यालय B में छात्रों की संख्या में प्रतिशत वृद्धि इसके पिछले वर्ष की तुलना में सबसे अधिक रही है ?
SSC CHSL 8 July 2019 (Morning)
(a)2011
(b)2013
(c)2009
(d)2010

Q120.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



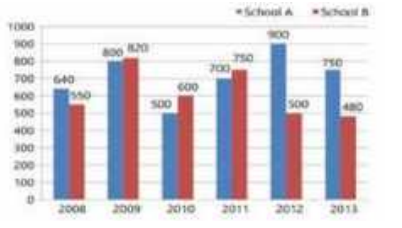
What is the average of the number of students from school A during the six year period?
छः वर्षों की अवधि में विद्यालय A के छात्रों की संख्या का औसत ज्ञात करें |
SSC CHSL 8 July 2019 (Afternoon)
(a)760
(b)700
(c)715
(d)765

Q121.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



In which year, the absolute difference of the students in two schools is the lowest?
किस वर्ष में, दोनों विद्यालयों के छात्रों में पूर्ण अंतर सबसे कम है ?
SSC CHSL 8 July 2019 (Afternoon)
(a)2008
(b)2011
(c)2009
(d)2012

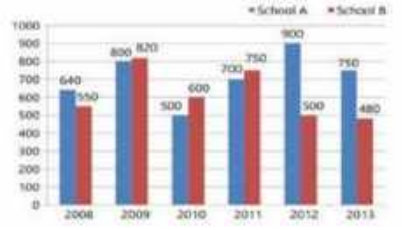
Q122.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



In which year, the percentage increase of students in school A is

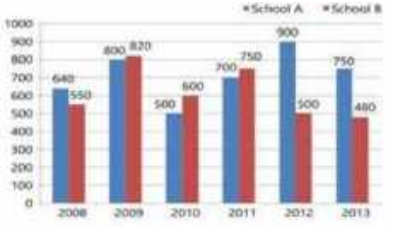
the highest in comparison to its previous year?
किस वर्ष, विद्यालय A में छात्रों की संख्या में प्रतिशत वृद्धि पिछले वर्ष की तुलना में सर्वाधिक है ?
SSC CHSL 8 July 2019 (Afternoon)
(a)2010
(b)2012
(c)2011
(d)2009

Q123.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



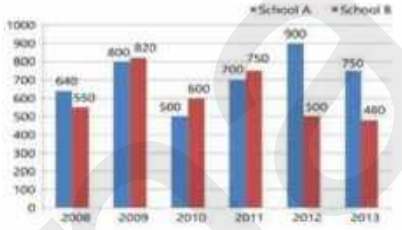
What is the ratio of the number of students taken for all years together from school A to that from school B?
सभी वर्षों को मिलाकर विद्यालय A और विद्यालय B के छात्रों की संख्या में अनुपात ज्ञात करें |
SSC CHSL 8 July 2019 (Afternoon)
(a)417:401
(b)370:429
(c)429:370
(d)401:417

Q124.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



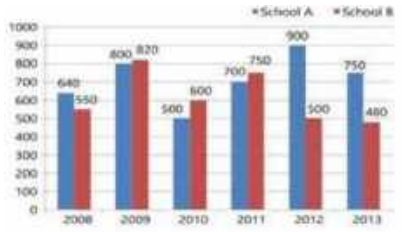
What is the average (correct to two decimal places) of total students in schools A and B taken together during the six year period?
विद्यालय A और B को मिलाकर छः वर्ष की अवधि के दौरान कुल छात्रों का औसत (दो दशमलव स्थान तक) क्या है ?
SSC CHSL 8 July 2019 (Evening)
(a)1221.67
(b)1122.57
(c)1331.67
(d)1133.57

Q125.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



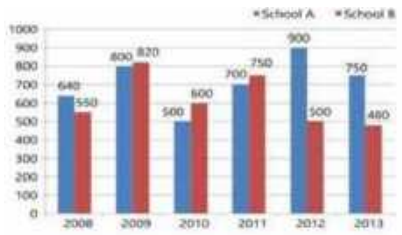
What is the ratio of the number of students taken together for the years 2008, 2012 and 2013 in School A to the number of students taken together for the years 2008, 2012 and 2013 in school B?
विद्यालय A में 2008, 2012 तथा 2013 को मिलाकर छात्रों की संख्या का विद्यालय B में 2008, 2012 तथा 2013 को मिलाकर होने वाले छात्रों की संख्या के साथ अनुपात ज्ञात करें |
SSC CHSL 8 July 2019 (Evening)
(a)229:153
(b)101:117
(c)153:229
(d)117:101

Q126. The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



In which year the sum of the students in two schools is the highest?
किस वर्ष, दोनों विद्यालयों के छात्रों का जोड़ सबसे अधिक है ?
SSC CHSL 8 July 2019 (Evening)
(a)2009
(b)2012
(c)2011
(d)2008

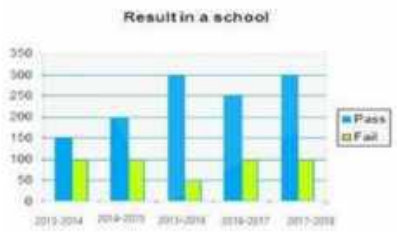
Q127.The given Bar Graph presents the number of students of two schools for six years.
दिया गया दंड आरेख छः वर्ष की अवधि में दो विद्यालयों में छात्रों की संख्या को दर्शाता है |



In which year the percentage increase in the number of total students in schools A and B taken together is the highest in comparison to its previous year?
किस वर्ष विद्यालय A और B को मिलाकर कुल छात्रों की संख्या में प्रतिशत वृद्धि पिछले वर्ष की तुलना में सर्वाधिक है ?
SSC CHSL 8 July 2019 (Evening)
(a)2012
(b)2011
(c)2010
(d)2009

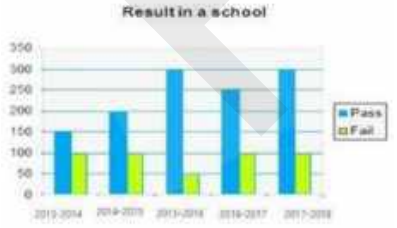
Pinnacle

Q128.The given Bar Graph presents the results in terms of the number of students in a school for the five academic years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच शैक्षणिक वर्षों : 2013-2014 से 2017-2018 तक एक विद्यालय में छात्रों की संख्या के संदर्भ में परिणामों को प्रस्तुत करता है |



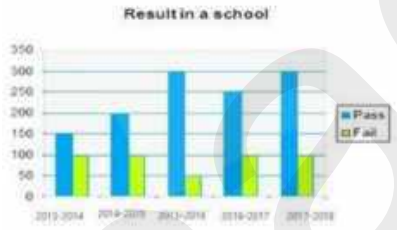
What is the average number of students who passed in the five academic years?
पांच शैक्षणिक वर्षों में पास करने वाले छात्रों की औसत संख्या क्या है ?
SSC CHSL 9 July 2019 (Morning)
(a)300
(b)250
(c)225
(d)240

Q129.The given Bar Graph presents the results in terms of the number of students in a school for the five academic years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच शैक्षणिक वर्षों : 2013-2014 से 2017-2018 तक एक विद्यालय में छात्रों की संख्या के संदर्भ में परिणामों को प्रस्तुत करता है |



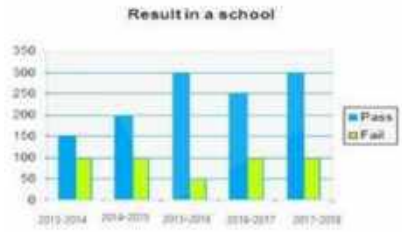
In which academic year the difference between the number of students passed and that of those failed is the lowest?
किस शैक्षणिक वर्ष में, पास करने वाले छात्रों तथा फेल करने वाले छात्रों की संख्या में सबसे कम अंतर है ?
SSC CHSL 9 July 2019 (Morning)
(a)2013-2014
(b)2014-2015
(c)2016-2017
(d)2015-2016

Q130.The given Bar Graph presents the results in terms of the number of students in a school for the five academic years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच शैक्षणिक वर्षों : 2013-2014 से 2017-2018 तक एक विद्यालय में छात्रों की संख्या के संदर्भ में परिणामों को प्रस्तुत करता है |



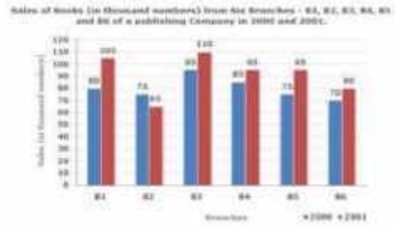
In which year the percentage increase in total number of students is the lowest in comparison to its previous academic year? / किस वर्ष छात्रों की कुल संख्या में प्रतिशत वृद्धि पिछले शैक्षणिक वर्ष की तुलना में सबसे कम है ?
SSC CHSL 9 July 2019 (Morning)
(a)2016-2017
(b)2017-2018
(c)2015-2016
(d)2014-2015

Q131. The given Bar Graph presents the results in terms of the number of students in a school for the five academic years, 2013-2014 to 2017-2018.
दिया गया दंड आरेख पांच शैक्षणिक वर्षों : 2013-2014 से 2017-2018 तक एक विद्यालय में छात्रों की संख्या के संदर्भ में परिणामों को प्रस्तुत करता है |



What is the approximate percentage (Correct to nearest integer) of the students who failed during the five academic years taken together?
पाँचों शैक्षणिक वर्षों को मिलाकर उन छात्रों का लगभग प्रतिशत (निकटतम पूर्णांक में) ज्ञात करें जो फेल हुए हैं ?
SSC CHSL 9 July 2019 (Morning)
(a)28%
(b)27%
(c)21%
(d)22%

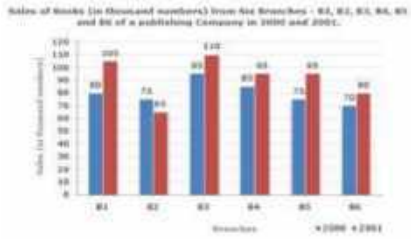
Q132.The given Bar Graph presents the sales of the number of books (in thousands) by six benches of a publishing company during two consecutive years 2000 and 2001.
दिया गया दंड आरेख लगातार दो वर्षों : 2000 और 2001 में एक प्रकाशन कंपनी की छः शाखाओं के द्वारा बेची गयी पुस्तकों की संख्या (हज़ार में) दर्शाता है |



The ratio of total sales by all branches for the year 2001 to total sales by all branches for the year 2000 is:
वर्ष 2001 में सभी शाखाओं की कुल बिक्री का वर्ष 2000 में सभी शाखाओं की कुल बिक्री के साथ अनुपात ज्ञात करें |

SSC CHSL 9 July 2019 (Afternoon)
(a)48:55
(b)25:23
(c)55:48
(d)23:25

Q133.The given Bar Graph presents the sales of the number of books (in thousands) by six benches of a publishing company during two consecutive years 2000 and 2001.
दिया गया दंड आरेख लगातार दो वर्षों : 2000 और 2001 में एक प्रकाशन कंपनी की छः शाखाओं के द्वारा बेची गयी पुस्तकों की संख्या (हज़ार में) दर्शाता है |



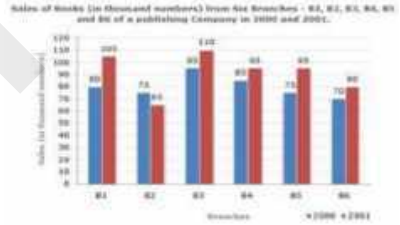
The average of total sales (in thousands and Correct to two decimal places) by all branches for both the years is:
इन दो वर्षों में सभी शाखाओं के द्वारा कुल बिक्री का औसत (हज़ार में तथा दो दशमलव स्थान तक) क्या है ?
SSC CHSL 9 July 2019 (Afternoon)
(a)171.37
(b)171.57
(c)171.27
(d)171.67

Q134.The given Bar Graph presents the sales of the number of books (in thousands) by six benches of a publishing company during two consecutive years 2000 and 2001.
दिया गया दंड आरेख लगातार दो वर्षों : 2000 और 2001 में एक प्रकाशन कंपनी की छः शाखाओं के द्वारा बेची गयी पुस्तकों की संख्या (हज़ार में) दर्शाता है |



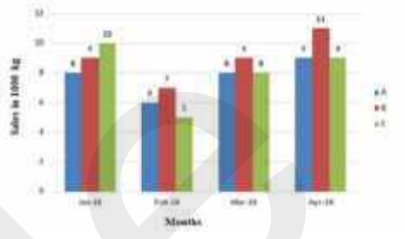
The ratio of total sales by branches B1, B3 and B5 for both the years to total sales by branches B2, B4, B6 for both the years is:
दोनों वर्षों में शाखाओं B1, B3 और B5 की कुल बिक्री तथा शाखाओं B2, B4 और B6 की कुल बिक्री के बीच अनुपात ज्ञात करें |
SSC CHSL 9 July 2019 (Afternoon)
(a)21:23
(b)56:47
(c)23:21
(d)47:56

Q135.The given Bar Graph presents the sales of the number of books (in thousands) by six benches of a publishing company during two consecutive years 2000 and 2001.
दिया गया दंड आरेख लगातार दो वर्षों : 2000 और 2001 में एक प्रकाशन कंपनी की छः शाखाओं के द्वारा बेची गयी पुस्तकों की संख्या (हज़ार में) दर्शाता है |



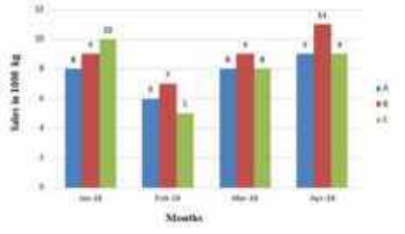
The total sales (in thousands) by all branches for both the years is:
दोनों वर्षों में सभी शाखाओं के द्वारा की गयी कुल बिक्री (हज़ार में) है :
SSC CHSL 9 July 2019 (Afternoon)
(a)470
(b)560
(c)1100
(d)1030

Q136.The given Bar Graph presents the sale (in 1000 kg) of a particular brand of tea by three outlets. A, B and C during the months feb, Mar and Apr,2018
दिया गया दंड आरेख तीन आउटलेट A, B और C के द्वारा तीन महीनों : फरवरी, मार्च और अप्रैल 2018 में एक विशेष ब्रांड की चाय की बिक्री (हज़ार किलो ग्राम में) को दर्शाता है |



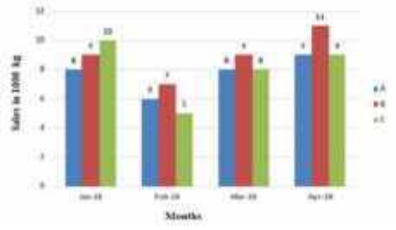
What is the ratio of rate of growth in sales from B to the rate of growth in sales from C in Mar 2018 with reference to its previous month?
पिछले माह की तुलना में मार्च 2018 में B की बिक्री में वृद्धि का C की बिक्री में वृद्धि के साथ अनुपात ज्ञात करें |
SSC CHSL 9 July 2019 (Evening)
(a)9:16
(b)10:19
(c)9:19
(d)10:21

Q137.The given Bar Graph presents the sale (in 1000 kg) of a particular brand of tea by three outlets. A, B and C during the months Jan, Feb, Mar and Apr, 2018.
दिया गया दंड आरेख तीन आउटलेट A, B और C के द्वारा तीन महीनों : फरवरी, मार्च और अप्रैल 2018 में एक विशेष ब्रांड की चाय की बिक्री (हज़ार किलो ग्राम में) को दर्शाता है |



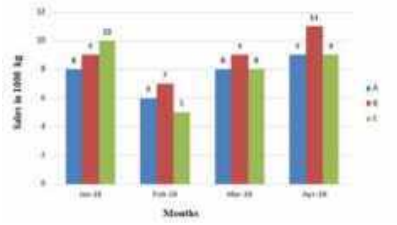
What is the average sale per month by A during Jan-Mar, 2018?
जनवरी से मार्च 2018 तक A की प्रतिमाह औसत बिक्री कितनी रही है ?
SSC CHSL 9 July 2019 (Evening)
(a)7333.33 kg
(b)7505 kg
(c)7334.67 kg
(d)5500 kg

Q138.The given Bar Graph presents the sale (in 1000 kg) of a particular brand of tea by three outlets. A, B and C during the months Jan, Feb, Mar and Apr, 2018.
दिया गया दंड आरेख तीन आउटलेट A, B और C के द्वारा तीन महीनों : फरवरी, मार्च और अप्रैल 2018 में एक विशेष ब्रांड की चाय की बिक्री (हज़ार किलो ग्राम में) को दर्शाता है |



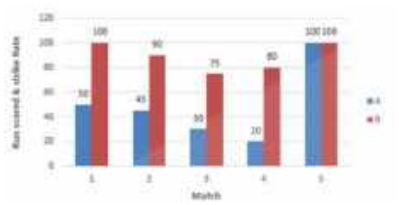
By how much quantity is the average sale per month from B more or less than that from C?
B की प्रतिमाह औसत बिक्री C की प्रतिमाह औसत बिक्री से कितनी अधिक या कम है ?
SSC CHSL 9 July 2019 (Evening)
(a)More by 500 kg/ 500 किलो ग्राम अधिक
(b)Less by 1000 kg/ 1000 किलो ग्राम कम
(c)Less by 800 kg/ 800 किलो ग्राम कम
(d)More by 1000 kg/ 1000 किलो ग्राम अधिक

Q139. The given Bar Graph presents the sale (in 1000 kg) of a particular brand of tea by three outlets. A, B and C during the months Jan, Feb, Mar and Apr, 2018.
दिया गया दंड आरेख तीन आउटलेट A, B और C के द्वारा तीन महीनों : फरवरी, मार्च और अप्रैल 2018 में एक विशेष ब्रांड की चाय की बिक्री (हज़ार किलो ग्राम में) को दर्शाता है |



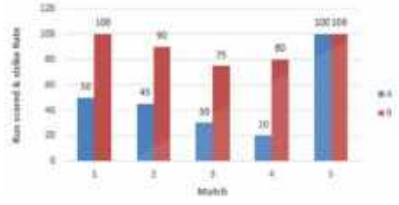
Arrange the ratio of sales from B to that from A and C, taken together, month wise in ascending order.
B की बिक्री तथा A एवं C की कुल बिक्री के अनुपात को महीने के अनुसार आरोही क्रम में व्यवस्थित करें |
SSC CHSL 9 July 2019 (Evening)
(a)Jan, Mar, Feb, Apr/ जनवरी, मार्च, फरवरी, अप्रैल
(b)Jan, Mar, Apr, Feb/ जनवरी, मार्च, अप्रैल, फरवरी
(c)Jan, Feb, Mar, Apr/ जनवरी, फरवरी, मार्च, अप्रैल
(d)Jan, Apr, Mar, Feb/ जनवरी, अप्रैल, मार्च , फरवरी

Q140.The given Bar Graph presents the runs scored (A) and strike rate (B) of a batsman in live matches. Strike Rate is the number of runs scored per 100 balls faced. The strike rate (B) is taken on record only when the batsman scores at least 30 runs in a match.
दिया गया दंड आरेख एक बल्लेबाज़ के द्वारा बनाए गए रनों (A) और स्ट्राइक रेट (B) को दर्शाता है | स्ट्राइक रेट प्रति 100 गेंदों का सामना करने पर बनाए गए रनों की संख्या है| स्ट्राइक रेट (B) को रिकॉर्ड में तभी शामिल किया जाता है जब बल्लेबाज एक मैच में कम से कम 30 रन बनाता है |



What is the average strike rate of the batsman?
बल्लेबाज़ का औसत स्ट्राइक रेट कितना है ?
SSC CHSL 10 July 2019 (Morning)
(a)89
(b)91.25
(c)90.75
(d)95.5

Q141.The given Bar Graph presents the runs scored (A) and strike rate (B) of a batsman in live matches. Strike Rate is the number of runs scored per 100 balls faced. The strike rate (B) is taken on record only when the batsman scores at least 30 runs in a match.
दिया गया दंड आरेख एक बल्लेबाज़ के द्वारा बनाए गए रनों (A) और स्ट्राइक रेट (B) को दर्शाता है | स्ट्राइक रेट प्रति 100 गेंदों का सामना करने पर बनाए गए रनों की संख्या है| स्ट्राइक रेट (B) को रिकॉर्ड में तभी शामिल किया जाता है जब बल्लेबाज एक मैच में कम से कम 30 रन बनाता है |

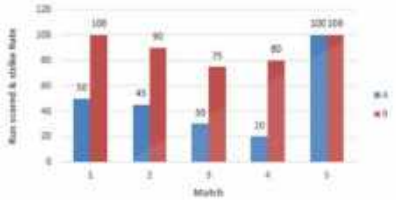


How many balls did the batsman face in the third match?
तीसरे मैच में बल्लेबाज़ ने कितनी गेंदों का सामना किया ?
SSC CHSL 10 July 2019 (Morning)
(a)60
(b)30
(c)40
(d)50

Pinnacle

Q142.The given Bar Graph presents the runs scored (A) and strike rate (B) of a batsman in live matches. Strike Rate is the number of runs scored per 100 balls faced. The strike rate (B) is taken on record only when the batsman scores at least 30 runs in a match.

दिया गया दंड आरेख एक बल्लेबाज़ के द्वारा बनाए गए रनों (A) और स्ट्राइक रेट (B) को दर्शाता है | स्ट्राइक रेट प्रति 100 गेंदों का सामना करने पर बनाए गए रनों की संख्या है| स्ट्राइक रेट (B) को रिकॉर्ड में तभी शामिल किया जाता है जब बल्लेबाज एक मैच में कम से कम 30 रन बनाता है |



How many runs the batsman should have scored in the fifth match in as many balls he had faced in that match so that the average strike rate of the second and the fifth match becomes 120?

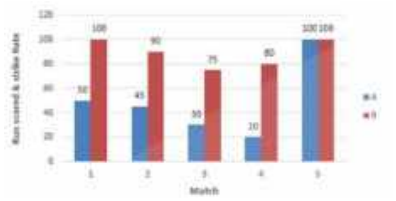
पांचवें मैच में बल्लेबाज को उसके द्वारा उस मैच में खेली गयी गेंदों पर कितने रन बनाने चाहिए थे ताकि दूसरे और पांचवें मैच का औसत स्ट्राइक रेट 120 हो जाता ?

SSC CHSL 10 July 2019 (Morning)

(a)150
(b)240
(c)160
(d)120

Q143.The given Bar Graph presents the runs scored (A) and strike rate (B) of a batsman in live matches. Strike Rate is the number of runs scored per 100 balls faced. The strike rate (B) is taken on record only when the batsman scores at least 30 runs in a match.

दिया गया दंड आरेख एक बल्लेबाज़ के द्वारा बनाए गए रनों (A) और स्ट्राइक रेट (B) को दर्शाता है | स्ट्राइक रेट प्रति 100 गेंदों का सामना करने पर बनाए गए रनों की संख्या है| स्ट्राइक रेट (B) को रिकॉर्ड में तभी शामिल किया जाता है जब बल्लेबाज एक मैच में कम से कम 30 रन बनाता है |



What is the average run scored by the batsman in the five matches?

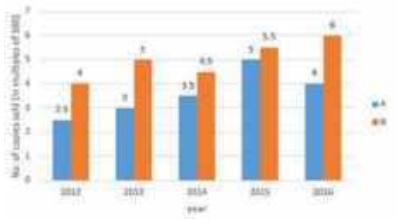
पांच मैचों में बल्लेबाज़ के द्वारा औसतन कितने रन बनाए गए हैं ?

SSC CHSL 10 July 2019 (Morning)

(a)50
(b)49
(c)45
(d)56.25

Q144.A book has been co-authored by X and Y. The prices of the book in India and abroad are Rs 800 and Rs 1000 respectively. The royalties earned on sale in India and abroad are 10% and 16% respectively. The royalty amount is distributed among X and Y in the ratio 5:3. The given Bar Graph presents the number of copies of the book sold in India (A) and abroad (B) during 2012-16.

एक पुस्तक X और Y के द्वारा मिलकर लिखी गयी है | भारत और विदेश में पुस्तक की कीमतें क्रमशः 800 और 1000 रुपये हैं | भारत और विदेश में बिक्री पर मिलने वाली रॉयल्टी क्रमशः 10% और 16% है | रॉयल्टी की राशि का X और Y के बीच 5 : 3 के अनुपात में वितरण किया जाता है | दिया गया दंड आरेख 2012-16 के दौरान भारत (A) और विदेश (B) में इस पुस्तक की बेची गयी प्रतियों की संख्या को दर्शाता है |



What is the ratio of royalties earned in the following cases-By X for sale of books in India in 2013 and 2014 and By Y for sale of books abroad in 2015 and 2016?

निम्नलिखित मामलों में प्राप्त की गयी रॉयल्टी का अनुपात क्या है -

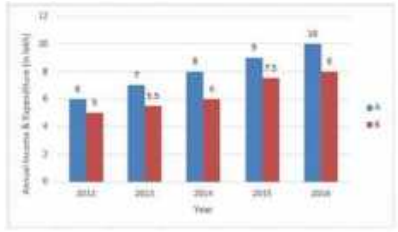
X के द्वारा 2013 और 2014 में पुस्तकों की भारत में हुई बिक्री पर तथा Y के द्वारा 2015 और 2016 में पुस्तकों की विदेश में हुई बिक्री पर ?

SSC CHSL 10 July 2019 (Afternoon)

(a)62:117
(b)63:130
(c)65:138
(d)64:135

Q145. The given Bar Graph presents the data of annual income (A) and annual expenditure (B) of an IT officer in a multi-national company during the years 2012 to 2016.

दिया गया दंड आरेख वर्ष 2012 से 2016 के दौरान किसी बहुराष्ट्रीय कंपनी में कार्यरत एक आईटी अधिकारी अधिकारी की वार्षिक आय (A) और वार्षिक व्यय (B) के आंकड़ों को दर्शाता है |

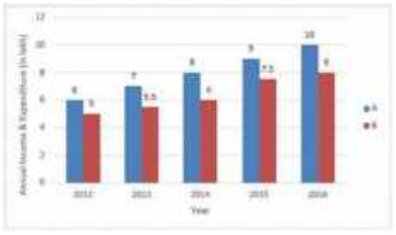


For which pair of years, the ratio of savings to expenditure is equal?

किन दो वर्षो में, बचत और व्यय का अनुपात बराबर है ?

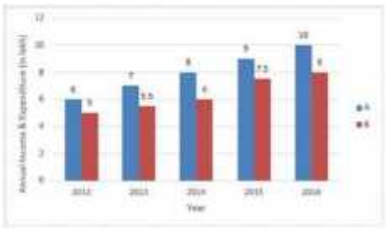
SSC CHSL 10 July 2019 (Evening)
(a)2012,2013
(b)2013,2014
(c)2014,2015
(d)2012,2015

Q146.The given Bar Graph presents the data of annual income (A) and annual expenditure (B) of an IT officer in a multi-national company during the years 2012 to 2016.
दिया गया दंड आरेख वर्ष 2012 से 2016 के दौरान किसी बहुराष्ट्रीय कंपनी में कार्यरत एक आईटी अधिकारी अधिकारी की वार्षिक आय (A) और वार्षिक व्यय (B) के आंकड़ों को दर्शाता है |



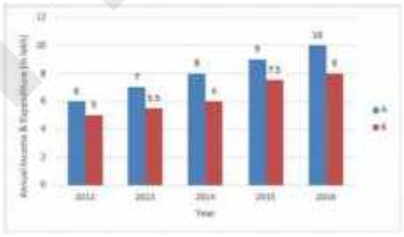
What was his average monthly savings (in Rs) in 2015 and 2016, taken together (correct to two decimal places)?
2015 और 2016 को मिलाकर उसकी औसत मासिक बचत (रुपये में) कितनी थी ? (दशमलव के दो स्थान तक)
SSC CHSL 10 July 2019 (Evening)
(a)14,506.33
(b)14,967.67
(c)13,687.67
(d)14,583.33

Q147. The given Bar Graph presents the data of annual income (A) and annual expenditure (B) of an IT officer in a multi-national company during the years 2012 to 2016.
दिया गया दंड आरेख वर्ष 2012 से 2016 के दौरान किसी बहुराष्ट्रीय कंपनी में कार्यरत एक आईटी अधिकारी अधिकारी की वार्षिक आय (A) और वार्षिक व्यय (B) के आंकड़ों को दर्शाता है |



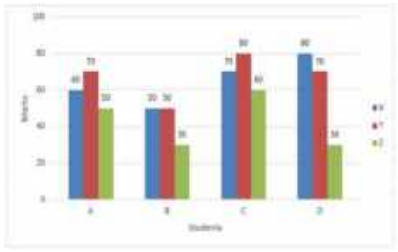
What is the percentage of his total savings with reference to his total income for the period 2012-15?
2012 से 2015 की अवधि में उसकी कुल आय के संदर्भ में उसकी कुल बचत का प्रतिशत कितना है ?
SSC CHSL 10 July 2019 (Evening)
(a)30
(b)27.5
(c)25
(d)20

Q148.The given Bar Graph presents the data of annual income (A) and annual expenditure (B) of an IT officer in a multi-national company during the years 2012 to 2016.
दिया गया दंड आरेख वर्ष 2012 से 2016 के दौरान किसी बहुराष्ट्रीय कंपनी में कार्यरत एक आईटी अधिकारी अधिकारी की वार्षिक आय (A) और वार्षिक व्यय (B) के आंकड़ों को दर्शाता है |



What is the ratio between the ratios of savings to expenditure, respectively for the periods 2012-13 and 2015-16?
बचत और व्यय के अनुपात के बीच क्रमशः वर्ष 2012-13 और 2015-16 के लिए अनुपात ज्ञात करें |
SSC CHSL 10 July 2019 (Evening)
(a)146:135
(b)155:147
(c)21:34
(d)25:36

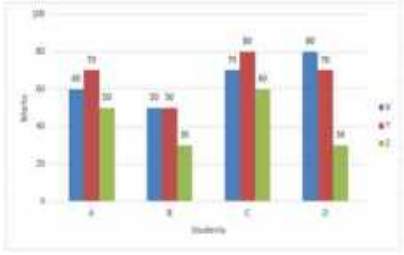
Q149.The full marks for a paper is 300. The break-up of the marks into theory (X), practical (Y) and project (Z), which are the three components of evaluation is 6:5:4. In order to pass one has to score at least 40%, 50% and 50% respectively in X,Y,Z and 60% in aggregate.The marks scored by four students A,B,C and D are shown in the given Bar Graph.
किसी विषय का पूर्णांक 300 है | मूल्यांकन के तीन घटकों - थ्योरी (X), प्रैक्टिकल (Y) और प्रोजेक्ट (Z) में अंकों को 6 : 5 : 4 के अनुपात में विभाजित किया जाता है | पास करने के लिए, एक छात्र को X, Y, Z में क्रमशः 40%, 50% और 50% प्राप्त करना तथा समग्र रूप से 60% प्राप्त करना अनिवार्य है | चार छात्रों A, B, C और D के द्वारा प्राप्त किये गए अंकों को दिए गए दंड आरेख में प्रस्तुत किया गया है |



How much percentage marks more than B has C scored in practical?
C ने प्रैक्टिकल में B की तुलना में कितने प्रतिशत अधिक अंक प्राप्त किये हैं ?
SSC CHSL 11 July 2019 (Morning)
(a)40
(b)30
(c)60
(d)20

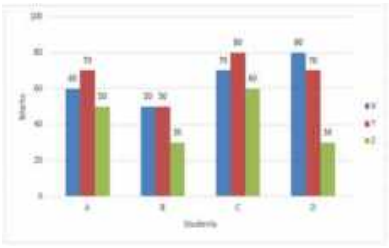
Q150. The full marks for a paper is 300. The break-up of the marks into theory (X), practical (Y) and project (Z), which are the three components of evaluation is

6:5:4. In order to pass one has to score at least 40%, 50% and 50% respectively in X,Y,Z and 60% in aggregate.The marks scored by four students A,B,C and D are shown in the given Bar Graph.
किसी विषय का पूर्णांक 300 है | मूल्यांकन के तीन घटकों - थ्योरी (X), प्रैक्टिकल (Y) और प्रोजेक्ट (Z) में अंकों को 6 : 5 : 4 के अनुपात में विभाजित किया जाता है | पास करने के लिए, एक छात्र को X, Y, Z में क्रमशः 40%, 50% और 50% प्राप्त करना तथा समग्र रूप से 60% प्राप्त करना अनिवार्य है | चार छात्रों A, B, C और D के द्वारा प्राप्त किये गए अंकों को दिए गए दंड आरेख में प्रस्तुत किया गया है |



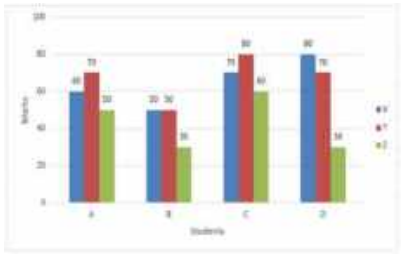
Arrange the students B, C and D according to the ascending order of the aggregate marks scored by them.
छात्रों B, C और D को उनके द्वारा प्राप्त किये गए समग्र अंकों के आरोही क्रम में व्यवस्थित करें |
SSC CHSL 11 July 2019 (Morning)
(a)B,D,C
(b)B,C,D
(c)C,D,B
(d)D,B,C

Q151.The full marks for a paper is 300. The break-up of the marks into theory (X), practical (Y) and project (Z), which are the three components of evaluation is 6:5:4. In order to pass one has to score at least 40%, 50% and 50% respectively in X,Y,Z and 60% in aggregate.The marks scored by four students A,B,C and D are shown in the given Bar Graph.
किसी विषय का पूर्णांक 300 है | मूल्यांकन के तीन घटकों - थ्योरी (X), प्रैक्टिकल (Y) और प्रोजेक्ट (Z) में अंकों को 6 : 5 : 4 के अनुपात में विभाजित किया जाता है | पास करने के लिए, एक छात्र को X, Y, Z में क्रमशः 40%, 50% और 50% प्राप्त करना तथा समग्र रूप से 60% प्राप्त करना अनिवार्य है | चार छात्रों A, B, C और D के द्वारा प्राप्त किये गए अंकों को दिए गए दंड आरेख में प्रस्तुत किया गया है |



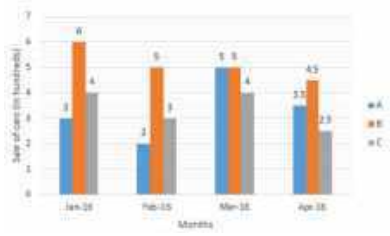
What is the average marks of the four students in theory?
थ्योरी में चारों छात्रों के औसत कितने अंक हैं ?
SSC CHSL 11 July 2019 (Morning)
(a)60
(b)65
(c)70
(d)68

Q152.The full marks for a paper is 300. The break-up of the marks into theory (X), practical (Y) and project (Z), which are the three components of evaluation is 6:5:4. In order to pass one has to score at least 40%, 50% and 50% respectively in X,Y,Z and 60% in aggregate.The marks scored by four students A,B,C and D are shown in the given Bar Graph.
किसी विषय का पूर्णांक 300 है | मूल्यांकन के तीन घटकों - थ्योरी (X), प्रैक्टिकल (Y) और प्रोजेक्ट (Z) में अंकों को 6 : 5 : 4 के अनुपात में विभाजित किया जाता है | पास करने के लिए, एक छात्र को X, Y, Z में क्रमशः 40%, 50% और 50% प्राप्त करना तथा समग्र रूप से 60% प्राप्त करना अनिवार्य है | चार छात्रों A, B, C और D के द्वारा प्राप्त किये गए अंकों को दिए गए दंड आरेख में प्रस्तुत किया गया है |



Who among the students could not pass?
निम्न में से कौन सा छात्र पास नहीं कर सका ?
SSC CHSL 11 July 2019 (Morning)
(a)A only
(b)B and C
(c)B only
(d)B and D

Q153.The given bar graph presents the sale of a particular brand of car by three showrooms. A,B and C (in multiples of 100) during the months Jan, Feb, Mar and Apr,2016.
दिया गया दंड आरेख तीन शोरूम - A, B और C के द्वारा जनवरी, फरवरी, मार्च और अप्रैल 2016 के दौरान एक विशेष ब्रांड की कार की बिक्री (100 के गुणज में) को दर्शाता है |



If the cars sold by A and B are all found to be in perfect order, but the cars sold by C were found to be defective to the extent of 15%, 10%, 8% and 6%, respectively in Jan, Feb, Mar and Apr 2016. What is the percentage of defective cars sold by all showrooms during Apr, 2016?
यदि A और B के द्वारा बेची गयी कारें पूरी तरह से ठीक पायी जाती हैं, लेकिन C के द्वारा जनवरी, फरवरी,

मार्च और अप्रैल 2016 में बेची गयी कारों में क्रमशः 15%, 10%, 8% और 6% तक की ख़राबी पायी जाती है, तो अप्रैल 2016 में सभी शोरूम के द्वारा बेची गयी खराब कारों का प्रतिशत क्या है ?

SSC CHSL 11 July 2019 (Afternoon)

(a)$4\frac{4}{9}$

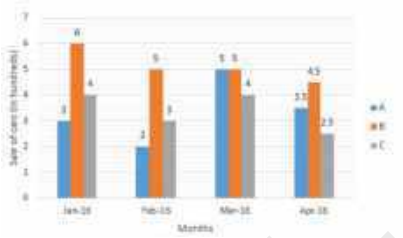
(b)$1\frac{3}{7}$

(c)$2\frac{4}{9}$

(d)$7\frac{2}{3}$

Q154.The given bar graph presents the sale of a particular brand of car by three showrooms. A,B and C (in multiples of 100) during the months Jan, Feb, Mar and Apr,2016.

दिया गया दंड आरेख तीन शोरूम - A, B और C के द्वारा जनवरी, फरवरी, मार्च और अप्रैल 2016 के दौरान एक विशेष ब्रांड की कार की बिक्री (100 के गुणज में) को दर्शाता है |



what is the ratio of number of cars sold by A in Jan-Feb, 2016 to that of cars sold by B during Mar-Apr, 2016?

जनवरी-फरवरी 2016 में A के द्वारा बेची गयी कारों की संख्या एवं मार्च-अप्रैल 2016 में B के द्वारा बेची गयी कारों की संख्या के बीच अनुपात ज्ञात करें |

SSC CHSL 11 July 2019 (Afternoon)

(a)5:8

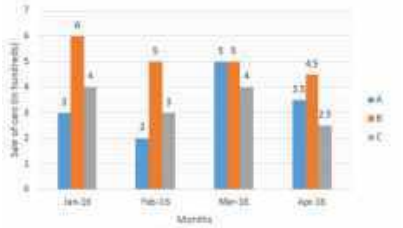
(b)8:17

(c)12:19

(d)10:19

Q155.The given bar graph presents the sale of a particular brand of car by three showrooms. A,B and C (in multiples of 100) during the months Jan, Feb, Mar and Apr,2016.

दिया गया दंड आरेख तीन शोरूम - A, B और C के द्वारा जनवरी, फरवरी, मार्च और अप्रैल 2016 के दौरान एक विशेष ब्रांड की कार की बिक्री (100 के गुणज में) को दर्शाता है |



What was the average number of cars sold by A during Feb-Apr, 2016?

फरवरी से अप्रैल 2016 के दौरान A के द्वारा बेची गयी कारों की औसत संख्या कितनी है ?

SSC CHSL 11 July 2019 (Afternoon)

(a)375

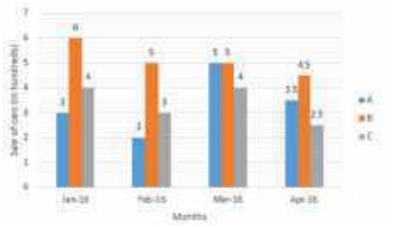
(b)350

(c)250

(d)300

Q156.The given bar graph presents the sale of a particular brand of car by three showrooms. A,B and C (in multiples of 100) during the months Jan, Feb, Mar and Apr,2016.

दिया गया दंड आरेख तीन शोरूम - A, B और C के द्वारा जनवरी, फरवरी, मार्च और अप्रैल 2016 के दौरान एक विशेष ब्रांड की कार की बिक्री (100 के गुणज में) को दर्शाता है |



If the cars sold by A and B are all found to be in perfect order, but the cars sold by C were found to be defective to the extent of 15%, 10%,8% and 6%, respectively in Jan, Feb, Mar and Apr 2016, then what is the ratio of non-defective cars sold by C to that of all cars sold by A and B during Jan-Mar 2016?

यदि A और B के द्वारा बेची गयी कारें पूरी तरह से ठीक पायी जाती हैं, लेकिन C के द्वारा जनवरी, फरवरी, मार्च और अप्रैल 2016 में बेची गयी कारों में क्रमशः 15%, 10%, 8% और 6% तक की ख़राबी पायी जाती है, तो जनवरी से मार्च 2016 के दौरान C के द्वारा बेची गयी ठीक कारों तथा A और B के द्वारा बेची गयी सभी कारों में अनुपात ज्ञात करें |

SSC CHSL 11 July 2019 (Afternoon)

(a)177:1400

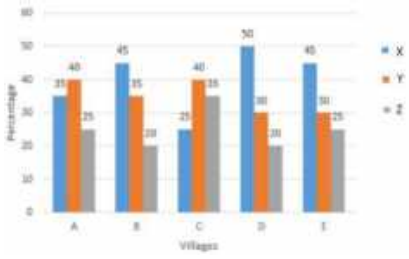
(b)384:1385

(c)489:1300

(d)255:1348

Q157.The given Bar Graph presents the percentages of population in the age groups. X(above 50 years), Y(20 to 50 years). Z(below 20 years) in five different villages. A,B,C,D and E with total population of 5000, 6000, 8000, 4500 and 6000 respectively

दिया गया दंड आरेख पांच गाँवों - A, B, C, D और E, जिनकी कुल आबादी क्रमशः 5000, 6000, 8000, 4500 और 6000 है, वहां आबादी के प्रतिशत को आयु वर्गों में प्रस्तुत करता है : X (50 वर्ष से अधिक), Y (20 से 50 वर्ष), Z (20 वर्ष से कम)



The number of persons having ages below 20 years in villages, B and C takes together is what percentage of the total population of the said villages?

B और C गाँव में 20 वर्ष से कम उम्र के लोगों की संख्या इन गाँवों की कुल आबादी का कितना प्रतिशत है ?

SSC CHSL 11 July 2019 (Evening)

(a) $\frac{190}{7}$

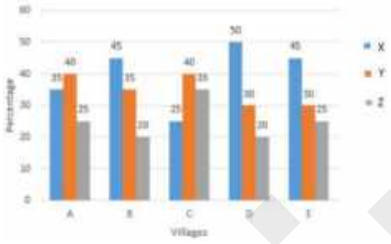
(b) $\frac{186}{5}$

(c) $\frac{200}{7}$

(d) $\frac{184}{5}$

Q158.The given Bar Graph presents the percentages of population in the age groups. X(above 50 years), Y(20 to 50 years). Z(below 20 years) in five different villages. A,B,C,D and E with total population of 5000, 6000, 8000, 4500 and 6000 respectively.

दिया गया दंड आरेख पांच गाँवों - A, B, C, D और E, जिनकी कुल आबादी क्रमशः 5000, 6000, 8000, 4500 और 6000 है, वहां आबादी के प्रतिशत को आयु वर्गों में प्रस्तुत करता है : X (50 वर्ष से अधिक), Y (20 से 50 वर्ष), Z (20 वर्ष से कम)



what is the total number of persons in the age group of 20 to 50 years in the villages A and B, taken together?

गाँव A तथा B को मिलाकर 20 से 50 वर्ष के आयु वर्ग में लोगों की संख्या कुल कितनी है ?

SSC CHSL 11 July 2019 (Evening)

(a)4300

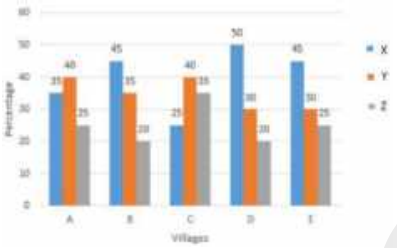
(b)4200

(c)4100

(d)4000

Q159.The given Bar Graph presents the percentages of population in the age groups. X(above 50 years), Y(20 to 50 years). Z(below 20 years) in five different villages. A,B,C,D and E with total population of 5000, 6000, 8000, 4500 and 6000 respectively.

दिया गया दंड आरेख पांच गाँवों - A, B, C, D और E, जिनकी कुल आबादी क्रमशः 5000, 6000, 8000, 4500 और 6000 है, वहां आबादी के प्रतिशत को आयु वर्गों में प्रस्तुत करता है : X (50 वर्ष से अधिक), Y (20 से 50 वर्ष), Z (20 वर्ष से कम)



The difference between the number of persons of ages below 20 years in villages D and E, taken together, is what percentage of the number of persons of the same age group in village D?

D और E गाँवों में 20 वर्ष से कम उम्र के लोगों की संख्या के बीच अंतर D गाँव में इसी आयु वर्ग के लोगों की संख्या का कितना प्रतिशत है ?

SSC CHSL 11 July 2019 (Evening)

(a) $\frac{190}{3}$

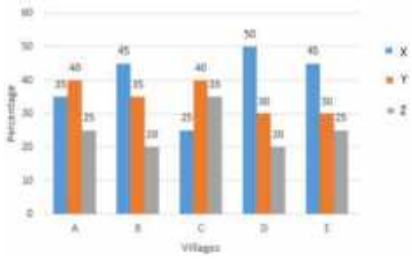
(b) $\frac{185}{3}$

(c) $\frac{182}{3}$

(d) $\frac{200}{3}$

Q160.The given Bar Graph presents the percentages of population in the age groups. X(above 50 years), Y(20 to 50 years). Z(below 20 years) in five different villages. A,B,C,D and E with total population of 5000, 6000, 8000, 4500 and 6000 respectively.

दिया गया दंड आरेख पांच गाँवों - A, B, C, D और E, जिनकी कुल आबादी क्रमशः 5000, 6000, 8000, 4500 और 6000 है, वहां आबादी के प्रतिशत को आयु वर्गों में प्रस्तुत करता है : X (50 वर्ष से अधिक), Y (20 से 50 वर्ष), Z (20 वर्ष से कम)



What is the ratio of the total number of persons of ages above 50 years in the villages, B and C, taken together to the total number of persons having ages between 20 and 50 years in the said villages?

B और C गाँवों को मिलाकर 50 वर्ष से अधिक उम्र वाले व्यक्तियों की कुल संख्या का इन गाँवों में 20 से 50 वर्ष की आयु के व्यक्तियों की कुल संख्या के साथ अनुपात ज्ञात करें |

SSC CHSL 11 July 2019 (Evening)

(a)49:57

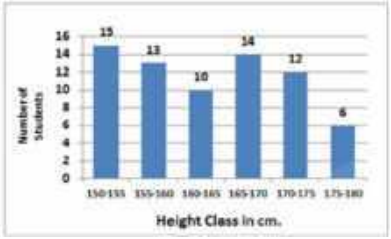
(b)47:53

(c)51:59

(d)24:27

Q161. In the given histogram, the number of students whose height is in the class interval 175-180 is what percent less than the number of students whose height is in the class interval 160-165? / दिए गए आयतचित्र में, ऐसे छात्रों की संख्या जिनकी लंबाई 175-180 वर्ग अंतराल में है, 160-165 वर्ग अंतराल लंबाई वाले छात्रों की संख्या से कितना प्रतिशत कम है ?

SSC CPO 12 March 2019 (Evening)

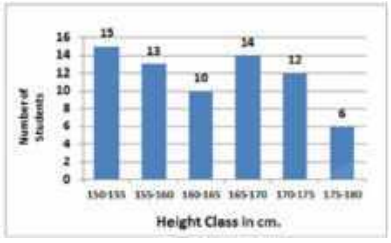


(a) $\frac{50}{3}$ %

(b) 40%

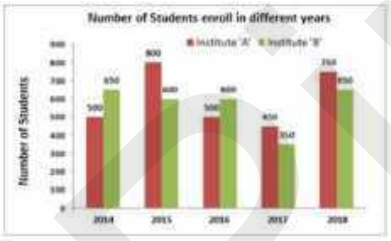
(c) 60%
(d) $\frac{200}{3}$ %

Q162. In the given histogram, which class is the median class?
दिए गए आयतचित्र में कौन सा वर्ग मध्यिका वर्ग है ?
SSC CPO 12 March 2019 (Evening)



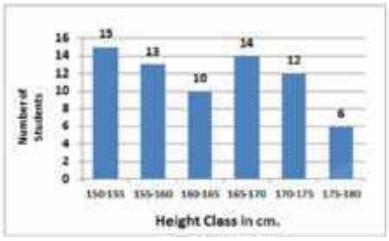
(a) 150 - 155
(b) 155 - 160
(c) 160 - 165
(d) 165 - 175

Q163. In the given bar graph, the percentage decrease in the number of students in Institute A in 2016 is what percent of students in 2015.
इस दंड आरेख में संस्थान A में 2016 में छात्रों की संख्या में प्रतिशत कमी 2015 के छात्रों की संख्या का क्या प्रतिशत है ?
SSC CPO 12 March 2019 (Evening)



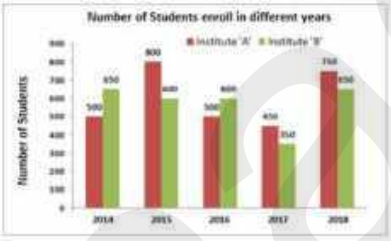
(a) 37.5%
(b) 35.5%
(c) 40.5%
(d) 39.5%

Q164. In the given histogram, what is the percentage of students whose height is in the class interval 165-170?
दिए गए आयतचित्र में उन छात्रों का प्रतिशत ज्ञात करें जिनकी लंबाई 165-170 वर्ग अंतराल में है ?



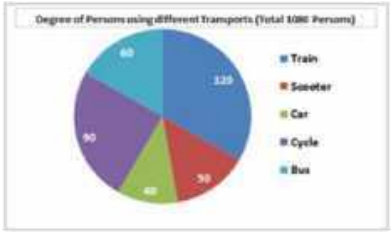
SSC CPO 12 March 2019 (Evening)
(a) 25%
(b) 20%
(c) 18%
(d) 15%

Q 165. In the given bar graph, what is the ratio of students of A and B in the combine strength from 2016 to 2018?
दिए गए दंड आरेख में 2016 से 2018 तक संयुक्त क्षमता में A और B के छात्रों का अनुपात क्या रहा है ?



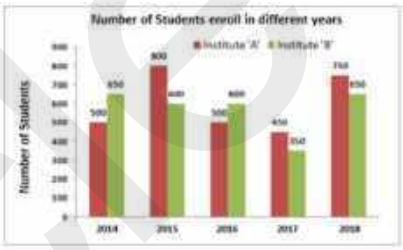
SSC CPO 12 March 2019 (Evening)
(a) 19:20
(b) 20:19
(c) 23:21
(d) 17:16

Q166. In the given pie-chart, the number of persons using a car is what percentage of persons using a scooter?
दिए गए दंड आरेख में कार का प्रयोग करने वाले लोगों की संख्या स्कूटर का इस्तेमाल करने वाले लोगों की संख्या का क्या प्रतिशत है ?



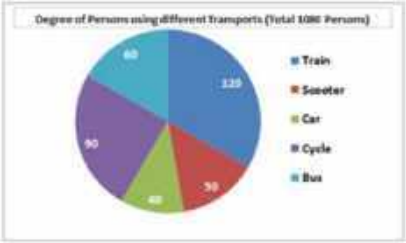
SSC CPO 12 March 2019 (Evening)
(a) 60%
(b) 75%
(c) 80%
(d) 50%

Q167. In the given bar graph, the number of students enrolled in institute B in the year 2016 is what percentage of students enrolled in institute A in 2016? / दिए गए दंड आरेख में, 2016 में संस्थान B में नामांकित छात्रों की संख्या 2016 में संस्थान A में नामांकित छात्रों की संख्या का क्या प्रतिशत है |



SSC CPO 12 March 2019 (Evening)
(a) 120%
(b) $\frac{250}{3}$ %
(c) 85%
(d) $\frac{325}{6}$ %

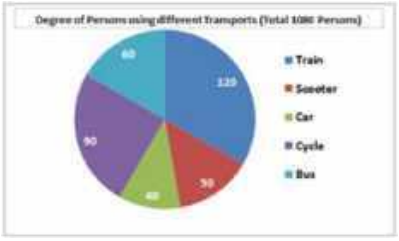
Q 168. In the given pie-chart, what is the ratio of total number of persons using train and car together to the total number of persons using other modes of transport to reach their workplace? / दिए गए पाई चार्ट में, कार्यस्थल तक पहुँचने के लिए ट्रेन एवं कार दोनों का एक साथ प्रयोग करने वाले लोगों की कुल संख्या तथा परिवहन के अन्य साधनों का प्रयोग करने वाले लोगों की संख्या में क्या अनुपात है ?



SSC CPO 12 March 2019 (Evening)
(a) 3:5

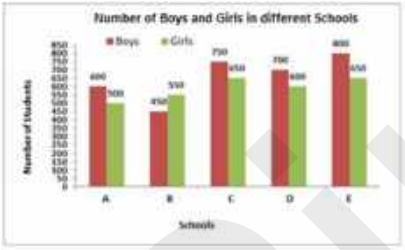
(b) 5:3
(c) 5:6
(d) 4:5

Q 169. In the given pie-chart, how many person are using train to reach their workplace? / दिए गए पाई चार्ट में कितने लोग अपने कार्यस्थल तक पहुँचने के लिए ट्रेन का प्रयोग करते हैं ?



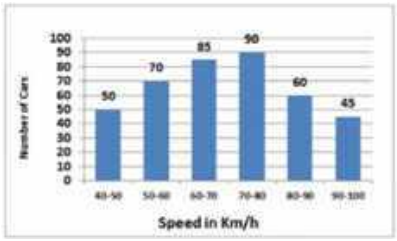
SSC CPO 12 March 2019 (Evening)
(a) 380
(b) 400
(c) 320
(d) 360

Q170. In the given bar graph, in which college, the percentage of boys is the highest ? / दिए गए दंड आरेख के अनुसार किस कॉलेज में लड़कों का प्रतिशत उच्चतम है ?



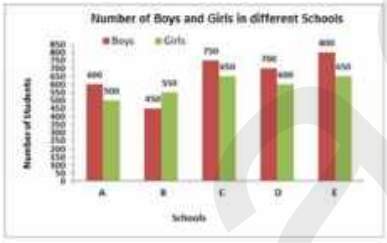
SSC CPO 13 March 2019 (Evening)
(a)C
(b)D
(c)E
(d)A

Q171. In the given histogram, what is the mean speed of cars (in km/h) to nearest whole number? / दिए गये आयत चित्र में, निकटतम पूर्ण संख्या तक कारों की औसत चाल (किमी/घंटा में) क्या है ?
SSC CPO 13 March 2019 (Evening)



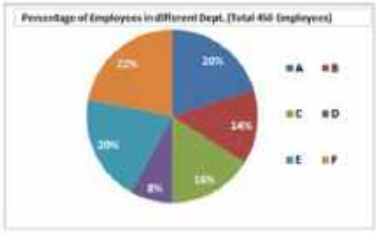
(a)69
(b)70
(c)72
(d)71

Q172. In the given bar graph, what is the ratio of the total boys and girls in all schools? / दिए गए दंड आरेख के अनुसार सभी विद्यालयों में कुल लड़कों एवं लड़कियों में क्या अनुपात है ?
SSC CPO 13 March 2019 (Evening)



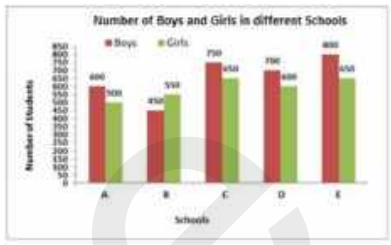
(a)65: 63
(b)59: 66
(c)65: 58
(d)66: 59

Q173. In the given pie-chart, if the female employees in department D is 75%, then how many male employees are in that department? / दिए गए पाई चार्ट में, यदि विभाग D में महिला कर्मचारी 75% हैं, तो उस विभाग में कितने पुरुष कर्मचारी हैं ?
SSC CPO 13 March 2019 (Evening)



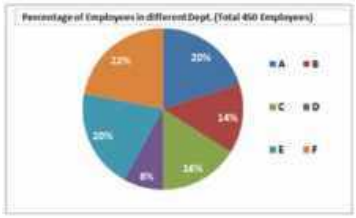
(a) 5
(b) 6
(c) 9
(d) 4

Q174. In the given bar graph, what is the average number of girls from all schools? / दिए गए दंड आरेख के अनुसार सभी विद्यालयों से लड़कियों की औसत संख्या क्या है ?
SSC CPO 13 March 2019 (Evening)



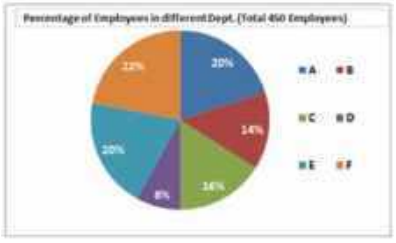
(a) 575
(b) 595
(c) 580
(d) 590

Q175. In the given pie-chart, what is the number of employees working in department A? / दिए गए पाई चार्ट के अनुसार विभाग A में कार्य करने वाले कर्मचारियों की संख्या कितनी है ?
SSC CPO 13 March 2019 (Evening)



(a) 960
(b) 90
(c) 80
(d) 85

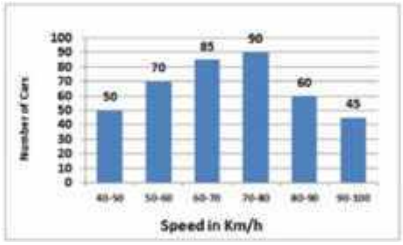
Q176. In the given pie-chart, what is the central angle of the sector representing the number of employees in the department D? दिए गये पाई चार्ट के अनुसार विभाग D में कर्मचारियों की संख्या दर्शाने वाले खंड का केंद्रीय कोण क्या है ?
SSC CPO 13 March 2019 (Evening)



(a) 28.8^0
(b) 29.6^0
(c) 29.2^0
(d) 29.8^0

Q177. In the given histogram, what percentage of cars were running with the speed less than 60 km/h? / दिए गए आयत चित्र में कितनी प्रतिशत कारें 60 किमी/घंटा से कम की चाल पर चल रही थीं ?

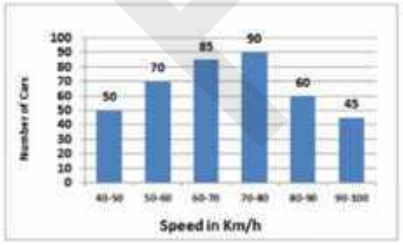
SSC CPO 13 March 2019 (Evening)



(a) 30%
(b) 35%
(c) 25%
(d) 28%

Q178. In the given histogram, in which class interval, the median lies?
दिए गए आयत चित्र में, किस वर्ग अंतराल में मध्यिका अवस्थित है ?

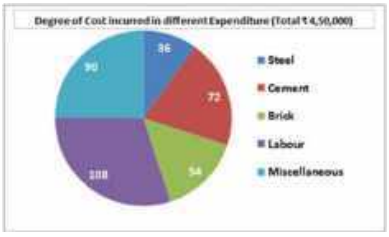
SSC CPO 13 March 2019 (Evening)



(a) 70-80
(b) 60-70
(c) 80-90
(d) 50-60

Q 179. In the given pie-chart, what is the total expenditure (in %) on labour charges? / दिए गए पाई चार्ट के अनुसार पारिश्रमिक पर कुल व्यय (% में) कितना है ?

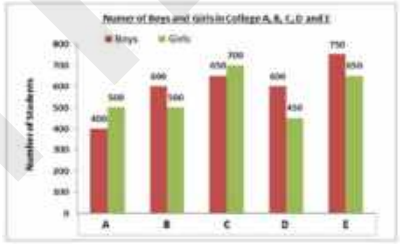
SSC CPO 12 March 2019 (Morning)



(a) 25%
(b) 20%
(c) 18%
(d) 30%

Q 180. In the given bar graph, in which college the difference between the percentage of boys and girls is maximum,by taking total number of students as base for that college? / दिए गए दंड आरेख के अनुसार किस कॉलेज में उस कॉलेज के छात्रों की कुल संख्या को आधार मानकर लड़के एवं लड़कियों के प्रतिशत में सर्वाधिक अंतर है ?

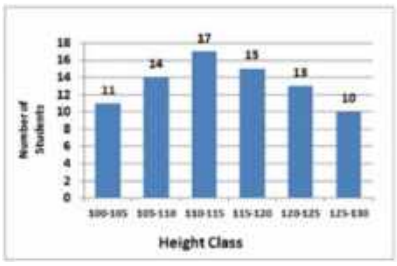
SSC CPO 12 March 2019 (Morning)



(a) E
(b) B
(c) D
(d) A

Q 181. In the given histogram,what is the mean height of all students correct to one decimal place? / दिए गए आयतचित्र में, एक दशमलव स्थान तक सभी छात्रों की औसत लंबाई क्या है ?

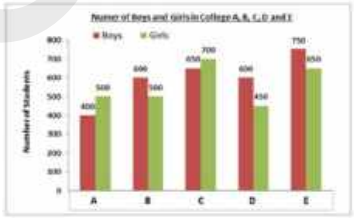
SSC CPO 12 March 2019 (Morning)



(a) 116.8 cm
(b) 114.7 cm
(c) 116.2 cm
(d) 115.6 cm

Q 182. In the given bar graph, what is the average number of girls in all colleges?
दिए गए दंड आरेख के अनुसार सभी कॉलेजों में लड़कियों की औसत संख्या क्या है ?

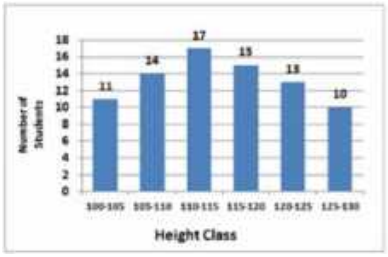
SSC CPO 12 March 2019 (Morning)



(a) 560
(b) 540
(c) 550
(d) 600

Q 183. In the given histogram,what percentage of students have height in the interval of 105-110? / दिए गए आयत चित्र के अनुसार कितने प्रतिशत छात्रों की लंबाई वर्ग अंतराल 105-110 में आती है ?

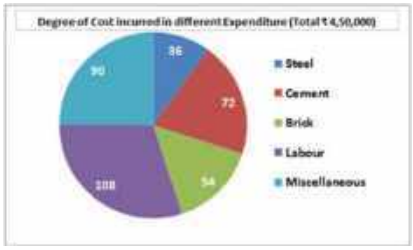
SSC CPO 12 March 2019 (Morning)



(a) 17.5 %
(b) 18 %

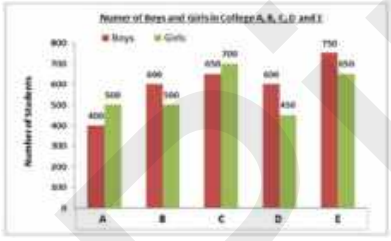
(c) 16.5 %
(d) 17 %

Q 184. In the given pie-chart, the expenditure on steel is what percent of the expenditure on cement? / दिए गए पाई चार्ट के अनुसार इस्पात पर किया गया व्यय सीमेंट पर किये गए व्यय का कितना प्रतिशत है ?
SSC CPO 12 March 2019 (Morning)



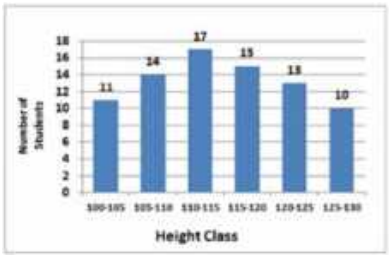
(a) 55%
(b) 50%
(c) 40%
(d) 45%

Q 185. In the given bar graph, what is the ratio of the total boys and girls in all 5 colleges? / दिए गए दंड आरेख के अनुसार, सभी 5 कॉलेजों में कुल लड़कों एवं लड़कियों में क्या अनुपात है ?
SSC CPO 12 March 2019 (Morning)



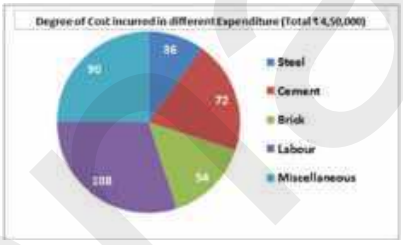
(a) 13 : 12
(b) 14 : 15
(c) 15 : 14
(d) 12 : 13

Q 186. In the given histogram, in which class does the median height of the students lie ? / दिए गए आयत चित्र के अनुसार छात्रों की मध्यिका लंबाई किस वर्ग में आती है ?
SSC CPO 12 March 2019 (Morning)



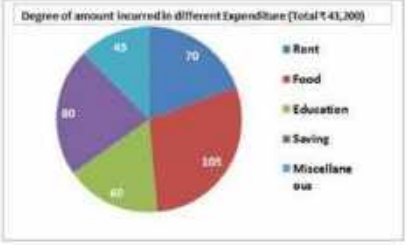
(a) 120 - 125
(b) 105 - 110
(c) 115 - 120
(d) 110 - 115

Q187. In the given pie-chart, what is the ratio of the total expenditure on steel, cement and bricks to the total expenditure on labour and miscellaneous expenses? / दिए गए पाई चार्ट के अनुसार इस्पात, सीमेंट और ईंटो पर किये गए कुल व्यय का श्रम एवं विविध पर किये गए कुल व्ययों के साथ क्या अनुपात है ?
SSC CPO 12 March 2019 (Morning)



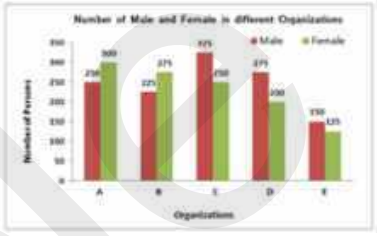
(a) 3 : 7
(b) 3 : 5
(c) 4 : 5
(d) 9 : 11

Q 188. In the given pie-chart, the amount spend on education is what percent of the savings? / दिए गए पाई चार्ट के अनुसार शिक्षा पर खर्च की गयी राशि बचत का कितना प्रतिशत है ?
SSC CPO 13 March 2019 (Morning)



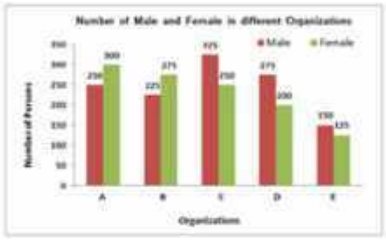
(a) 80%
(b) 60%
(c) 70%
(d) 75%

Q189. In the given bar graph, what is the average number of females in all five organisations ? / दिए गए दंड आरेख के अनुसार सभी पांच संगठनों में महिलाओं की औसत संख्या क्या है ?
SSC CPO 13 March 2019 (Morning)



(a) 245
(b) 235
(c) 230
(d) 225

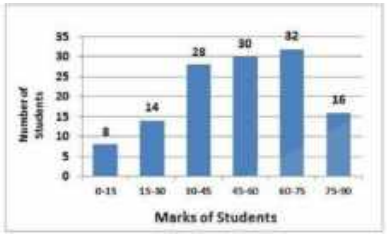
Q190. In the given bar graph, what is the ratio of the total males and females working in all organisations? / दिए गए दंड आरेख के अनुसार सभी संगठनों में कार्य करने वाले पुरुषों तथा महिलाओं का अनुपात क्या है ?
SSC CPO 13 March 2019 (Morning)



(a) 49 : 46
(b) 35 : 46
(c) 46 : 40
(d) 46 : 35

Q191. In the given histogram, what percentage of students got marks less than 45? (Correct to one decimal place) / दिए गए आयत चित्र के अनुसार कितने प्रतिशत छात्रों को 45 से कम अंक मिले है ?

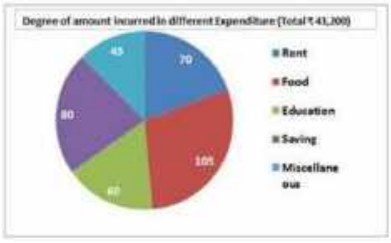
SSC CPO 13 March 2019 (Morning)



(a) 39.4%
(b) 39.1%
(c) 39.6%
(d) 38.8%

Q 192. In the given pie-chart, total expenditure together on rent and education is what percent less than total expenditure of food and miscellaneous items?
दिए गए पाई चार्ट के अनुसार किराया एवं शिक्षा पर किया गया कुल व्यय भोजन एवं विविध वस्तुओं पर किये गए कुल व्यय से कितना प्रतिशत कम है ?

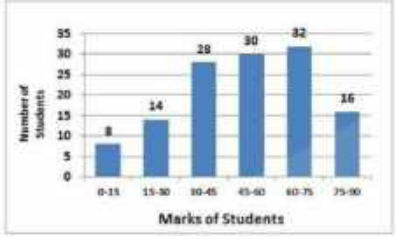
SSC CPO 13 March 2019 (Morning)



(a) 26%
(b) 30%
(c) $\frac{200}{13}$ %
(d) $\frac{40}{3}$ %

Q193. In the given histogram, in which class interval, the median marks lies?
दिए गए आयतचित्र में, मध्यिका अंक किस वर्ग अंतराल में आता है ?

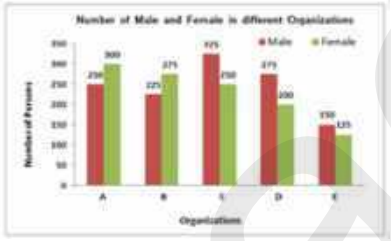
SSC CPO 13 March 2019 (Morning)



(a) 30-45
(b) 45-60
(c) 60-75
(d) 15-30

Q 194. In the given bar graph, in which organisation, the percentage difference between the males and females is maximum by considering total persons in that organisation as base? / दिए गए दंड आरेख के अनुसार किस संगठन में उस संगठन के सभी लोगों को आधार मानते हुए पुरुषों एवं महिलाओं का प्रतिशत अंतर अधिकतम है ?

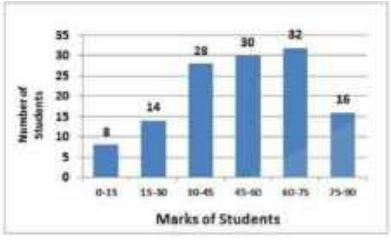
SSC CPO 13 March 2019 (Morning)



(a) D
(b) E
(c) B
(d) C

Q195. In the given histogram, what is the mean marks of the students, correct to one decimal place?
दिए गए आयतचित्र के अनुसार एक दशमलव स्थान तक छात्रों का माध्य अंक क्या है ?

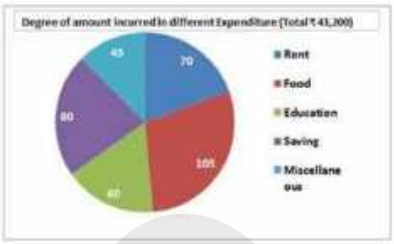
SSC CPO 13 March 2019 (Morning)



(a) 51.2
(b) 53.5
(c) 52.7
(d) 50.6

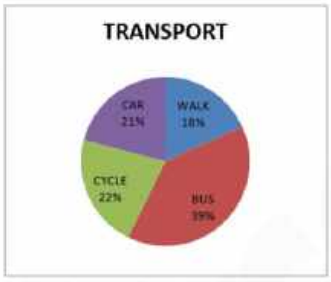
Q196. In the given pie-chart, what is the total expenditure on rent?
दिए गए पाई चार्ट के अनुसार किराए पर किया गया कुल व्यय कितना है ?

SSC CPO 13 March 2019 (Morning)



(a) Rs 8,400
(b) Rs 8,600
(c) Rs 8,800
(d) Rs 8,900

Q197. The given pie-chart depicts the percentage of students coming to school using different modes of transport. Total number of students=1300
दिया गया पाई चार्ट परिवहन के विभिन्न साधनों का प्रयोग करके विद्यालय आने वाले छात्रों का प्रतिशत दर्शाता है | छात्रों की कुल संख्या =1300

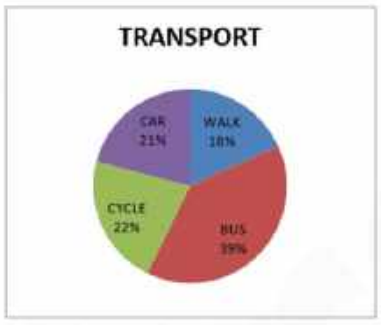


In the given pie-chart, if 234 students used to walk, then how many come by bus ? / दिए गए पाई-चार्ट में, यदि 234 छात्र चलकर आते हैं, तो कितने छात्र बस से आते हैं ?

SSC CPO 14 March 2019 (Morning)

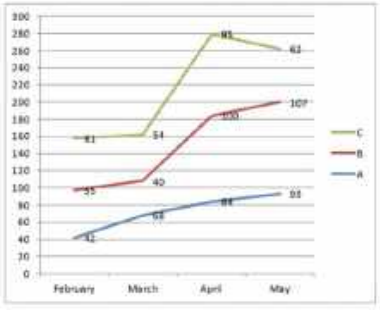
(a)507
(b)273
(c)432
(d)286

Q198. The given pie-chart depicts the percentage of students coming to school using different modes of transport. Total number of students=1300
दिया गया पाई चार्ट परिवहन के विभिन्न साधनों का प्रयोग करके विद्यालय आने वाले छात्रों का प्रतिशत दर्शाता है | छात्रों की कुल संख्या = 1300



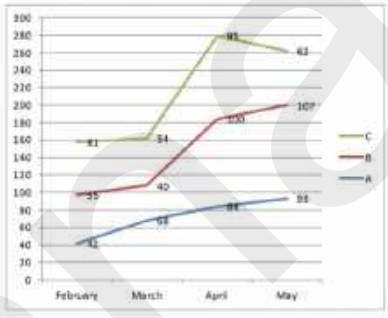
In the given pie-chart, the difference between the number of students travel by bus or walk to the number of students travel by car or cycle,
इस पाई चार्ट के अनुसार बस से या पैदल यात्रा करने वाले छात्रों की संख्या एवं कार अथवा साइकिल से यात्रा करने वाले छात्रों की संख्या में क्या अंतर है ?
SSC CPO 14 March 2019 (Morning)
(a)182
(b)364
(c)125
(d)142

Q199. The line graph shows electricity consumption (in units) for three households A, B and C for months February to May. / यह पंक्ति आलेख तीन घरों A, B तथा C के द्वारा फरवरी से मई महीने तक बिजली खपत को दर्शाता है|



In the given graph, the percentage increase in electricity consumption of 'B' between March and May is: / इस आरेख के अनुसार मार्च से मई के बीच B की बिजली खपत में कितने प्रतिशत की वृद्धि हुई है ?
SSC CPO 13 March 2019 (Morning)
(a) 95%
(b) 85%
(c) 167.5%
(d) 98%

Q200. The line graph shows electricity consumption(in units) for three households A, B and C for months February to May.
यह पंक्ति आलेख तीन घरों A, B तथा C के द्वारा फरवरी से मई महीने तक बिजली खपत (यूनिट में) को दर्शाता है|

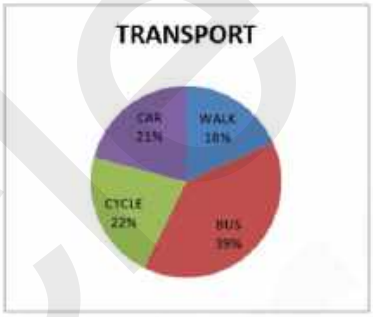


If per unit rate chart is:
यदि प्रति यूनिट दर चार्ट इस प्रकार है :

Units यूनिट	Rate per unit(rs) प्रति यूनिट दर
First 50	2.40
Next 50	3.50
Above 100	5.50

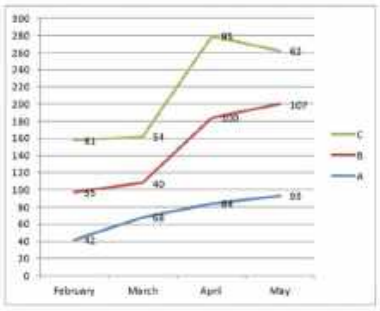
In the given line graph, the electricity charges collected from all(A, B and C) for the month of February is: / दिए गए पंक्ति आरेख के अनुसार, फरवरी माह में सभी (A, B और C) से वसूला गया विद्युत शुल्क है -
SSC CPO 13 March 2019 (Morning)
(a) Rs 348.00
(b) Rs 474.20
(c) Rs 396.80
(d) Rs 506.8

Q 201. The given pie-chart depicts the percentage of students coming to school using modes of transport. Total number of students=1300
दिया गया पाई चार्ट परिवहन के विभिन्न साधनों का प्रयोग करके विद्यालय आने वाले छात्रों का प्रतिशत दर्शाता है | छात्रों की कुल संख्या 1300



In the given pie-chart, the percentage difference between students coming by car or bus to coming by walking or cycling.
दिए गए पाई चार्ट के अनुसार, कार अथवा बस से विद्यालय आने वाले छात्रों तथा पैदल या साइकिल से विद्यालय आने वाले छात्रों के बीच प्रतिशत अंतर ज्ञात करें |
SSC CPO 13 March 2019 (Morning)
(a)15%
(b)25%
(c)20%
(d)30%

Q202. The line graph shows electricity consumption (in units) for three households A, B and C for months February to May,
यह पंक्ति आलेख तीन घरों A, B तथा C के द्वारा फरवरी से मई महीने तक बिजली खपत (यूनिट में) को दर्शाता है|

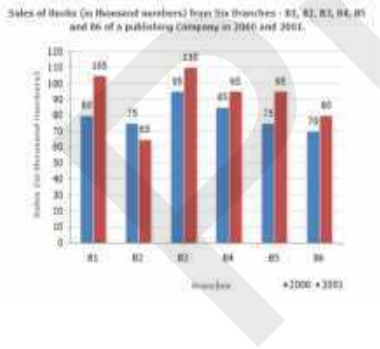


In the given graph, the difference between the total electrical consumption between months of February and April is: / इस आरेख के अनुसार फरवरी और अप्रैल के माह में कुल बिजली खपत में क्या अंतर है ?

SSC CPO 13 March 2019 (Morning)

(a)97
(b)74
(c)121
(d)15

Q 203. The given bar chart, shows the sales of books (in thousand number) from six branches of a publishing company during two consecutive years 2000 and 2001. / दिया गया दंड आरेख एक प्रकाशन कंपनी की छः शाखाओं में दो लगातार वर्षों 2000 एवं 2001 के दौरान किताबों की बिक्री (हज़ार की संख्या में) को दर्शाता है |

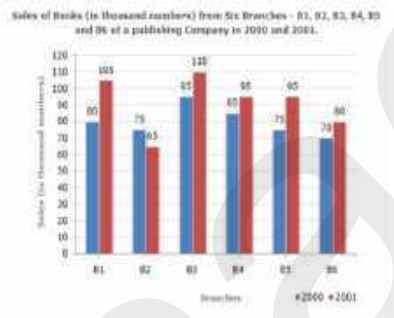


In the given bar-chart, total sales of branches B1, B3 and B5 taken together for both the years (in thousand numbers) is:
दिए गए दंड आरेख के अनुसार, दोनों वर्षों को मिलाकर शाखा B1, B3 तथा B5 की कुल बिक्री (हज़ार की संख्या में) क्या रही है ?

SSC CPO 16 March 2019 (Evening)

(a)310
(b)560
(c)240
(d)650

Q204. The given bar chart, shows the sales of books (in thousand number) from six branches of a publishing company during two consecutive years 2000 and 2001. / दिया गया दंड आरेख एक प्रकाशन कंपनी की छः शाखाओं में दो लगातार वर्षों 2000 एवं 2001 के दौरान किताबों की बिक्री (हज़ार की संख्या में) को दर्शाता है |

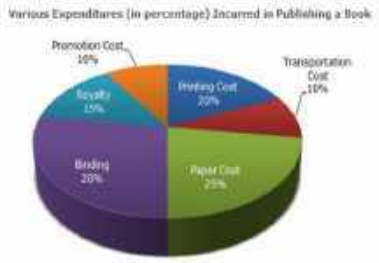


In the given bar-chart, the ratio of total sales of branches B1, B3 and B5 to total sales of branches B2, B4 and B6 taken together for both the years (in thousand number) is:
दिए गए दंड आरेख के अनुसार दोनों वर्षों के दौरान शाखाओं B1, B3 तथा B5 की कुल बिक्री का शाखाओं B2, B4 एवं B6 की कुल बिक्री के साथ क्या अनुपात है ?

SSC CPO 16 March 2019 (Evening)

(a) 23 : 45
(b) 45 : 23
(c) 56 : 47
(d) 47 : 56

Q 205.The given pie-chart, shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the question based on it.
दिया गया पाई चार्ट किसी पुस्तक के प्रकाशन में हुए व्ययों के प्रतिशत वितरण को दर्शाता है | इस पाई चार्ट का अध्ययन करें तथा इस पर आधारित प्रश्न का उत्तर दें |



In the given pie-chart, by what percentage the Royalty on the book is less than the Printing cost? / दिए गए पाई चार्ट के अनुसार, इस पुस्तक पर रॉयल्टी प्रकाशन की लागत से कितना प्रतिशत कम है ?

SSC CPO 16 March 2019 (Evening)

(a)15
(b)25
(c)20
(d)10

Q206. The given bar chart, shows the sales of books (in thousand number) from six branches of a publishing company during two consecutive years 2000 and 2001. दिया गया दंड आरेख एक प्रकाशन कंपनी की छः शाखाओं में दो लगातार वर्षों 2000 एवं 2001 के दौरान किताबों की बिक्री (हज़ार की संख्या में) को दर्शाता है |



In the given bar-chart, the ratio of total sales of all branches (in thousand numbers) for the year 2000 to 2001 is:
दिए गए दंड आरेख के अनुसार, वर्ष 2000 तथा 2001 के दौरान सभी

शाखाओं की कुल बिक्री का अनुपात क्या है ?

SSC CPO 16 March 2019 (Evening)

(a)45 : 58
(b)55 : 48
(c)7 : 11
(d)48 : 55

Q207. The given pie-chart, shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the questions based on it.
दिया गया पाई चार्ट किसी पुस्तक के प्रकाशन में हुए व्ययों के प्रतिशत वितरण को दर्शाता है | इस पाई चार्ट का अध्ययन करें तथा इस पर आधारित प्रश्न का उत्तर दें |

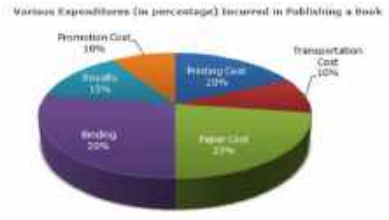


In the given pie-chart, by what percentage the Promotion cost on the book is less than the paper cost?
दिए गए पाई चार्ट के अनुसार, पुस्तक पर प्रोत्साहन व्यय कागज़ के व्यय से कितना प्रतिशत कम है ?

SSC CPO 16 March 2019 (Evening)

(a)50
(b)75
(c)60
(d)25

Q208. The given pie-chart, shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and answer the questions based on it. / दिया गया पाई चार्ट किसी पुस्तक के प्रकाशन में हुए व्ययों के प्रतिशत वितरण को दर्शाता है | इस पाई चार्ट का अध्ययन करें तथा इस पर आधारित प्रश्न का उत्तर दें |

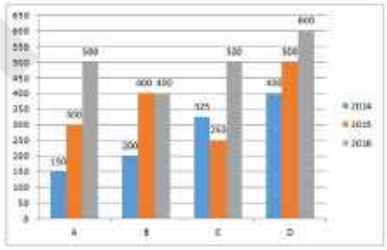


In the given pie-chart, by what percentage Printing and Binding cost on the book is less than the other costs?
दिए गए पाई चार्ट के अनुसार पुस्तक पर प्रकाशन एवं जिल्दसाजी का व्यय अन्य व्ययों से कितना प्रतिशत कम है ?

SSC CPO 16 March 2019 (Evening)

(a) $\frac{47}{3}$
(b) $\frac{20}{3}$
(c) $\frac{50}{3}$
(d) $\frac{100}{3}$

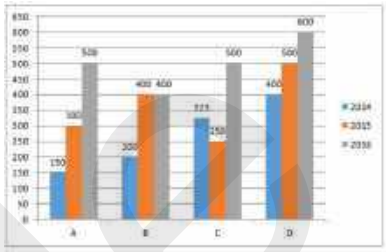
Q209. The given bar chart shows production of steel by companies A, B, C and D for years 2014, 2015, 2016 (in tonnes).
दिया गया दंड आरेख कंपनी A, B, C तथा D द्वारा वर्ष 2014, 2015 तथा 2016 में उत्पादित इस्पात (टन में) को दर्शाता है |



In the given bar-chart, the average production of steel at 'C' for the year 2014-2016 is: / इस दंड आरेख के अनुसार 'C' में वर्ष 2014-2016 के दौरान इस्पात का औसत उत्पादन ज्ञात करें| **SSC CPO 15 March 2019 (Evening)**

(a) 358.33
(b) 333.33
(c) 423.58
(d) 400

Q210. The given bar chart shows production of steel by companies A, B, C and D for years 2014, 2015, 2016 (in tonnes).
दिया गया दंड आरेख कंपनी A, B, C तथा D द्वारा वर्ष 2014, 2015 तथा 2016 में उत्पादित इस्पात (टन में) को दर्शाता है |

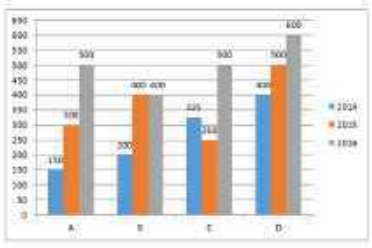


In the given bar chart, which company has the maximum total production of steel?
इस दंड आरेख के अनुसार, किस कंपनी का कुल इस्पात उत्पादन अधिकतम है ?

SSC CPO 15 March 2019 (Evening)

(a)C
(b)D
(c)A
(d)B

Q211. The given bar chart shows production of steel by companies A, B, C and D for years 2014, 2015, 2016 (in tonnes). / दिया गया दंड आरेख कंपनी A, B, C तथा D द्वारा वर्ष 2014, 2015 तथा 2016 में उत्पादित इस्पात (टन में) को दर्शाता है |



In the given bar-chart, what is the percentage production of 'B' in 2014 to the total production of 2014?

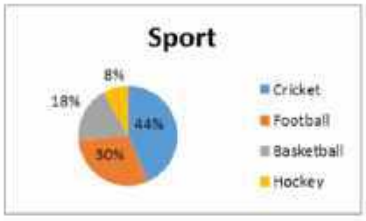
इस दंड आरेख के अनुसार, 2014 के कुल उत्पादन की तुलना में 2014 में B का उत्पादन कितना प्रतिशत है ?

SSC CPO 15 March 2019 (Evening)

(a)19.4%
(b)20%
(c)27.6%
(d)18.6%

Q212.The given pie-chart favourite sport of students of a school.

दिया गया पाई चार्ट एक विद्यालय के छात्रों के पसंदीदा खेल को दर्शाता है |



In the given pie-chart, if there were 1280 students in all, how many liked football?

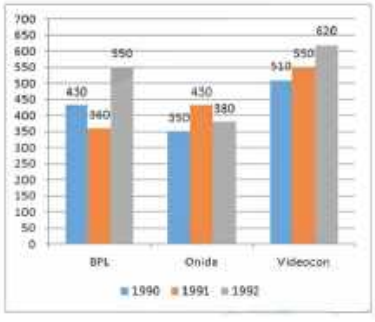
इस पाई चार्ट के अनुसार, यदि कुल मिलाकर 1280 छात्र हैं, तो फुटबॉल कितने छात्रों को पसंद है ?

SSC CPO 16 March 2019 (Afternoon)

(a)102
(b)550
(c) 230
(d)384

Q213. The given bar chart, shows the sales (in thousands) for sets of televisions of three companies in three years.

दिया गया दंड आरेख तीन कंपनियों के द्वारा तीन वर्षों में टेलीविज़न सेट की बिक्री (हज़ार में) दर्शाता है |



In the given bar-chart, what is a difference between the average sales of televisions A and B for 3 years? इस दंड आरेख के अनुसार, 3 वर्षों में टेलीविज़न A और B की औसत बिक्री में क्या अंतर है|

SSC CPO 16 March 2019 (Afternoon)

(a)78
(b)56
(c)104
(d)60

Q214. The table below shows the admission and transfer in standards 1-3 of a school.

निम्नलिखित तालिका किसी विद्यालय की कक्षा 1-3 में नामांकन एवं स्थानांतरण को दर्शाती है |

	2015			2016	
Std	Existing	Admission	Transfer	Admission	Transfer
1	232	12	8	23	36
2	241	6	11	15	10
3	248	16	13	21	24

In the given table, in Standard 1, how many students were there at the end of year 2016?

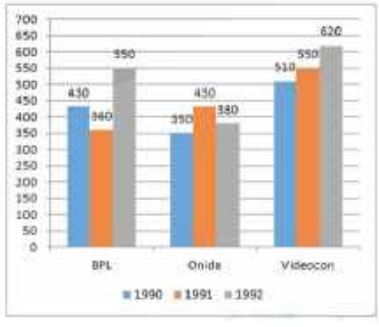
दी गयी तालिका के अनुसार, कक्षा 1 में, 2016 के अंत में कितने छात्र थे ?

SSC CPO 16 March 2019 (Afternoon)

(a)223
(b)228
(c)236
(d)232

Q 215. The given bar chart, shows the sales (in thousands) for sets of televisions of three companies in three years.

दिया गया दंड आरेख तीन कंपनियों द्वारा तीन वर्षों में टेलीविज़न सेट की बिक्री (हज़ार में) दर्शाता है |



In the given bar-chart, if profit earned earned per television by C in 1992 was Rs 825, the total profit earned was:

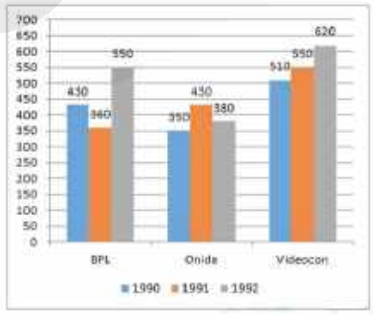
दिए गए दंड आरेख के अनुसार, यदि 1992 में C के द्वारा प्रति टेलीविज़न अर्जित लाभ 825 रुपये है, तो कुल लाभ ज्ञात करें |

SSC CPO 16 March 2019 (Afternoon)

(a)Rs.51150 lakhs
(b)Rs.5115 lakhs
(c) Rs.511.5 lakhs
(d)Rs.51.15 lakhs

Q216. The given bar chart, shows the sales (in thousands) for sets of televisions of three companies in three years.

दिया गया दंड आरेख तीन कंपनियों द्वारा तीन वर्षों में टेलीविज़न सेट की बिक्री (हज़ार में) दर्शाता है |



In the given bar-chart, what is the ratio of television sales between A in year in year 1992 and C in year 1991?

इस दंड आरेख के अनुसार, वर्ष 1992 में A तथा वर्ष 1991 में C के द्वारा टेलीविज़न बिक्री का अनुपात क्या है ?

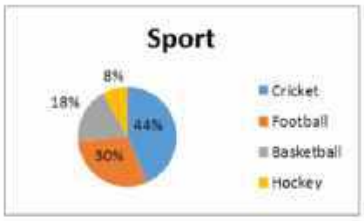
SSC CPO 16 March 2019 (Afternoon)

(a)1:1
(b)1:2
(c) 2:1
(d)1:3

Q217. The given pie-chart shows favourite sport of students of a school.

Pinnacle

दिया गया पाई चार्ट एक विद्यालय के छात्रों के पसंदीदा खेलों को दर्शाता है |



In the given pie-chart, what is the difference in percentage between liking for football and basketball?
इस पाई चार्ट के अनुसार, फुटबॉल तथा बास्केटबॉल पसंद करने के प्रतिशत में क्या अंतर है ?
SSC CPO 16 March 2019 (Afternoon)
(a)10
(b) 8
(c) 13
(d)12

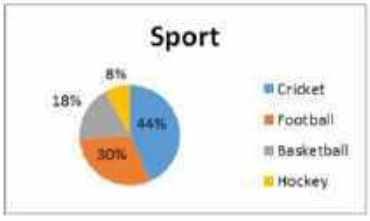
Q218. The table below shows the admissions and transfers in standards 1-3 of a school
नीचे दी गयी तालिका किसी विद्यालय में कक्षा 1 से 3 में नामांकन तथा स्थानांतरण को दर्शाती है |

	2015			2016	
Std	Existing	Admission	Transfer	Admission	Transfer
1	232	12	8	23	36
2	241	6	11	15	10
3	248	16	13	21	24

In the given table, what was the total strength in Standards 1-3 at the end of 2015?
दी गयी तालिका के अनुसार, 2015 के अंत में कक्षा 1-3 की कुल क्षमता क्या थी ?
SSC CPO 16 March 2019 (Afternoon)
(a)723
(b)721
(c) 710
(d)704

Q219. The given pie-chart shows favourite sport of students of a school.

दिया गया पाई चार्ट एक विद्यालय के छात्रों के पसंदीदा खेलों को दर्शाता है |



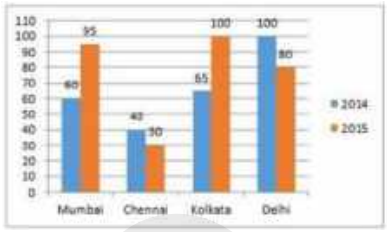
In the given pie-chart, if the school strength was 2500, how many liked cricket more than hockey?
इस पाई चार्ट के अनुसार, यदि विद्यालय में कुल 2500 छात्र थे , तो कितने छात्र क्रिकेट को हॉकी से ज्यादा पसंद करते थे ?
SSC CPO 16 March 2019 (Afternoon)
(a)1075
(b)504
(c) 900
(d)750

Q220. The table below shows the admission and transfer in standards 1-3 of a school.
नीचे दी गयी तालिका एक विद्यालय की कक्षा 1-3 में नामांकन और स्थानांतरण को दर्शाती है|

	2015			2016	
Std	Existing	Admission	Transfer	Admission	Transfer
1	232	12	8	23	36
2	241	6	11	15	10
3	248	16	13	21	24

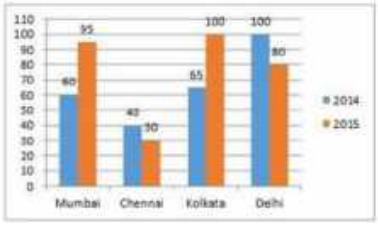
In the given table, what was the difference between admission and transfer in standard 3 in year 2016?
दी गयी तालिका के अनुसार, वर्ष 2016 में कक्षा 3 में नामांकन तथा स्थानांतरण में क्या अंतर था ?
SSC CPO 16 March 2019 (Afternoon)
(a)3
(b)9
(c)8
(d)5

Q221. The given bar graph shows the sale of books (in thousands) in four metropolitan branches of a company for the year 2014 and 2015.
दिया गया बार ग्राफ वर्ष 2014 और 2015 के लिए किसी कंपनी की चार महानगरीय शाखाओं में पुस्तकों की (हज़ारो में) बिक्री को दर्शाता है |



In the given bar graph, the ratio of total sales between Mumbai and Delhi is:
दिए गए बार ग्राफ में , मुंबई और दिल्ली के बीच कुल बिक्री का अनुपात है :
SSC CPO 14 March 2019 (Evening)
(a) 26 : 29
(b) 31 : 36
(c) 23 : 25
(d) 33 : 37

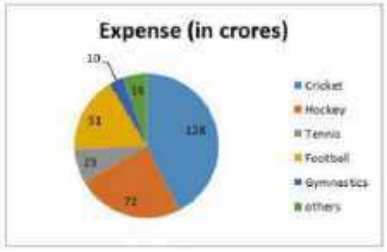
Q222. The given bar graph shows the sale of books (in thousands) in four metropolitan branches of a company for the year 2014 and 2015.
दिया गया बार ग्राफ वर्ष 2014 और 2015 के लिए किसी कंपनी की चार महानगरीय शाखाओं में पुस्तकों की (हज़ारो में) बिक्री को दर्शाता है |



In the given bar graph, compared to 2014, which of the branch saw maximum increase in sales (in%) in 2015?
दिए गए बार ग्राफ में, 2014की तुलना में 2015में कौन सी शाखा की बिक्री में अधिकतम वृद्धि (% में) हुई ?
SSC CPO 14 March 2019 (Evening)
(a) Kolkata / कोलकाता

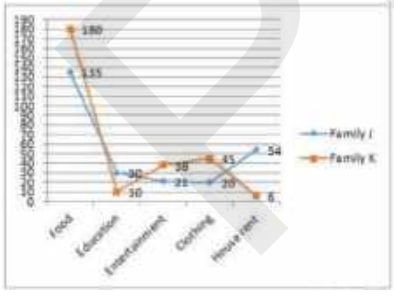
(b) Mumbai / मुंबई
(c) Delhi / दिल्ली
(d) Chennai / चेन्नई

Q223. The given pie chart shows the expenditure given in millions on each game.
दिया गया पाई चार्ट प्रत्येक खेल पर करोड़ो में दिए गए व्यय को दर्शाता है |



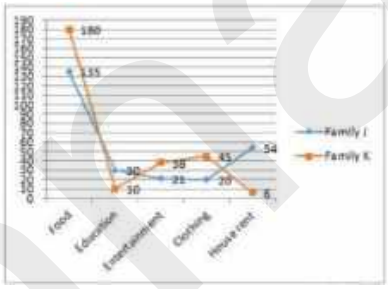
In the given pie chart, what is the difference between expenditure on cricket and football ?
दिए गए पाई चार्ट में , क्रिकेट और फुटबॉल पर किये गए व्यय के बीच क्या अंतर है ?
SSC CPO 14 March 2019 (Evening)
(a) 21
(b) 49
(c) 56
(d) 77

Q224. The graph below shows two families' monthly expenditure (in hundreds)
नीचे दिया गया ग्राफ दो परिवारों के मासिक व्यय (सेकेंड में) को दर्शाता है



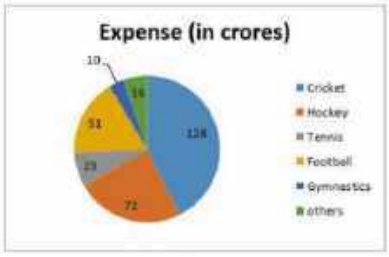
In the given graph, if the household K's monthly income increases by 37,200, how much will the expenditure on entertainment be increased? (Assuming that they will spend in the proportion of the first one, fill them in a decimal)
दिए गए ग्राफ में, यदि परिवार की मासिक आय में 37,200 की वृद्धि होती है, तो मनोरंजन पर व्यय में कितनी वृद्धि होगी ? (यह मानते हुए की वे पहले के अनुपात में ही व्यय करेंगे , एक दशमलव में पूर्णांकित करे)
SSC CPO 14 March 2019 (Evening)
(a) 50.7
(b) 51.9
(c) 43.8
(d) 46.2

Q225. The graph below shows two families' monthly expenditure (in seconds)
नीचे दिया गया ग्राफ दो परिवारों के मासिक व्यय (सेकेंड में) को दर्शाता है



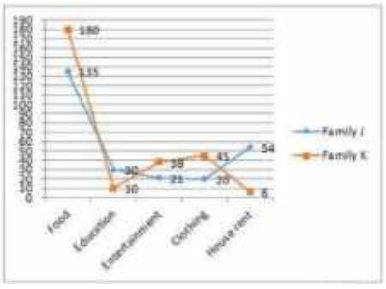
In the given graph, what is the ratio of the difference between food and education for families and children? दिए गए ग्राफ में , परिवार J और K के लिए भोजन तथा शिक्षा के बीच के व्यय में अंतर का अनुपात क्या है ?
SSC CPO 14 March 2019 (Evening)
(a) 9 : 2
(b) 13 : 25
(c) 31 : 36
(d) 21 : 34

Q226. The given pie chart shows the expenditure given in millions on each game.
दिया गया पाई चार्ट प्रत्येक खेल पर करोड़ो में दिए गए व्यय को दर्शाता है |



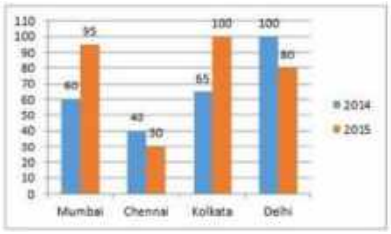
In the given pie chart, what is the proportion of expenditure between hockey and gymnastics?
दिए गए पाई चार्ट में, हॉकी और जिम्नास्टिक्स के बीच व्यय का अनुपात क्या है ?
SSC CPO 14 March 2019 (Evening)
(a) 36 : 5
(b) 16 : 9
(c) 24 : 17
(d) 64 : 5

Q227. The graph below shows two families' monthly expenditure (in seconds)
नीचे दिया गया ग्राफ दो परिवारों के मासिक व्यय (सेकेंड में) को दर्शाता है |



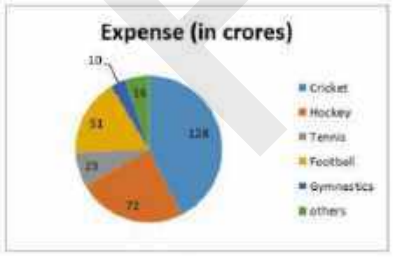
In the given graph, what is the difference between the percentage of food spent between family J and K? दिए गए ग्राफ में, परिवार J और K के बीच भोजन पर व्यय के प्रतिशत में क्या अंतर है ?
SSC CPO 14 March 2019 (Evening)
(a) 13.7%
(b) 14.9%
(c) 15.2%
(d) 12.6%

Q228. The given bar graph shows the sale of books (in thousands) in four metropolitan branches of a company for the year 2014 and 2015.
दिया गया बार ग्राफ वर्ष 2014 और 2015 के लिए किसी कंपनी की चार महानगरीय शाखाओं में पुस्तकों की (हज़ारो में) बिक्री को दर्शाता है |



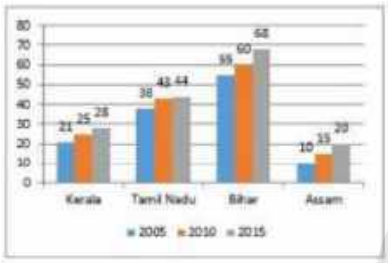
In the given bar graph, calculate the percentage increase in sales during the year 2014 and 2015 (rounded into a decimal).
दिए गए बार ग्राफ में, वर्ष 2014 और 2015 के दौरान बिक्री में प्रतिशत वृद्धि की गणना कीजिये (एक दशमलव में पूर्णांकित कीजिए)
SSC CPO 14 March 2019 (Evening)
(a) 14.5
(b) 13.7
(c) 14.9%
(d) 15.1%

Q229.The given pie chart shows the expenditure given in millions on each game.
दिया गया पाई चार्ट प्रत्येक खेल पर करोड़ो में दिए गए व्यय को दर्शाता है |



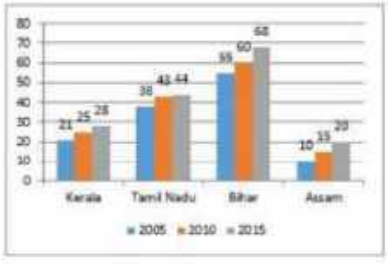
In the given chart, what would be the central angle of the arc representing the football?
दिए गए पाया चार्ट में, फुटबाल को दर्शाने वाले वृत्तखंड का केंद्रीय कोण क्या होगा?
SSC CPO 14 March 2019 (Evening)
(a) 72.2˚
(b) 61.2˚
(c) 51˚
(d) 24˚

Q 230. The bar shown below shows the population of different states (in crores) in years.
नीचे दिया गया बार , वर्षों में अलग -अलग राज्यों की जनसंख्या को दर्शाता है (करोड़ों में) |



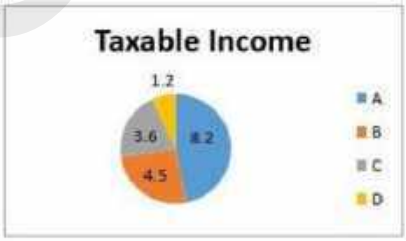
In the given bar graph, what is the ratio of population increase in Bihar between 2005 and 2010, and between 2010 and 2015?
दिए गए बार ग्राफ में, 2005 तथा 2010 के बीच और 2010 तथा 2015 के बीच बिहार में जनसंख्या में वृद्धि का अनुपात क्या है ?
SSC CPO 15 March 2019 (Evening)
(a)5 : 8
(b)3 : 7
(c)8 : 5
(d)7 : 3

Q231. The given bar chart shows population of 4 different states in 3 years (in crores).
नीचे दिया गया बार ग्राफ, वर्षों में अलग अलग राज्यों की जनसंख्या को दर्शाता है (करोड़ों में) |



In the given bar-chart, what is the population growth (in crores) in total in states Kerala and Tamil Nadu for the period between 2005 and 2015?
दिए गए बार ग्राफ (bar graph) में, 2005 और 2015 की अवधि के दौरान केरल तथा तमिलनाडु राज्यों में कुल जनसंख्या वृद्धि (करोड़ों में) क्या है ?
SSC CPO 15 March 2019 (Evening)
(a)13
(b)11
(c)10
(d)9

Q232. The given pie-chart shows the taxable income for A, B, C and D in lakhs of rupees
पाई चार्ट (pie-chart) A, B, C और D की कर-योग्य आय को लाख रुपयों में दर्शाता गया है |



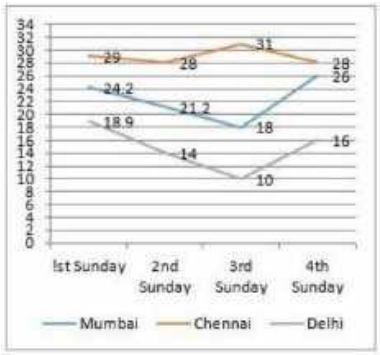
This chart shows the tax paid for the above taxable income by A, B, C and D in lakhs of rupees.
यह चार्ट और द्वारा उपर्युक्त कर-योग्य आय के लिए भुगतान किए गए कर को लाख रुपयों में दर्शाता है |



In the given pie-chart, if taxable income of B is 12% more, then how much he paid.
दिए गए पाई चार्ट में, यदि की कर-योग्य आय अधिक थी तब उसने कितने कर का भुगतान किया होगा?
SSC CPO 15 March 2019 (Evening)
(a)10.8
(b)1.08

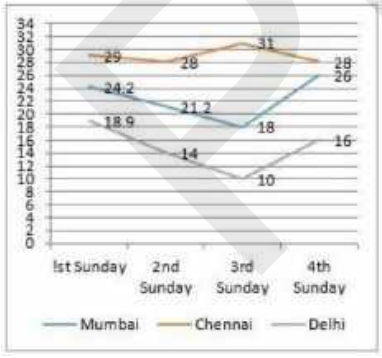
(c)0.9
(d)0.108

Q233. The line graph shows the temperature on four Sundays of three cities.
निम्नलिखित ग्राफ तीन शहरों के चार रविवारों के तापमान को दर्शाता है |



In the given line graph, what was the average temperature on first sunday ?
दिए गए ग्राफ में, सभी तीन शहरों में पहले रविवार को औसत तापमान क्या था ?
SSC CPO 15 March 2019 (Evening)
(a)21.2
(b)24
(c)25.4
(d)23

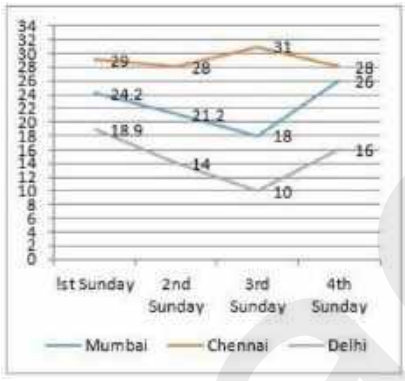
Q234. The line graph shows the temprature on four Sundays of three cities.
निम्नलिखित ग्राफ तीन शहरों के चार रविवारों के तापमान को दर्शाता है |



In the given line graph, when was the maximum temperature recorded in Chennai?
दिए गए ग्राफ (line graph) में, चेन्नई में दर्ज अधिकतम तापमान कब था ?
SSC CPO 15 March 2019 (Evening)
(a) 4th Sundayचौथे रविवार

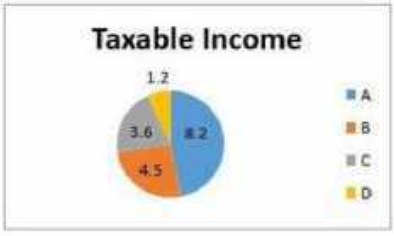
(b) 3rd Sunday/तीसरे रविवार
(c) 1st Sunday/पहले रविवार
(d) 2nd Sunday/दूसरे रविवार

Q235. The line graph shows the temperature on four Sundays of three cities.
निम्नलिखित ग्राफ (line graph), तीन शहरों के चार रविवारों के तापमान को दर्शाता है |

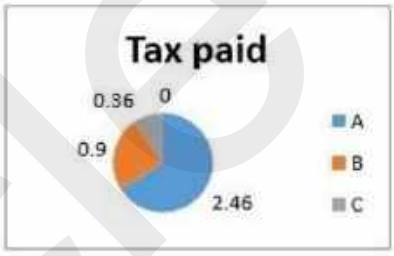


In the given line graph, what is the difference between the temperature of Delhi and Chennai on the 3rd Sunday ?
दिए गए ग्राफ (line graph) में, तीसरे रविवार को दिल्ली और चेन्नई के बीच तापमान में अंतर क्या था ?
SSC CPO 15 March 2019 (Evening)
(a)21
(b)13
(c)17
(d)8

Q236. The given pie-chart shows the taxable income for A,B, C and D in lakhs of rupees.
पाई चार्ट (pie-chart) A, B, C और D की कर - योग्य आय को लाख रुपयों में दर्शाता गया है |

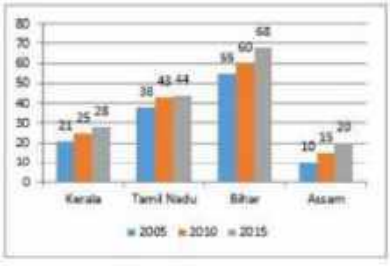


This chart shows the tax paid for the above taxable income by A,B,C and D in lakhs of rupees.
यह चार्ट A, B, C और D द्वारा उपर्युक्त कर-योग्य आय के लिए भुगतान किए गए कर को लाख रुपयों में दर्शाता है |



In the given pie-chart, what is the overall tax percentage for all four?
दिए गए पाई चार्ट (pie-chart) में, सभी चार का समग्र रूप से कर प्रतिशत कितना है ?
SSC CPO 15 March 2019 (Evening)
(a)17.2%
(b)21.3%
(c)15%
(d)19.5%

Q237. The given ar chart shows population of 4 different states in 3 years (in crores).
नीचे दिया गया बार ग्राफ, 3 वर्षों में 4 अलग - अलग राज्यों की जनसंख्या को दर्शाता है (करोड़ों में) |



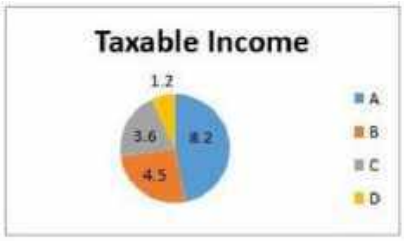
In the given bar-chart, which states has had the maximum population growth in 2015 compared to 2005. दिए गए बार

ग्राफ में, 2005 की तुलना में 2015 में किस राज्य में अधिकतम जनसंख्या वृद्धि हुई थी |

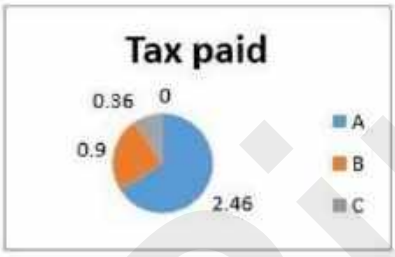
SSC CPO 15 March 2019 (Evening)

(a) Bihar / बिहार
(b) Tamilnadu / तमिलनाडु
(c) Aassam / असम
(d) Kerla / केरल

Q238. The given pie-chart shows the taxable income for A, B, C and D in lakhs of rupees
पाई चार्ट और A, B, C, D की कर -योग्य आय को लाख रुपयों में दर्शाता गया है |



This chart shows the tax paid for the above taxable income by A, B, C and D in lakhs of rupees.
यह चार्ट और द्वारा उपर्युक्त कर-योग्य आय के लिए व्भुगतन किये गए कर को लाख रुपयों में दर्शाता है |



In the given pie-chart, what is the percentage of tax charged for A?
दिए गए पाई चार्ट (pie-chart) में, A पर कितने प्रतिशत कर लगाया गया है ?

SSC CPO 15 March 2019 (Evening)

(a)30%
(b)15%
(c)20%
(d)40%

Q239. The table given below presents the number of books on different subjects kept on separate shelves. Subjects with odd and even numbers are of Arts and Science respectively.
नीचे दी गयी तालिका अलग-अलग विषयों की पुस्तकों की संख्या को दर्शाता है जिन्हें अलग-अलग खानों में रखा गया है | विषम तथा सम संख्या के विषय क्रमशः कला एवं विज्ञान हैं |

Subjects	Number of books
S1	26
S2	29
S3	31
S4	34
S5	36
S6	38
S7	44

What is the ratio of the number of books of S1 and the average number of books per subject?
S1 के पुस्तकों की संख्या तथा प्रति विषय पुस्तकों की औसत संख्या में क्या अनुपात है ?

SSC MTS- 2 August 2019 (Morning)

(a) 13 : 17
(b) 18 : 13
(c) 14 : 17
(d) 14 : 13

Q240. The Table given below presents the number of books on different subjects kept on separate shelves. Subjects with odd and even numbers are of Arts and Science respectively.
नीचे दी गयी तालिका अलग-अलग विषयों की पुस्तकों की संख्या को दर्शाता है जिन्हें अलग-अलग खानों में रखा गया है | विषम तथा सम संख्या के विषय क्रमशः कला एवं विज्ञान हैं |

Subjects	Number of books
S1	26
S2	29
S3	31
S4	34
S5	36
S6	38
S7	44

The number of books of S3 is what percent (correct to one decimal place) of the average number of Science books?
S3 के पुस्तकों की संख्या विज्ञान की पुस्तकों की औसत संख्या (एक दशमलव स्थान तक) का कितना प्रतिशत है ?

SSC MTS- 2 August 2019 (Morning)

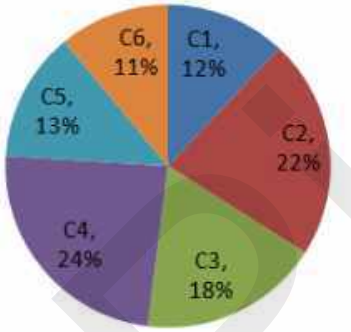
(a) 92.1
(b) 91.2
(c) 93.1
(d) 90.7

Q241. The Table given below presents the number of books on different subjects kept on separate shelves. Subjects with odd and even numbers are of Arts and Science respectively.
नीचे दी गयी तालिका अलग-अलग विषयों की पुस्तकों की संख्या को दर्शाता है जिन्हें अलग-अलग खानों में रखा गया है | विषम तथा सम संख्या के विषय क्रमशः कला एवं विज्ञान हैं |

Subjects	Number of books
S1	26
S2	29
S3	31
S4	34
S5	36
S6	38
S7	44

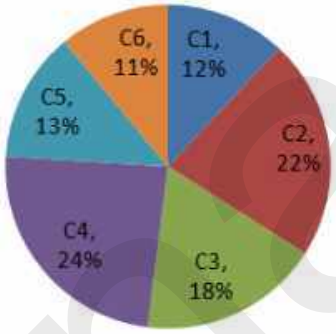
What is the ratio of the total number of books on Arts to that of Science?
कला और विज्ञान की कुल पुस्तकों की संख्या में क्या अनुपात है ?
SSC MTS- 2 August 2019 (Morning)
(a) 141 : 97
(b) 145 : 93
(c) 137 : 101
(d) 149 : 89

Q242. The pie-chart given below shows the number of laptops in an office provided by six different companies in the percentage of total number of laptops. The central angles given in the pie chart are not accurate to any scale.
नीचे दिया गया वृत्त-आरेख, छह अलग-अलग कम्पनियों द्वारा किसी कार्यालय में प्रदत्त लैपटॉप की संख्या को, लैपटॉपों की कुल संख्या के प्रतिशत के रूप में दर्शाता है | वृत्त-आरेख में प्रदर्शित केंद्रीय कोण किसी चयनित पैमाने के अनुसार नहीं है |



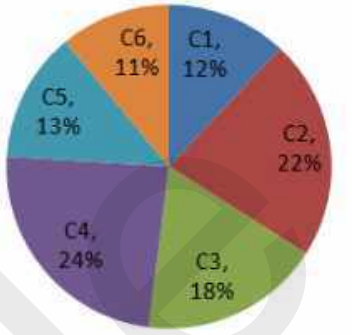
To what degree is the corresponding central angle (to one decimal place) of laptops provided by company C6?
कंपनी C6 द्वारा प्रदत्त लैपटॉपों का संगत केन्द्रीय कोण (दशमलव के एक स्थान तक) कितनी डिग्री का है ?
SSC MTS- 2 August 2019 (Afternoon)
(a) 51.7°
(b) 45.1°
(c) 39.6°
(d) 52.8°

Q243. The pie-chart given below shows the number of laptops in an office provided by six different companies in the percentage of total number of laptops. The central angles given in the pie chart are not accurate to any scale.
नीचे दिया गया वृत्त-आरेख, छह अलग-अलग कम्पनियों द्वारा किसी कार्यालय में प्रदत्त लैपटॉप की संख्या को, लैपटॉपों की कुल संख्या के प्रतिशत के रूप में दर्शाता है | वृत्त-आरेख में प्रदर्शित केंद्रीय कोण किसी चयनित पैमाने के अनुसार नहीं है |



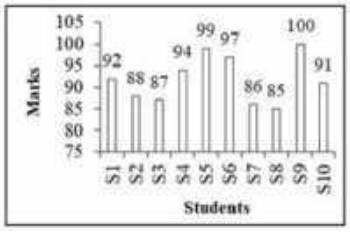
What is the ratio of the number of laptops of company C1 to those of company C3 ?
कंपनी C1 तथा कंपनी C3 के लैपटॉपों की संख्या का अनुपात कितना है ?
SSC MTS- 2 August 2019 (Afternoon)
(a) 2 : 1
(b) 12 : 11
(c) 2 : 3
(d) 6 : 11

Q244. The pie-chart given below shows the number of laptops in an office provided by six different companies in the percentage of total number of laptops. The central angles given in the pie chart are not accurate to any scale.
नीचे दिया गया वृत्त-आरेख, छह अलग-अलग कम्पनियों द्वारा किसी कार्यालय में प्रदत्त लैपटॉप की संख्या को, लैपटॉपों की कुल संख्या के प्रतिशत के रूप में दर्शाता है | वृत्त-आरेख में प्रदर्शित केंद्रीय कोण किसी चयनित पैमाने के अनुसार नहीं है |



If the total number of laptops in office is 3800, then find the difference between the laptops of company C2 and C5 ?
कार्यालय में यदि लैपटॉपों की कुल संख्या 3800 है तो कंपनी C2 तथा C5 के लैपटॉपों की संख्या में अंतर कितना है ?
SSC MTS- 2 August 2019 (Afternoon)
(a) 382
(b) 362
(c) 342
(d) 322

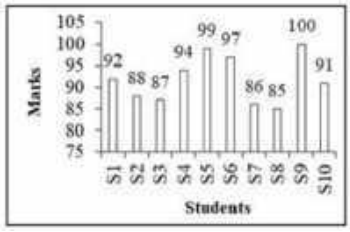
Q245. The bar graph given below presents the marks (out of 100) obtained by 10 students in a subject.
यह दंड आरेख एक विषय में 10 छात्रों के प्राप्तांक (100 में से) को दर्शाता है |



What is the average of the marks obtained by all the students?
सभी छात्रों के द्वारा प्राप्त किये गए अंकों का औसत क्या है ?

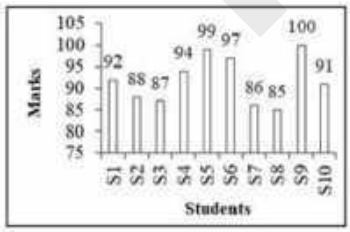
SSC MTS- 2 August 2019 (Evening)
(a) 91.9
(b) 90.9
(c) 82.9
(d) 89.9

Q246. The bar graph given below presents the marks (out of 100) obtained by 10 students in a subject.
यह दंड आरेख एक विषय में 10 छात्रों के प्राप्तांक (100 में से) को दर्शाता है |



The average of marks obtained by S3 and S5 is what percent less than the marks obtained by S9?
S3 और S5 के प्राप्तांक का औसत S9 के प्राप्तांक से कितना प्रतिशत कम है ?
SSC MTS- 2 August 2019 (Evening)
(a) 7%
(b) 9%
(c) 8%
(d) 10%

Q247. The bar graph given below presents the marks (out of 100) obtained by 10 students in a subject.
यह दंड आरेख एक विषय में 10 छात्रों के प्राप्तांक (100 में से) को दर्शाता है |



The marks obtained by S5 is how much percent more than the average marks of the students (correct to two decimal)?
S5 का प्राप्तांक छात्रों के औसत अंक से कितना प्रतिशत अधिक है ?
SSC MTS- 2 August 2019 (Evening)
(a) 7.73%
(b) 22.73%
(c) 12.73%
(d) 17.73%

Q248. The Table given below presents the marks obtained by three students in five examinations.
नीचे दी गयी तालिका पांच परीक्षाओं के तीन विषयों में छात्रों के द्वारा प्राप्त किये गए अंकों को दर्शाती है |

Exams	S1	S2	S3
E1	80	84	85
E2	72	91	99
E3	99	80	82
E4	96	95	93
E5	87	86	84

The marks obtained by S1 in Exam E5 is how much percentage (correct up to two places of decimal) more than that obtained by S2 in Exam E3?
S1 के द्वारा परीक्षा E5 में प्राप्त किये गए अंक S2 के द्वारा परीक्षा E3 में प्राप्त किये गए अंक से कितने प्रतिशत अधिक (दो दशमलव स्थान तक) हैं ?
SSC MTS- 5 August 2019 (Morning)
(a) 9.75
(b) 8.75
(c) 9.26
(d) 10.24

Q249. The Table given below presents the marks obtained by three students in five examinations.
नीचे दी गयी तालिका पांच परीक्षाओं के तीन विषयों में छात्रों के द्वारा प्राप्त किये गए अंकों को दर्शाती है |

Exams	S1	S2	S3
E1	80	84	85
E2	72	91	99
E3	99	80	82
E4	96	95	93
E5	87	86	84

What is the average of marks obtained by S3 per exam?
S3 द्वारा हर परीक्षा में प्राप्त किये गए अंकों का औसत कितना है ?
SSC MTS- 5 August 2019 (Morning)
(a) 84.6
(b) 88.6
(c) 82.6
(d) 86.6

Q250. The Table given below presents the marks obtained by three students in five examinations.
नीचे दी गयी तालिका पांच परीक्षाओं के तीन विषयों में छात्रों के द्वारा प्राप्त किये गए अंकों को दर्शाती है |

Exams	S1	S2	S3
E1	80	84	85
E2	72	91	99
E3	99	80	82
E4	96	95	93
E5	87	86	84

What is the sum of marks obtained by S1 in Exam E4, S2 in Exam E1, S3 in Exam E3 and E5?

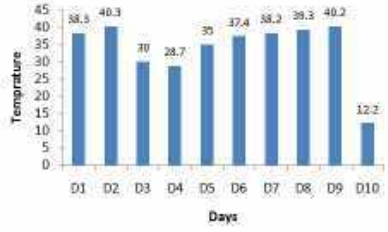
S1 के द्वारा परीक्षा E4 में, S2 के द्वारा परीक्षा E1 में, तथा S3 के द्वारा परीक्षा E3 और E5 में प्राप्त किये गए अंकों का जोड़ कितना है ?

SSC MTS- 5 August 2019 (Morning)

(a) 346
(b) 326
(c) 366
(d) 306

Q251. The bar graph given below shows the maximum temperature ($^{\circ}C$) of a city for ten days in different months.

नीचे दिया गया दण्ड आरेख किसी शहर के विभिन्न मासों में 10 भिन्न दिनों के अधिकतम तापमान ($^{\circ}C$) को दर्शाता है |



From the given data of ten days, Find the difference (in degrees Celsius) between the highest and the lowest temperatures recorded ?

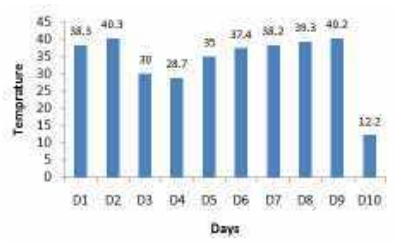
दस दिनों के लिए दिए गए डाटा से रिकॉर्ड किए गए उच्चतम और न्यूनतम अधिकतम तापमानों के बीच कितना अंतर (डिग्री सेल्सियस में) है ?

SSC MTS- 5 August 2019 (Afternoon)

(a) 27.1
(b) 26.1
(c) 28.0
(d) 28.1

Q252. The bar graph given below shows the maximum temperature ($^{\circ}C$) of a city for ten days in different months.

नीचे दिया गया दण्ड आरेख किसी शहर के विभिन्न मासों में 10 भिन्न दिनों के अधिकतम तापमान ($^{\circ}C$) को दर्शाता है |



The temperature of D5 is what percent more than the temperature of D3 ?

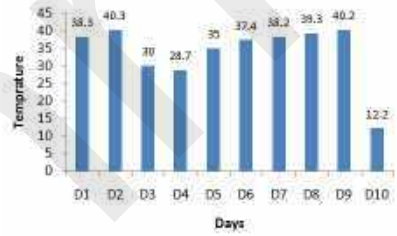
D5 का तापमान, D3 के तापमान से कितने प्रतिशत अधिक है ?

SSC MTS- 5 August 2019 (Afternoon)

(a) 23.01%
(b) 21.07%
(c) 24.57%
(d) 16.67%

Q253. The bar graph given below shows the maximum temperature ($^{\circ}C$) of a city for ten days in different months.

नीचे दिया गया दण्ड आरेख किसी शहर के विभिन्न मासों में 10 भिन्न दिनों के अधिकतम तापमान ($^{\circ}C$) को दर्शाता है |



What is the average per day maximum temperature of the city for the given period of ten days ?

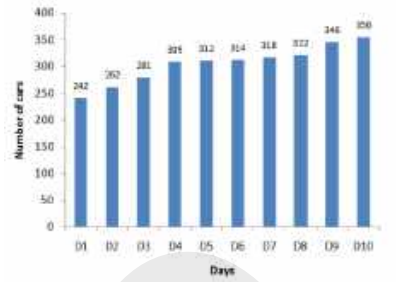
दिए गए दस दिनों के लिए प्रतिदिन शहर का औसत अधिकतम तापमान कितना है ?

SSC MTS- 5 August 2019 (Afternoon)

(a) 32.96$^{\circ}C$
(b) 33.96$^{\circ}C$
(c) 35.96$^{\circ}C$
(d) 44.96$^{\circ}C$

Q254. The bar graph given below shows the number of cars parked in a parking area during ten different days .

नीचे दिया गया दंड आरेख किसी पार्किंग क्षेत्र में दस अलग-अलग दिनों में खड़ी कारों की संख्या को दर्शाता है |



What is the difference between the numbers of cars parked in D3 and D8 ?

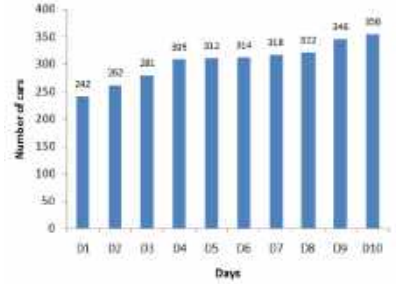
D3 तथा D8 में खड़ी कारों की संख्या का अंतर कितना है ?

SSC MTS- 6 August 2019 (Morning)

(a) 41
(b) 45
(c) 37
(d) 33

Q255. The bar graph given below shows the number of cars parked in a parking area during ten different days .

नीचे दिया गया दंड आरेख किसी पार्किंग क्षेत्र में दस अलग-अलग दिनों में खड़ी कारों की संख्या को दर्शाता है |



What is the total number of cars parked in the parking area for all 10 days ?

पार्किंग क्षेत्र में सभी 10 दिनों में खड़ी कारों की कुल संख्या कितनी है ?

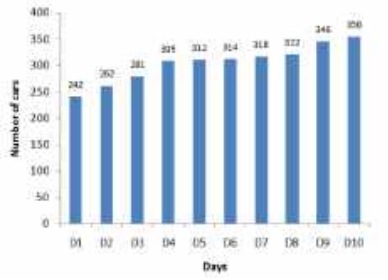
SSC MTS- 6 August 2019 (Morning)

(a) 3882
(b) 3462

Pinnacle

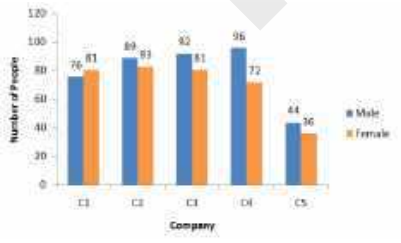
(c) 3062
(d) 3862

Q256. The bar graph given below shows the number of cars parked in a parking area during ten different days .
नीचे दिया गया दंड आरेख किसी पार्किंग क्षेत्र में दस अलग-अलग दिनों में खड़ी कारों की संख्या को दर्शाता है |



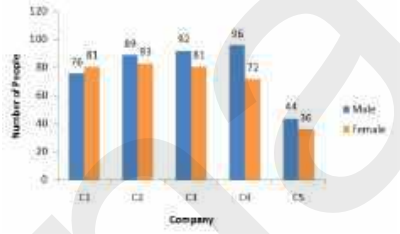
The number of cars parked in D10 is what percent (correct to two decimal places) more than that of in D1 ?
D10 में खड़ी कारों की संख्या, D1 में खड़ी कारों की संख्या से कितनी प्रतिशत (दो दशमलव स्थान तक) अधिक है ?
SSC MTS- 6 August 2019 (Morning)
(a) 57.11%
(b) 52.11%
(c) 42.11%
(d) 47.11%

Q257. The bar graph given below shows the number of men and women working in the five different companies.
नीचे दिया गया दंड आरेख पाँच विभिन्न कंपनियों में कार्य करने वाले पुरुषों तथा महिलाओं की संख्या को दर्शाता है |



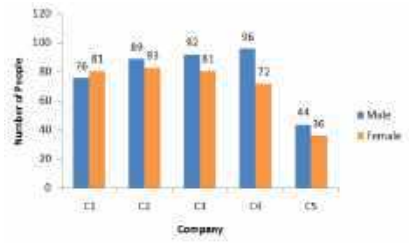
What is the ratio of the total number of men working the companies C2 and C3 to the total number of women working in the companies C1 and C5 ?
C2 तथा C3 कंपनियों में कार्य करने वाले पुरुषों की कुल संख्या C1 तथा C5 तथा कंपनियों में कार्य करने वाली महिलाओं की कुल संख्या का अनुपात कितना है ?
SSC MTS- 6 August 2019 (Afternoon)
(a) 181 : 117
(b) 182 : 119
(c) 183 : 124
(d) 171 : 136

Q258.The bar graph given below shows the number of men and women working in the five different companies.
नीचे दिया गया दंड आरेख पाँच विभिन्न कंपनियों में कार्य करने वाले पुरुषों तथा महिलाओं की संख्या को दर्शाता है |



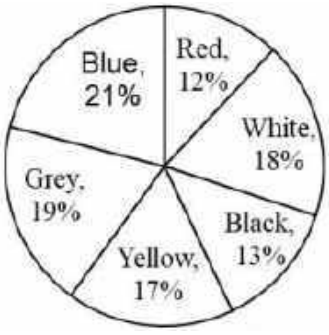
The total number of men working in the five companies is approximately what percent more than that of women working in these companies ?
इन पांच कंपनियों में कार्य करने वाले पुरुषों की कुल संख्या, इन पांच कंपनियों में कार्य करने वाली महिलाओं की कुल संख्या से (लगभग) कितना प्रतिशत अधिक है ?
SSC MTS- 6 August 2019 (Afternoon)
(a) 12.46%
(b) 9.67%
(c) 8.52%
(d) 14.67%

Q259.The bar graph given below shows the number of men and women working in the five different companies.
नीचे दिया गया दंड आरेख पाँच विभिन्न कंपनियों में कार्य करने वाले पुरुषों तथा महिलाओं की संख्या को दर्शाता है |



What is the average number of women working per company ?
कार्य करने वाली महिलाओं की प्रति कंपनी औसत संख्या कितनी है ?
SSC MTS- 6 August 2019 (Afternoon)
(a) 71.8
(b) 74.6
(c) 72.2
(d) 70.6

Q260. The pie chart given below presents the percentage of the number of motor cycles of different colours out of the total number of motor cycles, parked in an area. The central angles shown in the Pie chart are not as per any chosen scale.
नीचे दिया गया वृत्त-आरेख किसी क्षेत्र में खड़ी की गयीं कुल मोटरसाइकिलों में से अलग-अलग रंग की मोटरसाइकिलों की संख्या का प्रतिशत दर्शाता है | इस वृत्त-आरेख में दिए गए केंद्रीय कोण किसी भी चयनित पैमाने के अनुसार नहीं हैं |



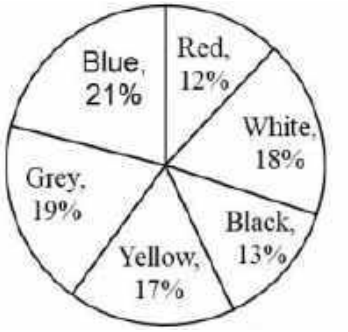
What is the central angle (nearest to one degree) corresponding to the motor cycles of black colour?
काले रंग की मोटरसाइकिल का संगत केंद्रीय कोण कितने डिग्री (एक डिग्री के निकटतम) का है ?

SSC MTS- 6 August 2019 (Evening)

(a) 44
(b) 45
(c) 46
(d) 47

Q261. The Pie chart given below presents the percentage of the number of motor cycles of different colours out of the total number of motor cycles, parked in an area. The central angles shown in the Pie chart are not as per any chosen scale.

नीचे दिया गया वृत्त-आरेख किसी क्षेत्र में खड़ी की गयीं कुल मोटरसाइकिलों में से अलग-अलग रंग की मोटरसाइकिलों की संख्या का प्रतिशत दर्शाता है | इस वृत्त-आरेख में दिए गए केंद्रीय कोण किसी भी चयनित पैमाने के अनुसार नहीं हैं |



If the total number of motor cycles parked is 2300, then what is the number of red colour motor cycles out of them?

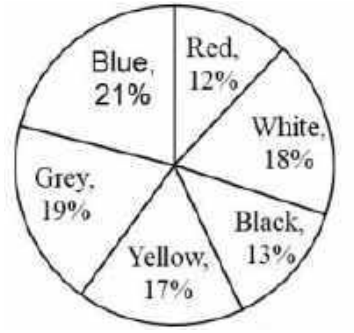
यदि खड़ी की गयी मोटरसाइकिलों की कुल संख्या 2300 है, तो इनमें से लाल रंग की मोटरसाइकिल कितनी है ?

SSC MTS- 6 August 2019 (Evening)

(a) 284
(b) 288
(c) 280
(d) 276

Q262. The Pie chart given below presents the percentage of the number of motor cycles of different colours out of the total number of motor cycles, parked in an area. The central angles shown in the Pie chart are not as per any chosen scale.

नीचे दिया गया वृत्त-आरेख किसी क्षेत्र में खड़ी की गयीं कुल मोटरसाइकिलों में से अलग-अलग रंग की मोटरसाइकिलों की संख्या का प्रतिशत दर्शाता है | इस वृत्त-आरेख में दिए गए केंद्रीय कोण किसी भी चयनित पैमाने के अनुसार नहीं हैं |



If the total number of motor cycles parked is 2300, the number having white colour is how much less than those having the blue colour?

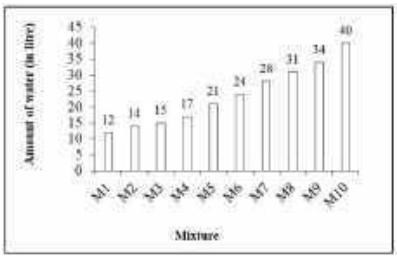
यदि खड़ी की गयी मोटरसाइकिलों की कुल संख्या 2300 है, तो सफ़ेद रंग की मोटरसाइकिलों की संख्या नीले रंग की मोटरसाइकिलों की संख्या से कितनी कम है ?

SSC MTS- 6 August 2019 (Evening)

(a) 66
(b) 72
(c) 63
(d) 69

Q263. The Bar graph below presents the amount (volume in litres) of water in ten different mixtures.

यह दंड आरेख दस अलग-अलग मिश्रणों में पानी की मात्रा (लीटर में) को दर्शाता है |



The amount of water in mixture M7 is how much more than the average amount of water per mixture?

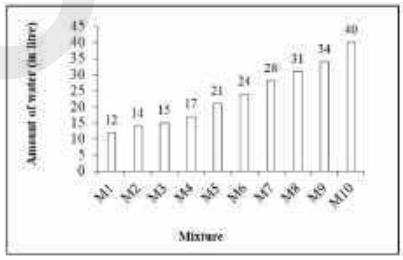
मिश्रण M7 में पानी की मात्रा प्रति मिश्रण पानी की औसत मात्रा से कितनी अधिक है ?

SSC MTS- 7 August 2019 (Morning)

(a) 4
(b) 4.4
(c) 4.2
(d) 4.6

Q264. The Bar graph below presents the amount (volume in litres) of water in ten different mixtures.

यह दंड आरेख दस अलग-अलग मिश्रणों में पानी की मात्रा (लीटर में) को दर्शाता है |



The amount of water in mixture M3 is what percent of amount of water in mixture M6 ?

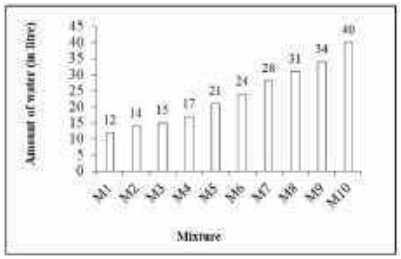
मिश्रण M3 में पानी की मात्रा मिश्रण M6 में पानी की मात्रा का कितना प्रतिशत है ?

SSC MTS- 7 August 2019 (Morning)

(a) 44.5
(b) 62.5
(c) 50.5
(d) 56.5

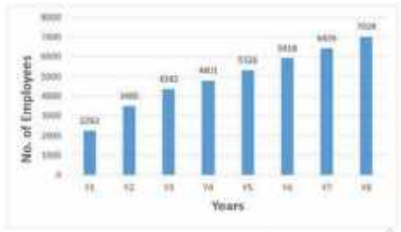
Q265. The Bar graph below presents the amount (volume in litres) of water in ten different mixtures.

यह दंड आरेख दस अलग-अलग मिश्रणों में पानी की मात्रा (लीटर में) को दर्शाता है |



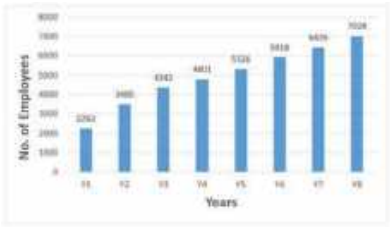
What is the average amount of water per mixture?
प्रति मिश्रण पानी की औसत मात्रा कितनी है ?
SSC MTS- 7 August 2019 (Morning)
(a) 24.8 litre
(b) 23.6 litre
(c) 24.4 litre
(d) 24 litre

Q266. The Bar graph shown below presents the number of employees in an office during eight consecutive years.
नीचे दिया गया दंड आरेख किसी कार्यालय में आठ लगातार वर्षों के दौरान कर्मचारियों की संख्या को दर्शाता है |



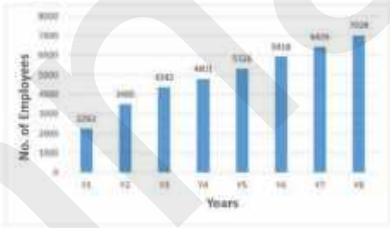
What is the average number of employees per year?
प्रति वर्ष कर्मचारियों की औसत संख्या कितनी है ?
SSC MTS- 7 August 2019 (Afternoon)
(a) 5148.5
(b) 5348.5
(c) 5548.5
(d) 4948.5

Q267. The Bar graph shown below presents the number of employees in an office during eight consecutive years.
नीचे दिया गया दंड आरेख किसी कार्यालय में आठ लगातार वर्षों के दौरान कर्मचारियों की संख्या को दर्शाता है |



What is the growth percentage in the number of employees from Y5 to Y6?
Y5 से Y6 तक कर्मचारियों की संख्या में वृद्धि का प्रतिशत कितना है ?
SSC MTS- 7 August 2019 (Afternoon)
(a) 10.00
(b) 11.96
(c) 11.11
(d) 12.04

Q268. The Bar graph shown below presents the number of employees in an office during eight consecutive years.
नीचे दिया गया दंड आरेख किसी कार्यालय में आठ लगातार वर्षों के दौरान कर्मचारियों की संख्या को दर्शाता है |



The number of employees in year Y2 is how much percent less than the average number of employees per year?
वर्ष Y2 में कर्मचारियों की संख्या प्रति वर्ष कर्मचारियों की औसत संख्या से कितना प्रतिशत कम है ?
SSC MTS- 7 August 2019 (Afternoon)
(a) 29.57%
(b) 23.57%
(c) 41.54%
(d) 35.57%

Q269. The Table given below presents the Rainfall (in mm) in two cities on different days of a week.
नीचे दी गयी तालिका दो शहरों में सप्ताह के अलग-अलग दिन हुई बारिश (मिमी में) को दर्शाती है |

Days	Rainfall (in mm)	
	City 1	City 2
D1	82	81.6
D2	78	79.4
D3	76.2	78.3
D4	81.6	77.7
D5	79.4	84
D6	84	83
D7	83.8	82

The rainfall on day D2 in city 1 is how much percent more than the rainfall on day D4 in city 2?
D2 दिन को शहर 1 में हुई बारिश D4 दिन को शहर 2 में हुई बारिश से कितनी प्रतिशत अधिक है ?
SSC MTS- 7 August 2019 (Evening)
(a) $\frac{100}{259}$
(b) $\frac{1}{260}$
(c) $\frac{100}{777}$
(d) $\frac{5}{13}$

Q270. The Table given below presents the Rainfall (in mm) in two cities on different days of a week.
नीचे दी गयी तालिका दो शहरों में सप्ताह के अलग-अलग दिन हुई बारिश (मिमी में) को दर्शाती है |

Days	Rainfall (in mm)	
	City 1	City 2
D1	82	81.6
D2	78	79.4
D3	76.2	78.3
D4	81.6	77.7
D5	79.4	84
D6	84	83
D7	83.8	82

What is the difference (correct up to two decimal places) in average rainfall in two cities per day?
प्रति दिन इन दो शहरों में होने वाली औसत वर्षा में क्या अंतर (दशमलव के दो स्थान तक) है ?
SSC MTS- 7 August 2019 (Evening)
(a) 0.42 mm
(b) 0.15 mm
(c) 0.66 mm
(d) 0.08 mm

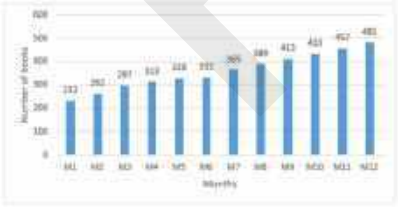
Pinnacle

Q271. The Table given below presents the Rainfall (in mm) in two cities on different days of a week.
नीचे दी गयी तालिका दो शहरों में सप्ताह के अलग-अलग दिन हुई बारिश (मिमी में) को दर्शाती है |

Days	Rainfall (in mm)	
	City 1	City 2
D1	82	81.6
D2	78	79.4
D3	76.2	78.3
D4	81.6	77.7
D5	79.4	84
D6	84	83
D7	83.8	82

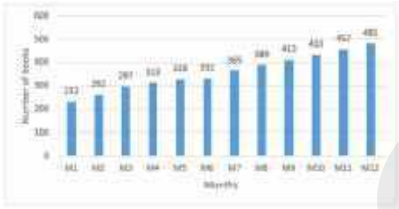
If the data of Rainfall of City 1 is represented through a Pie chart, then what will be the central angle (nearest to 0.1 degree) corresponding to D1?
यदि शहर 1 की वर्षा के आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो D1 के संगत केंद्रीय कोण (0.1 डिग्री के निकटतम) का मान क्या होगा ?
SSC MTS- 7 August 2019 (Evening)
(a) 50.8
(b) 53.3
(c) 51.9
(d) 52.2

Q272. The bar graph given below presents the number of books sold by a bookseller during different months of a year.
नीचे दिया गया दंड आरेख एक पुस्तक विक्रेता के द्वारा किसी वर्ष के अलग-अलग महीनों में बेची गयी पुस्तकों की संख्या को दर्शाता है |



The number of books sold in month M3 is what percent of books sold in month M6?
माह M3 में बेची गयी पुस्तकों की संख्या माह M6 में बेची गयी पुस्तकों की संख्या का कितना प्रतिशत है ?
SSC MTS- 8 August 2019 (Morning)
(a) 89.45%
(b) 92.45%
(c) 95.45%
(d) 98.45%

Q273. The bar graph given below presents the number of books sold by a bookseller during different months of a year.
नीचे दिया गया दंड आरेख एक पुस्तक विक्रेता के द्वारा किसी वर्ष के अलग-अलग महीनों में बेची गयी पुस्तकों की संख्या को दर्शाता है |



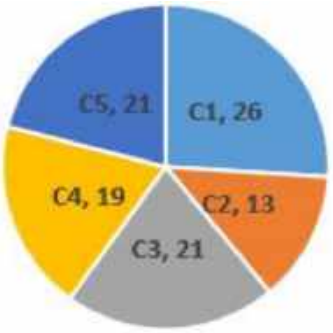
What is the total number of books sold by the bookseller in the year?
वर्ष में इस पुस्तक विक्रेता के द्वारा बेची गयी पुस्तकों की संख्या कुल कितनी है ?
SSC MTS- 8 August 2019 (Morning)
(a) 4132
(b) 4032
(c) 4302
(d) 4202

Q274. The bar graph given below presents the number of books sold by a bookseller during different months of a year.
नीचे दिया गया दंड आरेख एक पुस्तक विक्रेता के द्वारा किसी वर्ष के अलग-अलग महीनों में बेची गयी पुस्तकों की संख्या को दर्शाता है |



The number of books sold in month M8 is how much more than the average number of books sold per month?
माह M8 में बेची गयी पुस्तकों की संख्या प्रति माह बेची गयी पुस्तकों की औसत संख्या से कितना प्रतिशत अधिक है ?
SSC MTS- 8 August 2019 (Morning)
(a) 30.5
(b) 26.5
(c) 22.5
(d) 34.5

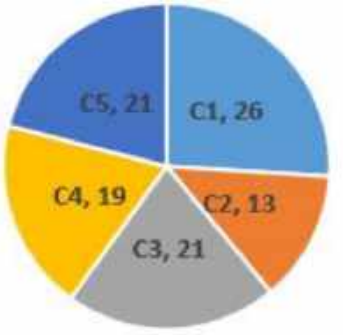
Q275. The given Pie Chart (central angles are not as per any chosen scale) presents the percentage of the number of refrigerators of five different companies (with reference to the total number of refrigerators) in a hotel.
दिया गया पाई-चार्ट (केंद्रीय कोण किसी भी चयनित पैमाने के अनुसार नहीं हैं) किसी होटल में पांच अलग-अलग कंपनियों के रेफ्रिजिरेटरों की संख्या का प्रतिशत (रेफ्रिजिरेटरों की कुल संख्या के संदर्भ में) दर्शाता है |



What is the difference in number of refrigerators supplied to the hotel by companies C1 and C5?
कंपनी C1 एवं C5 के द्वारा होटल को आपूर्ति किये गए रेफ्रिजिरेटरों की संख्या में क्या अंतर है ?
SSC MTS- 8 August 2019 (Afternoon)
(a) 481
(b) 259
(c) 222
(d) 185

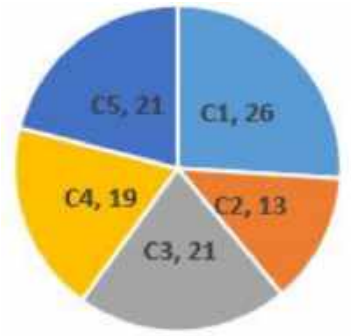
Q276. The given Pie Chart (central angles are not as per any chosen scale) presents the

percentage of the number of refrigerators of five different companies (with reference to the total number of refrigerators) in a hotel.
दिया गया पाई-चार्ट (केंद्रीय कोण किसी भी चयनित पैमाने के अनुसार नहीं हैं) किसी होटल में पांच अलग-अलग कंपनियों के रेफ्रिजिरेटरों की संख्या का प्रतिशत (रेफ्रिजिरेटरों की कुल संख्या के संदर्भ में) दर्शाता है |



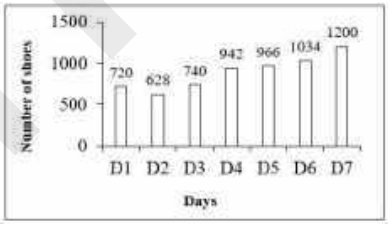
If the total number of refrigerators in the hotel is 3700, then what is the number of refrigerators of company C5?
यदि होटल में रेफ्रिजिरेटरों की कुल संख्या 3700 है, तो कंपनी C5 के रेफ्रिजिरेटरों की संख्या क्या है ?
SSC MTS- 8 August 2019 (Afternoon)
(a) 962
(b) 777
(c) 481
(d) 703

Q277. The given Pie Chart (central angles are not as per any chosen scale) presents the percentage of the number of refrigerators of five different companies (with reference to the total number of refrigerators) in a hotel.
दिया गया पाई-चार्ट (केंद्रीय कोण किसी भी चयनित पैमाने के अनुसार नहीं हैं) किसी होटल में पांच अलग-अलग कंपनियों के रेफ्रिजिरेटरों की संख्या का प्रतिशत (रेफ्रिजिरेटरों की कुल संख्या के संदर्भ में) दर्शाता है |



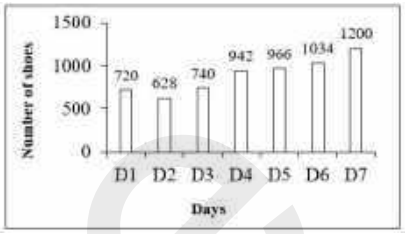
What is the difference between the central angles (to the nearest 0.1 degree) subtended by the sectors for C2 and C4?
त्रिज्यखंडों के द्वारा C2 एवं C4 के लिए अंतरित केंद्रीय कोणों (0.1 डिग्री के निकटतम) में क्या अंतर है ?
SSC MTS- 8 August 2019 (Evening)
(a) 19.2
(b) 21.6
(c) 24.0
(d) 22.5

Q278. The Bar graph given below presents the number of shoes manufactured by a company on the different days of a week.
नीचे दिया गया दंड आरेख एक कंपनी के द्वारा सप्ताह के अलग-अलग दिनों को बनाए गए जूतों की संख्या प्रस्तुत करता है |



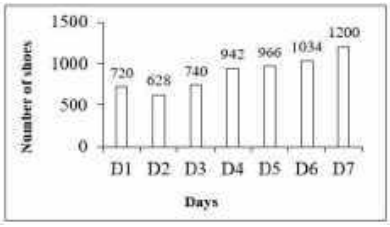
The number of shoes manufactured on D5 is how much more than the average number of shoes manufactured per day?
D5 को बनाए गए जूतों की संख्या प्रतिदिन बनाए गए जूतों की औसत संख्या से कितनी अधिक है ?
SSC MTS- 8 August 2019 (Evening)
(a) 72
(b) 64
(c) 76
(d) 68

Q279. The Bar graph given below presents the number of shoes manufactured by a company on the different days of a week.
नीचे दिया गया दंड आरेख एक कंपनी के द्वारा सप्ताह के अलग-अलग दिनों को बनाए गए जूतों की संख्या प्रस्तुत करता है |



The number of shoes manufactured on D1 is what percentage of shoes manufactured on D7?
D1 को बनाए गए जूतों की संख्या D7 को बनाए गए जूतों की संख्या का कितना प्रतिशत है ?
SSC MTS- 8 August 2019 (Evening)
(a) 80.45
(b) 60
(c) 80
(d) 70.25

Q280. The Bar graph given below presents the number of shoes manufactured by a company on the different days of a week.
नीचे दिया गया दंड आरेख एक कंपनी के द्वारा सप्ताह के अलग-अलग दिनों को बनाए गए जूतों की संख्या प्रस्तुत करता है |



What is the total number of shoes manufactured by the company on all seven days together?
सभी सात दिनों को मिलाकर कंपनी के द्वारा बनाए गए जूतों की कुल संख्या कितनी है ?

SSC MTS- 8 August 2019 (Evening)
(a) 5930
(b) 6030
(c) 6130
(d) 6230

Q281. The Table shows the number of T-20 matches played, runs scored, 50s and 100s scored by four Indian batsman in a particular year.
यह तालिका चार भारतीय बल्लेबाजों के द्वारा एक विशेष वर्ष में खेले गए टी-20 मैचों की संख्या, बनाए गए रन, तथा अर्धशतक एवं शतकों की संख्या को दर्शाती है |

Player	Matches played	Runs scored	50s	100s
Virat	16	900	4	3
Rohit	20	840	5	1
Shikhar	25	1050	6	2
Suresh	12	450	4	0

The difference between average runs per match scored by Shikhar and average runs per match scored by Rohit is:
शिखर के द्वारा प्रति मैच बनाए गए औसत रनों एवं रोहित के द्वारा प्रति मैच बनाए गए औसत रनों में कितना अंतर है ?
SSC MTS- 9 August 2019 (Morning)
(a) 1
(b) 18
(c) 0
(d) 20

Q282. The Table shows the number of T-20 matches played, runs scored, 50s and 100s scored by four Indian batsman in a particular year.
यह तालिका चार भारतीय बल्लेबाजों के द्वारा एक विशेष वर्ष में खेले गए टी-20 मैचों की संख्या, बनाए गए रन, तथा अर्धशतक एवं शतकों की संख्या को दर्शाती है |

Player	Matches played	Runs scored	50s	100s
Virat	16	900	4	3
Rohit	20	840	5	1
Shikhar	25	1050	6	2
Suresh	12	450	4	0

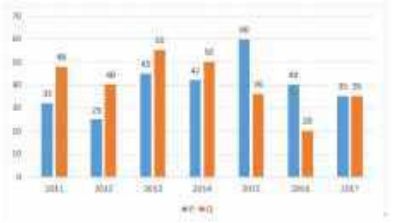
Total number of runs scored by all four batsmen is:
सभी चार बल्लेबाज़ों के द्वारा बनाए गए कुल रन हैं :
SSC MTS- 9 August 2019 (Morning)
(a) 3240
(b) 1620
(c) 1450
(d) 1500

Q283. The Table shows the number of T-20 matches played, runs scored, 50s and 100s scored by four Indian batsman in a particular year.
यह तालिका चार भारतीय बल्लेबाज़ों के द्वारा एक विशेष वर्ष में खेले गए टी-20 मैचों की संख्या, बनाए गए रन, तथा अर्धशतक एवं शतकों की संख्या को दर्शाती है |

Player	Matches played	Runs scored	50s	100s
Virat	16	900	4	3
Rohit	20	840	5	1
Shikhar	25	1050	6	2
Suresh	12	450	4	0

What is the average of the total number of runs scored by all four batsman together?
सभी चार बल्लेबाज़ों को मिलाकर बनाए गए कुल रनों का औसत क्या है ?
SSC MTS- 9 August 2019 (Morning)
(a) 820
(b) 800
(c) 810
(d) 790

Q284. The Bar Graph shows the Profit (Rupees in Lakhs) earned by two companies P and Q during the period 2011 to 2017.
यह दंड आरेख दो कंपनियों P एवं Q के द्वारा 2011 से 2017 की अवधि में कमाए गए लाभ (लाख रुपये में) को दर्शाता है |



In which year company P earns the maximum profit as compared to the previous year?
किस वर्ष कंपनी P को पिछले वर्ष की तुलना में अधिकतम लाभ हुआ है ?
SSC MTS- 9 August 2019 (Afternoon)
(a) 2013
(b) 2016
(c) 2017
(d) 2015

Q285. The Bar Graph shows the Profit (Rupees in Lakhs) earned by two companies P and Q during the period 2011 to 2017.
यह दंड आरेख दो कंपनियों P एवं Q के द्वारा 2011 से 2017 की अवधि में कमाए गए लाभ (लाख रुपये में) को दर्शाता है |



The ratio of average profit during the given period for Company P to Company Q is:
दी गयी अवधि के दौरान कंपनी P और कंपनी Q के औसत लाभ में क्या अनुपात है ?
SSC MTS- 9 August 2019 (Afternoon)
(a) 284 : 257
(b) 257 : 284
(c) 284 : 279
(d) 279 : 284

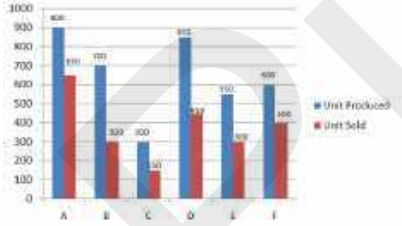
Q286. The Bar Graph shows the Profit (Rupees in Lakhs) earned

by two companies P and Q during the period 2011 to 2017.
यह दंड आरेख दो कंपनियों P एवं Q के द्वारा 2011 से 2017 की अवधि में कमाए गए लाभ (लाख रुपये में) को दर्शाता है |



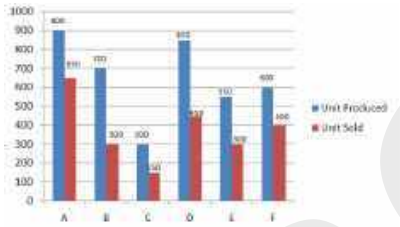
In which year the profit of two companies, taken together, is maximum:
किस वर्ष, इन दोनों कंपनियों का लाभ (एक साथ) अधिकतम है ?
SSC MTS- 9 August 2019 (Afternoon)
(a) 2014
(b) 2015
(c) 2013
(d) 2017

Q287. The given bar graph shows the production and sale of mobile handsets of five different companies A, B, C, D, E, & F during the period of one month.
दंड आरेख विभिन्न कंपनियों A, B, C, D, E & F की एक माह में मोबाइल हैंडसेट के उत्पादन और बिक्री को दर्शाता है |



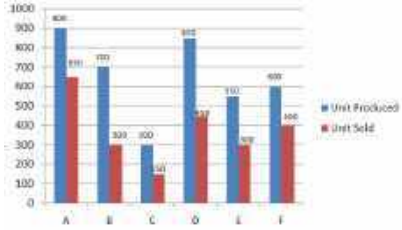
The units sold by the companies A, B and C, taken together, is approximately what percent of the total units produced by the companies A, B and C ? (to the nearest integer)
कंपनी A, B और C द्वारा कुल मिलाकर बिक्री की गई यूनिटें, कंपनी A, B और C द्वारा मिलाकर उत्पादित कुल यूनिटों का लगभग कितना प्रतिशत है (निकटतम पूर्णांक तक)?
SSC MTS- 9 August 2019 (Evening)
(a) 58
(b) 50
(c) 76
(d) 62

Q288. The given bar graph shows the production and sale of mobile handsets of five different companies A, B, C, D, E, & F during the period of one month.
दंड आरेख विभिन्न कंपनियों A, B, C, D, E & F की एक माह में मोबाइल हैंडसेट के उत्पादन और बिक्री को दर्शाता है |



What is the average number of units produced by all the companies taken together ?
सभी कंपनियों को मिलाकर उत्पादित यूनिटों की औसत संख्या कितनी है ?
SSC MTS- 9 August 2019 (Evening)
(a) 625
(b) 675
(c) 650
(d) 600

Q289. The given bar graph shows the production and sale of mobile handsets of five different companies A, B, C, D, E, & F during the period of one month.
दंड आरेख विभिन्न कंपनियों A, B, C, D, E & F की एक माह में मोबाइल हैंडसेट के उत्पादन और बिक्री को दर्शाता है |



With respect to production, the sale percentage of which company is highest ?
किस कंपनी की बिक्री का प्रतिशत, उसके उत्पादन के संदर्भ में, सबसे अधिक है ?
SSC MTS- 9 August 2019 (Evening)
(a) B
(b) A
(c) E
(d) D

Q290. The table shows the number of candidates appearing in the interview for a post in six banks (H, I, J, K, L, M) and the percentage of candidates found eligible.
यह तालिका छह बैंकों (H, I, J, K, L, M) में किसी पद हेतु साक्षात्कार में शामिल होने वाले उम्मीदवारों की संख्या तथा योग्य पाए जाने वाले उम्मीदवारों के प्रतिशत को दर्शाती है |

Banks	Candidates Appearing	% of Candidates Qualifying
H	1500	14
I	2200	26
J	3000	17
K	980	20
L	1200	28
M	2500	21

The number of candidates found 'not eligible' in Bank K is approximately what percent of the number of candidates found 'not eligible' in Bank I ? (to the nearest integer)
बैंक K में योग्य नहीं पाए गए उम्मीदवारों की संख्या, बैंक I में योग्य नहीं पाए गए उम्मीदवारों की संख्या का लगभग कितना प्रतिशत (निकटतम पूर्णांक में) है ?
SSC MTS- 13 August 2019 (Morning)
(a) 42
(b) 48
(c) 44
(d) 51

Q291. The table shows the number of candidates appearing in the interview for a post in six banks (H, I, J, K, L, M) and the percentage of candidates found eligible.
यह तालिका छह बैंकों (H, I, J, K, L, M) में किसी पद हेतु साक्षात्कार में शामिल होने वाले उम्मीदवारों की संख्या तथा योग्य पाए जाने वाले उम्मीदवारों के प्रतिशत को दर्शाती है |

Banks	Candidates Appearing	% of Candidates Qualifying
H	1500	14
I	2200	26
J	3000	17
K	980	20
L	1200	28
M	2500	21

What was the average number of candidates appeared in the interview for Banks H, J and L taken together ?
बैंक H, J तथा L में कुल मिलाकर साक्षात्कार में शामिल होने वाले उम्मीदवारों की औसत संख्या कितनी थी ?
SSC MTS- 13 August 2019 (Morning)
(a) 1900
(b) 1500
(c) 1800
(d) 2000

Q292. The table shows the number of candidates appearing in the interview for a post in six banks (H, I, J, K, L, M) and the percentage of candidates found eligible.
यह तालिका छह बैंकों (H, I, J, K, L, M) में किसी पद हेतु साक्षात्कार में शामिल होने वाले उम्मीदवारों की संख्या तथा योग्य पाए जाने वाले उम्मीदवारों के प्रतिशत को दर्शाती है |

Banks	Candidates Appearing	% of Candidates Qualifying
H	1500	14
I	2200	26
J	3000	17
K	980	20
L	1200	28
M	2500	21

What is the ratio of the number of candidates found eligible in Bank H to the number of candidates found eligible in Bank L ?
बैंक H में योग्य पाए गए उम्मीदवारों की संख्या और बैंक L में योग्य पाए गए उम्मीदवारों की संख्या का संबंधित अनुपात कितना था ?
SSC MTS- 13 August 2019 (Morning)
(a) 2 : 5
(b) 3 : 7
(c) 5 : 8
(d) 5 : 6

Q293. The Table shows the Number of Laptops and Desktops manufactured by a company.
यह तालिका किसी कंपनी के द्वारा निर्मित लैपटॉप एवं डेस्कटॉप की संख्या को दर्शाती है |

Year	2008	2009	2010	2011	2012
Laptops	14400	20500	12800	16400	18600
Desktops	12800	24700	19200	20200	14900

What was the difference in the total number of Laptops and Desktops manufactured in 2009 to the total number of Laptops and Desktops manufactured in 2011?
2009 में निर्मित लैपटॉप तथा डेस्कटॉप की कुल संख्या तथा 2011 में निर्मित लैपटॉप और डेस्कटॉप की कुल संख्या में क्या अंतर है ?
SSC MTS- 13 August 2019 (Afternoon)
(a) 8600
(b) 5600
(c) 6800
(d) 8200

Q294. The Table shows the Number of Laptops and Desktops manufactured by a company.
यह तालिका किसी कंपनी के द्वारा निर्मित लैपटॉप एवं डेस्कटॉप की संख्या को दर्शाती है |

Year	2008	2009	2010	2011	2012
Laptops	14400	20500	12800	16400	18600
Desktops	12800	24700	19200	20200	14900

Approximately what was the percentage decrease in number of desktops manufactured in 2012 from 2011? (correct to nearest integer)
2011 की तुलना में 2012 में निर्मित डेस्कटॉप की संख्या में लगभग कितने प्रतिशत की कमी आई है ?
SSC MTS- 13 August 2019 (Afternoon)
(a) 30
(b) 22
(c) 28
(d) 26

Q295. The Table shows the Number of Laptops and Desktops manufactured by a company.
यह तालिका किसी कंपनी के द्वारा निर्मित लैपटॉप एवं डेस्कटॉप की संख्या को दर्शाती है |

Year	2008	2009	2010	2011	2012
Laptops	14400	20500	12800	16400	18600
Desktops	12800	24700	19200	20200	14900

What is the average number of laptops manufactured by a company from 2008 to 2012?
2008 से 2012 तक कंपनी के द्वारा निर्मित लैपटॉप की औसत संख्या कितनी है ?
SSC MTS- 13 August 2019 (Afternoon)
(a) 13550
(b) 16140
(c) 16540
(d) 14260

Q296. The Table shows the number of articles sold by six different sellers (A, B, C, D, E and F) to two different shopkeepers P and Q. Some articles are purchased by other sellers also. Total articles purchased by shopkeepers P and Q is 300 and 500 respectively.

यह तालिका छः अलग-अलग विक्रेताओं (A, B, C, D, E और F) के द्वारा दो दुकानदारों (P और Q) को बेची गयी वस्तुओं की संख्या दर्शाती है | कुछ वस्तुएँ अन्य विक्रेताओं के द्वारा भी ख़रीदी जाती हैं | दुकानदार P और Q के द्वारा ख़रीदी गयी कुल वस्तुओं की संख्या क्रमशः 300 और 500 है |

Seller	P	Q
A	45	56
B	53	49
C	28	44
D	38	38
E	35	65
F	55	60

Total number of articles sold by seller C to shopkeeper Q is what percent of total number of articles sold by seller F to shopkeeper P?

विक्रेता C के द्वारा दुकानदार Q को बेची गयी वस्तुओं की कुल संख्या विक्रेता F के द्वारा दुकानदार P को बेची गयी वस्तुओं की कुल संख्या का कितना प्रतिशत है ?

SSC MTS- 13 August 2019 (Evening)

(a) 80%
(b) 84%
(c) 75%
(d) 78%

Q297. The Table shows the number of articles sold by six different sellers (A, B, C, D, E and F) to two different shopkeepers P and Q. Some articles are purchased by other sellers also. Total articles purchased by shopkeepers P and Q is 300 and 500 respectively.

यह तालिका छः अलग-अलग विक्रेताओं (A, B, C, D, E और F) के द्वारा दो दुकानदारों (P और Q) को बेची गयी वस्तुओं की संख्या दर्शाती है | कुछ वस्तुएँ अन्य विक्रेताओं के द्वारा भी ख़रीदी जाती हैं | दुकानदार P और Q के द्वारा ख़रीदी गयी कुल वस्तुओं की संख्या क्रमशः 300 और 500 है |

Seller	P	Q
A	45	56
B	53	49
C	28	44
D	38	38
E	35	65
F	55	60

What is the difference between total articles sold to P and Q by all the sellers other than A, B, C, D, E and F?

A, B, C, D, E और F के अलावा अन्य विक्रेताओं के द्वारा P और Q को बेची गयी वस्तुओं की कुल संख्या में क्या अंतर है ?

SSC MTS- 13 August 2019 (Evening)

(a) 162
(b) 142
(c) 152
(d) 172

Q298. The Table shows the number of articles sold by six different sellers (A, B, C, D, E and F) to two different shopkeepers P and Q. Some articles are purchased by other sellers also. Total articles purchased by shopkeepers P and Q is 300 and 500 respectively.

यह तालिका छः अलग-अलग विक्रेताओं (A, B, C, D, E और F) के द्वारा दो दुकानदारों (P और Q) को बेची गयी वस्तुओं की संख्या दर्शाती है | कुछ वस्तुएँ अन्य विक्रेताओं के द्वारा भी ख़रीदी जाती हैं | दुकानदार P और Q के द्वारा ख़रीदी गयी कुल वस्तुओं की संख्या क्रमशः 300 और 500 है |

Seller	P	Q
A	45	56
B	53	49
C	28	44
D	38	38
E	35	65
F	55	60

What is the average number of articles sold to the shopkeeper P by the sellers A, B, C and D together ?

दुकानदार P को विक्रेताओं A, B, C और D के द्वारा कुल मिलाकर बेची गयी वस्तुओं की संख्या का औसत क्या है ?

SSC MTS- 13 August 2019 (Evening)

(a) 42
(b) 41
(c) 44
(d) 43

Q299. The Table shows the distribution of the marks obtained by various students in a class. What is the ratio of the number of students getting ≥ 20% in English and ≥80% in Hindi to ≥ 40% in English and ≥60% in Hindi?

यह तालिका एक कक्षा में विभिन्न छात्रों के द्वारा प्राप्त किये गए अंकों का वितरण दर्शाती है| अंग्रेजी में ≥ 20% तथा हिंदी में ≥80% प्राप्त करने वाले छात्रों की संख्या तथा अंग्रेजी में ≥40% एवं हिंदी में ≥60% प्राप्त करने वाले छात्रों की संख्या में क्या अनुपात है ?

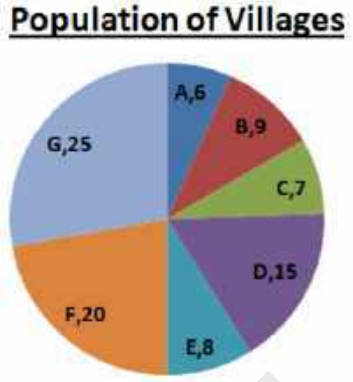
Subjects	Marks out of 50				
	40 and above	30 and above	20 and above	10 and above	0 and above
English	480	1440	3840	4320	4800
Hindi	200	960	3360	3840	4800
Average(Aggregate)	340	1200	3600	4080	4800

SSC MTS- 14 August 2019 (Afternoon)

(a) 107 : 130
(b) 113 : 130
(c) 113 : 120
(d) 107 : 120

Q300. The Pie chart shows the proportionate population of seven villages. The seven villages make up a district. If the population of villages F and G combined is 35000, then what is the total population of the district?

यह पाई-चार्ट सात गाँवों की आनुपातिक आबादी को दर्शाता है | सात गाँवों को मिलाकर एक जिला बनता है | यदि गाँव F और G की संयुक्त आबादी 35000 है, तो जिले की कुल आबादी कितनी है ?

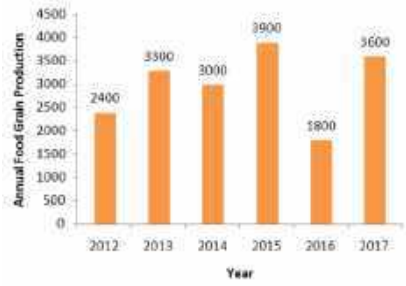


SSC MTS- 14 August 2019 (Afternoon)

(a) 70000
(b) 84000
(c) 77000
(d) 63000

Q301. The bar chart shows the annual food grain production (in million tonnes) for years 2012-2017. For how many years is the production less than the average production during the given period?

यह दंड आरेख वर्ष 2012-2017 की अवधि में वार्षिक खाद्यान्न उत्पादन (मिलियन टन में) को दर्शाता है | कितने वर्ष उत्पादन इस अवधि के औसत उत्पादन से कम है ?

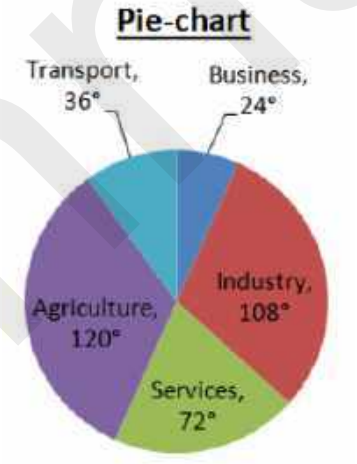


SSC MTS- 14 August 2019 (Afternoon)

(a) 1
(b) 3
(c) 2
(d) 4

Q302. The Pie Chart shows the angular representation of five different Employment sectors. The total number of employees in these five sectors is 7,20,000.

यह पाई-चार्ट पांच अलग-अलग रोज़गार क्षेत्रों के कोणीय प्रतिनिधित्व को दर्शाता है | इन पांच क्षेत्रों में कर्मचारियों की कुल संख्या 7,20,000 है|



How many total employees are engaged in Agriculture, Business and Transport?

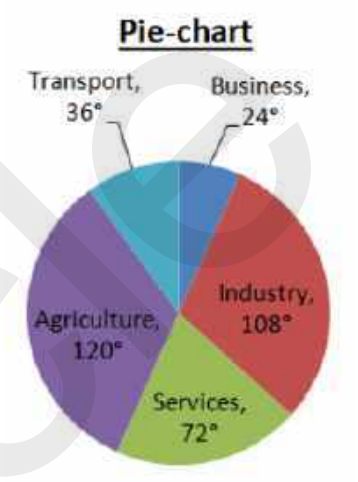
कृषि, व्यवसाय और परिवहन में कुल कितने कर्मचारी संलग्न हैं ?

SSC MTS- 14 August 2019 (Evening)

(a) 3,60,000
(b) 5,00,000
(c) 2,60,000
(d) 4,80,000

Q303. The Pie Chart shows the angular representation of five different Employment sectors. The total number of employees in these five sectors is 7,20,000.

यह पाई-चार्ट पांच अलग-अलग रोज़गार क्षेत्रों के कोणीय प्रतिनिधित्व को दर्शाता है | इन पांच क्षेत्रों में कर्मचारियों की कुल संख्या 7,20,000 है|



How many more employees are engaged in Industry than Business?

उद्योग में व्यवसाय की तुलना में कितने अधिक कर्मचारी संलग्न हैं ?

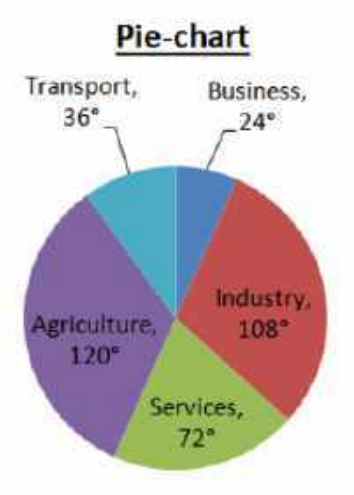
SSC MTS- 14 August 2019 (Evening)

(a) 360000
(b) 168000
(c) 250000
(d) 260000

Q304. The Pie Chart shows the angular representation of five different Employment sectors. The total number of employees in these five sectors is 7,20,000.

यह पाई-चार्ट पांच अलग-अलग रोज़गार क्षेत्रों के कोणीय प्रतिनिधित्व को दर्शाता है | इन पांच क्षेत्रों में कर्मचारियों की कुल संख्या 7,20,000 है|

Pinnacle



How much percent employees are in Service Sector?
कितने प्रतिशत कर्मचारी सेवा क्षेत्र में हैं ?

SSC MTS- 14 August 2019 (Evening)

(a) 72%
(b) 36%
(c) 20%
(d) 25%

Q305. The Table given below presents the annual expenses (in thousands) on various heads made by a firm during 2006-2010. By how much percentage (correct up to two decimal places) is the average expenditure on purchases more than the average expenditure on rent?
नीचे दी गयी तालिका एक फर्म के द्वारा 2006-2010 के दौरान विभिन्न मदों पर किये गए वार्षिक व्ययों (हज़ार में) को दर्शाती है | क्रय पर किया गया औसत व्यय किराये पर किये गए औसत व्यय से कितना प्रतिशत (दो दशमलव स्थान तक) अधिक है ?

Year	Particulars				
	Purchases	Wages	Rent	Interest	Delivery
2006	23500	35000	40000	16000	16000
2007	28500	24000	34000	14000	18000
2008	38500	30000	36000	22000	22000
2009	41000	36000	20000	18000	22000
2010	50000	40000	28000	16000	26000

SSC MTS- 16 August 2019 (Morning)

(a) 14.23
(b) 8.00
(c) 10.00
(d) 14.87

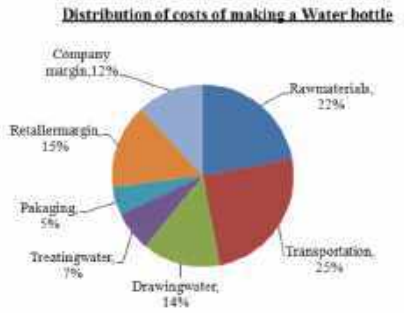
Q306. The Bar graph given below presents the runs scored by eleven cricketers, named P1, P2, P3, P4, … P11 in their respective careers which lasted for five years in each case. Which cricketer bridges the gap between the highest and the lowest scorers of runs?
नीचे दिया गया दंड आरेख ग्यारह क्रिकेटरों - P1, P2, P3, P4…… P11 के द्वारा उनके अपने करियर में बनाये गए रनों को दर्शाता है जो हर मामले में पांच साल का रहा है | सबसे अधिक एवं सबसे कम रन बनाने वाले बल्लेबाज़ों के बीच की खाई कौन सा क्रिकेटर भरता है ?

SSC MTS- 16 August 2019 (Morning)



(a) P8
(b) P6
(c) P10
(d) P3

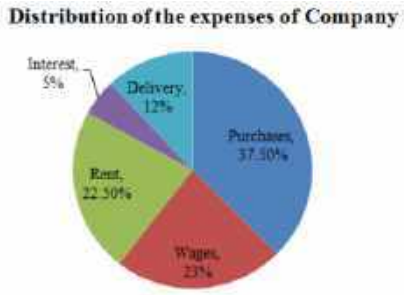
Q307. The Pie chart given below presents the distribution of costs of making a water bottle by a company. If the company earns 20% on cost per bottle and the cost of packaging one bottle is Rs0.50, then what is the selling price of one bottle?
नीचे दिया गया पाई-चार्ट एक कंपनी के द्वारा पानी की बोतल बनाने में आने वाली लागत का वितरण दर्शाता है | यदि कंपनी को प्रति बोतल लागत पर 20% का लाभ होता है तथा एक बोतल को पैक करने की लागत 0.50 रुपये है, तो एक बोतल का विक्रय मूल्य ज्ञात करें |



SSC MTS- 16 August 2019 (Morning)

(a) Rs12.50
(b) Rs12
(c) Rs15
(d) Rs10

Q308. The pie-chart specifically shows the allocation of revenue for the expenses of a company. If the sales of the company are Rs.4000000 and 75% of the revenue is allocated for expenses, then what is the total amount spent on wages and deliverables?
वृत्त आरेख में विशेष रूप से किसी कंपनी के खर्चों के लिए राजस्व के आबंटन को दर्शाया गया है | यदि कंपनी की बिक्री रु 4000000 है और राजस्व का 75% खर्चों के लिए आवंटित किया जाता है, तो मजदूरी और प्रदेय (डिलीवरी) पर खर्च की गयी कुल राशि कितनी है ?



SSC MTS- 16 August 2019 (Afternoon)

(a) Rs. 7,00,000
(b) Rs. 14,00,000
(c) Rs. 8,75,000
(d) Rs. 10,50,000

Q309. The following pie-chart shows the market share of exporting countries. If the share of a country X is equal to 40% of

the share of 'other countries' and the volume of exports of the country B is Rs 15 million, then the quantity exported by the country X is:

निम्नलिखित वृत्त आरेख निर्यातक देशों की बाजार हिस्सेदारी को दर्शाता है | यदि देश X की हिस्सेदारी 'दूसरे देशों' की हिस्सेदारी के 40% के बराबर है और देश B के निर्यात की मात्रा रु 15 मिलियन है, तो देश द्वारा निर्यात की गई मात्रा है :



SSC MTS- 16 August 2019 (Afternoon)

(a) Rs 2 Million / मिलियन

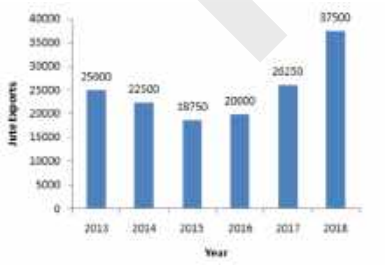
(b) Rs 1.6 Million / मिलियन

(c) Rs 8 Million / मिलियन

(d) Rs 4 Million / मिलियन

Q310. The following bar graph shows the quantity (in million) of grains exported by a country for a period. The maximum export is what percent more than the minimum export in the given period ?

निम्नलिखित दंड आरेख के दौरान किसी देश द्वारा निर्यात किए गए अनाज की मात्रा (मिलियन में) दर्शाता है | दी गई अवधि में अधिकतम निर्यात न्यूनतम निर्यात से कितना प्रतिशत अधिक है ?



SSC MTS- 16 August 2019 (Afternoon)

(a) 100%

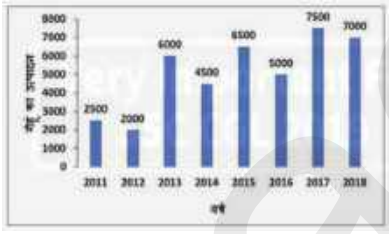
(b) 50%

(c) 75%

(d) 66.67%

Q311. The bar graph given below shows the wheat production (in tonnes) of a large farm during the year 2011-2018. In how many years was wheat production higher than the average production of the period?

नीचे दिए गए दंड आरेख में वर्ष 2011-2018 के दौरान किसी बड़े फार्म के गेहूं उत्पादन (टन में) को दर्शाया गया है | अवधि के औसत उत्पादन की तुलना में दिए गए कितने वर्षों में गेहूं उत्पादन अधिक था ?



SSC MTS- 16 August 2019 (Evening)

(a) 4

(b) 2

(c) 3

(d) 5

Q312.The bar graph given below shows the profit (in multiples of thousand rupees) of a company during the year 2010-2018. The average profit for the year 2015-2017 is what percentage more than the 2012 profit?

नीचे दिए गए दंड आरेख में वर्ष 2010-2018 के दौरान किसी कंपनी के लाभ (हजार रुपए के गुणक में) को दर्शाया गया है | वर्ष 2015-2017 का औसत लाभ 2012 के लाभ से कितना प्रतिशत अधिक है ?

SSC MTS- 16 August 2019 (Evening)

Year	Profit
2010	7500
2011	7000
2012	8000
2013	8500
2014	9500
2015	11000
2016	8000
2017	11000
2018	11500

(a) 33.33

(b) 25

(c) 50

(d) 12.5

Q 313. The Table presents the amount of milk (in litres) sold by two milkmen in eight days.

यह तालिका दो दूध वालों के द्वारा आठ दिनों में बेचे गए दूध की मात्रा (लीटर में) को दर्शाती है |

Days	Milkman 1	Milkman 2
1	28	31
2	34	32
3	38	43
4	37	41
5	53	49
6	58	59
7	63	62
8	67	69

What is the difference between the average milk sold per day by Milkman 1 and the average milk sold by Milkman 2 per day?

पहले दूध वाले के द्वारा प्रति दिन बेचे गए दूध की औसत मात्रा तथा दूसरे दूध वाले के द्वारा प्रतिदिन बेचे गए दूध की औसत मात्रा में क्या अंतर है ?

SSC MTS- 19 August 2019 (Morning)

(a) 2 litre

(b) 3 litre

(c) 1 litre

(d) 4 litre

Q314. The Table presents the amount of milk (in litres) sold by two milkmen in eight days.

यह तालिका दो दूध वालों के द्वारा आठ दिनों में बेचे गए दूध की मात्रा (लीटर में) को दर्शाती है |

Days	Milkman 1	Milkman 2
1	28	31
2	34	32
3	38	43
4	37	41
5	53	49
6	58	59
7	63	62
8	67	69

If A is the total amount (in litres) of milk sold by milkman 1 in day 2 and day 3 and B is the total amount (in litres) of milk sold by milkman 2 in day 7 and day 8 then (B-A) is equal to:

यदि ग्वाला 1 के द्वारा दिन 2 और दिन 3 को बेचे गए दूध की कुल मात्रा A है और ग्वाला 2 के द्वारा दिन 7 और दिन 8 को बेचे गए दूध की कुल मात्रा (लीटर में) B है, तो (B-A) का मान है :

SSC MTS- 19 August 2019 (Morning)

(a) 59
(b) 56
(c) 58
(d) 57

Q315. The Table presents the amount of milk (in litres) sold by two milkmen in eight days.

यह तालिका दो दूध वालों के द्वारा आठ दिनों में बेचे गए दूध की मात्रा (लीटर में) को दर्शाती है |

Days	Milkman 1	Milkman 2
1	28	31
2	34	32
3	38	43
4	37	41
5	53	49
6	58	59
7	63	62
8	67	69

The total amount of milk (in litres) sold by milkman 2 in all 8 days is what percent (correct to one decimal place) more than the total amount of milk sold by milkman 1 in first six days?

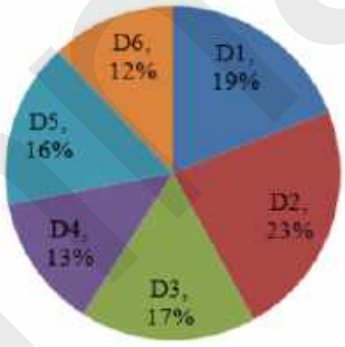
ग्वाला 2 के द्वारा 8 दिनों में बेचे गए दूध की कुल मात्रा (लीटर में) पहले छः दिनों में ग्वाला 1 के द्वारा बेचे गए दूध की कुल मात्रा से कितना प्रतिशत (एक दशमलव स्थान तक) अधिक है ?

SSC MTS- 19 August 2019 (Morning)

(a) 55.6
(b) 57.2
(c) 56.8
(d) 58.9

Q316. The pie-chart given below shows the expenses incurred by various departments of a company. Each expense is shown as a percentage of the company's total expenditure. The central angles shown in the pie-chart are not according to any selected scale.

नीचे दिया गया वृत्त आरेख किसी कंपनी के विभिन्न विभागों द्वारा किए खर्चों को दर्शाता है | प्रत्येक खर्च को कंपनी के कुल व्यय के प्रतिशत के रूप में दर्शाया गया है | वृत्त आरेख में दर्शाए गए केंद्रीय कोण किसी चयनित पैमाने के अनुसार नहीं हैं |



The expense incurred by the department D1 is approximately what percent of the expense incurred by the department D6 ?

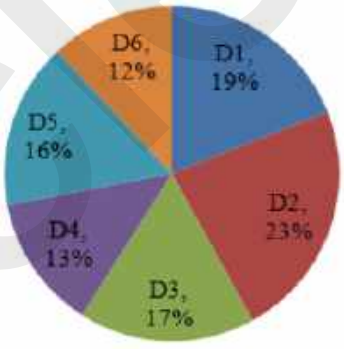
विभाग D1 द्वारा किया गया खर्चा, विभाग D6 द्वारा किए गए खर्च का लगभग कितना प्रतिशत है?

SSC MTS- 19 August 2019 (Afternoon)

(a) 148.33%
(b) 168.33%
(c) 138.33%
(d) 158.33%

Q317. The pie-chart given below shows the expenses incurred by various departments of a company. Each expense is shown as a percentage of the company's total expenditure. The central angles shown in the pie-chart are not according to any selected scale.

नीचे दिया गया वृत्त आरेख किसी कंपनी के विभिन्न विभागों द्वारा किये खर्चों को दर्शाता है | प्रत्येक खर्च को कंपनी के कुल व्यय के प्रतिशत के रूप में दर्शाया गया है | वृत्त आरेख में दर्शाए गए केंद्रीय कोण किसी चयनित पैमाने के अनुसार नहीं हैं |



If the total expenses of the company is 20 lacs, then find the total expenses incurred on the departments D2, D4 and D5.

यदि कंपनी के कुल खर्चे रु 20 लाख हैं, तो D2, D4 तथा D5 विभागों पर किया गया कुल खर्चा कितना है ?

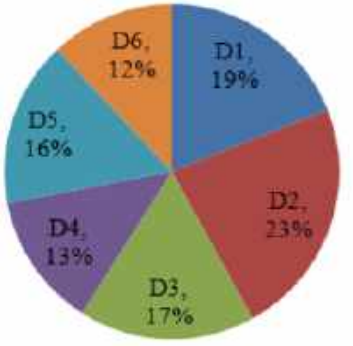
SSC MTS- 19 August 2019 (Afternoon)

(a) Rs. 12,60,000
(b) Rs. 9,00,000
(c) Rs. 10,60,000
(d) Rs. 10,40,000

Q318. The pie-chart given below shows the expenses incurred by various departments of a company. Each expense is shown as a percentage of the company's total expenditure. The central angles shown in the pie-chart are not according to any selected scale.

नीचे दिया गया वृत्त आरेख किसी कंपनी के विभिन्न विभागों द्वारा किये

खर्चों को दर्शाता है | प्रत्येक खर्च को कंपनी के कुल व्यय के प्रतिशत के रूप में दर्शाया गया है | वृत्त आरेख में दर्शाए गए केंद्रीय कोण किसी चयनित पैमाने के अनुसार नहीं हैं |



What is the difference (nearest to 0.1 degrees) between the central angles subtended by the sectors D2 and D3 ?

वृत्तखंड D2 तथा D3 द्वारा बनाये गए केंद्रीय कोणों के बीच क्या अंतर् (0.1 डिग्री के लगभग) है?

SSC MTS- 19 August 2019 (Afternoon)

(a) 15.3^0

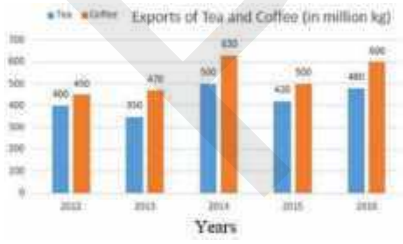
(b) 24.2^0

(c) 18.6^0

(d) 21.6^0

Q319. The given Bar Graph presents the Export of Tea and Coffee (in million kg) for the years 2012 to 2016.

दिया गया दंड आरेख वर्ष 2012 से 2016 के दौरान चाय और कॉफ़ी के निर्यात (मिलियन किलो ग्राम में) को दर्शाता है |



Total export of coffee is approximately what percent more than the total export of tea during the five years?

पांच वर्षों में कॉफ़ी का कुल निर्यात इस दौरान चाय के कुल निर्यात से लगभग कितना प्रतिशत अधिक है ?

SSC MTS- 19 August 2019 (Evening)

(a) 23

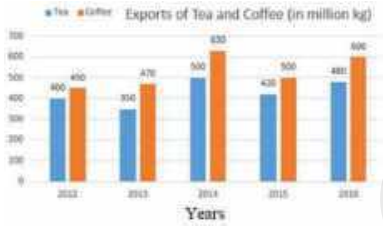
(b) 26

(c) 28

(d) 25

Q320. The given Bar Graph presents the Export of Tea and Coffee (in million kg) for the years 2012 to 2016.

दिया गया दंड आरेख वर्ष 2012 से 2016 के दौरान चाय और कॉफ़ी के निर्यात (मिलियन किलो ग्राम में) को दर्शाता है |



What is the ratio of total export of tea in 2012, 2014 and 2015 to the total export of coffee in 2013 and 2014?

2012, 2014 और 2015 में चाय के कुल निर्यात का 2013 और 2014 में कॉफ़ी के कुल निर्यात के साथ अनुपात ज्ञात करें |

SSC MTS- 19 August 2019 (Evening)

(a) 10 : 9

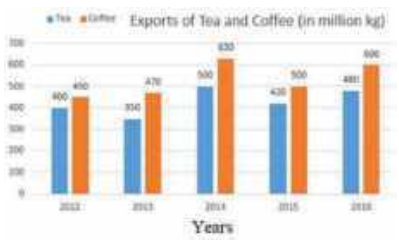
(b) 6 : 5

(c) 9 : 10

(d) 5 : 6

Q321. The given Bar Graph presents the Export of Tea and Coffee (in million kg) for the years 2012 to 2016.

दिया गया दंड आरेख वर्ष 2012 से 2016 के दौरान चाय और कॉफ़ी के निर्यात (मिलियन किलो ग्राम में) को दर्शाता है |



The number of years, in each of which the export of coffee is more than 20% as compared to the export of tea in that year is:

ऐसे कितने वर्ष हैं जिनमें से प्रत्येक में कॉफ़ी का निर्यात इस वर्ष में चाय के निर्यात की तुलना में 20% अधिक है ?

SSC MTS- 19 August 2019 (Evening)

(a) 2

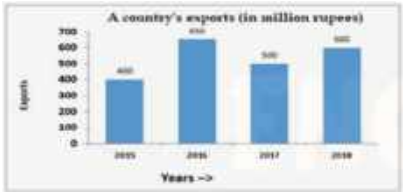
(b) 3

(c) 4

(d) 1

Q322. The given bar graph shows the exports (in million rupees) of a country during 2015-2018, and the table given thereafter shows the details of goods exported in a year.

दिया गया दंड आरेख (बार ग्राफ) 2015-2018 के दौरान किसी देश के निर्यात (मिलियन रुपये में) को दर्शाता है, और इसके बाद दी गई तालिका एक वर्ष में निर्यात किए गए वस्तुओं के विवरण को दर्शाती है |



The details of goods exported in a year

एक वर्ष में निर्यात की गई वस्तुओं का विवरण

Computers	24%
Garments	28%
Clothes	25%
Cosmetics	15%
Jewellery	8%

Total cosmetics exports in four years is approximately what percentage less than total exports of apparel and jewelry in 2015 and 2018?

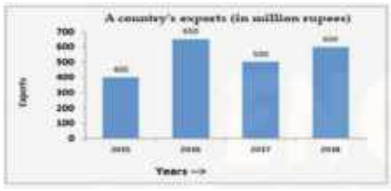
चार वर्ष में सौंदर्य प्रसाधनों का कुल निर्यात, 2015 और 2018 में परिधानों और आभूषणों के कुल निर्यात से लगभग कितने प्रतिशत कम है ?

SSC MTS- 20 August 2019 (Morning)

(a) 12.2
(b) 10.4
(c) 9.8
(d) 11.6

Q323.The given bar graph shows the exports (in million rupees) of a country during 2015-2018, and the table given thereafter shows the details of goods exported in a year.

दिया गया दंड आरेख (बार ग्राफ) 2015-2018 के दौरान किसी देश के निर्यात (मिलियन रुपये में) को दर्शाता है, और इसके बाद दी गई तालिका एक वर्ष में निर्यात किए गए वस्तुओं के विवरण को दर्शाती है |



The details of goods exported in a year

एक वर्ष में निर्यात की गई वस्तुओं का विवरण

Computers	24%
Garments	28%
Clothes	25%
Cosmetics	15%
Jewellery	8%

The export of jewelry in 2015, 2016 and 2018 is what percent of the exports of clothes in 2017 and 2018 taken together ?

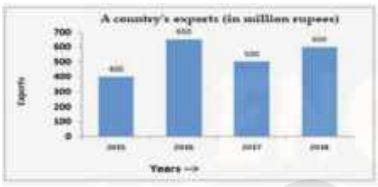
2015, 2016 और 2018 में आभूषणों का कुल निर्यात, 2017 और 2018 में कपड़ो के कुल निर्यात, का कितना प्रतिशत है ?

SSC MTS- 20 August 2019 (Morning)

(a) 50
(b) 45
(c) 48
(d) 42

Q324.The given bar graph shows the exports (in million rupees) of a country during 2015-2018, and the table given thereafter shows the details of goods exported in a year.

दिया गया दंड आरेख (बार ग्राफ) 2015-2018 के दौरान किसी देश के निर्यात (मिलियन रुपये में) को दर्शाता है, और इसके बाद दी गई तालिका एक वर्ष में निर्यात किए गए वस्तुओं के विवरण को दर्शाती है |



The details of goods exported in a year :

एक वर्ष में निर्यात की गई वस्तुओं का विवरण

Computers	24%
Garments	28%
Clothes	25%
Cosmetics	15%
Jewellery	8%

What is the ratio of the total exports of computers in 2015 and 2017 to the total exports of cosmetics in 2015 and 2018 ?

2015 और 2017 में कंप्यूटरों के कुल निर्यात और 2015 एवं 2018 में सौंदर्य प्रसाधनों के कुल निर्यात का अनुपात क्या है ?

SSC MTS- 20 August 2019 (Morning)

(a) 27 : 20
(b) 8 : 5
(c) 36 : 25
(d) 3 : 2

Q325. The table given below shows the number of units of a product produced and sold by a company in 6 years.

निम्न तालिका एक कंपनी द्वारा छह वर्षों के दौरान उत्पादित और बेचे गए उत्पाद की यूनिटों की संख्या दर्शाती है |

Years	No.of units (in thousands)	
	Produced	Sold
2012	320	220
2013	338	328
2014	432	380
2015	256	242
2016	504	470
2017	680	630

Find the ratio of the total number of units sold in 2013 and 2015 to the number of units produced in 2015 and 2016?

2013 और 2015 में बेची गई उत्पाद के यूनिटों की कुल संख्या तथा 2015 और 2016 में उत्पादित यूनिटों की संख्या का अनुपात ज्ञात कीजिए ?

SSC MTS- 20 August 2019 (Afternoon)

(a) 14 : 19
(b) 29 : 38
(c) 7 : 9
(d) 3 : 4

Q326. The table given below shows the number of units of a product produced and sold by a company in 6 years.

निम्न तालिका एक कंपनी द्वारा छह वर्षों के दौरान उत्पादित और बेचे गए उत्पाद की यूनिटों की संख्या दर्शाती है |

Years	No.of units (in thousands)	
	Produced	Sold
2012	320	220
2013	338	328
2014	432	380
2015	256	242
2016	504	470
2017	680	630

The number of units sold in 2016 is approximately what percent

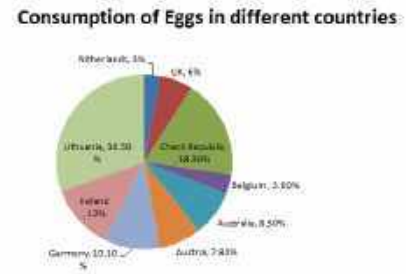
more than the average number of units produced from 2012 to 2016?
2016 में बेची गई उत्पाद के यूनिटों की संख्या, 2012 से लेकर 2016 तक उत्पादित औसत यूनिटों की संख्या से लगभग कितने प्रतिशत अधिक है ?
SSC MTS- 20 August 2019 (Afternoon)
(a) 24
(b) 32
(c) 21
(d) 27

Q327.The table given below shows the number of units of a product produced and sold by a company in 6 years.
निम्न तालिका एक कंपनी द्वारा छह वर्षों के दौरान उत्पादित और बेचे गए उत्पाद की यूनिटों की संख्या दर्शाती है |

Years	No.of units (in thousands)	
	Produced	Sold
2012	320	220
2013	338	328
2014	432	380
2015	256	242
2016	504	470
2017	680	630

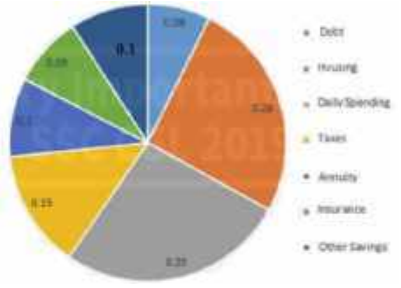
In which year, the production of product units is about 31.4% lower than units sold in 2017?
किस वर्ष में, उत्पाद की यूनिटों का उत्पादन 2017 में बेची गई यूनिटों की तुलना में लगभग 31.4% कम है ?
SSC MTS- 20 August 2019 (Afternoon)
(a) 2014
(b) 2013
(c) 2012
(d) 2016

Q328. The pie-chart below shows the percentage figures of eggs consumed in terms of total consumption of eggs by nine different countries. What is the central angle (nearest to 0.1 degree) of the sector for Lithuania?
नीचे दिया गया वृत्त आरेख नौ भिन्न देशों द्वारा किए गए अंडों के कुल उपभोग के संदर्भ में, अंडों के उपभोग के प्रतिशत आंकड़ों को दर्शाता है | लिथुआनिया के लिए वृत्तखंड का केंद्रीय कोण (0.1 डिग्री के निकटतम) क्या है ?



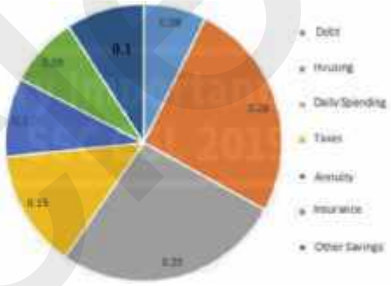
SSC MTS- 20 August 2019 (Evening)
(a) 119.8
(b) 109.8
(c) 129.8
(d) 99.8

Q329. The Pie-chart given below shows the figures of various heads of expenditure incurred by Anurag in a year. In how many heads is his expenditure less than the expenditure he incurred on tax?
नीचे दिया गया वृत्त आरेख अनुराग द्वारा किसी वर्ष में किए गए व्यय के विभिन्न शीर्षों के आंकड़ों को दर्शाता है | उसके द्वारा टैक्स पर किए गए व्यय की तुलना में कितने शीर्षों में उसके व्यय कम हैं ?



SSC MTS- 20 August 2019 (Evening)
(a) 2
(b) 1
(c) 4
(d) 3

Q330. The Pie chart given below presents the figures of different heads of expenditure made in a year by Anurag. If his total annual income is Rs1,20,000, then how much did he spend on Housing?
नीचे दिया गया वृत्त आरेख एक वर्ष में अनुराग के द्वारा किये गए विभिन्न प्रकार के व्ययों को दर्शाता है | यदि उसकी कुल वार्षिक आय 1,20,000 है, तो उसने आवास पर कितना खर्च किया ?



SSC MTS- 20 August 2019 (Evening)
a) Rs36600
(b) Rs31600
(c) Rs30600
(d) Rs 33600

Q331. The Pie-chart given here shows the percentage of candidates selected in an examination from 2012 to 2016.
यहाँ दिया गया वृत्त आरेख 2012 से 2016 तक किसी परीक्षा में चयनित उम्मीदवारों के प्रतिशत को दर्शाता है |



What is the total number of selected candidates for the year 2012 and 2014 taken together ?

वर्ष 2012 तथा 2014 को मिलाकर, चयनित उम्मीदवारों की कुल संख्या है :

SSC MTS- 21 August 2019 (Morning)

(a) 250
(b) 180
(c) 252
(d) 144

Q332.The Pie-chart given here shows the percentage of candidates selected in an examination from 2012 to 2016.
यहाँ दिया गया वृत्त आरेख 2012 से 2016 तक किसी परीक्षा में चयनित उम्मीदवारों के प्रतिशत को दर्शाता है |



In which year the number of selected candidates is equal to the total number of selected candidates in 2012 and 2015 taken together ?
किस वर्ष में चयनित उम्मीदवारों की संख्या, वर्ष 2012 तथा 2015 को एक साथ मिलाकर चयनित उम्मीदवारों की कुल संख्या के बराबर है ?

SSC MTS- 21 August 2019 (Morning)

(a) 2014
(b) 2016
(c) 2013
(d) 2012

Q333.The Pie-chart given here shows the percentage of candidates selected in an examination from 2012 to 2016.
यहाँ दिया गया वृत्त आरेख 2012 से 2016 तक किसी परीक्षा में चयनित उम्मीदवारों के प्रतिशत को दर्शाता है |



Total candidates selected in 2015 is what percentage less than the total candidates selected in 2013?
2015 में चयनित कुल उम्मीदवार, 2013 में चयनित कुल उम्मीदवारों से कितने प्रतिशत कम है ?

SSC MTS- 21 August 2019 (Morning)

(a) 45%
(b) 60%
(c) 50%
(d) 40%

Q 334. The table given below shows the number of notes of three different denominations in the ATMs of four different banks (SBI, ICICI, HDFC and AXIS).
नीचे दी गई तालिका चार अलग-अलग बैंकों (एसबीआई, आईसीआईसीआई, एचडीएफसी और एक्सिस) के एटीएम में तीन अलग -अलग मूल्यवर्गों के नोटों की संख्या को दर्शाती है |

Bank ATM	Number of 2000 notes	Number of 500 notes	Number of 200 notes
SBI	250	300	150
ICICI	225	200	175
HDFC	200	150	100
AXIS	100	150	250

By taking all four banks together, the total number of notes of denomination 200 is how many less than the notes of denomination 2000 ?
सभी चार बैंको को मिलाकर, 200 मूल्यवर्ग के नोटों की कुल संख्या, 2000 मूल्यवर्ग के नोटों की संख्या से कितनी कम है ?

SSC MTS- 21 August 2019 (Afternoon)

(a) 175
(b) 100
(c) 150
(d) 125

Q335.The table given below shows the number of notes of three different denominations in the ATMs of four different banks (SBI, ICICI, HDFC and AXIS).
नीचे दी गई तालिका चार अलग-अलग बैंकों (एसबीआई, आईसीआईसीआई, एचडीएफसी और एक्सिस) के एटीएम में तीन अलग -अलग मूल्यवर्गों के नोटों की संख्या को दर्शाती है |

Bank ATM	Number of 2000 notes	Number of 500 notes	Number of 200 notes
SBI	250	300	150
ICICI	225	200	175
HDFC	200	150	100
AXIS	100	150	250

In the Axis Bank ATM, the amount of 500 denomination is what percent of the amount of the 2000 denomination?
एक्सिस बैंक एटीएम में 500 मूल्यवर्ग की राशि, 2000 मूल्यवर्ग की कुल राशि का कितना प्रतिशत है ?

SSC MTS- 21 August 2019 (Afternoon)

(a) 42%
(b) 32.5%
(c) 35%
(d) 37.5%

Q336. The table given below shows the number of notes of three different denominations in the ATMs of four different banks (SBI, ICICI, HDFC and AXIS).
नीचे दी गई तालिका चार अलग-अलग बैंकों (एसबीआई, आईसीआईसीआई, एचडीएफसी और एक्सिस) के एटीएम में तीन अलग -अलग मूल्यवर्गों के नोटों की संख्या को दर्शाती है |

Bank ATM	Number of 2000 notes	Number of 500 notes	Number of 200 notes
SBI	250	300	150
ICICI	225	200	175
HDFC	200	150	100
AXIS	100	150	250

What is the ratio between the total amount of 500 denominations in ICICI Bank ATM and the total amount of 200 denominations in ICICI Bank ATMs?

आईसीआईसीआई बैंक के एटीएम में 500 मूल्यवर्ग की कुल राशि और आईसीआईसीआई बैंक के एटीएम में 200 मूल्यवर्ग की कुल राशि का अनुपात क्या है ?

SSC MTS- 21 August 2019 (Afternoon)

(a) 10 : 7
(b) 20 : 17
(c) 10 : 3
(d) 20 : 7

Q337. The bar graph given below shows the target and actual production of cement (in thousand tons) during 2013-2017.

नीचे दिया गया दंड आरेख 2013-2017 के दौरान सीमेंट के लक्षित और वास्तविक उत्पादन (हजार टन में) को दर्शाता है |



The ratio of the target production in 2014 and 2016 to the actual total production in 2013, 2016 and 2017 is :

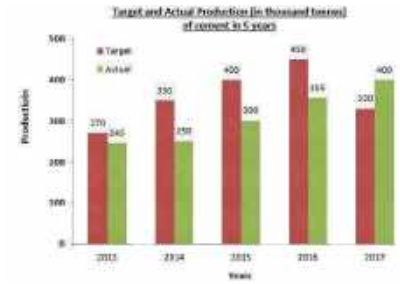
वर्ष 2014 और 2016 में सीमेंट के कुल लक्षित उत्पादन और 2013, 2016 तथा 2017 में कुल वास्तविक उत्पादन का अनुपात है :

SSC MTS- 21 August 2019 (Evening)

(a) 9 : 10
(b) 7 : 9
(c) 4 : 5
(d) 3 : 4

Q338.The bar graph given below shows the target and actual production of cement (in thousand tons) during 2013-2017

नीचे दिया गया दंड आरेख 2013-2017 के दौरान सीमेंट के लक्षित और वास्तविक उत्पादन (हजार टन में) को दर्शाता है |



Out of given 5 years, in which years the target production of the cement was 45% more than the average actual production ?

दिए गए 5 वर्षों में से किन वर्षों में सीमेंट का लक्षित उत्पादन, सीमेंट के औसत वास्तविक उत्पादन से 45% अधिक था ?

SSC MTS- 21 August 2019 (Evening)

(a) 2014
(b) 2015
(c) 2016
(d) 2013

Q339.The bar graph given below shows the target and actual production of cement (in thousand tons) during 2013-2017

नीचे दिया गया दंड आरेख के दौरान सीमेंट के लक्षित और वास्तविक उत्पादन (हजार टन में) को दर्शाता है |



What percentage of the total targeted production of cement from 2013 to 2017 is the total actual production in 2014, 2015 and 2017? (correct to one decimal place)

2013 से 2017 तक सीमेंट के कुल लक्षित उत्पादन का कितना प्रतिशत, 2014, 2015 और 2017 में कुल वास्तविक उत्पादन है ? (दशमलव के एक स्थान तक)

SSC MTS- 21 August 2019 (Evening)

(a) 52.2
(b) 51.4
(c) 53.2
(d) 52.8

Q340. The table given below presents the figures of the production (in thousands) of different types of vehicles by a company during the year 2013-18.

नीचे दी गयी तालिका वर्ष 2013-18 के दौरान एक कंपनी के द्वारा विभिन्न प्रकार के वाहनों के उत्पादन (हज़ार में) के आंकड़ों को प्रस्तुत करती है |

Year / Vehicles	2013	2014	2015	2016	2017	2018
A	52	47	53	68	64	66
B	56	54	58	66	57	65
C	47	67	66	65	69	77
D	65	63	73	71	70	72

In how many years is the production of type C vehicles, below the average production of type D vehicles over six years?

कितने वर्ष C प्रकार के वाहनों का उत्पादन इन छः वर्षों में D प्रकार के वाहनों के औसत उत्पादन से कम रहा है ?

SSC MTS- 22 August 2019 (Morning)

(b) 2
(b) 3
(c) 5
(d) 4

Q341. The Table given below presents the figures of the production (in thousands) of different types of vehicles by a company during the years 2013-18.

नीचे दी गयी तालिका वर्ष 2013-18 के दौरान एक कंपनी के द्वारा विभिन्न प्रकार के वाहनों के उत्पादन (हज़ार में) के आंकड़ों को प्रस्तुत करती है |

Year / Vehicles	2013	2014	2015	2016	2017	2018
A	52	47	53	68	64	60
B	56	54	58	66	57	65
C	47	67	66	65	69	77
D	65	63	73	71	70	72

The ratio of the total production of type A vehicles in 2013 and 2016 to the total production of type C vehicles during 2015 to 2017 is:

2013 तथा 2016 में A प्रकार के वाहनों के कुल उत्पादन एवं 2015 से 2017 के दौरान C प्रकार के वाहनों के कुल उत्पादन में अनुपात ज्ञात करें |

SSC MTS- 22 August 2019 (Morning)

(b) 3:5

(b) 13:15

(c) 10:11

(d) 4:5

Q342. The Table given below presents the figures of the production (in thousands) of different types of vehicles by a company during the years 2013-18.

नीचे दी गयी तालिका वर्ष 2013-18 के दौरान एक कंपनी के द्वारा विभिन्न प्रकार के वाहनों के उत्पादन (हज़ार में) के आंकड़ों को प्रस्तुत करती है |

Year / Vehicles	2013	2014	2015	2016	2017	2018
A	52	47	53	68	64	60
B	56	54	58	66	57	65
C	47	67	66	65	69	77
D	65	63	73	71	70	72

The total production of all types of vehicles in 2018 is what percent more than the total production of all types of vehicles in 2015?

2018 में सभी प्रकार के वाहनों का कुल उत्पादन 2015 में सभी प्रकार के वाहनों के कुल उत्पादन से कितना प्रतिशत अधिक है ?

SSC MTS- 22 August 2019 (Morning)

(b) 10.7

(b) 11

(c) 12

(d) 7.7

Q343. The given pie Chart (angles are not as per chosen scale) presents the marks scored by Amit in five subjects.

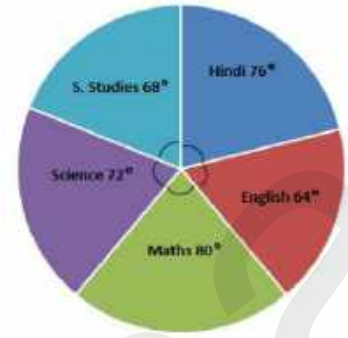
Maximum marks in each subject = 100

Total score of Amit = 450

दिया गया वृत्त-आरेख (कोण किसी चयनित पैमाने के अनुसार नहीं हैं) पांच विषयों में अमित के द्वारा प्राप्त किये गए अंकों को दर्शाता है |

प्रत्येक विषय के अधिकतम अंक = 100

अमित का कुल प्राप्तांक = 450



What is the difference between the marks scored by Amit in Hindi and Maths?

अमित के द्वारा हिंदी और गणित में प्राप्त किये गए अंकों में क्या अंतर है ?

SSC MTS- 22 August 2019 (Afternoon)

(a) 5

(b) 10

(c) 8

(d) 4

Q344. The given pie Chart (angles are not as per chosen scale) presents the marks scored by Amit in five subjects.

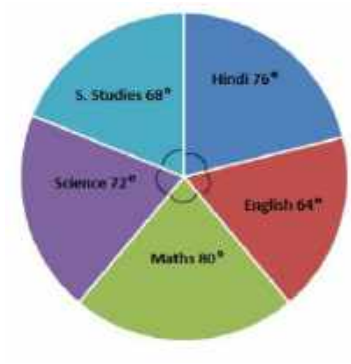
Maximum marks in each subject = 100

Total score of Amit = 450

दिया गया वृत्त-आरेख (कोण किसी चयनित पैमाने के अनुसार नहीं हैं) पांच विषयों में अमित के द्वारा प्राप्त किये गए अंकों को दर्शाता है |

प्रत्येक विषय के अधिकतम अंक = 100

अमित का कुल प्राप्तांक = 450



In how many subjects, did Amit score more than his average score?

कितने विषयों में अमित को उसके औसत से अधिक अंक मिले हैं ?

SSC MTS- 22 August 2019 (Afternoon)

(a) 2

(b) 3

(c) 1

(d) 4

Q345. The given pie Chart (angles are not as per chosen scale) presents the marks scored by Amit in five subjects.

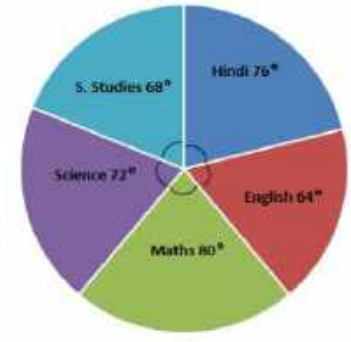
Maximum marks in each subject = 100

Total score of Amit = 450

दिया गया वृत्त-आरेख (कोण किसी चयनित पैमाने के अनुसार नहीं हैं) पांच विषयों में अमित के द्वारा प्राप्त किये गए अंकों को दर्शाता है |

प्रत्येक विषय के अधिकतम अंक = 100

अमित का कुल प्राप्तांक = 450



The total marks scored by Amit in English and S. Studies is what percent (correct to one decimal

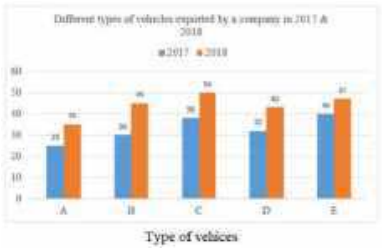
place) more than the marks scored by him in Maths?
अमित के द्वारा अंग्रेजी और सामाजिक विज्ञान में प्राप्त किये गए कुल अंक उसके द्वारा गणित में प्राप्त किये गए अंकों से कितना प्रतिशत अधिक हैं ? (एक दशमलव स्थान तक)
SSC MTS- 22 August 2019 (Afternoon)
(a) 65
(b) 77.8
(c) 72.4
(d) 68.3

Q346. The given Bar Graph presents the number of different types of vehicles exported by a company in 2017 and 2018.
दिया गया दंड आरेख एक कंपनी के द्वारा 2017 और 2018 में निर्यात किये गए अलग-अलग प्रकार के वाहनों की संख्या को दर्शाता है |



The average export of vehicles in 2018 is what percent more than the export of vehicle A in 2017?
2018 में वाहनों का औसत निर्यात 2017 में वाहन A के निर्यात से कितना प्रतिशत अधिक है ?
SSC MTS- 22 August 2019 (Evening)
(a) $46\frac{2}{3}$
(b) 68
(c) $37\frac{1}{2}$
(d) 76

Q347. The given Bar Graph presents the number of different types of vehicles exported by a company in 2017 and 2018.
दिया गया दंड आरेख एक कंपनी के द्वारा 2017 और 2018 में निर्यात किये गए अलग-अलग प्रकार के वाहनों की संख्या को दर्शाता है |



What is the ratio of the total number of vehicles exported in 2017 of types B, C and D to that of vehicles exported in 2018 of the types A, D and E?
2017 में निर्यात किये गए B, C और D प्रकार के वाहनों की कुल संख्या का 2018 में निर्यात किये गए A, D और E प्रकार के वाहनों की संख्या के साथ अनुपात ज्ञात करें |
SSC MTS- 22 August 2019 (Evening)
(a) 6:5
(b) 7:10
(c) 4:5
(d) 18:25

Q348. The given Bar Graph presents the number of different types of vehicles exported by a company in 2017 and 2018.
दिया गया दंड आरेख एक कंपनी के द्वारा 2017 और 2018 में निर्यात किये गए अलग-अलग प्रकार के वाहनों की संख्या को दर्शाता है |



The increase in the exports in 2018 as compared to that in 2017 is closest to 32% in case of vehicles of type:
किस प्रकार के वाहनों के मामले में 2017 की तुलना में 2018 में निर्यात में हुई वृद्धि 32% के लगभग है :
SSC MTS- 22 August 2019 (Evening)
(a) B
(b) A
(c) C
(d) D

Q349. The following bar graph shows the amount of imports (in million kg) of a particular item imported by India during 2014-2018. The amount of import of the said item is how many years less than the time average of imports ?
निम्नलिखित दंड आरेख में भारत द्वारा 2014-2018 के दौरान आयात की गई किसी विशेष मद के आयातों की मात्रा (मिलियन kg में) दर्शाया गयी है | दी गई अवधि के दौरान उक्त मद की आयात की गई मात्रा, आयातों की समय औसत से कितने वर्ष कम है ?



SSC MTS- 14 August 2019 (Morning)
(a) 4
(b) 2
(c) 1
(d) 3

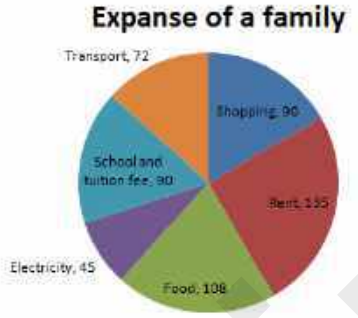
Q350. The table shows the annual expenses incurred by a firm in various heads during 2014-2018. What is the average spending per head of 2016?
तालिका में 2014-2018 के दौरान किसी फर्म द्वारा विभिन्न शीर्षों में किए गए वार्षिक खर्चों को दर्शाया गया है | 2016 के प्रति शीर्ष का औसत व्यय कितना है ?



SSC MTS- 14 August 2019 (Morning)
(a) Rs. 27,000

(b) Rs. 33,000
(c) Rs. 29,000
(d) Rs. 31,000

Q351. This pie-chart specifically shows the various types of expenses of a family for a month. The amount spent as educational fee in one month is Rs 18000. What is the total monthly expenditure of the family? The figures shown in front of different heads of expenditure in the pie-chart do not show central angles
वृत्त आरेख विशेष रूप से किसी परिवार के एक माह के विभिन्न प्रकार के खर्चों को दर्शाता है | एक माह में शैक्षिक शुल्क के रूप में खर्च की गई राशि रु 18000 है | परिवार का कुल मासिक व्यय कितना है ? वृत्त आरेख में व्यय के विभिन्न शीर्षों के सामने दर्शाए गए आंकड़े केंद्रीय कोणों को नहीं दर्शाते हैं |



SSC MTS- 14 August 2019 (Morning)
(a) Rs 1,08,000 / रु 1,08,000
(b) Rs 72,000 / रु 72,000
(c) Rs 90000 / रु 90000
(d) Rs 36000 / रु 36,000

Q352. The Table shows the number of students from different schools playing different games.
यह तालिका अलग-अलग विद्यालयों के छात्रों की संख्या को दर्शाती है जो अलग-अलग खेल खेलते हैं ?

Games	Schools			
	A	B	C	D
Cricket	125	250	150	175
Football	175	200	250	125
Hockey	75	125	200	150

What is the average of the number of students who play cricket in all four schools?
सभी चार विद्यालयों में क्रिकेट खेलने वाले छात्रों की औसत संख्या कितनी है ?
SSC CGL 13 June 2019 (Morning)
(a) 180
(b) 200
(c) 190
(d) 175

Q353. The Table shows the number of students from different schools playing different games.
यह तालिका अलग-अलग विद्यालयों के छात्रों की संख्या को दर्शाती है जो अलग-अलग खेल खेलते हैं ?

Games	Schools			
	A	B	C	D
Cricket	125	250	150	175
Football	175	200	250	125
Hockey	75	125	200	150

What is the ratio of the total students who play cricket in schools A and B together to the total students who play hockey in schools C and D ?
विद्यालय A और B में क्रिकेट खेलने वाले छात्रों की कुल संख्या का विद्यालय C और D में हॉकी खेलने वाले छात्रों की कुल संख्या के साथ क्या अनुपात है ?
SSC CGL 13 June 2019 (Morning)
(a) 15 : 13
(b) 15 : 14
(c) 16 : 11
(d) 16 : 13

Q354. The Table shows the number of students from different schools playing different games.
cccc

Games	Schools			
	A	B	C	D
Cricket	125	250	150	175
Football	175	200	250	125
Hockey	75	125	200	150

The number of students who play football in school A is approximately what percent of the football playing students from all schools?
विद्यालय A में फुटबॉल खेलने वाले छात्रों की संख्या सभी विद्यालयों में फुटबॉल खेलने वाले छात्रों की संख्या का लगभग कितना प्रतिशत है ?
SSC CGL 13 June 2019 (Morning)
(a) 19.4
(b) 21.7
(c) 23.3
(d) 19.1

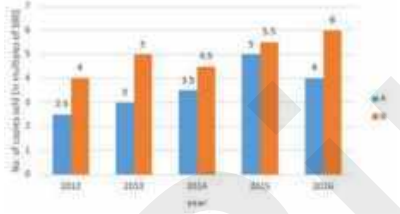
Q355. The Table shows the number of students from different schools playing different games.
यह तालिका अलग-अलग विद्यालयों के छात्रों की संख्या को दर्शाती है जो अलग-अलग खेल खेलते हैं |

Games	Schools			
	A	B	C	D
Cricket	125	250	150	175
Football	175	200	250	125
Hockey	75	125	200	150

If the data about the number of students who play hockey from different schools is represented by a pie-chart, what is the central angle of the sector representing students who play hockey from school C to the nearest whole number?
यदि अलग-अलग विद्यालयों में हॉकी खेलने वाले छात्रों से संबंधित आंकड़ों को एक पाई-चार्ट में प्रस्तुत किया जाए, तो विद्यालय C में हॉकी खेलने वाले छात्रों को दर्शाने वाले खंड का केंद्रीय कोण (निकटतम पूर्ण संख्या में) क्या होगा ?
SSC CGL 13 June 2019 (Morning)
(a) 120^0
(b) 117^0

(c) 131^0
(d) 95^0

Q356. A book has been co-authored by X and Y. The prices of the book in India and abroad are Rs 800 and Rs 1000 respectively. The royalties earned on sale in India and abroad are 10% and 16% respectively. The royalty amount is distributed among X and Y in the ratio 5:3. The given Bar Graph presents the number of copies of the book sold in India (A) and abroad (B) during 2012-16.
एक पुस्तक X और Y के द्वारा मिलकर लिखी गयी है | भारत और विदेश में पुस्तक की कीमतें क्रमशः 800 और 1000 रुपये हैं| भारत और विदेश में बिक्री पर मिलने वाली रॉयल्टी क्रमशः 10% और 16% है | रॉयल्टी की राशि का X और Y के बीच 5 : 3 के अनुपात में वितरण किया जाता है | दिया गया दंड आरेख 2012-16 के दौरान भारत (A) और विदेश (B) में इस पुस्तक की बेची गयी प्रतियों की संख्या को दर्शाता है |



What is the total amount of royalty paid (in Rs) to the authors during the years 2012, 2013 and 2016? / वर्ष 2012, 2013 और 2016 के दौरान लेखकों को भुगतान की गयी रॉयल्टी की कुल राशि कितनी है ?

SSC CHSL 10 July 2019 (Afternoon)
(a)3,16,000
(b)2,73,400
(c)2,72,000
(d)2,71,600

Q357.A book has been co-authored by X and Y. The prices of the book in India and abroad are Rs 800 and Rs 1000 respectively. The royalties earned on sale in India and abroad are 10% and 16% respectively. The royalty amount is distributed among X and Y in the ratio 5:3. The given Bar Graph presents the number of copies of the book sold in India (A) and abroad (B) during 2012-16.
एक पुस्तक X और Y के द्वारा मिलकर लिखी गयी है | भारत और विदेश में पुस्तक की कीमतें क्रमशः 800 और 1000 रुपये हैं| भारत और विदेश में बिक्री पर मिलने वाली रॉयल्टी क्रमशः 10% और 16% है | रॉयल्टी की राशि का X और Y के बीच 5 : 3 के अनुपात में वितरण किया जाता है | दिया गया दंड आरेख 2012-16 के दौरान भारत (A) और विदेश (B) में इस पुस्तक की बेची गयी प्रतियों की संख्या को दर्शाता है |



What is the total number of the copies of the book sold in India during 2012-2015?
2012 से 2015 के दौरान भारत में इस पुस्तक की कुल कितनी प्रतियाँ बेची गयीं ?

SSC CHSL 10 July 2019 (Afternoon)
(a)2000
(b)1600
(c)1800
(d)1400

Q358. A book has been co-authored by X and Y. The prices of the book in India and abroad are Rs 800 and Rs 1000 respectively. The royalties earned on sale in India and abroad are 10% and 16% respectively. The royalty amount is distributed among X and Y in the ratio 5:3. The given Bar Graph presents the number of copies of the book sold in India (A) and abroad (B) during 2012-16. / एक पुस्तक X और Y के द्वारा मिलकर लिखी गयी है | भारत और विदेश में पुस्तक की कीमतें क्रमशः 800 और 1000 रुपये हैं | भारत और विदेश में बिक्री पर मिलने वाली रॉयल्टी क्रमशः 10% और 16% है | रॉयल्टी की राशि का X और Y के बीच 5 : 3 के अनुपात में वितरण किया जाता है | दिया गया दंड आरेख 2012-16 के दौरान भारत (A) और विदेश (B) में इस पुस्तक की बेची गयी प्रतियों की संख्या को दर्शाता है |

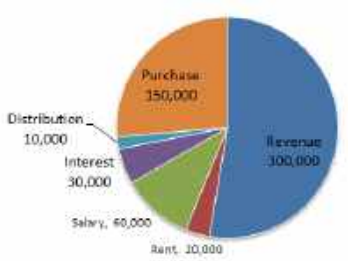


What is the difference between the royalties earned by X and Y (in Rs) during the years 2014 and 2015 taken together?
2014 और 2015 को मिलाकर X और Y के द्वारा प्राप्त की गयी रॉयल्टी में क्या अंतर (रुपये में) है ?

SSC CHSL 10 July 2019 (Afternoon)
(a)41,340
(b)41,250
(c)57,550
(d)57,000

Q359. The circle diagram given below shows the estimated revenue and various expenses of a firm for the previous financial year. If the profit margin for the upcoming financial year is estimated at 20%, then what percentage change in the margin will take place according to estimates?
नीचे दिए गए वृत्त आरेख में किसी फर्म के पिछले वित्तीय वर्ष के

अनुमानित राजस्व और विभिन्न खर्चों को दर्शाया गया है | यदि आगामी वित्तीय वर्ष के लिए लाभ मार्जिन 20% अनुमानित है, तो अनुमानों के अनुसार मार्जिन में कितना प्रतिशत परिवर्तन होगा ?



SSC MTS- 16 August 2019 (Evening)

(a) 50% decline / गिरावट
(b) 50% growth / वृद्धि
(c) 100% growth / वृद्धि
(d) 75% growth / वृद्धि

SSC CGL TIER I

Q1. The given table shows the number (in thousands) of cars of five different models A, B, C, D and E produced during Years 2012-2017. Study the table and answer the questions that follows:
दी गयी तालिका पाँच अलग-अलग मॉडलों- A, B, C, D और E की कारों की संख्या (हज़ार में) दर्शाती है, जिनका उत्पादन वर्ष 2012-2017 के दौरान किया गया है | इस तालिका का अध्ययन करें और फिर पूछे गए प्रश्न का उत्तर दें |

	A	B	C	D	E	Total
2012	18	26	22	23	31	120
2013	22	18	32	40	18	130
2014	32	43	26	35	34	170
2015	18	22	26	14	20	100
2016	36	12	44	38	50	180
2017	12	48	40	22	28	150

In the year 2015, which type of car constitutes exactly 20% of the total number of cars produced that year?
वर्ष 2015 में, किस प्रकार की कारें उस वर्ष उत्पादित कारों की कुल संख्या का ठीक 20% रही हैं ?

SSC CGL 3 March 2020 (Morning)

(a) D
(b) B
(c) E
(d) A

Q2. The given table shows the number (in thousands) of cars of five different models A, B, C, D and E produced during Years 2012-2017. Study the table and answer the questions that follows:
दी गयी तालिका पाँच अलग-अलग मॉडलों- A, B, C, D और E की कारों की संख्या (हज़ार में) दर्शाती है, जिनका उत्पादन वर्ष 2012-2017 के दौरान किया गया है | इस तालिका का अध्ययन करें और फिर पूछे गए प्रश्न का उत्तर दें |

	A	B	C	D	E	Total
2012	18	26	22	23	31	120
2013	22	18	32	40	18	130
2014	32	43	26	35	34	170
2015	18	22	26	14	20	100
2016	36	12	44	38	50	180
2017	12	48	40	22	28	150

If 2013 and 2014 are put together, which type of cars constitute exactly 25% of the total number of cars produced in those two years?
यदि 2013 और 2014 को मिला दिया जाए, तो इन दो वर्षों में उत्पादित कारों की कुल संख्या का ठीक 25% भाग किस प्रकार की कारों का है ?

SSC CGL 3 March 2020 (Morning)

(a) E
(b) C
(c) B
(d) D

Q3. The given table shows the number (in thousands) of cars of five different models A, B, C, D and E produced during Years 2012-2017. Study the table and answer the questions that follows:
दी गयी तालिका पाँच अलग-अलग मॉडलों- A, B, C, D और E की कारों की संख्या (हज़ार में) दर्शाती है, जिनका उत्पादन वर्ष 2012-2017 के दौरान किया गया है | इस तालिका का अध्ययन करें और फिर पूछे गए प्रश्न का उत्तर दें |

	A	B	C	D	E	Total
2012	18	26	22	23	31	120
2013	22	18	32	40	18	130
2014	32	43	26	35	34	170
2015	18	22	26	14	20	100
2016	36	12	44	38	50	180
2017	12	48	40	22	28	150

The percentage increase in the total cars in 2016 over 2012 is:
2012 की तुलना में 2016 में कुल कारों में कितने प्रतिशत की वृद्धि हुई है ?

SSC CGL 3 March 2020 (Morning)

(a) 62.33%
(b) 45%
(c) 33.33%
(d) 50%

Q4. The given table shows the number (in thousands) of cars of five different models A, B, C, D and E produced during Years 2012-2017. Study the table and answer the questions that follows:
दी गयी तालिका पाँच अलग-अलग मॉडलों- A, B, C, D और E की कारों की संख्या (हज़ार में) दर्शाती है, जिनका उत्पादन वर्ष 2012-2017 के दौरान किया गया है | इस तालिका का अध्ययन करें और फिर पूछे गए प्रश्न का उत्तर दें |

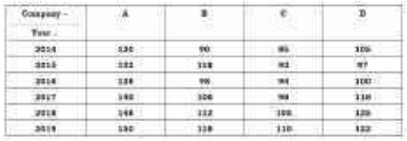
	A	B	C	D	E	Total
2012	18	26	22	23	31	120
2013	22	18	32	40	18	130
2014	32	43	26	35	34	170
2015	18	22	26	14	20	100
2016	36	12	44	38	50	180
2017	12	48	40	22	28	150

The percentage decrease in the production of which type of car in 2017, with reference to 2016, was the maximum?
2016 की तुलना में 2017 में किस प्रकार की कारों के उत्पादन में प्रतिशत कमी अधिकतम थी ?

SSC CGL 3 March 2020 (Morning)

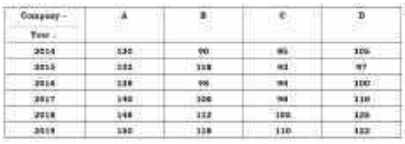
(a) E
(b) D
(c) C
(d) A

Q5. The given table represents the number of engineers recruited by four companies A,B,C and D over the years. Study the table carefully and answer the questions that follows:
दी गयी तालिका चार कंपनियों A, B, C और D के द्वारा इन वर्षों के दौरान भर्ती किये गए इंजीनियरों की संख्या दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा इसके बाद पूछे गए प्रश्न का उत्तर दें |



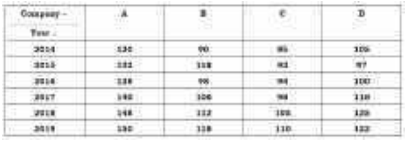
The ratio of the total number of engineers recruited by companies A and B in 2015 and 2018 to the total number of engineers recruited by C and D in 2014 and 2018 is:
कंपनी A और B के द्वारा 2015 और 2018 में भर्ती किये गए इंजीनियरों की कुल संख्या एवं C तथा D के द्वारा 2014 और 2018 में भर्ती किये गए इंजीनियरों की कुल संख्या के बीच अनुपात ज्ञात करें |
SSC CGL 3 March 2020 (Afternoon)
(a) 28:19
(b) 13:21
(c) 17:14
(d) 9:14

Q6. The given table represents the number of engineers recruited by four companies A,B,C and D over the years. Study the table carefully and answer the questions that follows:
दी गयी तालिका चार कंपनियों A, B, C और D के द्वारा इन वर्षों के दौरान भर्ती किये गए इंजीनियरों की संख्या दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा इसके बाद पूछे गए प्रश्न का उत्तर दें
|



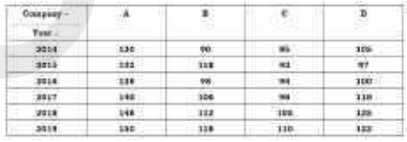
The number of years in which the number of engineers recruited by company D is less than the average number of engineers recruited by company B in the given six years, is:
ऐसे कितने वर्ष हैं जिनमें कंपनी D के द्वारा भर्ती किये गए इंजीनियरों की संख्या दिए गए छः वर्षों की अवधि में कंपनी B के द्वारा भर्ती किये गए इंजीनियरों की औसत संख्या से कम है ?
SSC CGL 3 March 2020 (Afternoon)
(a) 3
(b) 1
(c) 4
(d) 2

Q7. The given table represents the number of engineers recruited by four companies A,B,C and D over the years. Study the table carefully and answer the questions that follows:
दी गयी तालिका चार कंपनियों A, B, C और D के द्वारा इन वर्षों के दौरान भर्ती किये गए इंजीनियरों की संख्या दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा इसके बाद पूछे गए प्रश्न का उत्तर दें |



The total number of engineers recruited by company A in 2014 to 2017 is what percentage more than the total number of engineers recruited by all the four companies in 2019?
कंपनी A के द्वारा 2014 से 2017 की अवधि में भर्ती किये गए इंजीनियरों की कुल संख्या सभी चार कंपनियों के द्वारा 2019 में भर्ती किये गए इंजीनियरों की कुल संख्या से कितना प्रतिशत अधिक है ?
SSC CGL 3 March 2020 (Afternoon)
(a) 3
(b) 3.5
(c) 2.5
(d) 4

Q8. The given table represents the number of engineers recruited by four companies A,B,C and D over the years. Study the table carefully and answer the questions that follows:
दी गयी तालिका चार कंपनियों A, B, C और D के द्वारा इन वर्षों के दौरान भर्ती किये गए इंजीनियरों की संख्या दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा इसके बाद पूछे गए प्रश्न का उत्तर दें |



The total number of engineers recruited by the company B in 2014 and 2017 is what percentage of the total number of engineers recruited by C during 2015 to 2019?
कंपनी B के द्वारा 2014 और 2017 में भर्ती किये गए इंजीनियरों की कुल संख्या C के द्वारा 2015 से 2019 के दौरान भर्ती किये गए इंजीनियरों की कुल संख्या का कितना प्रतिशत है ?
SSC CGL 3 March 2020 (Afternoon)
(a) 38.4
(b) 38.2
(c) 39.2
(d) 37.8

Q9. The number of students enrolled in different faculties in a school is as follows:
एक विद्यालय में अलग-अलग विषयों में नामांकन लेने वाले छात्रों की संख्या इस प्रकार है :

Science		Arts		Commerce		Vocational	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
35	18	25	47	45	40	10	30

The percentage of students studying in Science or Vocational subjects is:
विज्ञान या व्यावसायिक विषयों की पढ़ाई करने वाले छात्रों का प्रतिशत है :
SSC CGL 3 March 2020 (Evening)
(a) 25%
(b) 93%
(c) 37.2%
(d) 50%

Q10. As per the data in the table, what is the percentage of students who got 20 or more marks?
दी गयी तालिका के आंकड़ों के अनुसार, 20 या अधिक अंक प्राप्त करने वाले छात्रों का प्रतिशत कितना है ?

Scores	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
No. of students	13	15	18	12	14	19	6	3

SSC CGL 3 March 2020 (Evening)
(a) 58%
(b) 54%
(c) 14%
(d) 42%

Q11. From the following table, how many patients were in the age group 40-60?
दिए गए तालिका के अनुसार कितने मरीज़ 40-60 आयु वर्ग के थे ?

Age(years)	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50	Less than 60	Less than 70
No. of patients	11	15	22	29	35	45	50

SSC CGL 3 March 2020 (Evening)
(a) 16
(b) 6
(c) 29
(d) 45

Q12. The table below shows income (in rupees) for a particular month, together with their sources in respect of 5 employees A,B,C,D and E.
नीचे दी गयी तालिका 5 कर्मचारियों - A, B, C, D और E की एक विशेष माह में विभिन्न स्रोतों से होने वाली आय को दर्शाती है |

Employee	A	B	C	D	E
Salary	52,000	48,500	42,000	31,000	25,000
Overtime	0	0	1,500	2,500	3,200
Arrears	5,500	4,500	4,000	3,000	1,500
Bonus	3,500	3,000	2,500	2,000	2,000
Miscellaneous income	5,000	3,000	2,000	1,500	0
Total	66,000	59,000	52,000	40,000	31,700

How many employees have their salary more than four times their other income?
कितने कर्मचारियों का वेतन उनकी अन्य आय के चार गुना से अधिक है ?
SSC CGL 3 March 2020 (Evening)
(a) 3
(b) 2
(c) 1
(d) 4

Q13. The given table represents the number of computers sold by four dealers A,B, C and D during the first six months of 2016. Study the table carefully and answer the questions that follows: /
दी गयी तालिका चार विक्रेताओं A, B, C और D के द्वारा 2016 के पहले छः महीनों में बेचे गए कंप्यूटरों की संख्या दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा पूछे गए प्रश्नों का उत्तर दें |

Dealer → / Month ↓	A	B	C	D
January	102	92	95	107
February	94	96	104	106
March	85	94	100	90
April	108	97	99	96
May	98	102	100	89
June	95	108	102	91

The number of months, in which the number of computers sold by dealer B was less than the average number of computers sold by dealer C over six months, was: /
ऐसे कितने महीने हैं, जिनमें विक्रेता B के द्वारा बेचे गए कंप्यूटरों की संख्या इन छः महीनों में विक्रेता C के द्वारा बेचे गए कंप्यूटरों की औसत संख्या से कम है ?
SSC CGL 4 March 2020 (Morning)
(a) 5
(b) 4
(c) 2
(d) 3

Q14. The given table represents the number of computers sold by four dealers A,B, C and D during the first six months of 2016. Study the table carefully and answer the questions that follows:
दी गयी तालिका चार विक्रेताओं A, B, C और D के द्वारा 2016 के पहले छः महीनों में बेचे गए कंप्यूटरों की संख्या दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा पूछे गए प्रश्नों का उत्तर दें |

Dealer → / Month ↓	A	B	C	D
January	102	92	95	107
February	94	96	104	106
March	85	94	100	90
April	108	97	99	96
May	98	102	100	89
June	95	108	102	91

What is the ratio of the total number of computers sold by dealer A in February, April and May to the total number of computers sold by dealer D in March, May and June? /
विक्रेता A के द्वारा फरवरी, अप्रैल और मई में बेचे गए कंप्यूटरों की कुल संख्या तथा विक्रेता D के द्वारा मार्च, मई और जून में बेचे गए कंप्यूटरों की कुल संख्या के बीच क्या अनुपात है ?
SSC CGL 4 March 2020 (Morning)
(a) 15:13
(b) 10:9
(c) 20:27
(d) 6:5

Q15. The given table represents the number of computers sold by four dealers A,B, C and D during the first six months of 2016. Study the table carefully and answer the questions that follows:

दी गयी तालिका चार विक्रेताओं A, B, C और D के द्वारा 2016 के पहले छः महीनों में बेचे गए कंप्यूटरों की संख्या दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा पूछे गए प्रश्नों का उत्तर दें |

Dealer → / Month ↓	A	B	C	D
January	102	92	95	107
February	94	96	104	106
March	85	94	100	90
April	108	97	99	96
May	98	102	100	89
June	95	108	102	91

The total number of computers sold by dealer B in April, May and June is what percentage of the total number of computers sold by all the dealers in February and April? /

विक्रेता B के द्वारा अप्रैल, मई और जून में बेचे गए कंप्यूटरों की कुल संख्या सभी विक्रेताओं के द्वारा फरवरी एवं अप्रैल में बेचे गए कंप्यूटरों की कुल संख्या का कितना प्रतिशत है ?

SSC CGL 4 March 2020 (Morning)

(a) $50\frac{7}{8}$

(b) $43\frac{6}{7}$

(c) $48\frac{5}{7}$

(d) $38\frac{3}{8}$

Q16. The given table represents the number of computers sold by four dealers A,B, C and D during the first six months of 2016. Study the table carefully and answer the questions that follows:

दी गयी तालिका चार विक्रेताओं A, B, C और D के द्वारा 2016 के पहले छः महीनों में बेचे गए कंप्यूटरों की संख्या दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा पूछे गए प्रश्नों का उत्तर दें |

Dealer → / Month ↓	A	B	C	D
January	102	92	95	107
February	94	96	104	106
March	85	94	100	90
April	108	97	99	96
May	98	102	100	89
June	95	108	102	91

The total number of computers sold by dealer A during February to June is what percentage more than the total number of computers sold by all the dealers in June?(Correct to one decimal place) /

फरवरी से जून के दौरान विक्रेता A के द्वारा बेचे गए कंप्यूटरों की कुल संख्या सभी विक्रेताओं के द्वारा जून में बेचे गए कंप्यूटरों की कुल संख्या से कितना प्रतिशत अधिक है ?

SSC CGL 4 March 2020 (Morning)

(a) 17.5

(b) 25.3

(c) 24.4

(d) 21.2

Q17. The given table represents the revenue (in ₹ crores) of a company from the sale of four products A,B,C and D in 6 years. Study the table carefully and answer the questions that follow.

दी गयी तालिका एक कंपनी को चार उत्पादों - A, B, C तथा D की बिक्री से 6 वर्षों में होने वाली आय (करोड़ रुपये में) को दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा फिर पूछे गए प्रश्नों का उत्तर दें |

Years → / Product ↓	2012	2013	2014	2015	2016	2017
A	98	94	80	95	110	115
B	74	96	92	84	98	86
C	82	98	96	88	93	103
D	74	102	92	93	97	102

What is the ratio of the total revenue of the company in 2014 from the sale of all the four products to the total revenue from the sale of product C in 2014 to 2017? /

2014 में सभी चार उत्पादों की बिक्री से कंपनी को हुई कुल आय तथा 2014 से 2017 तक उत्पाद C की बिक्री से कंपनी को हुई कुल आय के बीच अनुपात ज्ञात करें |

SSC CGL 4 March 2020 (Afternoon)

(a) 14:23

(b) 18:19

(c) 7:10

(d) 7:9

Q18. The given table represents the revenue (in ₹ crores) of a company from the sale of four products A,B,C and D in 6 years. Study the table carefully and answer the questions that follow.

दी गयी तालिका एक कंपनी को चार उत्पादों - A, B, C तथा D की बिक्री से 6 वर्षों में होने वाली आय (करोड़ रुपये में) को दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा फिर पूछे गए प्रश्नों का उत्तर दें |

Years → / Product ↓	2012	2013	2014	2015	2016	2017
A	98	94	80	95	110	115
B	74	96	92	84	98	86
C	82	98	96	88	93	103
D	74	102	92	93	97	102

By what percentage is the total revenue of the company from the sale of products A, B and D in 2012 and 2013 more than the total revenue from the sale of product B in 2013 to 2016? (Correct to one decimal place) /

2012 तथा 2013 में A, B और D उत्पादों की बिक्री से कंपनी को हुई कुल आय 2013 से 2016 तक उत्पाद B की बिक्री से हुई कुल आय से कितना प्रतिशत अधिक है ? (दशमलव के एक स्थान तक)

SSC CGL 4 March 2020 (Afternoon)

(a) 44.5

(b) 31.2

(c) 43.6

(d) 45.4

Q19. The given table represents the revenue (in ₹ crores) of a company from the sale of four products A,B,C and D in 6 years. Study the table carefully and answer the questions that follow.

दी गयी तालिका एक कंपनी को चार उत्पादों - A, B, C तथा D की बिक्री से 6 वर्षों में होने वाली आय (करोड़ रुपये में) को दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा फिर पूछे गए प्रश्नों का उत्तर दें |

Years → / Product ↓	2012	2013	2014	2015	2016	2017
A	98	94	80	95	110	115
B	74	96	92	84	98	86
C	82	98	96	88	93	103
D	74	102	92	93	97	102

The number of years in which the revenue of the company from the sale of product D is more than the average revenue from the sale of product A over the six years is:
ऐसे कितने वर्ष हैं जिनमें उत्पाद D की बिक्री से कंपनी को होने वाली आय इन छः वर्षों के दौरान उत्पाद A की बिक्री से हुई औसत आय से अधिक है ?
SSC CGL 4 March 2020 (Afternoon)
(a) 4
(b) 1
(c) 3
(d) 2

Q20. The given table represents the revenue (in ₹ crores) of a company from the sale of four products A,B,C and D in 6 years. Study the table carefully and answer the questions that follow.
दी गयी तालिका एक कंपनी को चार उत्पादों - A, B, C तथा D की बिक्री से 6 वर्षों में होने वाली आय (करोड़ रुपये में) को दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा फिर पूछे गए प्रश्नों का उत्तर दें |

Years → / Product ↓	2012	2013	2014	2015	2016	2017
A	98	94	80	95	110	115
B	74	96	92	84	98	86
C	82	98	96	88	93	103
D	74	102	92	93	97	102

The total revenue of the company from the sale of products B,C and D in 2014 is what percentage of the total revenue from the sale of products C and D in 6 years?
2014 में उत्पाद B, C और D की बिक्री से कंपनी को हुई कुल आय 6 वर्षों में उत्पाद C और D की बिक्री से हुई कुल आय का कितना प्रतिशत है ?
SSC CGL 4 March 2020 (Afternoon)
(a) 18
(b) 25
(c) 28
(d) 20

Q21. The given table represents the production of different types of motorcycles (in thousands) over a period of six years. Study the table carefully and answer the questions that follows:
दी गयी तालिका छः वर्षों की अवधि के दौरान अलग-अलग प्रकार की मोटर साइकिलों के उत्पादन (हज़ार में) को दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा फिर पूछे गए प्रश्नों का उत्तर दीजिए |

Years → / Motorcycles (type) ↓	2013	2014	2015	2016	2017	2018
A	95	84	85	89	80	98
B	98	87	89	88	96	92
C	104	89	95	92	100	110
D	103	100	102	95	104	120

During 2015, the production of which type of motorcycle was more than 25% of the total production of all types of motorcycles in 2017?
2015 के दौरान, किस प्रकार की मोटरसाइकिल का उत्पादन 2017 में सभी प्रकार की मोटर साइकिलों के कुल उत्पादन के 25% से अधिक रहा है ?
SSC CGL 4 March 2020 (Evening)
(a) A
(b) B
(c) C
(d) D

Q22. The given table represents the production of different types of motorcycles (in thousands) over a period of six years. Study the table carefully and answer the questions that follows:
दी गयी तालिका छः वर्षों की अवधि के दौरान अलग-अलग प्रकार की मोटर साइकिलों के उत्पादन (हज़ार में) को दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा फिर पूछे गए प्रश्नों का उत्तर दीजिए |

Years → / Motorcycles (type) ↓	2013	2014	2015	2016	2017	2018
A	95	84	85	89	80	98
B	98	87	89	88	96	92
C	104	89	95	92	100	110
D	103	100	102	95	104	120

What is the percentage increase in the total production of all types of motorcycles from 2014to 2018?
2014 से 2018 तक सभी प्रकार की मोटरसाइकिल के कुल उत्पादन में कितने प्रतिशत की वृद्धि हुई है ?
SSC CGL 4 March 2020 (Evening)
(a) $14\frac{3}{7}$
(b) $17\frac{1}{3}$
(c) $16\frac{2}{3}$
(d) $14\frac{2}{7}$

Q23. The given table represents the production of different types of motorcycles (in thousands) over a period of six years. Study the table carefully and answer the questions that follows:
दी गयी तालिका छः वर्षों की अवधि के दौरान अलग-अलग प्रकार की मोटर साइकिलों के उत्पादन (हज़ार में) को दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा फिर पूछे गए प्रश्नों का उत्तर दीजिए |

Years → / Motorcycles (type) ↓	2013	2014	2015	2016	2017	2018
A	95	84	85	89	80	98
B	98	87	89	88	96	92
C	104	89	95	92	100	110
D	103	100	102	95	104	120

By what percentage is the total production of type A motorcycles over six years, less than the total production of all types of motorcycles in 2013 and 2016?
इन छः वर्षों में A प्रकार की मोटरसाइकिल का कुल उत्पादन 2013 तथा 2016 में सभी प्रकार की मोटर साइकिलों के कुल उत्पादन से कितना प्रतिशत कम रहा है ?
SSC CGL 4 March 2020 (Evening)
(a) 32.2
(b) 32.8
(c) 31.6
(d) 30.5

Pinnacle

Q24. The given table represents the production of different types of motorcycles (in thousands) over a period of six years. Study the table carefully and answer the questions that follows:
दी गयी तालिका छः वर्षों की अवधि के दौरान अलग-अलग प्रकार की मोटर साइकिलों के उत्पादन (हज़ार में) को दर्शाती है | इस तालिका का ध्यानपूर्वक अध्ययन करें तथा फिर पूछे गए प्रश्नों का उत्तर दीजिए |

Years → / Motorcycles (type) ↓	2013	2014	2015	2016	2017	2018
A	95	84	85	89	80	98
B	98	87	89	88	96	92
C	104	89	95	92	100	110
D	103	100	102	95	104	120

What is the ratio of the total number of motorcycles of type B produced in 2016 and 2018 to the total number of motorcycles of type D produced in 2013, 2015 and 2016?
2016 तथा 2018 में उत्पादित की गयी B प्रकार की मोटरसाइकिलों की कुल संख्या का 2013, 2015 और 2016 में उत्पादित D प्रकार की मोटरसाइकिलों की कुल संख्या के साथ अनुपात ज्ञात कीजिए |
SSC CGL 4 March 2020 (Evening)
(a) 1:2
(b) 3:4
(c) 3:5
(d) 2:3

Q25. The given table represents the exports (in ₹crores) of four items A,B, C and D over a period of six years. Study the table carefully and answer the questions that follows:
दी गयी तालिका छः वर्षों की अवधि के दौरान चार वस्तुओं A, B, C और D के निर्यात (करोड़ रुपये में) को दर्शाती है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

ITEMS → / YEAR ↓	A	B	C	D
2010	240	128	180	214
2011	250	134	244	282
2012	225	138	230	247
2013	370	169	340	224
2014	425	182	300	309
2015	400	209	306	275

In which year, the exports of item D were 1.4 times the average exports of item B during the six years?
किस वर्ष वस्तु D का निर्यात छः वर्षों में वस्तु B के औसत निर्यात का 1.4 गुना रहा है ?
SSC CGL 5 March 2020 (Morning)
(a) 2014
(b) 2013
(c) 2011
(d) 2012

Q26. The given table represents the exports (in ₹crores) of four items A,B, C and D over a period of six years. Study the table carefully and answer the questions that follows:/दी गयी तालिका छः वर्षों की अवधि के दौरान चार वस्तुओं A, B, C और D के निर्यात (करोड़ रुपये में) को दर्शाती है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

ITEMS → / YEAR ↓	A	B	C	D
2010	240	128	180	214
2011	250	134	244	282
2012	225	138	230	247
2013	370	169	340	224
2014	425	182	300	309
2015	400	209	306	275

What is the ratio of the total exports of item A in 2014 and 2015 to the total exports of item C in 2011 and 2015?
2014 में वस्तु A के निर्यात का 2011 तथा 2015 में वस्तु C के कुल निर्यात के साथ अनुपात ज्ञात कीजिए |
SSC CGL 5 March 2020 (Morning)
(a) 4:3
(b) 7:5
(c) 5:4
(d) 3:2

Q27. The given table represents the exports (in ₹crores) of four items A,B, C and D over a period of six years. Study the table carefully and answer the questions that follows:
दी गयी तालिका छः वर्षों की अवधि के दौरान चार वस्तुओं A, B, C और D के निर्यात (करोड़ रुपये में) को दर्शाती है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

ITEMS → / YEAR ↓	A	B	C	D
2010	240	128	180	214
2011	250	134	244	282
2012	225	138	230	247
2013	370	169	340	224
2014	425	182	300	309
2015	400	209	306	275

The total exports of item D in 2010, 2012 and 2014 is what percentage of the total exports of all the four items in 2011 and 2012?
2010, 2012 तथा 2014 में वस्तु D का कुल निर्यात 2011 तथा 2012 में सभी चार वस्तुओं के कुल निर्यात का कितना प्रतिशत है ?
SSC CGL 5 March 2020 (Morning)
(a) 44.8%
(b) 45%
(c) 46.2%
(d) 44%

Q28. The given table represents the exports (in ₹crores) of four items A,B, C and D over a period of six years. Study the table carefully and answer the questions that follows:
दी गयी तालिका छः वर्षों की अवधि के दौरान चार वस्तुओं A, B, C और D के निर्यात (करोड़ रुपये में) को दर्शाती है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

ITEMS → / YEAR ↓	A	B	C	D
2010	240	128	180	214
2011	250	134	244	282
2012	225	138	230	247
2013	370	169	340	224
2014	425	182	300	309
2015	400	209	306	275

The total exports of item A from 2012 to 2014 is what percentage less than the total exports of all the four items in 2015? (correct to one decimal place)

2012 से 2014 तक वस्तु A का कुल निर्यात 2015 में सभी वस्तुओं के कुल निर्यात से कितना प्रतिशत (दशमलव के एक स्थान तक) कम है ?

SSC CGL 5 March 2020 (Morning)

(a) 15.2%
(b) 13.8%
(c) 16.7%
(d) 14.3%

Q29. The given table represents the sale (in thousands) of cars by four companies A,B,C and D in six years. Study the table and answer the questions that follow:

दी गयी तालिका चार कंपनियों - A, B, C और D के द्वारा छः वर्षों में की गयी कारों की बिक्री (हज़ार में) दर्शाती है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

COMPANY → / YEAR ↓	A	B	C	D
2013	45	63	65	67
2014	52	49	60	69
2015	61	60	66	67
2016	72	58	70	63
2017	52	53	63	75
2018	63	67	76	74

What is the ratio of total number of cars sold by companies A,B and D in 2017 to the total number of cars sold by all companies in 2018?

कंपनी A, B और D के द्वारा 2017 में बेची गयी कारों की कुल संख्या तथा 2018 में सभी कंपनियों के द्वारा बेची गयी कारों की कुल संख्या के बीच क्या अनुपात है ?

SSC CGL 5 March 2020 (Afternoon)

(a) 6:13
(b) 18:23
(c) 9:14
(d) 3:4

Q30. The given table represents the sale (in thousands) of cars by four companies A,B,C and D in six years. Study the table and answer the questions that follow:

दी गयी तालिका चार कंपनियों - A, B, C और D के द्वारा छः वर्षों में की गयी कारों की बिक्री (हज़ार में) दर्शाती है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

COMPANY → / YEAR ↓	A	B	C	D
2013	45	63	65	67
2014	52	49	60	69
2015	61	60	66	67
2016	72	58	70	63
2017	52	53	63	75
2018	63	67	76	74

The total number of cars sold by company B during 2015, 2017 and 2018 is what percentage less than the total number of cars sold by company C in 2013, 2015, 2017 and 2018?

2015, 2017 तथा 2018 के दौरान कंपनी B के द्वारा बेची गयी कारों की कुल संख्या कंपनी C के द्वारा 2013, 2015, 2017 तथा 2018 में बेची गयी कारों की कुल संख्या से कितना प्रतिशत कम है ?

SSC CGL 5 March 2020 (Afternoon)

(a) 50
(b) $33\frac{1}{3}$
(c) $16\frac{2}{3}$
(d) 40

Q31. The given table represents the sale (in thousands) of cars by four companies A,B,C and D in six years. Study the table and answer the questions that follow:

दी गयी तालिका चार कंपनियों - A, B, C और D के द्वारा छः वर्षों में की गयी कारों की बिक्री (हज़ार में) दर्शाती है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

COMPANY → / YEAR ↓	A	B	C	D
2013	45	63	65	67
2014	52	49	60	69
2015	61	60	66	67
2016	72	58	70	63
2017	52	53	63	75
2018	63	67	76	74

The total number of cars sold by companies A in 2017 and C in 2013 is what percentage of the total number of cars sold by all the four companies in 2013 to 2018?(correct to one decimal place)

कंपनी A के द्वारा 2017 में तथा कंपनी C के द्वारा 2013 में बेची गयी कारों की कुल संख्या सभी चार कंपनियों के द्वारा 2013 से 2018 तक बेची गयी कारों की कुल संख्या का कितना प्रतिशत है ? (दशमलव के एक स्थान तक)

SSC CGL 5 March 2020 (Afternoon)

(a) 23.8
(b) 25.6
(c) 23.3
(d) 24.2

Q32. The given table represents the sale (in thousands) of cars by four companies A,B,C and D in six years. Study the table and answer the questions that follow:

दी गयी तालिका चार कंपनियों - A, B, C और D के द्वारा छः वर्षों में की

गयी कारों की बिक्री (हज़ार में) दर्शाती है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

COMPANY → / YEAR ↓	A	B	C	D
2013	45	63	65	67
2014	52	49	60	69
2015	61	60	66	67
2016	72	58	70	63
2017	52	53	63	75
2018	63	67	76	74

The total number of cars sold by company C in 2018 exceeds the average number of cars sold by company A during 2014 to 2018 by:

कंपनी C के द्वारा 2018 में बेची गयी कारों की कुल संख्या 2014 से 2018 के दौरान कंपनी A के द्वारा बेची गयी कारों की औसत संख्या से कितनी अधिक है ?

SSC CGL 5 March 2020 (Afternoon)

(a) 14,000
(b) 15,000
(c) 16,000
(d) 12,000

Q33. The following table shows the number of students enrolled in different faculties in a college.

निम्नलिखित तालिका एक कॉलेज में अलग-अलग विषयों में नामांकित छात्रों की संख्या को दर्शाती है |

Science		Arts		Commerce		Vocational	
Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
32	18	28	45	42	42	13	30

The percentage of students studying in faculties other than Science is:

विज्ञान के अतिरिक्त अन्य विषयों की पढ़ाई करने वाले छात्रों का प्रतिशत है :

SSC CGL 5 March 2020 (Evening)

(a) 60%
(b) 80%
(c) 75%
(d) 20%

Q34. The following table shows the income (in rupees) for a particular month, together with their source, in respect of 5 employees(A,B,C,D and E).

निम्नलिखित तालिका 5 कर्मचारियों (A,B, C, D तथा E) के संबंध में एक विशेष माह की आय तथा उसके स्रोत को दर्शाती है |

	A	B	C	D	E
Salary	52,000	48,500	42,000	31,000	25,000
Overtime	0	0	1,500	2,500	3,200
Arrears	5,500	4,500	4,000	3,000	1,500
Bonus	3,500	3,000	2,500	2,000	2,000
Miscellaneous income	5,000	3,000	2,000	1,500	0
Total	66,000	59,000	52,000	40,000	31,700

How many employees got more arrears than the average arrears received by all the employees?

कितने कर्मचारियों को सभी कर्मचारियों को मिलने वाले औसत बकाया से अधिक बकाया राशि मिली है ?

SSC CGL 5 March 2020 (Evening)

(a) 3
(b) 2
(c) 1
(d) 4

Q35. The heights of some girls in a school were noted and the data obtained are as shown in the table.

एक विद्यालय में कुछ लड़कियों की लंबाई को दर्ज किया गया तथा इस प्रकार प्राप्त आंकड़ों को इस तालिका में दर्शाया गया है |

Height (in cm)	125-130	130-135	135-140	140-145	145-150	150-155
Number of girls	12	16	20	29	15	8

How many girls have a height of 135 cm or more but less than 150 cm?

कितनी लड़कियों की लंबाई 135 सेमी या अधिक है लेकिन 150 सेमी से कम है ?

SSC CGL 5 March 2020 (Evening)

(a) 80
(b) 35
(c) 88
(d) 64

Q36. The following table shows the monthly salaries (in ₹) of 50 families.

निम्नलिखित तालिका 50 परिवारों के मासिक वेतन (रुपये में) को दर्शाती है |

Salary (in ₹)	25,000-30,000	30,000-35,000	35,000-40,000	40,000-45,000	45,000-50,000
Number of families	6	12	9	19	4

How many families have a monthly salary less than ₹40,000?

कितने परिवारों का मासिक वेतन 40,000 रुपये से कम है ?

SSC CGL 5 March 2020 (Evening)

(a) 46
(b) 9
(c) 18
(d) 27

Q37. In the following table, the production of various crops (in tonnes) is given from 2015 to 2019. Study the table and answer the question that follows:

दी गयी तालिका में, 2015 से 2019 तक विभिन्न फसलों का उत्पादन (टन में) दिया गया है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्न का उत्तर दीजिए |

Year	Rice	Wheat	Sugarcane	Barley	Maize
2015	415	2500	1000	975	490
2016	520	4218	1120	825	520
2017	585	3482	1250	700	610
2018	625	4500	1325	625	725
2019	600	3300	1450	775	840

The average production of wheat (in tonnes) in the period given in the table is:

तालिका में दी गयी अवधि में गेहूँ का औसत उत्पादन (टन में) कितना रहा है ?

SSC CGL 6 March 2020 (Morning)

(a) 3600
(b) 3482
(c) 3300
(d) 4218

Q38. In the following table, the production of various crops (in tonnes) is given from 2015 to 2019. Study the table and answer the question that follows:

दी गयी तालिका में, 2015 से 2019 तक विभिन्न फसलों का उत्पादन (टन में) दिया गया है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्न का उत्तर दीजिए |

Year	Rice	Wheat	Sugarcane	Barley	Maize
2015	415	2500	1000	975	490
2016	520	4218	1120	825	520
2017	585	3482	1250	700	610
2018	625	4500	1325	625	725
2019	600	3300	1450	775	840

The percentage growth of maize in the year 2019 over the year 2015 is: (correct to one decimal place)

वर्ष 2019 में वर्ष 2015 की तुलना में मक्का के उत्पादन में कितने प्रतिशत की वृद्धि हुई है ? (दशमलव के एक स्थान तक)

SSC CGL 6 March 2020 (Morning)

(a) 65.12%
(b) 60.28%
(c) 71.43%
(d) 77.77%

Q39. In the following table, the production of various crops (in tonnes) is given from 2015 to 2019. Study the table and answer the question that follows:

दी गयी तालिका में, 2015 से 2019 तक विभिन्न फसलों का उत्पादन (टन में) दिया गया है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्न का उत्तर दीजिए |

Year	Rice	Wheat	Sugarcane	Barley	Maize
2015	415	2500	1000	975	490
2016	520	4218	1120	825	520
2017	585	3482	1250	700	610
2018	625	4500	1325	625	725
2019	600	3300	1450	775	840

The highest growth of sugarcane production over its previous year is recorded in the year:/

किस वर्ष गन्ने का उत्पादन पिछले वर्ष की तुलना में अधिकतम रहा है ?

SSC CGL 6 March 2020 (Morning)

(a) 2019
(b) 2016
(c) 2018
(d) 2017

Q40. In the following table, the production of various crops (in tonnes) is given from 2015 to 2019. Study the table and answer the question that follows:

दी गयी तालिका में, 2015 से 2019 तक विभिन्न फसलों का उत्पादन (टन में) दिया गया है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्न का उत्तर दीजिए |

Year	Rice	Wheat	Sugarcane	Barley	Maize
2015	415	2500	1000	975	490
2016	520	4218	1120	825	520
2017	585	3482	1250	700	610
2018	625	4500	1325	625	725
2019	600	3300	1450	775	840

The difference (in tonnes) between the average production of barley and average production of rice is:

जौ के औसत उत्पादन तथा चावल के औसत उत्पादन के बीच क्या अंतर (टन में) है ?

SSC CGL 6 March 2020 (Morning)

(a) 549
(b) 231
(c) 471
(d) 780

Q41. The following table shows the income (in ₹) for a particular month, together with their source, in respect of 5 employees(A,B,C,D and E).

निम्नलिखित तालिका 5 कर्मचारियों (A, B, C, D तथा E) के संबंध में एक विशेष माह की आय (रुपये में) तथा उसके स्रोत को दर्शाती है |

	A	B	C	D	E
Salary	52,000	48,500	42,000	31,000	25,000
Overtime	0	0	1,500	2,500	3,200
Arrears	5,500	4,500	4,000	3,000	1,500
Bonus	3,500	3,000	2,500	2,000	2,000
Miscellaneous income	5,000	3,000	2,000	1,500	0
Total	66,000	59,000	52,000	40,000	31,700

How many employees got more than a total of ₹ 10,000 as income other than salary?

कितने कर्मचारियों को वेतन के अतिरिक्त कुल 10,000 रुपये से अधिक की आय हुई है ?

SSC CGL 6 March 2020 (Afternoon)

(a) 4
(b) 1
(c) 2
(d) 3

Q42. The following table shows the daily earnings of 45 skilled workers:

निम्नलिखित तालिका 45 कुशल श्रमिकों की दैनिक आय को दर्शाती है |

Earning (in ₹)	700 to 800	800 to 900	900 to 1000	1000 to 1100	1100 to 1200	1200 to 1300
Number of workers	4	15	10	10	4	2

How many workers earn less than ₹1,100 in a day?

कितने श्रमिक एक दिन में 1,100 रुपये से कम कमाते हैं ?

SSC CGL 6 March 2020 (Afternoon)

(a) 43
(b) 39
(c) 29
(d) 10

Q43. The number of students enrolled in different streams in a college is shown in the following table:/ निम्नलिखित तालिका में एक कॉलेज के विभिन्न विषयों में नामांकित छात्रों की संख्या दी गयी है :

Science		Arts		Commerce		Vocational	
Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
25	18	25	47	45	40	10	30

The ratio of total number of boys to that of girls in the college is:

इस कॉलेज में लड़कों की कुल संख्या तथा लड़कियों की कुल संख्या के बीच क्या अनुपात है ?

SSC CGL 6 March 2020 (Afternoon)

(a) 13:12
(b) 23:27
(c) 1:1

(d) 27:23

Q44. During a medical checkup, the height of 40 students in a class were recorded as shown in the following table./
एक चिकित्सा जाँच के दौरान, एक कक्षा के 40 छात्रों की लंबाई दर्ज की गयी जिसे निम्नलिखित तालिका में प्रस्तुत किया गया है |

Height (in cm)	less than 175	less than 170	less than 165	less than 160	less than 155	less than 150
Number of students	40	35	25	16	8	4

How many students have a height of 165 cm or more?
कितने छात्रों की लंबाई 165 सेमी या अधिक है ?
SSC CGL 6 March 2020 (Afternoon)
(a) 10
(b) 15
(c) 16
(d) 25

Q45. The following table gives the details of five commodities A,B,C,D and E with quantity required and their cost for a family in a month. Study the table and answer the questions that follow.
निम्नलिखित तालिका पाँच वस्तुओं A, B, C, D तथा E के बारे में बताती है कि एक महीने में एक परिवार को उनकी कितनी मात्रा की आवश्यकता है तथा उनकी लागत कितनी है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

Commodity	Quantity required/month (in kg)	Rate/kg in ₹	
		Year 2016	Year 2019
A	15	₹60	₹80
B	20	₹50	₹60
C	12	₹35	₹40
D	40	₹75	₹85
E	8	₹64	₹72

The percentage of increase (per kg) in the rate of commodity D from 2016 to 2019 is:
2016 से 2019 तक वस्तु D की दर में कितने प्रतिशत की वृद्धि हुई है ?
SSC CGL 6 March 2020 (Evening)
(a) 38.24%
(b) 22.17%
(c) 13.33%
(d) 5%

Q46. The following table gives the details of five commodities A,B,C,D and E with quantity required and their cost for a family in a month. Study the table and answer the questions that follow.
निम्नलिखित तालिका पाँच वस्तुओं A, B, C, D तथा E के बारे में बताती है कि एक महीने में एक परिवार को उनकी कितनी मात्रा की आवश्यकता है तथा उनकी लागत कितनी है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

Commodity	Quantity required/month (in kg)	Rate/kg in ₹	
		Year 2016	Year 2019
A	15	₹60	₹80
B	20	₹50	₹60
C	12	₹35	₹40
D	40	₹75	₹85
E	8	₹64	₹72

The total amount spent on the five commodities by the family in the year 2019 is:
इस परिवार के द्वारा वर्ष 2019 में पाँचों वस्तुओं पर कुल कितनी राशि खर्च की गयी थी ?
SSC CGL 6 March 2020 (Evening)
(a) ₹ 6,856
(b) ₹ 8,122
(c) ₹ 5,400
(d) ₹ 7,248

Q47. The following table gives the details of five commodities A,B,C,D and E with quantity required and their cost for a family in a month. Study the table and answer the questions that follow.
निम्नलिखित तालिका पाँच वस्तुओं A, B, C, D तथा E के बारे में बताती है कि एक महीने में एक परिवार को उनकी कितनी मात्रा की आवश्यकता है तथा उनकी लागत कितनी है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

Commodity	Quantity required/month (in kg)	Rate/kg in ₹	
		Year 2016	Year 2019
A	15	₹60	₹80
B	20	₹50	₹60
C	12	₹35	₹40
D	40	₹75	₹85
E	8	₹64	₹72

The ratio of the total amount spent on A and D commodities in the year 2019 is:
वर्ष 2019 में A और D वस्तुओं पर खर्च की गयी कुल राशि का अनुपात कितना है ?
SSC CGL 6 March 2020 (Evening)
(a) 15:17
(b) 6:17
(c) 1:1
(d) 3:8

Q48. The following table gives the details of five commodities A,B,C,D and E with quantity required and their cost for a family in a month. Study the table and answer the questions that follow.
निम्नलिखित तालिका पाँच वस्तुओं A, B, C, D तथा E के बारे में बताती है कि एक महीने में एक परिवार को उनकी कितनी मात्रा की आवश्यकता है तथा उनकी लागत कितनी है | इस तालिका का अध्ययन करें तथा फिर पूछे गए प्रश्नों के उत्तर दें |

Commodity	Quantity required/month (in kg)	Rate/kg in ₹	
		Year 2016	Year 2019
A	15	₹60	₹80
B	20	₹50	₹60
C	12	₹35	₹40
D	40	₹75	₹85
E	8	₹64	₹72

The amount spent extra on commodities B and C in the year 2019 as compared to that in the year 2016 is:
वर्ष 2016 की तुलना में वर्ष 2019 में वस्तु B तथा C पर कितनी अतिरिक्त राशि खर्च की गयी है ?
SSC CGL 6 March 2020 (Evening)

(a) ₹ 260
(b) ₹ 248
(c) ₹ 110
(d) ₹ 192

Q49. In a school, the distribution of teachers is as follows:
एक विद्यालय में, शिक्षकों का वितरण इस प्रकार है :

AGE (years)	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of Teachers	2	3	5	2	6	7	5

The total number of teachers of age less than 40 years is/
40 वर्ष से कम उम्र के शिक्षकों की कुल संख्या कितनी है ?
SSC CGL 7 March 2020 (Morning)
(a) 39
(b) 10
(c) 12
(d) 18

Q50. Study the given table carefully and answer the questions that follows:
निम्नलिखित तालिका का ध्यानपूर्वक अध्ययन कीजिए तथा फिर पूछे गए प्रश्नों के उत्तर दीजिए |

YEAR	2010	2011	2012	2013	2014
Number of students that appeared for the examination	600	750	840	960	1020
Number of students passed	420	510	525	630	810
Number of students passed with distinction	120	180	210	420	480

The percentage of students who have passed with distinction in the year 2012 is:
ऐसे छात्रों का प्रतिशत बताएँ जो वर्ष 2012 में डिस्टिंक्शन के साथ सफल हुए हैं ?
SSC CGL 7 March 2020 (Morning)
(a) 27%
(b) 20%
(c) 25%
(d) 22%

Q51. In a particular year, the number of students enrolled in different streams in a college is as follows:
एक विशेष वर्ष में, किसी कॉलेज के विभिन्न विषयों में नामांकित छात्रों की संख्या इस प्रकार है :

Science		Arts		Commerce		Vocational	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
32	18	28	45	42	42	18	30

The percentage of girl students is:
छात्राओं का प्रतिशत है :
SSC CGL 7 March 2020 (Morning)
(a) 54%
(b) 46%
(c) 135%
(d) 50%

Q52. From the given table, what is the percentage of students scoring 40 or more, but less than 70.
दी गयी तालिका से, ऐसे छात्रों का प्रतिशत ज्ञात करें जिन्होंने 40 अथवा अधिक लेकिन 70 से कम अंक प्राप्त किया है |

Scores	Less than 20	Less than 30	Less than 40	Less than 50	Less than 60	Less than 70	Less than 80
Number of students	13	19	22	33	38	46	50

SSC CGL 7 March 2020 (Morning)
(a) 8%
(b) 96%
(c) 56%
(d) 48%

Q53. The following table shows the age-wise brand ownership of mobile phone handsets.
निम्नलिखित तालिका मोबाइल फ़ोन हैंडसेट की निर्माण अवधि के अनुसार स्वामित्व को दर्शाती है |

Brands	1 year old	1 to 2 years old	2 to 3 years old	More than 3 years old
A	15%	40%	40%	
B	5%	15%	25%	55%
C	10%	10%	10%	70%
D	25%	50%	25%	
E	15%	50%	20%	15%

If a total of 5000 'C' mobile phone sets are sold till date, then how many are more than one year old?
यदि आज की तारीख तक कुल 5000 'C' मोबाइल फ़ोन सेट बेचे गए हैं, तो उनमें से कितने सेट एक वर्ष से अधिक पुराने हैं ?
SSC CGL 7 March 2020 (Afternoon)
(a) 4200
(b) 4500
(c) 4350
(d) 4000

Q54. The following table shows the number of employees working in various departments of an organisation from 2016 to 2019.
निम्नलिखित तालिका 2016 से 2019 तक एक संगठन के विभिन्न विभागों में कार्य करने वाले कर्मचारियों की संख्या को दर्शाती है |

Years	Production	Marketing	Finance	Research
2016	130	120	50	145
2017	150	130	60	170
2018	160	140	70	180
2019	170	150	75	210

In which year were the maximum number of employees working in the organization? / किस वर्ष संगठन में कार्य करने वाले कर्मचारियों की संख्या अधिकतम रही है ?
SSC CGL 7 March 2020 (Afternoon)
(a) 2019
(b) 2017
(c) 2016
(d) 2018

Q55. The following table shows the annual profit of a company (in ₹ lakh).
निम्नलिखित तालिका एक कंपनी के वार्षिक लाभ (लाख रुपये में) को दर्शाती है |

2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
625	680	725	775	835

The period which has the maximum percentage increase in profit over the previous year is:
किस अवधि में पिछले वर्ष की तुलना में लाभ में सर्वाधिक प्रतिशत वृद्धि हुई है ?
SSC CGL 7 March 2020 (Afternoon)
(a) 2016-2017
(b) 2017-2018
(c) 2018-2019
(d) 2015-2016

Pinnacle

Q56. The following table shows the percentage of marks obtained by seven students in six different subjects in an examination.
निम्नलिखित तालिका एक परीक्षा में सात छात्रों के द्वारा छः अलग विषयों में प्राप्त किये गए अंक के प्रतिशत को दर्शाती है |

Student	Math	Chemistry	Physics	Geography	History	Computer Science
	Maximum marks = 120	Maximum marks = 120	Maximum marks = 120	Maximum marks = 100	Maximum marks = 110	Maximum marks = 90
Ankit	108	80	60	40	70	70
Aman	90	80	90	60	80	80
Ayush	80	60	70	70	80	70
Rohit	90	90	80	95	60	60
Tanvi	80	80	60	90	40	60
Saina	70	75	60	77	80	90
Mohan	60	55	50	60	60	80

What are the average marks obtained by all the seven students in Physics? (rounded off to two digits after the decimal)
सभी सात छात्रों के द्वारा भौतिकी में प्राप्त किये गए औसत अंक कितने हैं ? (दशमलव के बाद दो अंक तक)
SSC CGL 7 March 2020 (Afternoon)
(a) 85.12
(b) 75.90
(c) 80.15
(d) 89.14

Q57. The following table shows the percentage distribution of the population of five states, A,B,C,D and E on the basis of the poverty line and also on the basis of sex.
निम्नलिखित तालिका गरीबी रेखा तथा लिंग के आधार पर पाँच राज्यों A, B, C, D तथा E की आबादी के प्रतिशत वितरण को दर्शाती है |

State	Percentage of population below the poverty line	Proportion of Males and Females	
		Below poverty line	Above poverty line
		Males:Female	Males:Female
A	15	5:1	4:3
B	25	1:2	2:3
C	19	3:2	4:5
D	35	1:2	2:3
E	24	3:5	6:7

If the male population above the poverty line for State B is 2.5 million, then what is the total population of State B?
यदि B राज्य में गरीबी रेखा से ऊपर पुरुष आबादी 25 लाख है, तो राज्य B की कुल आबादी कितनी है ?
SSC CGL 7 March 2020 (Evening)
(a) $8\frac{1}{3}$ million
(b) $8\frac{2}{3}$ million
(c) $7\frac{2}{3}$ million
(d) $10\frac{5}{3}$ million

Q58. The following table shows the percentage distribution of the population of five states, A,B,C,D and E on the basis of the poverty line and also on the basis of sex.
निम्नलिखित तालिका गरीबी रेखा तथा लिंग के आधार पर पाँच राज्यों A, B, C, D तथा E की आबादी के प्रतिशत वितरण को दर्शाती है |

State	Percentage of population below the poverty line	Proportion of Males and Females	
		Below poverty line	Above poverty line
		Males:Female	Males:Female
A	15	5:1	4:3
B	25	1:2	2:3
C	19	3:2	4:5
D	35	1:2	2:3
E	24	3:5	6:7

If the population of males below the poverty line for State C is 3 million, then what is the total population of State C?
यदि राज्य C में गरीबी रेखा से नीचे पुरुषों की आबादी 30 लाख है, तो राज्य C की कुल आबादी कितनी है ?
SSC CGL 7 March 2020 (Evening)
(a) 26.316 million
(b) 24.486 million
(c) 23.361 million
(d) 25.617 million

Q59. The following table shows the items of expenditure of a company (in ₹ lakh per annum), from 2015 to 2019.
निम्नलिखित तालिका 2015-2019 तक एक कंपनी के व्यय की मदों को (लाख रुपये प्रति वर्ष में) दर्शाती है |

Year	Salary	Fuel and transport	Interest	Interest on loans	Taxes
2015	288	98	0	35.2	80
2016	342	112	2.0	34	116
2017	324	108	2.6	40	94
2018	336	125	4	33	90
2019	408	144	0	42	104

What is the average amount of interest per year which the company had to pay during this period?
इस अवधि के दौरान प्रति वर्ष कंपनी को ब्याज की कितनी औसत राशि का भुगतान करना पड़ा है ?
SSC CGL 7 March 2020 (Evening)
(a) ₹34.7 lakh
(b) ₹25 lakh
(c) ₹35 lakh
(d) ₹30.7 lakh

Q60. The following table showing the percentage of the total population of a state in different age groups.
निम्नलिखित तालिका एक राज्य में अलग-अलग आयु वर्ग की कुल आबादी के प्रतिशत को दर्शाती है |

Age group(in years)	Population(in percentage)
0-15	31
15-25	5.25
25-35	14.25
35-45	14.50
45-55	17.25
55 & above	17.75
Total	100

Out of every 50,000 people, find the approximate number of persons below the age of 35?
प्रत्येक 50,000 लोगों में से, 35 वर्ष से कम उम्र के लोगों की संख्या (लगभग) ज्ञात करें |
SSC CGL 7 March 2020 (Evening)
(a) 26,250
(b) 26,260
(c) 25,250
(d) 25,230

Q61. The following table represents the number of candidates that appeared and qualified in a competitive examination from different states over five years. Study the table and answer the questions that follow.
निम्नलिखित तालिका उन उम्मीदवारों की संख्या को दर्शाती है जो पाँच वर्षों के दौरान विभिन्न राज्यों से किसी प्रतियोगी परीक्षा में शामिल हुए तथा सफल हुए | इस तालिका का अध्ययन कीजिए तथा फिर पूछे गए प्रश्नों के उत्तर दीजिए |



What was the total number of candidates appearing from all the states in the year 1997?
वर्ष 1997 में सभी राज्यों से शामिल होने वाले उम्मीदवारों की कुल संख्या कितनी है ?
SSC CGL 9 March 2020 (Morning)
(a) 22,700
(b) 27,000
(c) 72,200
(d) 27,200

Q62. The following table represents the number of candidates that appeared and qualified in a competitive examination from different states over five years. Study the table and answer the questions that follow.
निम्नलिखित तालिका उन उम्मीदवारों की संख्या को दर्शाती है जो पाँच वर्षों के दौरान विभिन्न राज्यों से किसी प्रतियोगी परीक्षा में शामिल हुए तथा सफल हुए | इस तालिका का अध्ययन कीजिए तथा फिर पूछे गए प्रश्नों के उत्तर दीजिए |



What is the difference between the number of candidates qualifying in the year 1998, in the states M and P? / वर्ष 1998 में राज्य M तथा P से सफल होने वाले उम्मीदवारों की संख्या में क्या अंतर है ?
SSC CGL 9 March 2020 (Morning)
(a) 50
(b) 44
(c) 40
(d) 60

Q63. The following table represents the number of candidates that appeared and qualified in a competitive examination from different states over five years. Study the table and answer the questions that follow.
निम्नलिखित तालिका उन उम्मीदवारों की संख्या को दर्शाती है जो पाँच वर्षों के दौरान विभिन्न राज्यों से किसी प्रतियोगी परीक्षा में शामिल हुए तथा सफल हुए | इस तालिका का अध्ययन कीजिए तथा फिर पूछे गए प्रश्नों के उत्तर दीजिए |



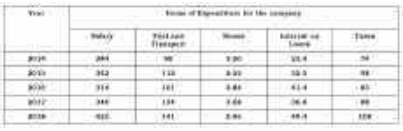
The total number of candidates that qualified from all the states together in 1998 is approximately what percentage of the total number of candidates that qualified from all the states together in 2001? (Correct to two decimal points)
1998 में सभी राज्यों को मिलाकर सफल होने वाले उम्मीदवारों की कुल संख्या 2001 में सभी राज्यों को मिलाकर सफल होने वाले उम्मीदवारों की कुल संख्या का लगभग कितना प्रतिशत है ? (दशमलव के दो स्थान तक)
SSC CGL 9 March 2020 (Morning)
(a) 97.72%
(b) 90.72%
(c) 96.70%
(d) 94.7%

Q64. The following table represents the number of candidates that appeared and qualified in a competitive examination from different states over five years. Study the table and answer the questions that follow.
निम्नलिखित तालिका उन उम्मीदवारों की संख्या को दर्शाती है जो पाँच वर्षों के दौरान विभिन्न राज्यों से किसी प्रतियोगी परीक्षा में शामिल हुए तथा सफल हुए | इस तालिका का अध्ययन कीजिए तथा फिर पूछे गए प्रश्नों के उत्तर दीजिए |



What is the average number of candidates that appeared from State Q during the given years?
दिए गए वर्षों के दौरान राज्य Q से परीक्षा में शामिल होने वाले उम्मीदवारों की औसत संख्या कितनी है ?
SSC CGL 9 March 2020 (Morning)
(a) 8990
(b) 9000
(c) 8980
(d) 8880

Q65. Study the following table and answer the question. /
निम्नलिखित तालिका का अध्ययन कीजिए तथा प्रश्नों के उत्तर दीजिए|
Expenditures of a company (in Lakh Rupees) per annum over the given years./ दिए गए वर्षों के दौरान एक कंपनी के द्वारा प्रति वर्ष किये गए व्यय (लाख रुपये में)



Total expenditure on all the items in 2014 was approximately what percent of the total expenditure in 2018?
2014 में सभी मदों पर किया गया कुल व्यय 2018 में हुए कुल व्यय का लगभग कितना प्रतिशत है ?
SSC CGL 9 March 2020 (Afternoon)
(a) 68.32%
(b) 60.32%
(c) 66.32%
(d) 65.32%

Q66. The following table shows the production of fertilizers (in lakh tonne) by six companies in 5 months (January to May).
निम्नलिखित तालिका छः कंपनियों के द्वारा 5 माह (जनवरी से मई) के दौरान किये गए उर्वरक उत्पादन (लाख टन में) को दर्शाती है |



In which month does Company II have a contribution of approximately 20% in the total fertilizer production?
किस महीने में कुल उर्वरक उत्पादन में कंपनी II का योगदान लगभग 20% है ?
SSC CGL 9 March 2020 (Afternoon)
(a) April/अप्रैल
(b) May/ मई
(c) January/ जनवरी
(d) March/ मार्च

Q67. The following table shows the imports and exports (in ₹ crore) of a country over 4 years (2016 to 2019).
निम्नलिखित तालिका 4 वर्षों (2016 से 2019) के दौरान एक देश के आयात तथा निर्यात (करोड़ रुपये में) को दर्शाती है |

Years	2016	2017	2018	2019
Imports	125	145	165	188
Exports	130	150	175	200

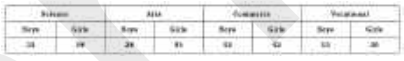
The average trade balance (in ₹ crore) is:
औसत व्यापार संतुलन (करोड़ रुपये में) कितना है ?
SSC CGL 9 March 2020 (Afternoon)
(a) 4
(b) 12
(c) 8
(d) 6

Q68. The following table shows the production of fertilizers (in lakh tonne) by six companies in 5 months (January to May).
निम्नलिखित तालिका छः कंपनियों के द्वारा 5 माह (जनवरी से मई) के दौरान किये गए उर्वरक उत्पादन (लाख टन में) को दर्शाती है |



There a continuous decrease in production over the months in:
इन महीनों के दौरान किस कंपनी के उत्पादन में निरंतर कमी दर्ज की गयी है ?
SSC CGL 9 March 2020 (Afternoon)
(a) Company IV/ कंपनी IV
(b) Company III/ कंपनी III
(c) Company I / कंपनी I
(d) Company II/ कंपनी II

Q69. The following table shows the number of students enrolled in different streams in a particular college.
निम्नलिखित तालिका एक विशेष कॉलेज के विभिन्न विषयों में नामांकित छात्रों की संख्या को दर्शाती है |



The ratio of the number of girls studying Arts to the number of girls studying in all other streams is:
कला की पढ़ाई करने वाली छात्राओं तथा अन्य सभी विषयों की पढ़ाई करने वाली छात्राओं की संख्या के बीच क्या अनुपात है ?
SSC CGL 9 March 2020 (Evening)
(a) 1:3
(b) 2:1
(c) 1:2
(d) 3:1

Q70. The following table gives the frequency of vowels used in the page of a book.
निम्नलिखित तालिका एक पुस्तक के पन्नों में प्रयोग किये गए स्वर (vowels)की आवृत्ति को दर्शाती है |



As per the given data, which vowels occur less than 80 times?
दिए गए आंकड़ों के अनुसार, किन स्वरों का प्रयोग 80 बार से कम किया गया है ?
SSC CGL 9 March 2020 (Evening)
(a) a,e,i
(b) a,i,o,u
(c) a,o,u
(d) a,e

Q71. The following table shows the income (in rupees) for a particular month, together with their source, in respect of 5 employees(A,B,C,D and E).
निम्नलिखित तालिका 5 कर्मचारियों (A, B, C, D तथा E) के संदर्भ में एक विशेष महीने की आय तथा उसके स्रोत को दर्शाती है |

	A	B	C	D	E
Salary	32,000	48,500	42,000	31,000	25,000
Overtime	0	0	1,500	2,500	3,200
Arrears	5,500	4,500	4,000	3,000	1,500
Bonus	3,500	3,000	2,500	2,000	2,000
Miscellaneous Income	5,000	3,000	2,000	1,500	0
Total	66,000	59,000	52,000	40,000	31,700

For employee D, the income from overtime is what percentage of his total income?
कर्मचारी D के लिए, ओवरटाइम से होने वाली आय उसकी कुल आय का कितना प्रतिशत है ?
SSC CGL 9 March 2020 (Evening)
(a) 5%
(b) 7.5%
(c) 6.25%
(d) 22.5%

Q72. As per the data shown in the following table, what is the percentage of students who got less than 50 marks?
निम्नलिखित तालिका में दिए गए आंकड़ों के अनुसार, उन छात्रों का प्रतिशत क्या है जिन्हें 50 अंक से कम अंक आए हैं ?

Marks Obtained	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80
Number of students	5	13	18	30	20	10	15

SSC CGL 9 March 2020 (Evening)

(a) 74%
(b) 48%
(c) 72%
(d) 38%

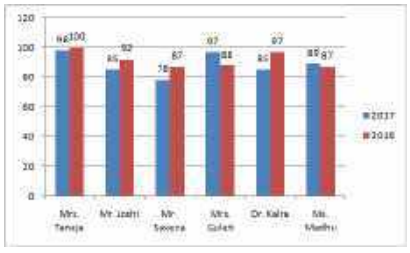
SSC CHSL 2019

Q1. The given graph shows the pass percentage of students taught by six teachers of a school in the Senior Secondary Board exam.

दिया गया आरेख छः शिक्षकों के द्वारा पढ़ाये गए छात्रों की उच्च माध्यमिक बोर्ड परीक्षा में उत्तीर्णता प्रतिशत को दर्शाता है।

Performance of students of 6 teachers of a School (pass percent)

एक विद्यालय के 6 शिक्षकों के छात्रों का प्रदर्शन (उत्तीर्णता प्रतिशत)



Identify the teacher whose students have shown the maximum improvement.

उस शिक्षक की पहचान कीजिए, जिसके छात्रों में सर्वाधिक सुधार देखने को मिला है ?

CHSL 12-10-2020 (morning shift)

(a) Dr. Kalra/ डॉ कालरा
(b) Mr. Saxena/ श्री सक्सेना
(c) Mrs. Taneja/ श्रीमती तनेजा
(d) Mr. Joshi/ श्री जोशी

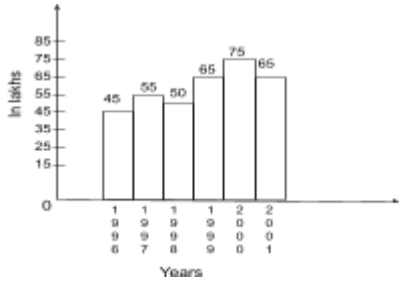
Q2. The following graph given the annual percent profit earned by a company during the period 1996-2001.

Study the graph carefully and answer the questions that follow.

$$\%profit = \frac{Income - Expenditure}{Expenditure} \times 100$$

निम्नलिखित आरेख 1996-2001 की अवधि के दौरान एक कंपनी के द्वारा अर्जित लाभ का वार्षिक प्रतिशत दर्शाता है। इस आरेख का ध्यानपूर्वक अध्ययन कीजिए और इसके बाद पूछे गए प्रश्नों का उत्तर दीजिए।

$$\text{लाभ}\% = \frac{\text{आय} - \text{व्यय}}{\text{व्यय}} \times 100$$



The period in which the profit of the company has increased fastest is:

वह अवधि जिसमें कंपनी का लाभ सबसे तेज़ी से बढ़ा है:

CHSL 12-10-2020 (morning shift)

(a) 1996 - 1997
(b) 2000 - 2001
(c) 1998 - 1999
(d) 1997 - 1998

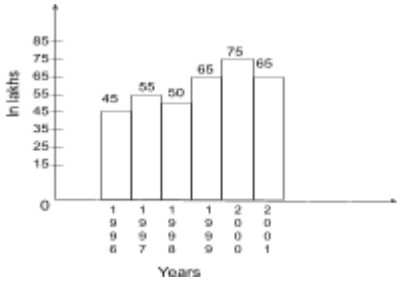
Q3. The following graph given the annual percentage profit earned by a company during the period 1996-2001.

Study the graph carefully and answer the questions that follow.

$$\%profit = \frac{Income - Expenditure}{Expenditure} \times 100$$

निम्नलिखित आरेख 1996-2001 की अवधि के दौरान एक कंपनी के द्वारा अर्जित लाभ का वार्षिक प्रतिशत दर्शाता है। इस आरेख का ध्यानपूर्वक अध्ययन कीजिए और इसके बाद पूछे गए प्रश्नों का उत्तर दीजिए।

$$\text{लाभ}\% = \frac{\text{आय} - \text{व्यय}}{\text{व्यय}} \times 100$$



The profit earned by the company is maximum in the year:

कंपनी के द्वारा अर्जित लाभ किस वर्ष अधिकतम रहा है ?

CHSL 12-10-2020 (morning shift)

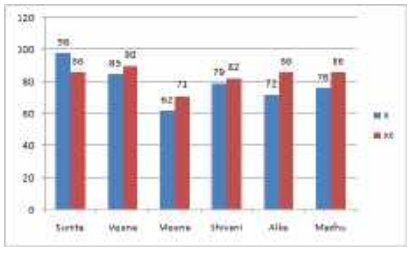
(a) 1996
(b) 2000
(c) 2001
(d) 1999

Q4. The following graph shows the performance in aggregate marks of 2 board examinations of a group of friends. On the basis of the graph, identify the girl who has shown the maximum improvement from class X to class XII.

निम्नलिखित आरेख मित्रों के एक समूह को दो बोर्ड परीक्षाओं में मिले कुल अंकों के प्रदर्शन को दर्शाता है। इस आरेख के आधार पर, उस लड़की की पहचान कीजिए, जिसने कक्षा X से XII में सबसे अधिक सुधार दर्ज की है ?

Percentage of aggregate marks of students in Class X and XII

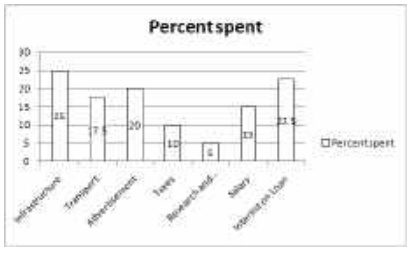
कक्षा X तथा XII के छात्रों के कुल अंकों का प्रतिशत।



CHSL 12-10-2020 (Afternoon shift)

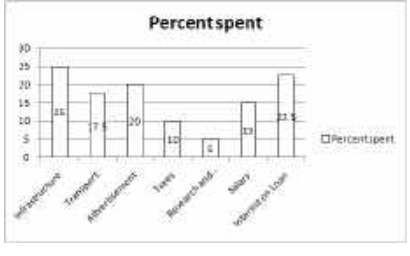
(a) Madhu/ मधु
(b) Alka/ अलका
(c) Veena/ वीणा
(d) Meena/ मीना

Q5. The given graph represents the percentage distribution of the total expenditure of a company. Study the graph and answer the question that follows.
दिया गया आरेख एक कंपनी के कुल व्यय के प्रतिशत वितरण को दर्शाता है। आरेख का अध्ययन कीजिए और फिर पूछे गए प्रश्न का उत्तर दीजिए।



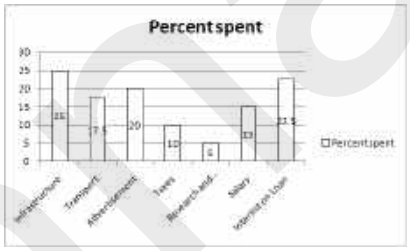
What is the ratio of the total expenditure on 'Infrastructure' and 'Transport' to the total expenditure on 'Taxes' and 'Interest on Loans'?
'आधारभूत संरचना'(Infrastructure) तथा 'परिवहन'(Transport) पर किये गए कुल व्यय और 'करों' (Taxes) तथा 'ऋण पर ब्याज'(Interest on loans) पर किये गए कुल व्यय के बीच अनुपात ज्ञात कीजिए।
CHSL 12-10-2020 (Afternoon shift)
(a) 15 : 13
(b) 17 : 13
(c) 16 : 13
(d) 14 : 13

Q6. The given graph represents the percentage distribution of the total expenditure of a company. Study the graph and answer the question that follows.
दिया गया आरेख एक कंपनी के कुल व्यय के प्रतिशत वितरण को दर्शाता है। आरेख का अध्ययन कीजिए और फिर पूछे गए प्रश्न का उत्तर दीजिए।



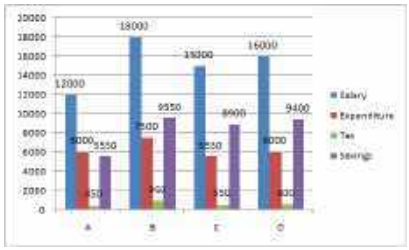
The total expenditure of the company is how many times the total expenditure on 'Research and Development' and 'Salary'?
कंपनी का कुल व्यय 'शोध तथा विकास(Reaserch and Development)' और 'वेतन'(Salary) पर किये गए कुल व्यय से कितना गुना है ?
CHSL 12-10-2020 (Afternoon shift)
(a) 8.75
(b) 6.75
(c) 7.75
(d) 5.75

Q7. The given graph represents the percentage distribution of the total expenditure of a company. Study the graph and answer the question that follows.
दिया गया आरेख एक कंपनी के कुल व्यय के प्रतिशत वितरण को दर्शाता है। आरेख का अध्ययन कीजिए और फिर पूछे गए प्रश्न का उत्तर दीजिए।



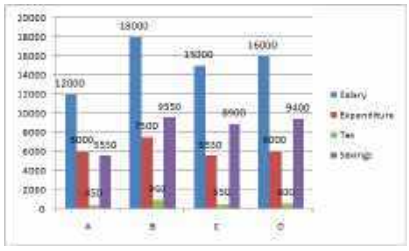
The expenditure on 'Interest on loans' is what percentage more than the expenditure on 'Transport'?
'ऋण पर ब्याज'(Interest on loans) में किया गया व्यय 'परिवहन'(Transport) पर किये गए व्यय से कितना प्रतिशत अधिक है ?
CHSL 12-10-2020 (Afternoon shift)
(a) 5%
(b) 3%
(c) 2%
(d) 4%

Q8.



The above graph represents the salary, expenditure, tax and savings (in rupees) per month of the persons A, B, C and D.
Study the graph and answer the question.
The expenditure as a percentage of salary is the least for:
उपरोक्त आरेख व्यक्ति A, B, C और D के प्रतिमाह वेतन, व्यय, कर तथा बचत (रुपये में) को दर्शाता है।
इस आरेख का अध्ययन करें तथा प्रश्न का उत्तर दें।
वेतन(Salary) के प्रतिशत के रूप में सबसे कम व्यय(Expenditure) किसका है?
CHSL 12-10-2020 (Evening shift)
(a) C
(b) A
(c) B
(d) D

Q9.



The above graph represents the salary, expenditure, tax and savings (in rupees) per month of the persons A, B, C and D per month.
Study the graph and answer the question.
Tax as the percentage of salary is least in case of:
उपरोक्त आरेख व्यक्ति A, B, C और D के प्रतिमाह वेतन, व्यय, कर तथा बचत (रुपये में) को दर्शाता है।

इस आरेख का अध्ययन करें तथा प्रश्न का उत्तर दें।

वेतन(Salary) के प्रतिशत के रूप में सबसे कम कर(Tax) किसका है?

CHSL 12-10-2020 (Evening shift)

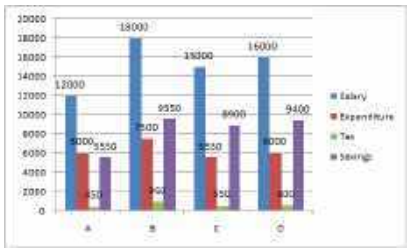
(a) D

(b) A

(c) B

(d) C

Q10.



The above graph represents the salary, expenditure, tax and savings (in rupees) per month of the persons A, B, C and D per month.Study the graph and answer the question.

उपरोक्त आरेख व्यक्ति A, B, C और D के प्रतिमाह वेतन, व्यय, कर तथा बचत (रुपये में) को दर्शाता है।

इस आरेख का अध्ययन करें तथा प्रश्न का उत्तर दें।

The tax as a percentage of salary is highest in case of:

वेतन(Salary) के प्रतिशत के रूप में सबसे अधिक कर(Tax) किसका है?

CHSL 12-10-2020 (Evening shift)

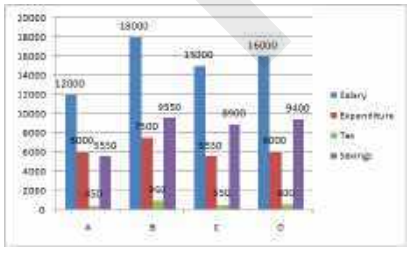
(a) D

(b) B

(c) A

(d) C

Q11.



The above graph represents the salary, expenditure, tax and savings (in rupees) per month of the persons A, B, C and D per month.Study the graph and answer the question.

उपरोक्त आरेख व्यक्ति A, B, C और D के प्रतिमाह वेतन, व्यय, कर तथा बचत (रुपये में) को दर्शाता है।

इस आरेख का अध्ययन करें तथा प्रश्न का उत्तर दें।

Savings as a percentage of salary is highest in case of:

वेतन(Salary) के प्रतिशत के रूप में सबसे अधिक बचत(Saving) किसकी है?

CHSL 12-10-2020 (Evening shift)

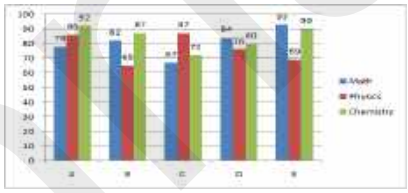
(a) B

(b) D

(c) C

(d) A

Q12. The following given the performance of five students A,B,C,D,E in Math, Physics and Chemistry./ नीचे पाँच छात्रों A, B, C, D और E का गणित, भौतिकी और रसायनशास्त्र में प्रदर्शन दिया गया है।



Based on the given information considering that a performance is based on the difficulty level of the paper, which of the following statements is correct?

दी गयी सूचना के आधार पर, यह मानते हुए कि प्रदर्शन प्रश्न पत्र की कठिनाई स्तर पर आधारित है, निम्नलिखित में से कौन सा कथन सही है?

CHSL 13-10-2020 (Morning Shift)

(a)Math is easier for B than for E and A/ E और A की तुलना में B के लिए गणित आसान है।

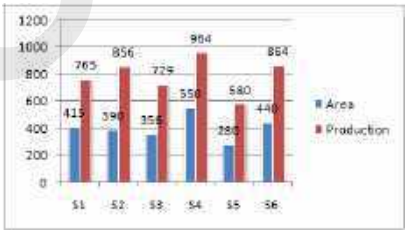
(b)For D, all subjects are of the same difficulty/ D के लिए, सभी विषय समान कठिनाई के हैं।

(c)Physics is easier for C than for B and E/ B और E की तुलना में भौतिकी C के लिए आसान है।

(d)For C, Math is the most difficult and Chemistry is the easiest/ C के लिए, गणित सबसे मुश्किल तथा रसायन शास्त्र सबसे आसान है।

Q13. The following shows the production of paddy in the agricultural land available the 6 places S1, S2, S3, S4, S5, S6 (area in hundreds of hectares and production in thousands tonnes)

निम्नलिखित तालिका 6 स्थानों S1, S2, S3, S4, S5, S6 पर उपलब्ध कृषि भूमि में धान के उत्पादन की मात्रा को दर्शाती है। (क्षेत्रफल सौ हेक्टेयर में है तथा उत्पादन हज़ार टन में है)



Based on the information, the production ratio (production to land) is highest and lowest, respectively in:

सूचना के आधार पर, उत्पादन अनुपात क्रमशः सबसे अधिक और सबसे कम किसके बीच है ?

CHSL 13-10-2020 (Morning Shift)

(a)S2, S1

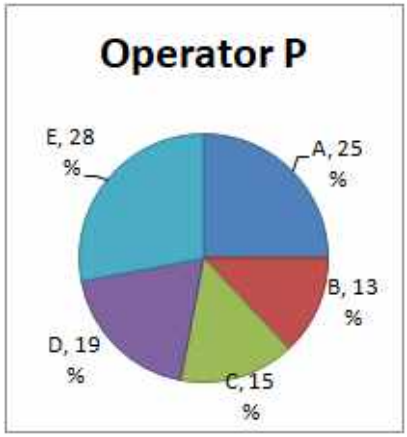
(b)S3, S6

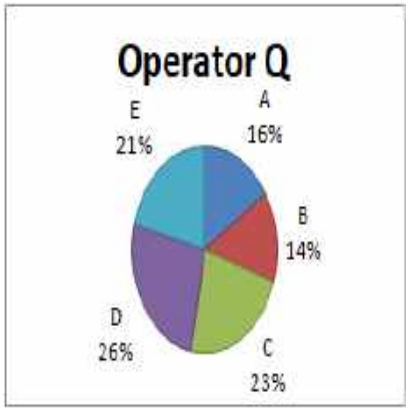
(c)S2, S4

(d)S5, S3

Q14. The percentage of customers of two network operators P and q across the cities A,B,C,D,E is shown in the given pie charts.

A, B, C, D, E शहरों में दो नेटवर्क ऑपरेटर P और Q के ग्राहकों का प्रतिशत निम्नलिखित वृत्त आरेखों में दर्शाया गया है।



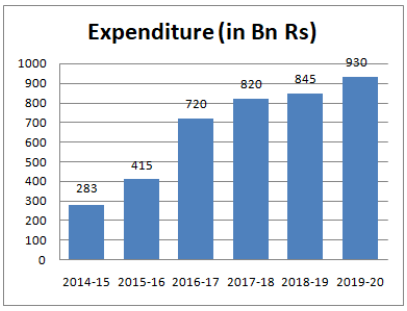


Based on the information in the pie charts, if the customers of operator P are 3,6 lakhs, and the customers of operator Q are 4.2 lakhs, them in the city C, the positive difference between the customers of the operators is:
वृत्त आरेखों में दी गयी जानकारी के आधार पर, यदि ऑपरेटर P के ग्राहक 3.6 लाख हैं तथा ऑपरेटर Q के ग्राहक 4.2 लाख हैं, तो शहर C में, इन ऑपरेटरों के ग्राहकों की संख्या में धनात्मक अंतर कितना है?

CHSL 13-10-2020 (Morning Shift)

(a)44,500
(b)42,600
(c)48,000
(d)52,000

Q15. the following graph shows the expenditure on education sector by Indian government for the year 2014-15 to 2019-20
निम्नलिखित आरेख भारत सरकार के द्वारा वर्ष 2014-15 से 2019-20 तक शिक्षा के क्षेत्र में किये गए व्यय को दर्शाता है।

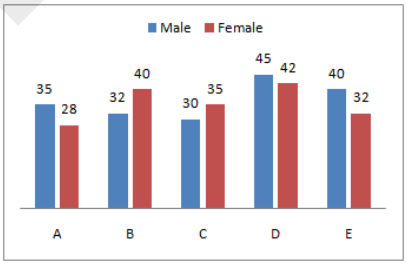


If the government plans to increase the expenditure by 30% on the average expenditure in 2016-17, 2017-18, 2018-19, then the approximate amount (in billion of rupees) to be spent in 2020-21 is:
यदि सरकार 2016-17, 2017-18, 2018-19 में औसत व्यय के आधार पर व्यय को 30% बढ़ाना चाहती है, तो वर्ष 2020-21 में लगभग कितनी राशि (अरब रुपये में) खर्च की जाएगी।

CHSL 13-10-2020 (Morning Shift)

(a)1,162.6
(b)1,129.5
(c)1,033.5
(d)1,087.3

Q16. The following graph gives the details of the male and female population (in thousands) across five places A, B, C, D and E.
निम्नलिखित आरेख पाँच स्थानों A, B, C, D और E में पुरुष और महिला आबादी (हज़ार में) का विवरण देता है।

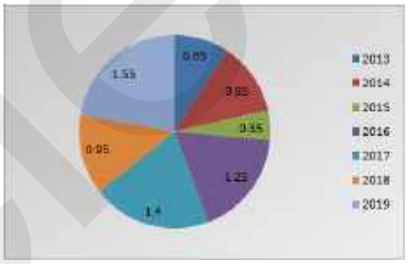


Based on the information, the total number of females in all five places is approximately what percentage of the total number males in all five places?
इस जानकारी के आधार पर, सभी पाँच स्थानों पर महिलाओं की कुल संख्या सभी पाँच स्थानों पर पुरुषों की कुल संख्या का लगभग कितना प्रतिशत है?

CHSL 13-10-2020 (Afternoon Shift)

(a) 99%
(b) 95%
(c) 94%
(d) 97%

Q17. The following pie chart shows the ratio of the amount of imports by a company to the amount of exports from that company from 2013 to 2019.
निम्नलिखित वृत्त आरेख 2013 से 2019 तक एक कंपनी के आयात और निर्यात की राशि के अनुपात को दर्शाता है।

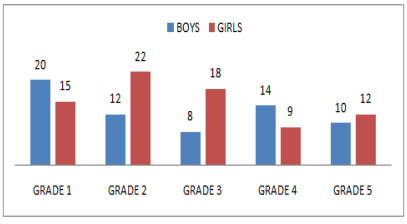


If the imports in 2016 were ₹250 million and the total exports in the year 2016 and 2017 together were ₹500 million, then the imports in 2017 were:
यदि 2016 में आयात 250 मिलियन रुपये का था तथा 2016 और 2017 का कुल निर्यात मिलाकर 500 मिलियन रुपये का था, तो 2017 में आयात की राशि ज्ञात कीजिए।

CHSL 13-10-2020 (Afternoon Shift)

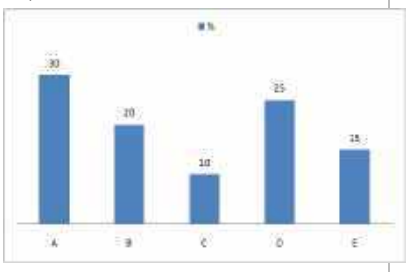
(a) ₹ 320 million/ मिलियन
(b) ₹ 420 million/ मिलियन
(c) ₹ 520 million/ मिलियन
(d) ₹ 620 million/ मिलियन

Q18. first graph shows the number of students (boys and girls in thousands) in Grade 1 to Grade 5.
पहला आरेख ग्रेड 1 से लेकर ग्रेड 5 तक छात्रों की संख्या (लड़के और लड़कियाँ, हज़ार में) को दर्शाता है।



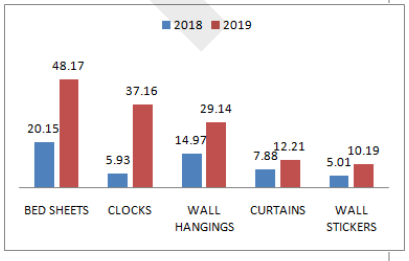
And the bar graph below shows the percentage share of five schools in the total students

studying in that class.
और नीचे दिया गया दंड आरेख उस कक्षा में पढ़ रहे कुल छात्रों में पाँच विद्यालयों की प्रतिशत हिस्सेदारी को दर्शाता है।



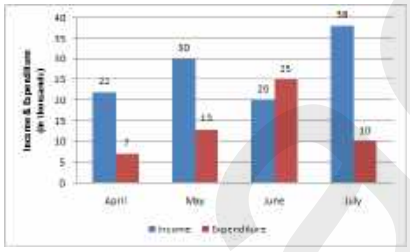
Based on the information, if the boys to girls ratio in school D is 3:1, then the number of boys studying in school D is:
दी गयी जानकारी के आधार पर, यदि विद्यालय D में लड़कों और लड़कियों की संख्या का अनुपात 3:1 है, तो विद्यालय D में पढ़ने वाले लड़कों की संख्या कितनी है?
CHSL 13-10-2020 (Afternoon Shift)
a) 28750
(b) 25550
(c) 22450
(d) 26250

Q19. A home decor company produces five different products - bed sheets, clocks, wall hangings, curtains and wall stickers. The sales of these five products (in lakh number of packs) during 2018 and 2019 are shown in the following bar-graph.
एक होम डेकोरेशन कंपनी पाँच भिन्न उत्पादों - चादरों, घड़ियों, वॉल हैंगिंग, पर्दों तथा वॉल स्टिकरों का उत्पादन करती है। 2018 तथा 2019 में इन पाँच उत्पादों की बिक्री (लाख पैक की संख्या में) निम्नलिखित आरेख के माध्यम से दी गयी है।



Based on the given information, sales have increased by nearly 55% from 2018 to 2019 in the case of:
दी गयी जानकारी के आधार पर, 2018 से 2019 में किस उत्पाद के संदर्भ में बिक्री में लगभग 55% की वृद्धि हुई है?
CHSL 13-10-2020 (Afternoon Shift)
(a) curtains/ पर्दे
(b) bedsheets/ चादर
(c) wall stickers/ वॉल स्टीकर
(d) wall hangings/ वॉल हैंगिंग

Q20.The given bar graph represents the income and expenditure of a person during the four consecutive months, April to July, 2019.
दिया गया दंड आरेख, लगातार चार महीनों, अप्रैल से जुलाई, 2019 के दौरान किसी व्यक्ति की आय और व्यय को प्रदर्शित करता है।



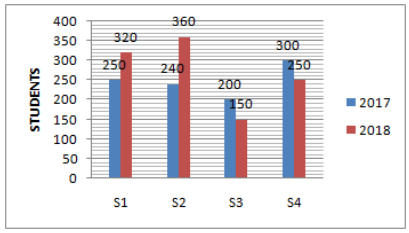
What is the average income of the person?
व्यक्ति की औसत आय क्या है?
CHSL 13-10-2020 (Evening Shift)
(a)Rs 27,500
(b)Rs 17,500
(c)Rs 20,500
(d)Rs 25,500

Q21.The given bar graph represents the income and expenditure of a person during the four consecutive months. April to July 2019.
दिया गया दंड आरेख, लगातार चार महीनों, अप्रैल से जुलाई, 2019 के दौरान किसी व्यक्ति की आय और व्यय को प्रदर्शित करता है।



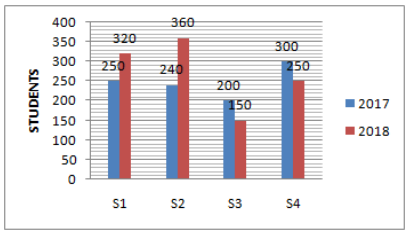
What is the percentage of the total expenditure of the total income?
कुल व्यय, कुल आय का कितना प्रतिशत है?
CHSL 13-10-2020 (Evening Shift)
(a)40%
(b)50%
(c)30%
(d)20%

Q22. The given bar graph represents the number of students admitted in four schools (S1, S2, S3, S4) during two consecutive years 2017 and 2018.
दिया गया दंड आरेख चार स्कूलों (S1, S2, S3, S4) में लगातार दो साल 2017 और 2018 के दौरान नामांकित छात्रों की संख्या को प्रदर्शित करता है।



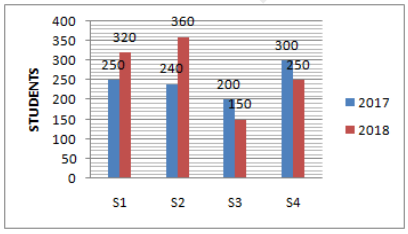
What percentage is the average admission of schools S3 and S4 in 2018 of the average admission of schools S1 and S2 in 2017?
2018 में स्कूलों S3 और S4 का औसत नामांकन, 2017 में स्कूलों S1 और S2 के औसत नामांकन का कितना प्रतिशत है?
CHSL 14-10-2020 (Morning shift)
(a) 82.63%
(b) 81.00%
(c) 82.00%
(d) 81.63%

Q23. The given bar graph represents the number of students admitted in four schools (S1, S2, S3, S4) during two consecutive years 2017 and 2018.
दिया गया दंड आरेख चार स्कूलों (S1, S2, S3, S4) में लगातार दो साल 2017 और 2018 के दौरान नामांकित छात्रों की संख्या को प्रदर्शित करता है।



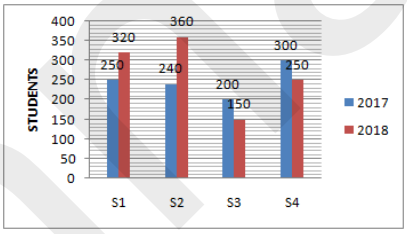
The ratio between total number of students admitted in the four schools in 2017 to the total number of students in the four schools in 2018 is:
2017 में चार स्कूलों नामांकित में कुल छात्रों की संख्या और 2018 में चार स्कूलों में नामांकित कुल छात्रों की संख्या के बीच अनुपात है:
CHSL 14-10-2020 (Morning shift)
(a) 11 : 13
(b) 12 : 11
(c) 13 : 11
(d) 11 : 12

Q24. The given bar graph represents the number of students admitted in four schools (S1, S2, S3, S4) during two consecutive years 2017 and 2018.
दिया गया दंड आरेख चार स्कूलों (S1, S2, S3, S4) में लगातार दो साल 2017 और 2018 के दौरान नामांकित छात्रों की संख्या को प्रदर्शित करता है।



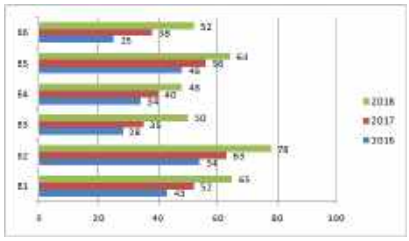
The total number of students admitted in school S3 for both years is approximately what percent of total students admitted in school S2 for both years?
दोनों वर्षों के लिए स्कूल S3 में नामांकित छात्रों की कुल संख्या, दोनों वर्षों के लिए स्कूल S2 में नामांकित कुल छात्रों का कितना प्रतिशत है?
CHSL 14-10-2020 (Morning shift)
(a) 52.33%
(b) 48.33%
(c) 54.33%
(d) 58.33%

Q25. The given bar graph represents the number of students admitted in four schools (S1, S2, S3, S4) during two consecutive years 2017 and 2018.
दिया गया दंड आरेख चार स्कूलों (S1, S2, S3, S4) में लगातार दो साल 2017 और 2018 के दौरान नामांकित छात्रों की संख्या को प्रदर्शित करता है।



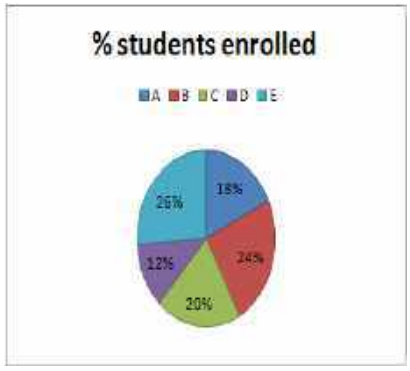
What is the average number of students admitted to all schools in 2018?
2018 में सभी स्कूलों में दाख़िला लेने वाले छात्रों की औसत संख्या क्या है?
CHSL 14-10-2020 (Morning shift)
(a) 290
(b) 280
(c) 275
(d) 270

Q26. The following graph shows the data of the collection of interest on loans (in crore Rs) by six branches B1, B2, B3, B4, B5 and B6 of a bank during the years mentioned.
निम्नलिखित आरेख में उल्लिखित वर्षों के दौरान बैंक की छह शाखाओं B1, B2, B3, B4, B5 और B6 द्वारा ऋणों पर ब्याज (करोड़ रुपये में) के संग्रह के आंकड़ों का उल्लेख किया गया है।



Based on the information, from the year 2016 to 2017, the highest rate of collection is for the branch:
जानकारी के आधार पर, वर्ष 2016 से 2017 तक, संग्रह की उच्चतम दर किस शाखा के लिए है?
CHSL 14-10-2020 (Afternoon shift)
(a) B4
(b) B1
(c) B3
(d) B6

Q27. The given pie chart shows the percentage of students enrolled for the courses A, B, C, D and E in a university and the table shows the percentage of students that passed, out of the enrolled students.
दिया गया पाई चार्ट एक विश्वविद्यालय में पाठ्यक्रम A, B, C, D और E के लिए नामांकित छात्रों के प्रतिशत को दर्शाता है और तालिका उन छात्रों का प्रतिशत दिखाती है, जो नामांकित छात्रों में से उत्तीर्ण हुए हैं।



Courses	% passed out
A	76
B	82
C	80
D	90
E	75

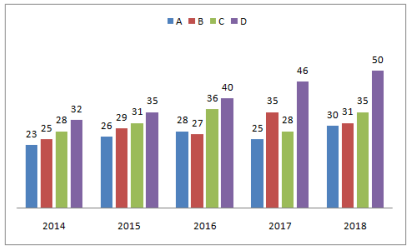
If the total number of students is 60000, then the total number of students who did not pass in the courses A, C is:
यदि छात्रों की कुल संख्या 60000 है, तो कुल छात्रों की संख्या, जो पाठ्यक्रम A, C में उत्तीर्ण नहीं हुए हैं:
CHSL 14-10-2020 (Afternoon shift)
(a) 7852
(b) 4992
(c) 8254
(d) 7628

Q28. The following bar graph shows the marks (out of 100) of students A, B, C, D, E and F in the subjects mentioned.
निम्नलिखित दंड आरेख में, वर्णित विषयों में छात्रों A, B, C, D, E और F के अंक (100 में से) दिखाए गए हैं।



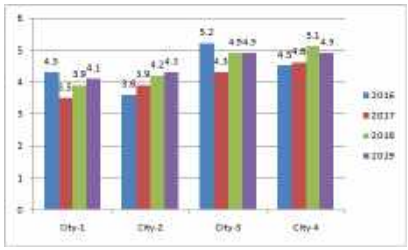
Based on this, only 2 students crossed the average marks in which subject:
इसके आधार पर, केवल 2 छात्रों ने किस विषय में औसत अंकों को पार किया है?
CHSL 14-10-2020 (Afternoon shift)
(a) Maths/ गणित
(b) Economics/ अर्थशास्त्र
(c) Commerce/ वाणिज्य
(d) Civics/ नागरिक शास्त्र

Q29. The following bar graph shows the data of the production of an item (in thousand tonnes) from four different companies A, B, C and D during the year mentioned.
निम्नलिखित दंड आरेख में उल्लिखित वर्षों के दौरान चार अलग-अलग कंपनियों A, B, C और D के द्वारा एक वस्तु (हजार टन में) के उत्पादन का आंकड़ा दिखाया गया है।



In the five years given, the average production is highest in company _____ and lowest in company _____, respectively.
दिए गए पांच वर्षों में, औसत उत्पादन कंपनी _____ में सबसे अधिक है और कंपनी _____ में सबसे कम है।
CHSL 14-10-2020 (Afternoon shift)
(a) C; A
(b) D; A
(c) A; B
(d) B; C

Q30. The following graph shows the sales of cars (in thousands) in four cities in 4 years. Study the graph and answer the questions.
.निम्नलिखित आरेख 4 वर्षों में चार शहरों में कारों की बिक्री (हज़ार में) को दर्शाता है। इस आरेख का अध्ययन कीजिए तथा प्रश्नों के उत्तर दीजिए।



	2016	2017	2018	2019
City-1	4.3	3.5	3.9	4.1
City-2	3.6	3.9	4.2	4.3
City-3	5.2	4.3	4.9	4.9
City-4	4.5	4.6	5.1	4.9

Which city has the highest sales?
किस शहर की बिक्री सबसे अधिक है?
CHSL 14-10-2020 (Evening shift)
(a) City-1/ शहर-1
(b) City-3/ शहर-3
(c) City-4/ शहर-4
(d) City-2/ शहर-2

Q31. The following graph shows the sales of cars (in thousands) in four cities in 4 years. Study the graph and answer the questions.
निम्नलिखित आरेख 4 वर्षों में चार शहरों में कारों की बिक्री (हज़ार में) को दर्शाता है। इस आरेख का अध्ययन कीजिए तथा प्रश्नों के उत्तर दीजिए।

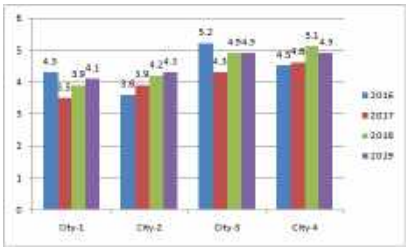


	2016	2017	2018	2019
City-1	4.3	3.5	3.9	4.1
City-2	3.6	3.9	4.2	4.3
City-3	5.2	4.3	4.9	4.9
City-4	4.5	4.6	5.1	4.9

In which year, the sales are highest?
किस वर्ष, बिक्री सबसे अधिक हुई है?
CHSL 14-10-2020 (Evening shift)

(a) 2018
(b) 2016
(c) 2019
(d) 2017

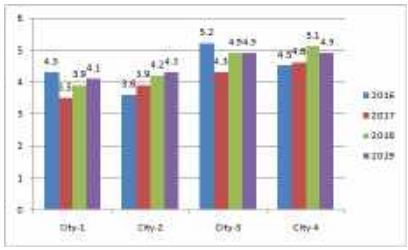
Q32. The following graph shows the sales of cars (in thousands) in four cities in 4 years. Study the graph and answer the questions.
निम्नलिखित आरेख 4 वर्षों में चार शहरों में कारों की बिक्री (हज़ार में) को दर्शाता है। इस आरेख का अध्ययन कीजिए तथा प्रश्नों के उत्तर दीजिए।



	2016	2017	2018	2019
City-1	4.3	3.5	3.9	4.1
City-2	3.6	3.9	4.2	4.3
City-3	5.2	4.3	4.9	4.9
City-4	4.5	4.6	5.1	4.9

Which city has the highest percentage of sales, and in which year?
किस शहर की बिक्री का प्रतिशत सबसे अधिक है तथा किस वर्ष में?
CHSL 14-10-2020 (Evening shift)
(a) City-3; 2016
(b) City-4; 2017
(c) City-1; 2019
(d) City-2; 2018

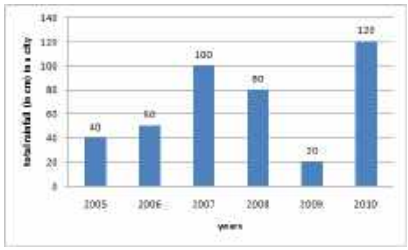
Q33. The following graph shows the sales of cars (in thousands) in four cities in 4 years. Study the graph and answer the questions.
निम्नलिखित आरेख 4 वर्षों में 4 शहरों में कारों की बिक्री (हज़ार में) को दर्शाता है। इस आरेख का अध्ययन कीजिए तथा प्रश्नों के उत्तर दीजिए।



	2016	2017	2018	2019
City-1	4.3	3.5	3.9	4.1
City-2	3.6	3.9	4.2	4.3
City-3	5.2	4.3	4.9	4.9
City-4	4.5	4.6	5.1	4.9

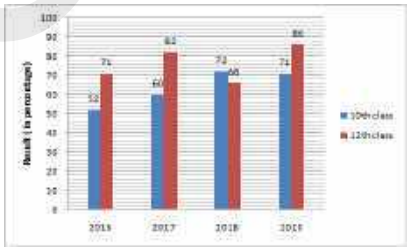
In 2019, what is the average number of sales among all the four cities?
2019 में, सभी चार शहरों में औसत बिक्री कितनी रही है?
CHSL 14-10-2020 (Evening shift)
(a) 4280
(b) 4178
(c) 3980
(d) 4550

Q34.The given graph represents the rainfall (in cm) in a city, over a period of six years. Study the graph and answer the question that follows.
दिया गया आरेख एक शहर में छह साल में हुई वर्षा (सेमी में) को प्रदर्शित करता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें, जो पूछा गया है।



In which two consecutive years was the difference of the rainfall minimum?
कौन से लगातार दो वर्षों में वर्षा का अंतर न्यूनतम था?
CHSL 15-10-2020 (Morning shift)
(a)2007-2008
(b)2006-2007
(c)2008-2009
(d)2005-2006

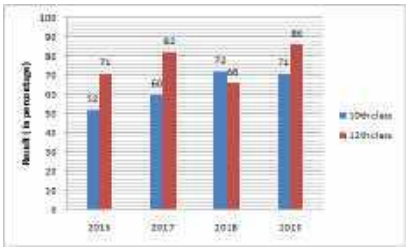
Q35.The given bar graph represents the pass percentage of the 10th and 12th classes of a school during the consecutive four year period 2016-19.
दिया गया दंड आरेख 2016-19 की अवधि में चार लगातार वर्षों के दौरान एक स्कूल की 10वीं और 12वीं कक्षाओं की उत्तीर्णता प्रतिशत को प्रदर्शित करता है।



What is the average of the pass percentage of the 10th class for all four years?
सभी चार वर्षों के लिए 10वीं कक्षा की उत्तीर्णता प्रतिशत का औसत क्या है?
CHSL 15-10-2020 (Morning shift)
(a)64.75%
(b)63.25%
(c)63.75%
(d)65.25%

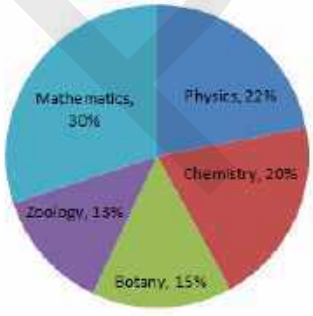
Q36.The given bar graph represents the pass percentage of 10th and 12th classes of a school during the consecutive four year period 2016-2019.
दिया गया दंड आरेख 2016-19 की अवधि में चार लगातार वर्षों के दौरान एक स्कूल की 10वीं और 12वीं कक्षाओं की उत्तीर्णता प्रतिशत को प्रदर्शित करता है।

Pinnacle



What is the average percentage of the failed students of the 12th class for all four years?
सभी चार वर्षों में 12वीं कक्षा के असफल छात्रों का औसत प्रतिशत क्या है?
CHSL 15-10-2020 (Morning shift)
(a)23%
(b)25.25%
(c)25.75%
(d)23.75%

Q37.Study the given pie-chart and table carefully and answer the question that follows. The percentage wise distribution of lecturers in five different subjects in a university is shown in the pie-chart. The total number is 500.
दिए गए पाई-चार्ट और तालिका का सावधानीपूर्वक अध्ययन करें और उसके बाद प्रश्नों का उत्तर दें। एक विश्वविद्यालय में पांच अलग-अलग विषयों में व्याख्याताओं का प्रतिशतवार वितरण पाई-चार्ट में दिखाया गया है। कुल संख्या 500 है।

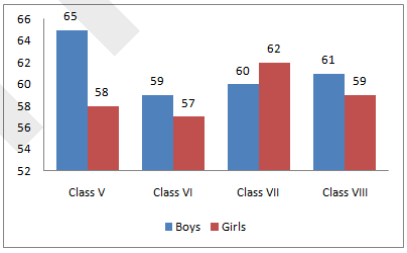


Ratio of male to female lecturers:
महिला व्याख्याताओं और पुरुष व्याख्याताओं का अनुपात:

Lecturers	Males:Females
Mathematics	7:3
Physics	2:3
Chemistry	4:1
Botany	3:5
Zoology	2:5

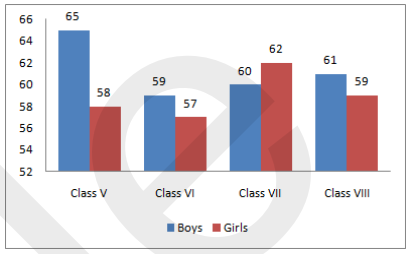
Find the number of male lecturers in Physics.
भौतिकी में पुरुष व्याख्याताओं की संख्या ज्ञात कीजिए।
CHSL 15-10-2020 (Morning shift)
(a)42
(b)46
(c)44
(d)40

Q38. The following graph shows the number of boys and girls in class V, class VI, class VII and class VIII. Study the graph and answer the question.
निम्नलिखित आरेख कक्षा V, कक्षा VI, कक्षा VII और कक्षा VIII में लड़कों और लड़कियों की संख्या दर्शाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



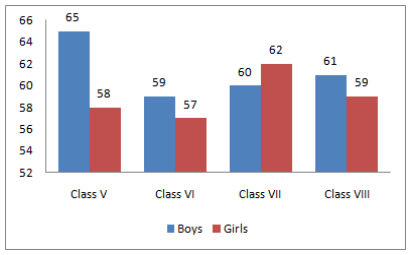
What is the average number of girls in all the classes?
सभी कक्षाओं में लड़कियों की औसत संख्या क्या है?
CHSL 15-10-2020 (Afternoon shift)
(a) 57
(b) 60
(c) 59
(d) 58

Q39 The following graph shows the number of boys and girls in class V, class VI, class VII and class VIII. Study the graph and answer the question.
निम्नलिखित आरेख कक्षा V, कक्षा VI, कक्षा VII और कक्षा VIII में लड़कों और लड़कियों की संख्या दर्शाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



Which class has the maximum number of students?
किस कक्षा में छात्रों की अधिकतम संख्या है?
CHSL 15-10-2020 (Afternoon shift)
(a) Class VII/ कक्षा VII
(b) Class VI/ कक्षा VI
(c) Class VIII/ कक्षा VIII
(d) Class V/ कक्षा V

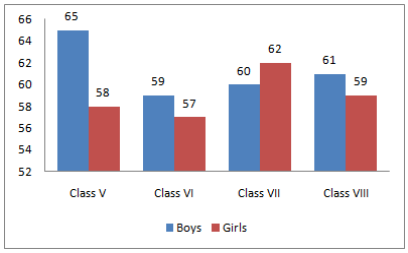
Q40. The following graph shows the number of boys and girls in class V, class VI, class VII and class VIII. Study the graph and answer the question.
निम्नलिखित आरेख कक्षा V, कक्षा VI, कक्षा VII और कक्षा VIII में लड़कों और लड़कियों की संख्या दर्शाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



What is the overall percentage increase in boys when compared

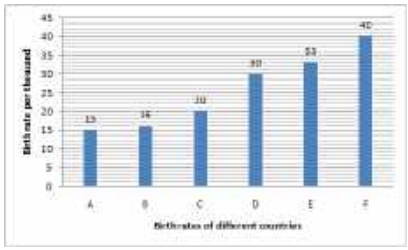
to girls? (Correct to two decimal places)
लड़कियों की तुलना में लड़कों में कुल प्रतिशत वृद्धि कितनी है? (दो दशमलव स्थानों के लिए)
CHSL 15-10-2020 (Afternoon shift)
(a) 6.12%
(b) 5.67%
(c) 3.67%
(d) 4.75%

Q41. The following graph shows the number of boys and girls in class V, class VI, class VII and class VIII. Study the graph and answer the question.
निम्नलिखित आरेख कक्षा V, कक्षा VI, कक्षा VII और कक्षा VIII में लड़कों और लड़कियों की संख्या दर्शाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



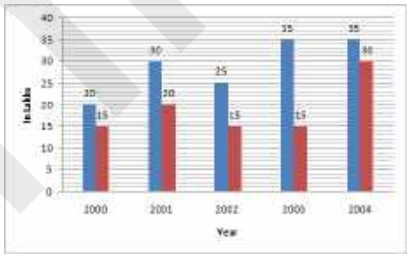
In which class, the percentage increase in the number of boys as compared to its previous class is least?
किस कक्षा में लड़कों की संख्या में पिछले कक्षा की तुलना में प्रतिशत की वृद्धि सबसे कम है?
CHSL 15-10-2020 (Afternoon shift)
(a) Class VIII/ कक्षा VIII
(b) Class V/ कक्षा V
(c) Class VII/ कक्षा VII
(d) Class VI/ कक्षा VI

Q42. Observe the following bar-graph carefully and answer the following questions:
निम्नलिखित दंड आरेख को ध्यान से देखें और निम्नलिखित प्रश्नों के उत्तर दें:



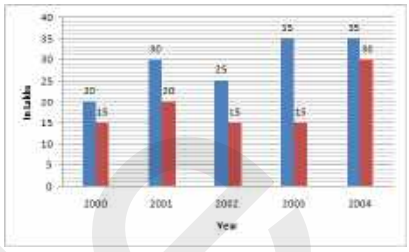
The birth rate of Country C is approximately what percentage of the birth rate of Country E?
देश C की जन्म दर, देश E की जन्म दर का लगभग कितना प्रतिशत है?
CHSL 15-10-2020 (Evening shift)
(a) 70%
(b) 65%
(c) 75%
(d) 60%

Q43. In the given bar graph, the Blue bar shows the income and the Red bar shows the expenditure of a company. Study the graph and answer the question that follows.
दिए गए दंड आरेख में, नीला दंड एक कंपनी की आय दिखाता है और लाल दंड खर्च (लाख रुपये में) को दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो नीचे पूछा गया है।



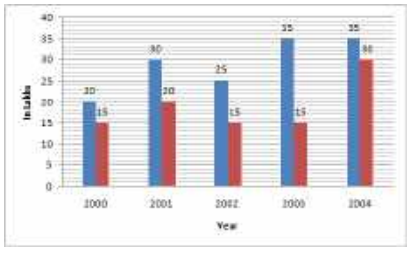
The income in 2001 was equal to the expenditure in the year:
2001 में आय किस वर्ष के व्यय के बराबर है :
CHSL 15-10-2020 (Evening shift)
(a) 2002
(b) 2003
(c) 2000
(d) 2004

Q44. In the given bar graph, the Blue bar shows the income and the Red bar shows the expenditure of a company. Study the graph and answer the question that follows.
दिए गए दंड आरेख में, नीला दंड एक कंपनी की आय दिखाता है और लाल दंड खर्च (लाख रुपये में) को दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो नीचे पूछा गया है।



The expenditure from 2001 to 2002 decreased by:
2001 से 2002 तक व्यय में कितनी कमी आई है?
CHSL 15-10-2020 (Evening shift)
a) $33\frac{1}{3}$ %
(b) $35\frac{1}{3}$ %
(c) $36\frac{1}{3}$ %
(d) $34\frac{1}{3}$ %

Q45. In the given bar graph, the Blue bar shows the income and the Red bar shows the expenditure of a company (in Rs lakhs). Study the graph and answer the question that follows.
दिए गए दंड आरेख में, नीला दंड एक कंपनी की आय दिखाता है और लाल दंड खर्च (लाख रुपये में) को दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो नीचे पूछा गया है।



The percentage decrease in the income of the company in 2002 as compared to that in 2001 is:

2001 की तुलना में 2002 में कंपनी की आय में कितने प्रतिशत में कमी आई है:

CHSL 15-10-2020 (Evening shift)

(a) 18%

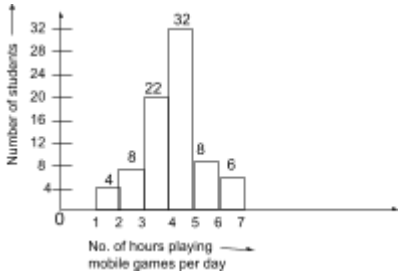
(b) $24\frac{1}{3}$ %

(c) $16\frac{2}{3}$ %

(d) 22%

Q46. Study the graph and answer the following questions.

आरेख का अध्ययन करें और निम्नलिखित प्रश्नों के उत्तर दें।



How many students spend 5 hours or more than 5 hours playing mobile games per day?

कितने छात्र प्रति दिन मोबाइल गेम खेलने में 5 घंटे या 5 घंटे से अधिक समय बिताते हैं?

CHSL 16-10-2020 (Morning shift)

(a) 46

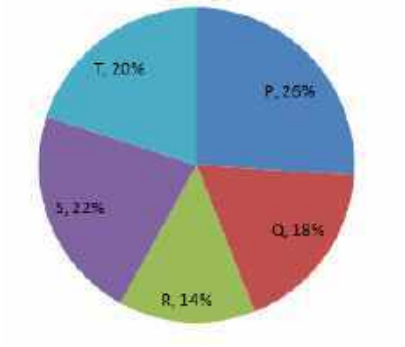
(b) 14

(c) 8

(d) 6

Q47. The following pie chart shows the percentage wise distribution of the number of students in five different schools, P, Q, R, S and T. Total number of students in all five schools together is 8400.

निम्नलिखित पाई चार्ट पाँच अलग-अलग स्कूलों, P, Q, R, S और T में छात्रों की संख्या का प्रतिशत वार वितरण दर्शाता है। सभी पाँच स्कूलों में कुल छात्रों की संख्या 8400 है।



The number of students in school T is what percentage of the total number of students in school Q and S together.

स्कूल T में छात्रों की संख्या, स्कूल Q और S में कुल छात्रों की संख्या का कितना प्रतिशत है?

CHSL 16-10-2020 (Morning shift)

(a) 45%

(b) 50%

(c) 40%

(d) 55%

Q48. The following graph shows the number of books sold by a book-seller during five-months of 2019, April, May, June, July and August. Study the graph and answer the questions:

निम्नलिखित आरेख, 2019 के अप्रैल, मई, जून, जुलाई और अगस्त के पांच महीनों के दौरान एक पुस्तक-विक्रेता द्वारा बेची गई पुस्तकों की संख्या को दर्शाता है। आरेख का अध्ययन करें और प्रश्नों के उत्तर दें:



The total number of books sold during these five month is:

इन पाँच महीनों के दौरान बेची गई पुस्तकों की कुल संख्या है:

CHSL 16-10-2020 (Morning shift)

(a) 2950

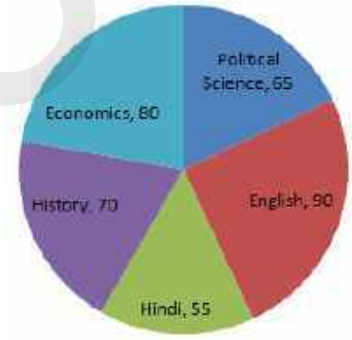
(b) 2900

(c) 2850

(d) 2800

Q49. The following chart shows the marks (in degrees) scored by a student in different subjects -- English, Hindi, History, Economics and Political Science -- in an examination. Total marks obtained in the examination are 600. Observe the chart and answer the questions.

निम्नलिखित चार्ट एक परीक्षा में विभिन्न विषयों -अंग्रेजी, हिंदी, इतिहास, अर्थशास्त्र और राजनीति विज्ञान- में एक छात्र द्वारा प्राप्त अंकों (डिग्री में) को दर्शाता है। परीक्षा में प्राप्त कुल अंक 600 हैं। आरेख का अवलोकन कीजिए तथा प्रश्नों के उत्तर दीजिए।



What is the difference between marks scored in History and marks scored in Hindi?

इतिहास में प्राप्त अंकों और हिंदी में प्राप्त अंकों के बीच अंतर क्या है?

CHSL 16-10-2020 (Morning shift)

(a) 40

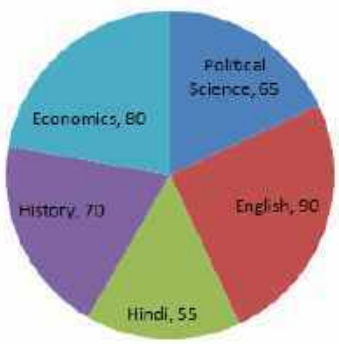
(b) 30

(c) 25

(d) 15

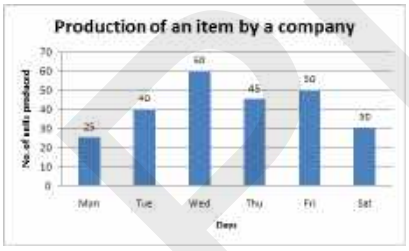
Q49. The following chart shows the marks (in degrees) scored by a student in different subjects -- English, Hindi, History, Economics and Political Science -- in an examination. Total marks obtained in the examination are 600. Observe the chart and answer the questions.

निम्नलिखित चार्ट एक परीक्षा में विभिन्न विषयों -अंग्रेजी, हिंदी, इतिहास, अर्थशास्त्र और राजनीति विज्ञान- में एक
छात्र द्वारा प्राप्त अंकों (डिग्री में) को दर्शाता है। परीक्षा में प्राप्त कुल अंक 600 हैं। आरेख का अवलोकन कीजिए तथा प्रश्नों के उत्तर दीजिए।



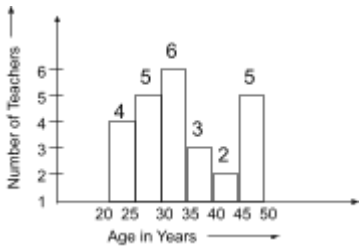
What is the difference between marks scored in History and marks scored in Hindi?
इतिहास में प्राप्त अंकों और हिंदी में प्राप्त अंकों के बीच अंतर क्या है?
CHSL 16-10-2020 (Morning shift)
(a) 40
(b) 30
(c) 25
(d) 15

Q50. Study the graph and answer the questions based on the graph:
आरेख का अध्ययन करें और आरेख के आधार पर प्रश्नों के उत्तर दें:



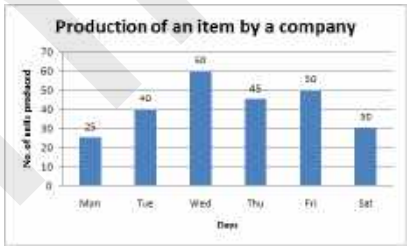
On which day the production was 1/5 th of the total production?
किस दिन उत्पादन कुल उत्पादन का 1/5 था?
CHSL 16-10-2020 (Afternoon shift)
(a) Wednesday/ बुधवार
(b) Thursday/ गुरूवार
(c) Tuesday/ मंगलवार
(d) Friday/ शुक्रवार

Q51. Study the following graph and answer the questions based on the graph.
आरेख का अध्ययन करें और आरेख के आधार पर प्रश्नों के उत्तर दें:



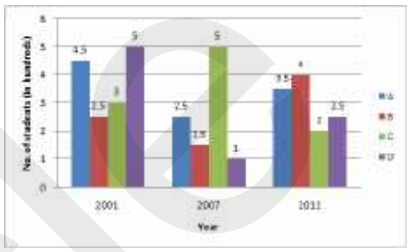
What percentage of the total number of teachers are aged less than 45 years?
कुल शिक्षकों में से कितने प्रतिशत 45 वर्ष से कम आयु के हैं?
CHSL 16-10-2020 (Afternoon shift)
(a) 80%
(b) 30%
(c) 60%
(d) 8%

Q52. Study the following graph and answer the questions based on the graph.
निम्नलिखित आरेख का अध्ययन करें और आरेख के आधार पर प्रश्नों के उत्तर दें।



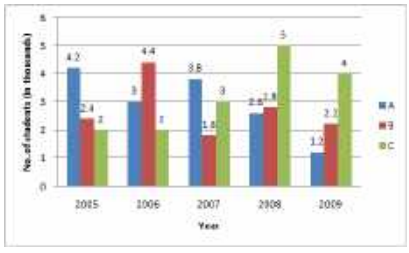
What was the percentage decline in the production from Friday to Saturday?
शुक्रवार से शनिवार तक उत्पादन में कितने प्रतिशत की गिरावट रही?
CHSL 16-10-2020 (Afternoon shift)
(a) 66 ⅔ %
(b) 10%
(c) 20%
(d) 40%

Q53. The following bar graph shows the number of students (in hundreds) who have opted for different courses A, B, C and D in 3 years in a college. Study the graph and answer the question.
निम्नलिखित दंड आरेख उन छात्रों की संख्या (सैकड़ों में) दिखाता है जिन्होंने एक कॉलेज में 3 वर्षों में विभिन्न पाठ्यक्रमों A, B, Cऔर D का विकल्प चुना है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



In the year 2007, the average number of students across the four courses is (in hundreds):
वर्ष 2007 में, चार पाठ्यक्रमों में छात्रों की औसत संख्या (सैकड़ों में) है:
CHSL 16-10-2020 (Evening shift)
(a) 2.7
(b) 1.5
(c) 2.2
(d) 2.5

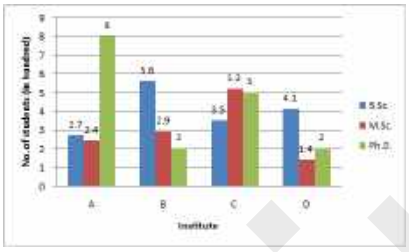
Q54. The following graph below shows the number of students (in thousands) who were admitted to three different courses in 5 years in a university. Study the graph and answer the question.
नीचे दिए गए आरेख में उन छात्रों की संख्या (हजारों में) दिखाई गई है, जो एक विश्वविद्यालय में 5 वर्षों में तीन अलग-अलग पाठ्यक्रमों में भर्ती हुए थे। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



What is the ratio of the number of students who were admitted to

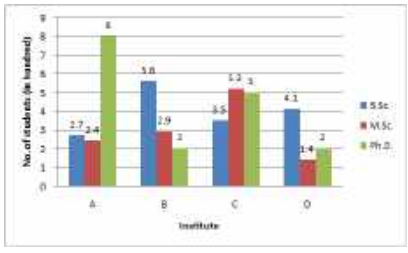
course A in the year 2007 to that of students who were admitted to course C in the year 2009?
वर्ष 2007 में पाठ्यक्रम A में भर्ती होने वाले छात्रों और वर्ष 2009 में पाठ्यक्रम A में भर्ती होने वाले छात्रों की संख्या का अनुपात क्या है?
CHSL 16-10-2020 (Evening shift)
(a) $\frac{9}{20}$
(b) $\frac{21}{20}$
(c) $\frac{23}{20}$
(d) $\frac{19}{20}$

Q55. The following graph shows the number of students (in hundreds) in three different courses in four different institutes.Study the graph and answer the question.
निम्नलिखित आरेख चार अलग-अलग संस्थानों में तीन अलग-अलग पाठ्यक्रमों में छात्रों की संख्या (सैकड़ों में) दिखाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



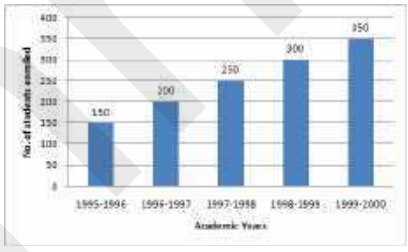
What is the total number of students (in hundreds) in M.Sc. course across all institutes?/ सभी संस्थानों में M.sc पाठ्यक्रम में छात्रों की कुल संख्या (सौ में) कितनी है?
CHSL 16-10-2020 (Evening shift)
(a) 11.5
(b) 11.9
(c) 10.5
(d) 10.8

Q55. The following graph shows the number of students (in hundreds) in three different courses in four different institutes.Study the graph and answer the question.
निम्नलिखित आरेख चार अलग-अलग संस्थानों में तीन अलग-अलग पाठ्यक्रमों में छात्रों की संख्या (सैकड़ों में) दिखाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



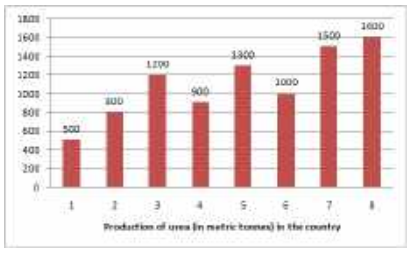
What is the total number of students (in hundreds) in M.Sc. course across all institutes?/ सभी संस्थानों में M.sc पाठ्यक्रम में छात्रों की कुल संख्या (सौ में) कितनी है?
CHSL 16-10-2020 (Evening shift)
(a) 11.5
(b) 11.9
(c) 10.5
(d) 10.8

Q56. Study the graph and answer the question that follows.
आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो पूछा गया है।



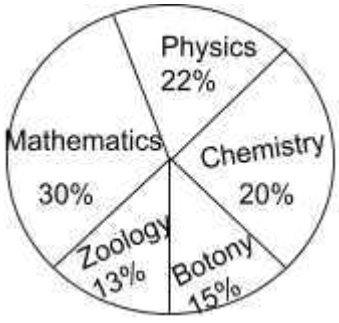
What is the ratio of enrolment during 1995-1996 to the enrolment during 1998-1999?
1998-1999 के दौरान नामांकन तथा 1995-1996 के दौरान नामांकन में क्या अनुपात है?
CHSL 16-10-2020 (Evening shift)
(a) 1 : 2
(b) 1 : 3
(c) 2 : 1
(d) 3 : 1

Q57. Study the given chart carefully and answer the question accordingly:
दिए गए चार्ट का ध्यानपूर्वक अध्ययन करें और उसके अनुसार प्रश्न का उत्तर दें:



In which of the following years was the percentage increase in production from the previous year, the maximum among the given years?
पिछले वर्ष की तुलना में निम्नलिखित वर्षों में से किस वर्ष में उत्पादन में अधिकतम प्रतिशत वृद्धि हुई?
CHSL 19-10-2020 (Morning shift)
(a) 2014
(b) 2016
(c) 2011
(d) 2012

Q58. Study the pie-chart and the table carefully and answer the questions that follow. The percentage distribution of lecturers in five different subjects in a university is shown in the pie-chart. The total number of lecturers is 500.
पाई-चार्ट और तालिका का ध्यानपूर्वक अध्ययन करें और आने वाले प्रश्नों के उत्तर दें। एक विश्वविद्यालय में पांच अलग-अलग विषयों में व्याख्याताओं का प्रतिशत वितरण पाई-चार्ट में दिखाया गया है। व्याख्याताओं की कुल संख्या 500 है।



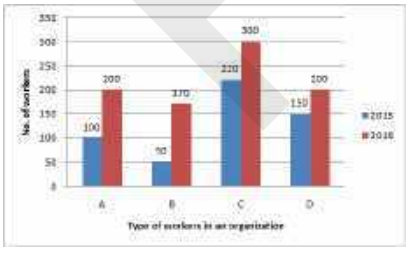
Ratio of male to female lecturers:
महिला व्याख्याताओं और पुरुष व्याख्याताओं का अनुपात:

Lecturers	Male:Female
Mathematics	7:3
Physics	2:3
Chemistry	4:1
Botany	3:5
Zoology	2:5

व्याख्याताओं	नर: मादा
गणित	7:3
भौतिक विज्ञान	2:3
रसायन विज्ञान	4:1
वनस्पति विज्ञान	3:5
प्राणि विज्ञान	2:5

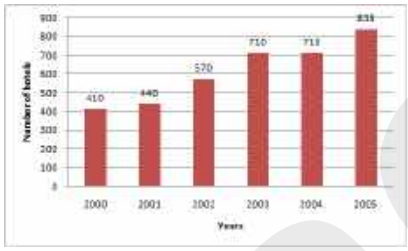
What is the difference in the number of female lecturers in chemistry and Mathematics?
रसायन विज्ञान और गणित में महिला व्याख्याताओं की संख्या में क्या अंतर है?
CHSL 19-10-2020 (Morning shift)
(a) 30
(b) 22
(c) 20
(d) 25

Q59. Study the given chart and answer the following questions:
दिए गए चार्ट का अध्ययन करें और निम्नलिखित प्रश्नों के उत्तर दें:



The percentage increase in the number of workers in 2018 is maximum as compared to that is 2015 in case of workers of type:
2018 में श्रमिकों की संख्या में प्रतिशत वृद्धि 2015 की तुलना में अधिकतम है, जो कि किस प्रकार के श्रमिकों के मामले में है?
CHSL 19-10-2020 (Morning shift)
(a) C
(b) B
(c) D
(d) A

Q60. Study the chart and answer the questions:
चार्ट का अध्ययन करें और प्रश्नों का उत्तर दें:



In which of the given years is the percentage increase in the number of hotels in comparison to the previous year, is the maximum?
पिछले वर्ष की तुलना में होटलों की संख्या में किस वर्ष में अधिकतम प्रतिशत वृद्धि हुई है?
CHSL 19-10-2020 (Morning shift)
(a) 2001
(b) 2004
(c) 2002
(d) 2003

Q61. Given bar graph shows, total expenditure and the gross receipts of a company (in Rs crores). Study the graph and answer the question that follows.
दिया गया दंड आरेख एक कंपनी की सकल प्राप्तियां और कुल व्यय (करोड़ रुपये में) प्रदर्शित करता है। आरेख का अध्ययन करें और उसके बाद प्रश्न का उत्तर दें।



In order to make a profit of 20%, what should have been the gross receipts (in crore Rs) in 1995-96, if the total expenditure remained the same?
20% का लाभ कमाने के लिए, 1995-96 में सकल प्राप्तियां (करोड़ रुपये में) कितनी होनी चाहिए थीं, यदि कुल व्यय समान है?
CHSL 19-10-2020 (afternoon shift)
(a) 5776
(b) 6445
(c) 6875
(d) 7565

Q62. Given bar graph shows, total expenditure and the gross receipts of a company (in Rs crores). Study the graph and answer the question that follows.
दिया गया दंड आरेख एक कंपनी की सकल प्राप्तियां और कुल व्यय (करोड़ रुपये में) प्रदर्शित करता है। आरेख का अध्ययन करें और उसके बाद प्रश्न का उत्तर दें।



The total expenditure of the company in 1998-99 exceeds that in 1994-95 by (in Rs crore):
1998-99 में कंपनी का कुल खर्च 1994-95 से कितना अधिक है: (करोड़ रुपये में)
CHSL 19-10-2020 (afternoon shift)
(a) 3800

(b) 5500
(c) 3700
(d) 4800

Q63. Given bar graph shows, total expenditure and the gross receipts of a company (in Rs crores). Study the graph and answer the question that follows.
दिया गया दंड आरेख एक कंपनी की सकल प्राप्तियां और कुल व्यय (करोड़ रुपये में) प्रदर्शित करता है। आरेख का अध्ययन करें और उसके बाद प्रश्न का उत्तर दें।



If profit = gross receipts - total expenditure, then in 1997-98, what percentage of gross receipts is the profit made?
(Correct to one decimal place)
यदि लाभ = सकल प्राप्तियां - कुल व्यय, फिर 1997-98 में, सकल प्राप्तियों का कितना प्रतिशत लाभ हुआ है? (एक दशमलव स्थान तक)
CHSL 19-10-2020 (afternoon shift)
(a) 5.4%
(b) 3.9%
(c) 6.1%
(d) 4.8%

Q64. Given bar graph shows, total expenditure and the gross receipts of a company (in Rs crores). Study the graph and answer the question that follows.
दिया गया दंड आरेख एक कंपनी की सकल प्राप्तियां और कुल व्यय (करोड़ रुपये में) प्रदर्शित करता है। आरेख का अध्ययन करें और उसके बाद प्रश्न का उत्तर दें।



What is the percentage increase in the gross receipts in 1996-97 as compared to 1994-95?
1994-95 की तुलना में 1996-97 में सकल प्राप्तियों में प्रतिशत वृद्धि क्या है?
CHSL 19-10-2020 (afternoon shift)
(a) 42%
(b) 43%
(c) 41%
(d) 44%

Q65. The following bar graph shows the sales (in thousands) of motor bikes by the factories, F1, F2, F3 and F4 is 2017, 2018 and 2019.
निम्नलिखित दंड आरेख कारखानों, F1, F2, F3 और F4 द्वारा 2017, 2018 और 2019 में मोटर बाइक की बिक्री (हजारों में) को दर्शाता है।



What is the ratio of total sales of F1 to that of F4 across all years?
सभी वर्षों में F1 की कुल बिक्री और F4 की कुल बिक्री का अनुपात क्या है?
CHSL 19-10-2020 (Evening shift)
(a) 10 : 9
(b) 3 : 7
(c) 9 : 11
(d) 11 : 10

Q66. The following bar graph shows the sales (in thousands) of motor bikes by the factories, F1, F2, F3 and F4 is 2017, 2018 and 2019.
निम्नलिखित दंड आरेख कारखानों, F1, F2, F3 और F4 द्वारा 2017, 2018 और 2019 में मोटर बाइक की बिक्री (हजारों में) को दर्शाता है।



Which factory had the highest sales across all the years?
सभी वर्षों में किस कारखाने की बिक्री सबसे अधिक थी?
CHSL 19-10-2020 (Evening shift)
(a) F1
(b) F2
(c) F4
(d) F3

Q67. The following bar graph shows the sales (in thousands) of motor bikes by the factories, F1, F2, F3 and F4 is 2017, 2018 and 2019.
निम्नलिखित दंड आरेख कारखानों, F1, F2, F3 और F4 द्वारा 2017, 2018 और 2019 में मोटर बाइक की बिक्री (हजारों में) को दर्शाता है।



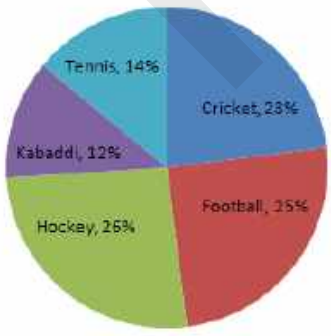
Which factory had the least number of sales across all the years?
सभी वर्षों में किस कारखाने की बिक्री की संख्या सबसे कम थी
CHSL 19-10-2020 (Evening shift)
(a) F2
(b) F3
(c) F1
(d) F4

Q68. The following bar graph shows the sales (in thousands) of motor bikes by the factories, F1, F2, F3 and F4 is 2017, 2018 and 2019.
निम्नलिखित दंड आरेख कारखानों, F1, F2, F3 और F4 द्वारा 2017, 2018 और 2019 में मोटर बाइक की बिक्री (हजारों में) को दर्शाता है।



Which of the factories witnessed the highest increase in the percentage of sales from 2018 to 2019?
2018 से 2019 तक बिक्री के प्रतिशत में सबसे अधिक वृद्धि किस कारखाने में देखी गई?
CHSL 19-10-2020 (Evening shift)
(a) F3
(b) F2
(c) F1
(d) F4

Q69. The given pie-chart represents the percentage of students enrolled in five different sports. The total number of students is 2800.
दिए गए पाई-चार्ट पांच अलग-अलग खेलों में नामांकित छात्रों के प्रतिशत का प्रतिनिधित्व करते हैं। छात्रों की कुल संख्या 2800 है।



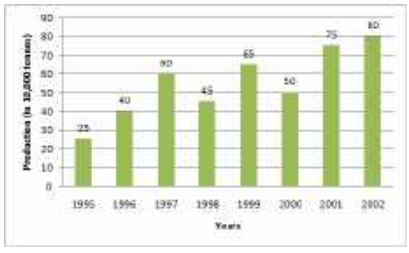
If 24 students playing cricket are shifted to kabaddi, then find the new ratio of the number of students in Cricket to those in kabaddi.
यदि क्रिकेट खेलने वाले 24 छात्रों को कबड्डी में स्थानांतरित कर दिया जाता है, तो कबड्डी में क्रिकेट में छात्रों की संख्या का नया अनुपात ज्ञात करे
CHSL 20-10-2020 (Morning shift)
(a) 30 : 17
(b) 30 : 13
(c) 31 : 18
(d) 31 : 16

Q70. Study the given bar chart and answer the question that follows.
दिए गए दंड आरेख का अध्ययन करें और इस प्रश्न का उत्तर दें।
Production of Fertilizers by a Company (in 10,000 tonnes) Over the Years
कंपनी द्वारा (10,000 टन में) वर्षों से उर्वरकों का उत्पादन



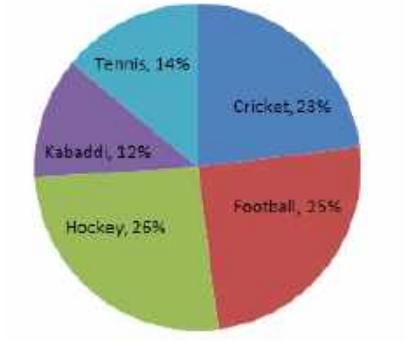
What was the approximate percentage increase in the production of fertilizers from 1998 to 1999?
1998 से 1999 तक उर्वरकों के उत्पादन में अनुमानित कितने प्रतिशत की वृद्धि हुई थी
CHSL 20-10-2020 (Morning shift)
(a) 50%
(b) 40%
(c) 44.4%
(d) 48.4%

Q71. Study the given and answer the question that follows.
दिए गए अध्ययन करें और उस प्रश्न का उत्तर दें जो निम्न है
Production of Fertilizers by a Company (in 10,000 tonnes) Over the Years
एक कंपनी द्वारा (10,000 टन में) वर्षों से उर्वरकों का उत्पादन



The average production in 2000 and 2001 was less than the average production of which of the following pairs of years?
2000 और 2001 में औसत उत्पादन निम्न में से किस वर्ष के जोड़े के औसत उत्पादन से कम था
CHSL 20-10-2020 (Morning shift)
(a) 2001 and 2002
(b) 1996 and 1997
(c) 1997 and 1998
(d) 1999 and 2000

Q72. The given pie-chart represents the percentage of students enrolled in five different sports. The total number of students is 2800.
दिए गए पाई-चार्ट पांच अलग-अलग खेलों में नामांकित छात्रों के प्रतिशत का प्रतिनिधित्व करते हैं। छात्रों की कुल संख्या 2800 है



What is the average number of students enrolled in Hockey and Tennis together?

हॉकी और टेनिस में एक साथ नामांकित छात्रों की औसत संख्या क्या है

CHSL 20-10-2020 (Morning shift)

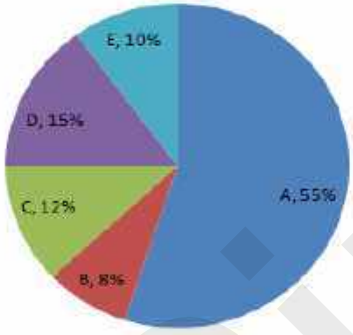
(a) 460
(b) 540
(c) 580
(d) 560

Q73. Study the following pie-chart and answer the given questions.

निम्नलिखित पाई-चार्ट का अध्ययन करें और दिए गए प्रश्नों के उत्तर दें

The pie chart shows the Budget Expenditure of a company in the year 2018 (percentage distribution) on different heads A, B, C, D and E.

पाई चार्ट वर्ष 2018 में एक कंपनी के बजट व्यय को अलग-अलग प्रमुखों A, B, C, D और E पर दिखाया गया है।



If ₹165 crore were spent in the year 2018 on A, what would have been the total expenditure for that year (in ₹ crores)?

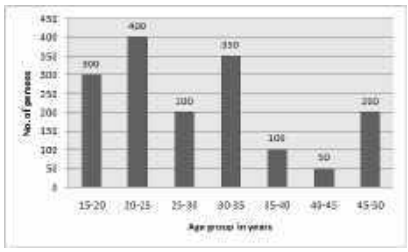
यदि A पर वर्ष 2018 में ₹165 करोड़ खर्च किए गए थे, तो उस वर्ष (₹ करोड़ों में) कुल खर्च क्या रहा होगा?

CHSL 20-10-2020 (Afternoon shift)

(a) ₹ 320
(b) ₹ 400
(c) ₹ 350
(d) ₹ 300

Q74. A study was made for the number of persons of different age groups visited in a library in a week which is shown in the histogram. Study the histogram and answer the questions given below.

एक सप्ताह में एक पुस्तकालय में जाने वाले विभिन्न आयु समूहों के व्यक्तियों की संख्या के लिए एक अध्ययन किया गया था जो हिस्टोग्राम में दिखाया गया है। हिस्टोग्राम का अध्ययन करें और नीचे दिए गए प्रश्नों के उत्तर दें



The ratio of the number of persons in the age groups 15-20 years and 20-25 years together, to the number of persons in the age group 30-35 years and 35-40 years together, is:

CHSL 20-10-2020 (Afternoon shift)

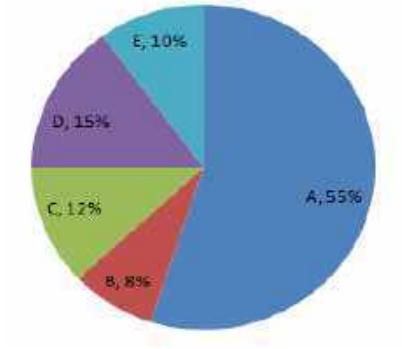
(a) 14 : 9
(b) 14 : 17
(c) 13 : 9
(d) 15 : 19

Q75. Study the following pie-chart and answer the given questions.

निम्नलिखित पाई-चार्ट का अध्ययन करें और दिए गए प्रश्नों के उत्तर दें

The pie chart shows the Budget Expenditure of a company in the year 2018 (percentage distribution) on different heads A, B, C, D and E.

पाई चार्ट वर्ष 2018 में एक कंपनी के बजट व्यय (A, B, C, D and E) को अलग-अलग प्रमुखों पर दिखाता है।



The central angle of the sector representing expenditure on head D is:

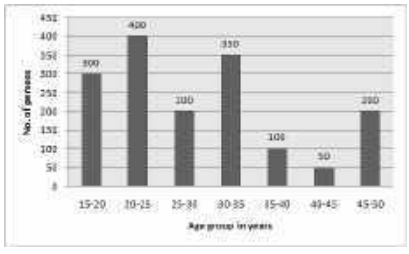
D पर व्यय का प्रतिनिधित्व करने वाले क्षेत्र का केंद्रीय कोण है

CHSL 20-10-2020 (Afternoon shift)

(a) 45°
(b) 52°
(c) 56°
(d) 54°

Q.76. A study was made for the number of persons of different age groups visited in a library in a week which is shown in the histogram. Study the histogram and answer the questions given below.

एक सप्ताह में एक पुस्तकालय में जाने वाले विभिन्न आयु समूहों के व्यक्तियों की संख्या के लिए एक अध्ययन किया गया था जो हिस्टोग्राम में दिखाया गया है। हिस्टोग्राम का अध्ययन करें और नीचे दिए गए प्रश्नों के उत्तर दें



What percentage of the total number of persons visiting the library in the week was the number of persons of age group 25-30 years?

सप्ताह में पुस्तकालय जाने वाले व्यक्तियों की कुल संख्या का कितना

प्रतिशत 25-30 वर्ष आयु वर्ग के व्यक्तियों की संख्या थी

CHSL 20-10-2020 (Afternoon shift)

(a) 12%
(b) 15%
(c) 12.5%
(d) 10.5%

Q.77. Study the following bar graph and answer the question that follows:

निम्नलिखित दंड आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो निम्न है



In which of the following pairs of years, the average export of diamonds was closest to Rs. 12 crores?

निम्नलिखित में से किस वर्ष में, हीरे का औसत निर्यात रुपये के 12 करोड़ के सबसे करीब है

CHSL 20-10-2020 (Evening shift)

(a) 2010 and 2011
(b) 2013 and 2014
(c) 2011 and 2012
(d) 2012 and 2013

Q78. Study the following bar graph and answer the question that follows:

निम्नलिखित दंड आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो निम्न है



In which year was the maximum percentage increase in diamond exports compared to the previous year?

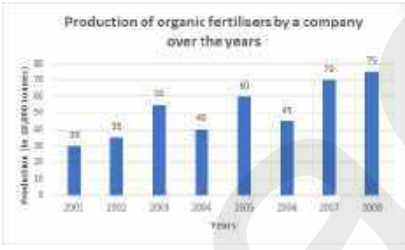
पिछले वर्ष की तुलना में किस वर्ष में हीरे के निर्यात में अधिकतम प्रतिशत वृद्धि हुई थी?

CHSL 20-10-2020 (Evening shift)

(a) 2010
(b) 2012
(c) 2014
(d) 2009

Q.79. Study the bar graph and answer the question that follows

दंड आरेख का अध्ययन करें और इस प्रश्न का उत्तर दें



The ratio of the total production of organic fertilizer by the company in the year 2005, 2006 and 2008 to the total production in the years 2001, 2002, 2003 and 2004, is:

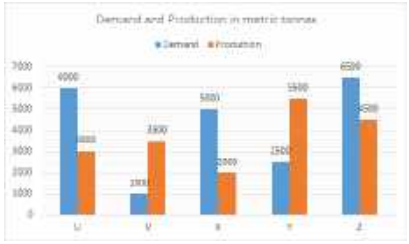
कंपनी द्वारा वर्ष 2005, 2006 और 2008 में और वर्ष 2001, 2002, 2003 और 2004में जैविक उर्वरक के कुल उत्पादन का अनुपात क्या है

CHSL 20-10-2020 (Evening shift)

(a) 5:6
(b) 3:4
(c) 6:5
(d) 4:3

Q.80. Study the bar graph and answer the question that follows

दंड आरेख का अध्ययन करें और इस प्रश्न का उत्तर दें



Companies

If P% of the demand of the item for Company U is equal to the production for company Z, then P is equal to:

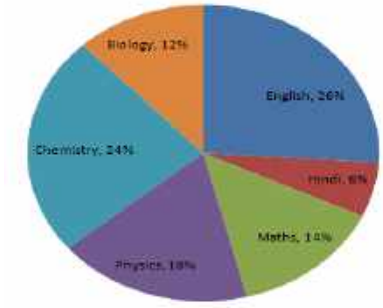
यदि कंपनी U के लिए आइटम की मांग का P% कंपनी Z के उत्पादन के बराबर है, तो P निम्न में से किसके बराबर है:

CHSL 20-10-2020 (Evening shift)

(a) 55
(b) 85
(c) 65
(d) 75

Q81. The pie-chart shows percentage-wise distribution of teachers who teach six different subjects. Study the pie chart and answer the questions.

पाई-चार्ट छह अलग-अलग विषयों को पढ़ाने वाले शिक्षकों के प्रतिशत को दर्शाता है। पाई चार्ट का अध्ययन करें और प्रश्नों के उत्तर दें।



Total number of teachers = 1650
शिक्षकों की कुल संख्या = 1650

What is the total number of teachers teaching English, Maths and Physics?

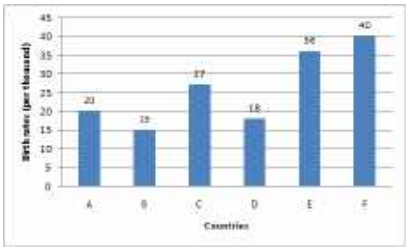
अंग्रेजी, गणित और भौतिकी पढ़ाने वाले शिक्षकों की कुल संख्या क्या है?

CHSL 21-10-2020 (Morning shift)

Pinnacle

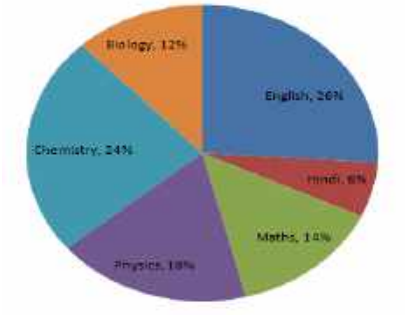
(a) 857
(b) 950
(c) 975
(d) 957

Q82. The following bar chart represents the birth rate (per thousand) of six different countries. Study the bar chart and answer the questions given below.
निम्नलिखित दंड आरेख छह विभिन्न देशों के जन्म दर (प्रति हजार) का प्रतिनिधित्व करता है। दंड आरेख का अध्ययन करें और नीचे दिए गए प्रश्नों के उत्तर दें



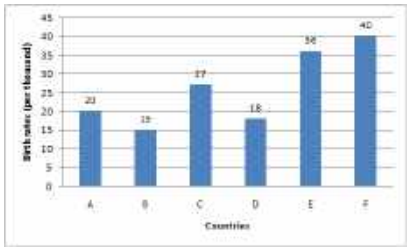
The birth rate of country E is what percent of the birth rate of country A?
देश E की जन्म दर देश A की जन्म दर का कितना प्रतिशत है
CHSL 21-10-2020 (Morning shift)
(a) 120%
(b) 180%
(c) 150%
(d) 160%

Q83. The pie-chart shows percentage-wise distribution of teachers who teach six different subjects. Study the pie chart and answer the questions.
पाई-चार्ट छह अलग-अलग विषयों को पढ़ाने वाले शिक्षकों के प्रतिशत वितरण को दर्शाता है। पाई चार्ट का अध्ययन करें और प्रश्नों के उत्तर दें।



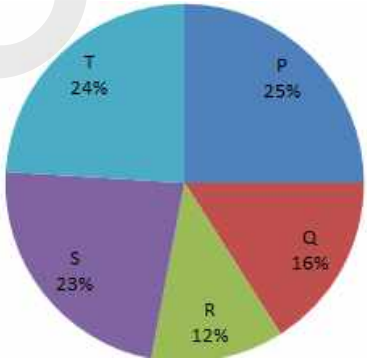
Total number of teachers = 1650
शिक्षकों की कुल संख्या = 1650
What is the difference between the total number of teachers who teach Physics and Maths and the total number of teachers who teach chemistry and biology?
भौतिकी और गणित पढ़ाने वाले कुल शिक्षकों और रसायन विज्ञान और जीव विज्ञान पढ़ाने वाले शिक्षकों की कुल संख्या में कितना अंतर है?
CHSL 21-10-2020 (Morning shift)
(a) 60
(b) 76
(c) 66
(d) 68

Q.84. The following bar chart represents the birth rate (per thousand) of six different countries. Study the bar chart and answer the questions given below.
निम्नलिखित दंड आरेख छह विभिन्न देशों के जन्म दर (प्रति हजार) का प्रतिनिधित्व करता है। दंड आरेख का अध्ययन करें और नीचे दिए गए प्रश्नों के उत्तर दें।



The birth rate of which country is exactly 50% more than that of country D?
किस देश की जन्म दर, देश D से 50% अधिक है?
CHSL 21-10-2020 (Morning shift)
(a) Country F/ देश F
(b) Country C/ देश C
(c) Country A/ देश A
(d) Country E/ देश E

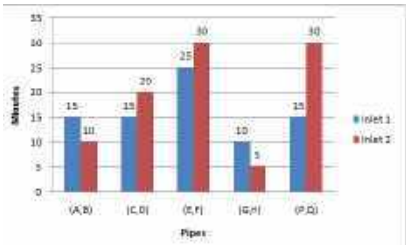
Q85. The pie-chart shows the percentage-wise distribution of the number of students in five different schools P, Q, R, S and T. The total number of students in all five schools together is 10,500.
पाई-चार्ट पांच अलग-अलग स्कूलों P, Q, R, S और T में छात्रों की संख्या का प्रतिशत दिखाता है। सभी पांच स्कूलों में छात्रों की कुल संख्या 10,500 है|
Study the pie chart and answer the questions
पाई चार्ट का अध्ययन करें और प्रश्नों के उत्तर दें



The number of students in school R is what percent of the total number of students in schools Q and T together?
स्कूल R में छात्रों की संख्या स्कूलों Q और T में कुल छात्रों की संख्या का कितना प्रतिशत है?
CHSL 21-10-2020 (afternoon shift)
(a) 30%
(b) 35%
(c) 25%
(d) 40%

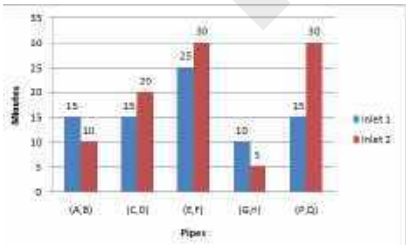
Q86. Study the following graph and answer the given questions.
पाई चार्ट का अध्ययन करें और प्रश्नों के उत्तर दें
The graph shows the time (in minutes) taken by the pipes

(A,B), (C,D), (E,F), (G,H) and (P,Q) to fill a tank.
आरेख एक टैंक को भरने के लिए पाइप (A,B), (C,D), (E,F), (G,H) और (P, Q) द्वारा लिया गया समय (मिनटों में) दिखाता है।



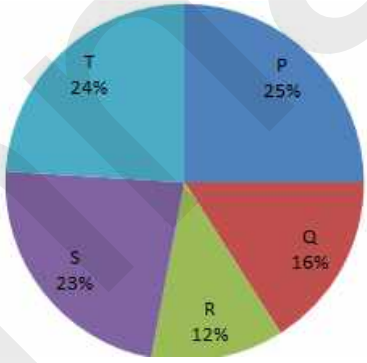
In how many minutes is an empty tank filled completely if pipe D fills it for half the time and then for the other half time, pipes C and D fill it together?
कितने मिनट में एक खाली टैंक पूरी तरह से भर जाता है अगर पाइप D इसे आधे समय तक भरता है और फिर दूसरे आधे समय के लिए, पाइप C और D इसे एक साथ भरते हैं?
CHSL 21-10-2020 (afternoon shift)
(a) 15 minutes
(b) 18 minutes
(c) 12 minutes
(d) 10 minutes

Q87.. Study the following graph and answer the given questions.
निम्नलिखित आरेख का अध्ययन करें और दिए गए प्रश्नों के उत्तर दें
The graph shows the time (in minutes) taken by the pipes (A,B), (C,D), (E,F), (G,H) and (P,Q) to fill a tank.
आरेख एक टैंक को भरने के लिए पाइप (A,B), (C,D), (E,F), (G,H) और (P, Q) द्वारा लिया गया समय (मिनटों में) दिखाता है।



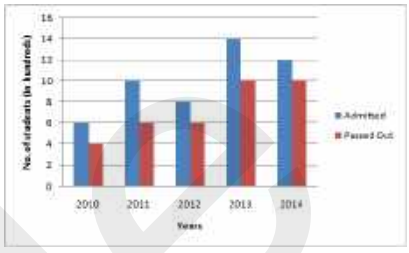
Two pipes P and Q are inlet pipes. If they are opened at alternate minutes and if pipe P is opened first, then in how many minutes will the tank be full?
दो पाइप P और Q प्रवेश पाइप हैं। यदि उन्हें एकान्तर मिनटों में खोला जाता है और यदि पाइप P को पहले खोला जाता है, तो कितने मिनट में टैंक भर जाएगा
CHSL 21-10-2020 (afternoon shift)
(a) 18 minutes
(b) 20 minutes
(c) 16 minutes
(d) 30 minutes

Q.88. The pie-chart shows the percentage-wise distribution of the number of students in five different schools P, Q, R, S and T. The total number of students in all five schools together is 10,500.
पाई-चार्ट पांच अलग-अलग स्कूलों P, Q, R, S और T में छात्रों की संख्या का प्रतिशत दिखाता है। सभी पांच स्कूलों में छात्रों की कुल संख्या 10,500 है।



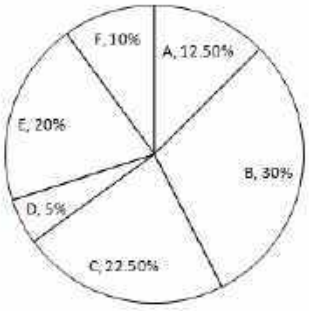
The difference between the central angles corresponding to school T and R is:
स्कूल T और R के अनुरूप केंद्रीय कोणों के बीच का अंतर क्या है?
CHSL 21-10-2020 (afternoon shift)
(a) 34.5°
(b) 44°
(c) 43.2°
(d) 42.8°

Q89. The bar graph shows the number of students (in hundreds) admitted and passed out per year in a college during the years 2010 to 2014.
दंड आरेख वर्ष 2010 से 2014 के दौरान एक कॉलेज में छात्रों की दाख़िला और उत्तीर्ण हुए छात्रों (सैकड़ों में) की संख्या को दर्शाता है।
Study the bar-graph and answer the question.
दंड-आरेख का अध्ययन करें और प्रश्न का उत्तर दें



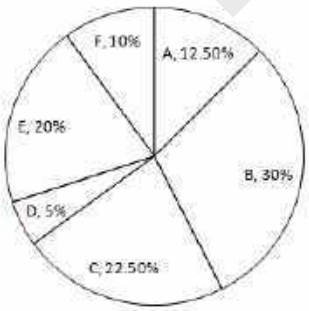
The ratio of the number of students admitted in the year 2012 to the average number of students passed out in the years 2013 and 2014 is:
वर्ष 2012 में दाखिला लेने वाले छात्रों की संख्या और वर्ष 2013 और 2014 में दाखिला लेने वाले छात्रों की औसत संख्या का अनुपात क्या है?
CHSL 21-10-2020 (Evening shift)
(a) 4 : 5
(b) 4 : 7
(c) 2 : 5
(d) 3 : 5

Q90. The pie-chart shows the annual car production (percentage wise) of six countries A, B, C, D, E and F.
Study the pie chart and answer the questions.
पाई-चार्ट छह देशों A, B, C, D, E और F के वार्षिक कार उत्पादन (प्रतिशत वार) को दर्शाता है।
पाई चार्ट का अध्ययन करें और प्रश्नों के उत्तर दें



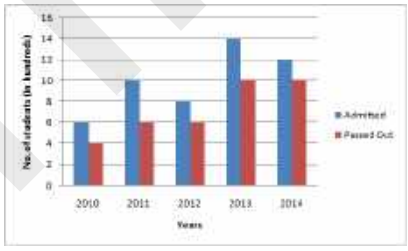
Total numbers of cars produced = 40,00,000
उत्पादित कारों की कुल संख्या = 40,00,000
If 45% of the cars number of produced by these six countries are diesel cars and the rest are petrol cars, then how many petrol cars were produced?
अगर इन छह देशों द्वारा उत्पादित 45% कारों की संख्या डीजल कार है और बाकी पेट्रोल कारें हैं, तो कितनी पेट्रोल कारों का उत्पादन होता है?
CHSL 21-10-2020 (Evening shift)
(a) 25 lakh/ लाख
(b) 24 lakh/ लाख
(c) 22 lakh/ लाख
(d) 20 lakh/ लाख

Q91. The pie-chart shows the annual car production (percentage wise) of six countries A, B, C, D, E and F.
Study the pie chart and answer the questions.
पाई-चार्ट छह देशों A, B, C, D, E और F के वार्षिक कार उत्पादन (प्रतिशत वार) को दर्शाता है।
पाई चार्ट का अध्ययन करें और प्रश्नों के उत्तर दें



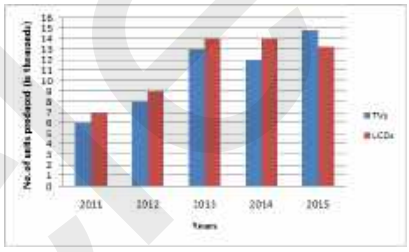
Total numbers of cars produced = 40,00,000
उत्पादित कारों की कुल संख्या = 40,00,000
The number of cars produced by country B is what percent more than that produced by country E?
देश B द्वारा उत्पादित कारों की संख्या देश E द्वारा उत्पादित कारों की संख्या से कितना प्रतिशत से अधिक है?
CHSL 21-10-2020 (Evening shift)
(a) 60%
(b) 25%
(c) 40%
(d) 50%

Q92. The bar graph shows the number of students (in hundreds) admitted and passed out per year in a college during the years 2010 to 2014.
दंड आरेख वर्ष 2010 से 2014 के दौरान एक कॉलेज में छात्रों की दाख़िला और उत्तीर्ण हुए छात्रों (सैकड़ों में) की संख्या को दर्शाता है।
Study the bar-graph and answer the question.
दंड आरेख का अध्ययन करें और प्रश्न का उत्तर दें



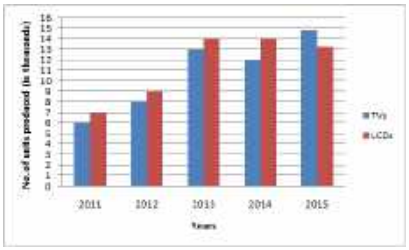
In which of the following years, was the pass percentage between 80 and 85?
निम्नलिखित में से किस वर्ष में, उत्तीर्णता प्रतिशत 80 और 85 के बीच था?
CHSL 21-10-2020 (Evening shift)
(a) 2014
(b) 2011
(c) 2013
(d) 2012

Q93. Study the following bar diagram and answer the question that follows.
निम्नलिखित दंड आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो पूछा गया है।
The production (in thousands) of electronic items (TV and LCD) in a factory during the period from 2011 to 2015.
2011 से 2015 की अवधि के दौरान एक कारखाने में इलेक्ट्रॉनिक वस्तुओं (TV और LCD) का उत्पादन (हजारों में)



The difference between the average production of LCDs and that of the TVs from 2011 to 2013 is:
2011 से 2013 के बीच एलसीडी तथा टीवी के औसत उत्पादन में कितना अंतर है?
CHSL 26-10-2020 (Morning shift)
(a) 1200
(b) 1000
(c) 900
(d) 800

Q.94. Study the following bar diagram and answer the question that follows.
निम्नलिखित दंड आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो निम्न है
The production (in thousands) of electronic items (TV and LCD) in a factory during the period from 2011 to 2015.
2011 से 2015 की अवधि के दौरान एक कारखाने में इलेक्ट्रॉनिक वस्तुओं (TV और LCD) का उत्पादन (हजारों में)



The ratio of the total production of LCDs in the year 2012 and 2014 to the total production of TV's in the year 2012 and 2014 is:

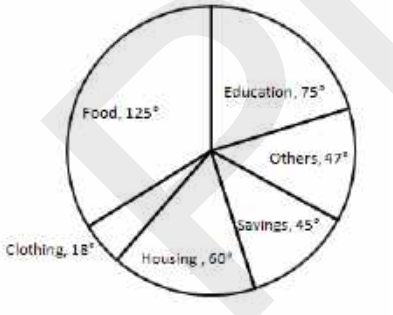
वर्ष 2012 और 2014 में एलसीडी के कुल उत्पादन और वर्ष 2012 और 2014 में टीवी के कुल उत्पादन का अनुपात है:

CHSL 26-10-2020 (Morning shift)

(a) 23 : 20
(b) 19 : 21
(c) 23 : 25
(d) 21 : 25

Q95. The following pie chart shows the monthly expenditure incurred by a family on various items, and their savings. Study the chart and answer the question that follows.

निम्नलिखित पाई चार्ट विभिन्न मदों पर एक परिवार द्वारा किए गए मासिक खर्च और उनकी बचत को दर्शाता है। चार्ट का अध्ययन करें और फिर पूछे गए प्रश्न का उत्तर दें।



If the monthly income is ₹64,800, then the yearly savings are:

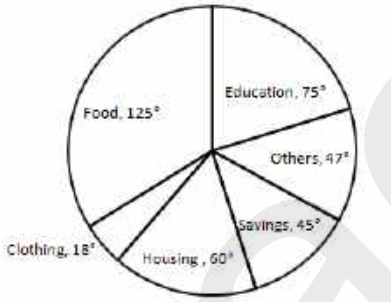
यदि मासिक आय ₹64,800 है, तो वार्षिक बचत होती है:

CHSL 26-10-2020 (Morning shift)

(a) ₹70,500
(b) ₹75,000
(c) ₹72,500
(d) ₹75,600

Q.96. The following pie chart shows the monthly expenditure incurred by a family, various items, and their savings. Study the chart and answer the question that follows.

निम्नलिखित पाई चार्ट विभिन्न मदों पर एक परिवार द्वारा किए गए मासिक खर्च और उनकी बचत को दर्शाता है। चार्ट का अध्ययन करें और फिर पूछे गए प्रश्न का उत्तर दें।



If the expenditure on education is 2,700 more than that on housing, then the total expenditure on food and clothings is:

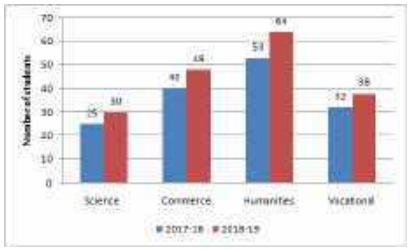
यदि शिक्षा पर खर्च आवास से ₹2,700 अधिक है, तो भोजन और कपड़े पर कुल खर्च ज्ञात करे।

CHSL 26-10-2020 (Morning shift)

(a) ₹ 27,540
(b) ₹ 27,450
(c) ₹ 25,740
(d) ₹ 25,400

Q97. The given bar graph represents the number of students who appeared in the board examination in session 2017-18 and 2018-19. Study the graph and answer the question that follows.

दिया गया दंड आरेख सत्र 2017-18 और 2018-19 सत्र में बोर्ड परीक्षा में उपस्थित होने वाले छात्रों की संख्या को दर्शाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



The difference between the average number of students of Science and Humanities stream in 2017-18 and that in Commerce and Vocational in 2018-19 is:

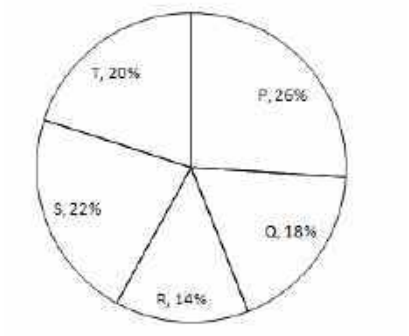
2017-18 में विज्ञान और मानविकी विषय के छात्रों की औसत संख्या और 2018-19 में वाणिज्य और व्यावसायिक में छात्रों की औसत संख्या के बीच अंतर ज्ञात करे।

CHSL 26-10-2020 (afternoon shift)

(a) 8
(b) 6
(c) 4
(d) 2

Q98. The following pie chart shows the percentage-wise distribution of the number of students in five different schools P, Q, R, S and T. The total number of students in all five schools together is 8400.

निम्नलिखित पाई चार्ट पांच अलग-अलग स्कूलों P, Q, R, S और T में छात्रों की संख्या के प्रतिशत को दर्शाता है। सभी पाँच स्कूलों में कुल छात्रों की संख्या 8400 है

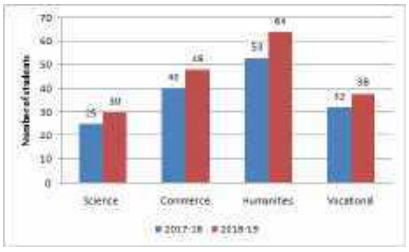


Find the average number of students in schools R and S together.

स्कूलों R और S में एक साथ छात्रों की औसत संख्या ज्ञात कीजिए।

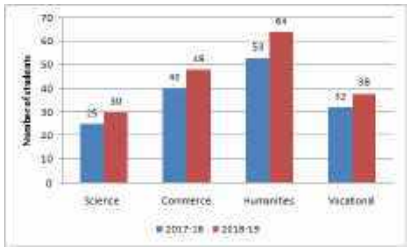
CHSL 26-10-2020 (afternoon shift)
(a) 1510
(b) 1612
(c) 1512
(d) 1620

Q99. The given bar graph represents the number of students who appeared in the board examination in session 2017-18 and 2018-19. Study the graph and answer the question that follows.
दिया गया दंड आरेख सत्र 2017-18 और 2018-19 में बोर्ड परीक्षा में उपस्थित होने वाले छात्रों की संख्या को दर्शाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



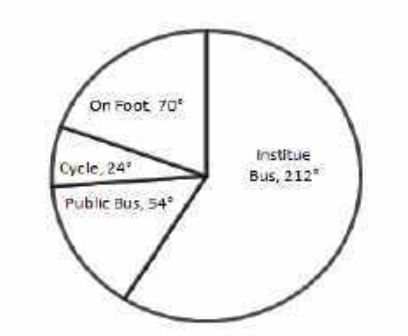
What is the ratio of the total number of students appeared in examinations in 2017-18 and 2018-19?
2017-18 और 2018-19 में परीक्षा में उपस्थित हुए छात्रों की कुल संख्या का अनुपात क्या है ?
CHSL 26-10-2020 (afternoon shift)
(a) 5 : 6
(b) 6 : 5
(c) 3 : 4
(d) 4 : 5

Q100. The given bar graph represents the number of students who appeared in the board examination in session 2017-18 and 2018-19. Study the graph and answer the question that follows.
दिया गया दंड आरेख सत्र 2017-18 और 2018-19 में बोर्ड परीक्षा में उपस्थित होने वाले छात्रों की संख्या को दर्शाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



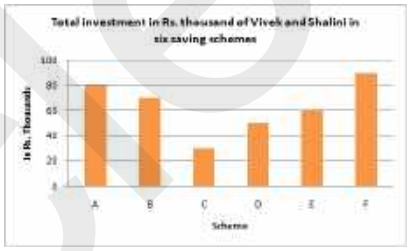
What percentage is the total number of students who appeared in 2017-18 is less than the total number of students who appeared in 2018-19?(correct to one decimal place)
2017-18 में उपस्थित होने वाले छात्रों की कुल संख्या 2018-19 में उपस्थित होने वाले कुल छात्रों (एक दशमलव स्थान तक) से कितने प्रतिशत कम है?
CHSL 26-10-2020 (afternoon shift)
(a) 15%
(b) 20.5%
(c) 12%
(d) 16.7%

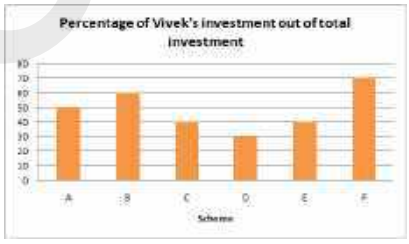
Q101. Study the pie-chart and answer the questions.
In an institute, there are 900 students who use different modes of transport for to and from travel. The given pie diagram represents the requisite data.
पाई-चार्ट का अध्ययन करें और प्रश्नों के उत्तर दें।
एक संस्थान में, 900 छात्र हैं जो आने-जाने के लिए परिवहन के विभिन्न साधनों का उपयोग करते हैं। दिए गए पाई चार्ट में संबंधित आंकड़े दिए गए हैं।



The number of students who travel on foot is:
पैदल यात्रा करने वाले छात्रों की संख्या है:
CHSL 26-10-2020 (Evening shift)
(a) 175
(b) 150
(c) 225
(d) 180

Q102. Study the following graph and answer the questions given below:
निम्नलिखित आरेख का अध्ययन करें और नीचे दिए गए प्रश्नों के उत्तर दें:

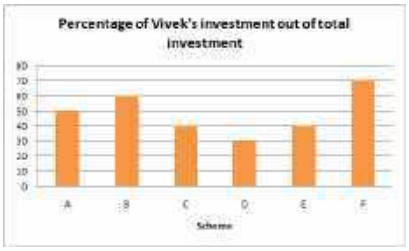




What is the ratio of the total amount invested by Vivek in schemes A and C together to the total amount invested by Shalini in schemes A and C together?
विवेक द्वारा योजनाओं A और C में निवेश की गयी कुल राशि का शालिनी द्वारा योजनाओं A और C में निवेश की गयी कुल राशि से क्या अनुपात है?
CHSL 26-10-2020 (Evening shift)
(a) 23 : 25
(b) 25 : 29
(c) 23 : 27
(d) 26 : 29

Q103. Study the following graph and answer the questions given below:
निम्नलिखित आरेख का अध्ययन करें और नीचे दिए गए प्रश्नों के उत्तर दें:





What is the average amount invested by Vivek in saving schemes A, B, C and D?

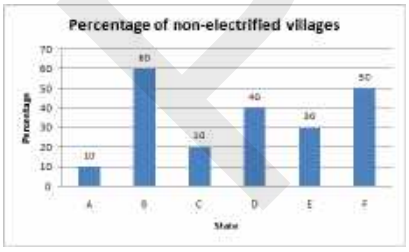
बचत योजनाओं A, B, C, D में विवेक द्वारा निवेश की गई औसत राशि क्या है?

CHSL 26-10-2020 (Evening shift)

(a) ₹ 27,200
(b) ₹ 28,500
(c) ₹ 27,250
(d) ₹ 27,000

Q104. The given bar graph represents the percentage of non-electrified villages in 6 states A, B, C, D, E and F. Study the graph and answer the question that follows.

दिया गया दंड आरेख 6 राज्यों A, B, C, D, E और F में गैर-विद्युतीकृत गांवों के प्रतिशत को दर्शाता है। आरेख का अध्ययन करें और इस प्रश्न का उत्तर दें।



How many states have at most 30% or less non-electrified villages?

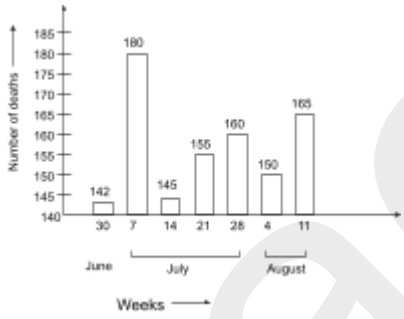
कितने राज्यों में अधिकतम 30% या कम गैर-विद्युतीकृत राज्य हैं?

CHSL 17-03-2020 (Morning shift)

(a) 3
(b) 4
(c) 1
(d) 2

Q105. The following bar graph shows the number of deaths from road accident occurred during the rainy season in the year 1992. Study the graph carefully and answer the question that follows.

निम्नलिखित दंड आरेख वर्ष 1992 में बारिश के मौसम में हुई सड़क दुर्घटना से होने वाली मौतों की संख्या को दर्शाता है। आरेख का ध्यानपूर्वक अध्ययन करें और प्रश्न का उत्तर दें।



Between which two consecutive weeks was the fall in the number of deaths the greatest?

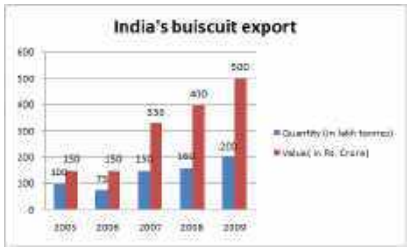
लगातार किन दो सप्ताहों के बीच मौत की संख्या में गिरावट सबसे बड़ी थी?

CHSL 17-03-2020 (Morning shift)

(a) 7 July to 14 July/ 7 जुलाई से 14 जुलाई
(b) 28 July to 4 August/ 28 जुलाई से 4 अगस्त
(c) 30 June to 7 July/ 30 जून से 7 जुलाई
(d) 21 July to 28 July/ 21 जुलाई से 28 जुलाई

Q.106. Study the graph and answer the question that follows.

आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



In which year was the value per tonne the minimum?

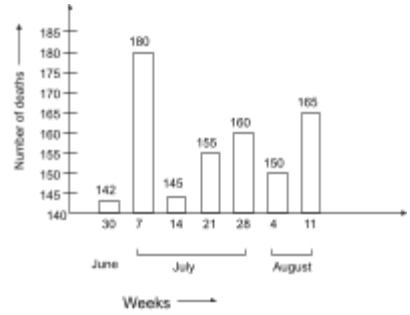
प्रति टन मूल्य न्यूनतम किस वर्ष में था?

CHSL 17-03-2020 (Morning shift)

(a) 2005
(b) 2007
(c) 2009
(d) 2006

Q107. The following bar graph shows the number of deaths from road accident occurred during the rainy season in the year 1992. Study the graph carefully and answer the question that follows.

निम्नलिखित दंड आरेख वर्ष 1992 में बारिश के मौसम में हुई सड़क दुर्घटना से होने वाली मौतों की संख्या को दर्शाता है। आरेख का ध्यानपूर्वक अध्ययन करें और प्रश्न का उत्तर दें।



Between which two consecutive weeks was the rise in number of deaths the greatest?

लगातार दो सप्ताहों के बीच मौतों की संख्या में वृद्धि सबसे बड़ी थी:

CHSL 17-03-2020 (Morning shift)

(a) 21 July to 28 July/ 21 जुलाई से 28 जुलाई
(b) 14 July to 21 July/ 14 जुलाई से 21 जुलाई
(c) 4 August to 11 August/ 4 अगस्त से 11 अगस्त

Pinnacle

(d) 30 June to 7 July/ 30 जून से 7 जुलाई

Q108. The given data shows the number of mobiles (in thousands) manufactured by companies C -1, C - 2, C - 3 and C - 4 in 2017, 2018 and 2019.
दिए गए आंकड़े 2017, 2018 और 2019 में कंपनियों C - 1, C - 2, C - 3 और C - 4 द्वारा निर्मित मोबाइल (हजारों में) की संख्या को दर्शाते हैं।



Which company witnessed the highest increase in manufacturing from 2017 to 2018?
2017 से 2018 तक निर्माण में सबसे अधिक वृद्धि किस कंपनी की देखी गई?
CHSL 17-03-2020 (afternoon shift)
(a) C - 3
(b) C - 2
(c) C - 1
(d) C - 4

Q109. The given data shows the number of mobiles (in thousands) manufactured by companies C - 1, C - 2, C - 3 and C - 4 in 2017, 2018 and 2019.
दिए गए आंकड़े 2017, 2018 और 2019 में कंपनियों C - 1, C - 2, C - 3 और C - 4 द्वारा निर्मित मोबाइल (हजारों में) की संख्या को दर्शाते हैं।



Which company manufactured the least number of mobiles across all the years?
किस कंपनी ने सभी वर्षों में सबसे कम संख्या में मोबाइल का निर्माण किया?
CHSL 17-03-2020 (afternoon shift)
(a) C-4
(b) C-3
(c) C-1
(d) C-2

Q110. The given data shows the number of mobiles (in thousands) manufactured by companies C - 1, C - 2, C - 3 and C - 4 in 2017, 2018 and 2019.
दिए गए आंकड़े 2017, 2018 और 2019 में कंपनियों C - 1, C - 2, C - 3 और C - 4 द्वारा निर्मित मोबाइल (हजारों में) की संख्या को दर्शाते हैं।



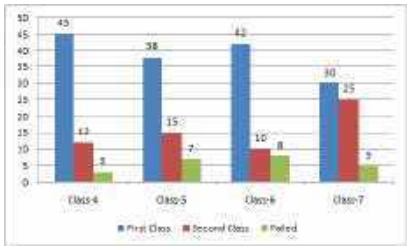
Which company manufactured the highest number of mobiles across all the years?
किस कंपनी ने सभी वर्षों में सबसे अधिक मोबाइलों का निर्माण किया?
CHSL 17-03-2020 (afternoon shift)
(a) C-2
(b) C-3
(c) C-4
(d) C-1

Q111. The given data shows the number of mobiles (in thousands) manufactured by companies C - 1, C - 2, C - 3 and C - 4 in 2017, 2018 and 2019.
दिए गए आंकड़े 2017, 2018 और 2019 में कंपनियों C - 1, C - 2, C - 3 और C - 4 द्वारा निर्मित मोबाइल (हजारों में) की संख्या को दर्शाते हैं।



What is the ratio of total products manufactured by C-1 to that of C-4?
C-1 और C-4 द्वारा निर्मित कुल उत्पादों का अनुपात क्या है?
CHSL 17-03-2020 (afternoon shift)
(a) 14 : 21
(b) 11 : 13
(c) 27 : 35
(d) 32 : 31

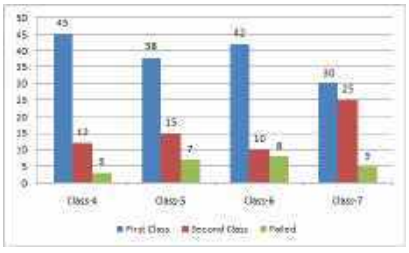
Q112. The given chart shows the number of students in Class 4, Class 5, Class 6 and Class 7 who got first class, second class and failed in the final examination.
दिए गए आरेख कक्षा 4, कक्षा 5, कक्षा 6 और कक्षा 7 में उन छात्रों की संख्या को दर्शाते हैं, जिन्होंने अंतिम परीक्षा में प्रथम श्रेणी, द्वितीय श्रेणी प्राप्त किया और जो असफल रहे।



What is the pass percentage of Class 4?
कक्षा 4 का उत्तीर्णता प्रतिशत क्या है?
CHSL 17-03-2020 (Evening shift)
(a) 94.66%
(b) 91.23%
(c) 95%
(d) 90.45%

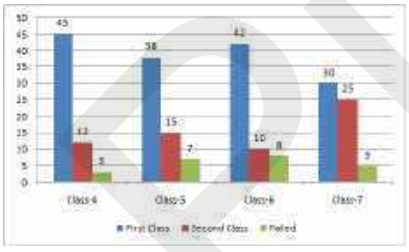
Q113. The given chart shows the number of students in Class 4, Class 5, Class 6 and Class 7 who got first class, second class and failed in the final examination.

दिए गए आरेख कक्षा 4, कक्षा 5, कक्षा 6 और कक्षा 7 में उन छात्रों की संख्या को दर्शाते हैं, जिन्होंने अंतिम परीक्षा में प्रथम श्रेणी, द्वितीय श्रेणी प्राप्त किया और जो असफल रहे।



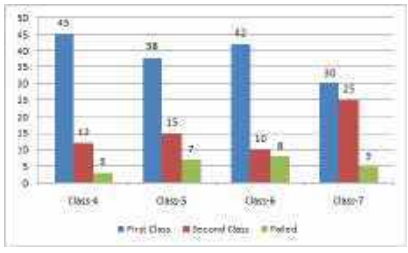
Which class has the highest number of students who passed?
किस कक्षा में उत्तीर्ण होने वाले छात्रों की संख्या सबसे अधिक है?
CHSL 17-03-2020 (Evening shift)
(a) Class 4
(b) Class 5
(c) Class 6
(d) Class 7

Q114. The given chart shows the number of students in Class 4, Class 5, Class 6 and Class 7 who got first class, second class and failed in the final examination.
दिए गए आरेख कक्षा 4, कक्षा 5, कक्षा 6 और कक्षा 7 में उन छात्रों की संख्या को दर्शाते हैं, जिन्होंने अंतिम परीक्षा में प्रथम श्रेणी, द्वितीय श्रेणी प्राप्त किया और जो असफल रहे।



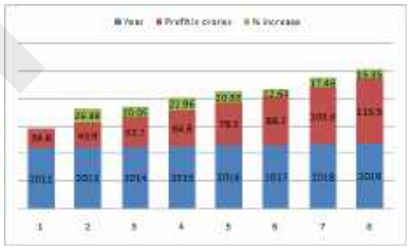
Which class has the least number of students who passed?
किस कक्षा में सबसे कम छात्र उत्तीर्ण हुए हैं?
CHSL 17-03-2020 (Evening shift)
(a) Class 4/ कक्षा 4
(b) Class 6/ कक्षा 6
(c) Class 7/ कक्षा 7
(d) Class 5/ कक्षा 5

Q115. The given chart shows the number of students in Class 4, Class 5, Class 6 and Class 7 who got first class, second class and failed in the final examination.
दिए गए आरेख कक्षा 4, कक्षा 5, कक्षा 6 और कक्षा 7 में उन छात्रों की संख्या को दर्शाते हैं, जिन्होंने अंतिम परीक्षा में प्रथम श्रेणी, द्वितीय श्रेणी प्राप्त किया और जो असफल रहे।



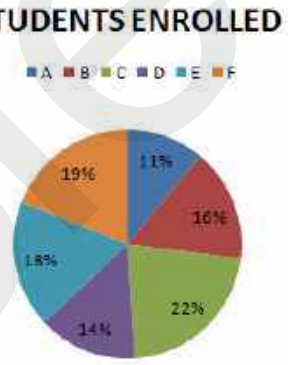
What is the pass percentage of Class 6?
कक्षा 6 का उत्तीर्णता प्रतिशत क्या है?
CHSL 17-03-2020 (Evening shift)
a) 87.83%
(b) 90.12%
(c) 86.66%
(d) 89.96%

Q116. The following graph shows the profit (in crore Rs) earned by a company in the years from 2012 to 2019.
निम्नलिखित आरेख 2012 से 2019 के वर्षों में एक कंपनी द्वारा अर्जित लाभ (करोड़ रु में) को दर्शाता है।



The percentage increase in the profit from the previous year, is greatest in the year:
पिछले वर्ष से किस वर्ष में लाभ में प्रतिशत में वृद्धि सबसे अधिक है?
CHSL 18-03-2020 (Morning shift)
(a) 2018
(b) 2013
(c) 2015
(d) 2017

Q117. The given pie chart shows the percentage of students enrolled into the colleges A, B, C, D, E and F in a city, and the table shows the ratio of boys to girls in the college.
दिया गया पाई चार्ट एक शहर में कॉलेजों A, B, C, D, E और F में नामांकित छात्रों के प्रतिशत को दर्शाता है, और तालिका कॉलेज में लड़कों और लड़कियों के अनुपात को दर्शाती है।

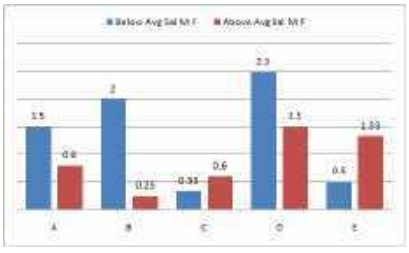


A	9 : 4
B	5 : 9
C	3 : 4
D	7 : 2
E	1 : 4
F	3 : 2

Based on this information, if the total number of students is 9800, then the number of girls in the college B is:
इस जानकारी के आधार पर, यदि छात्रों की कुल संख्या 9800 है, तो कॉलेज B में लड़कियों की संख्या है:
CHSL 18-03-2020 (Morning shift)
(a) 560
(b) 280
(c) 1008
(d) 504

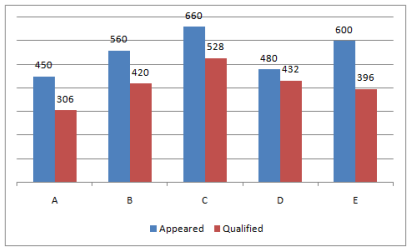
Q118. The following graph shows the data of five companies A, B,

C, D, E with respect to the male and female ratio of employees above, or below the average salary.
निम्नलिखित आरेख औसत वेतन से अधिक या कम प्राप्त करने वाले कर्मचारियों में पुरुष और महिलाओं के अनुपात के संबंध में पांच कंपनियों A, B, C, D, E के आंकड़ों को दर्शाता है।



If in the company D, the percentage of employee above the average salary is 16% which is equal to 80, then the number of employees below average salary are:
यदि कंपनी D में, औसत वेतन से ऊपर के कर्मचारियों का प्रतिशत 16% है जो कि 80 के बराबर है, तो औसत वेतन से कम पाने वाले कर्मचारियों की संख्या है:
CHSL 18-03-2020 (Morning shift)
(a) 300
(b) 420
(c) 520
(d) 470

Q119. The following graph shows the data of the number of candidates that appeared and qualified for a competitive exam from the colleges A, B, C, D, E.
निम्नलिखित आरेख उन उम्मीदवारों की संख्या को दिखाता है जो कॉलेजों A, B, C, D, E से प्रतियोगी परीक्षा के लिए उपस्थित हुए और सफल हुए।



Based on the information, the difference between the percentage of students that qualified, from the colleges B and D is:
जानकारी के आधार पर, कॉलेजों B और D से सफल हुए छात्रों के प्रतिशत के बीच का अंतर है:
CHSL 18-03-2020 (Morning shift)
(a) 20
(b) 18
(c) 12
(d) 15

Q120. The given bar chart shows the number of students in a class who have secured marks in three ranges: >=75%, 60%-74% and <60%.
दिए गए दंड आरेख एक वर्ग में उन छात्रों की संख्या को दर्शाया गया है जिन्होंने तीन श्रेणियों में अंक प्राप्त किए हैं: >= 75%, 60% -74% और <60%



Boys	12	45	8
Girls	7	53	5

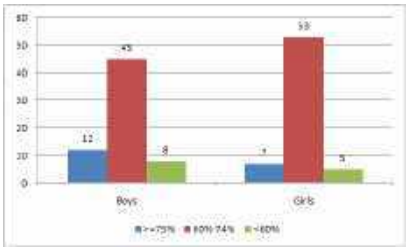
What is the total number of girls and boys?
लड़कियों और लड़कों की कुल संख्या क्या है?
CHSL 18-03-2020 (afternoon shift)
(a) 110
(b) 140
(c) 120
(d) 130

Q121. The given bar chart shows the number of students in a class who have secured marks in three ranges: >=75%, 60%-74% and <60%.
दिए गए दंड आरेख एक वर्ग में उन छात्रों की संख्या को दर्शाता है जिन्होंने तीन श्रेणियों में अंक प्राप्त किए हैं: >= 75%, 60% -74% और <60%



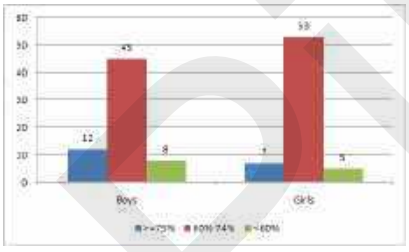
From the given information, identify how much percent of girls got distinction.
दी गई जानकारी से, ज्ञात कीजिए कितनी प्रतिशत लड़कियों को डिस्टिंक्शन मिला है?
CHSL 18-03-2020 (afternoon shift)
(a) 17.86%
(b) 10.76%
(c) 14.28%
(d) 18.49%

Q122. The given bar chart shows the number of students in a class who have secured marks in three ranges: >=75%, 60%-74% and <60%.
दिए गए दंड आरेख एक वर्ग में उन छात्रों की संख्या को दर्शाता है जिन्होंने तीन श्रेणियों में अंक प्राप्त किए हैं: >= 75%, 60% -74% और <60%



What is the ratio of percentage of boys and girls who got marks from 60% to 74%?
60% से 74% तक अंक पाने वाले लड़कों और लड़कियों के प्रतिशत का अनुपात क्या है?
CHSL 18-03-2020 (afternoon shift)
(a) 67.54 : 87.45
(b) 64.12 : 88.23
(c) 69.23 : 81.53
(d) 62.78 : 82.67

Q123. The given bar chart shows the number of students in a class who have secured marks in three ranges: >=75%, 60%-74% and <60%.
दिया गया दंड आरेख एक कक्षा में उन छात्रों की संख्या को दर्शाता है जिन्होंने तीन श्रेणियों में अंक प्राप्त किए हैं: >= 75%, 60% -74% और <60%



From the given information, identify the percent of boys who got distinction.
दी गई जानकारी से, उन लड़कों का प्रतिशत ज्ञात कीजिए जिन्हें डिस्टिंक्शन मिला है।
CHSL 18-03-2020 (afternoon shift)
(a) 18.46%
(b) 16.78%
(c) 13.98%
(d) 15.29%

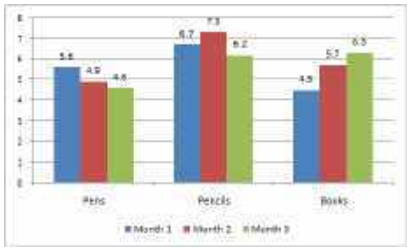
Q124. The following chart shows the sales (in thousands) of pens, pencils and books in month1, month2 and month3. Answer the question based on the chart.
निम्नलिखित चार्ट में माह1, माह2 तथा माह3 में पेन, पेंसिल और पुस्तकों की बिक्री (हजारों में) दिखाई गई है। चार्ट के आधार पर प्रश्न का उत्तर दें।



	Month 1	Month 2	Month 3
Pens	5.6	4.9	4.6
Pencils	6.7	7.3	6.2
Books	4.5	5.7	6.3

Which month has the highest sales?
किस महीने में सबसे ज्यादा बिक्री होती है?
CHSL 18-03-2020 (Evening shift)
(a) Month/ माह 1
(b) Month/ माह 2
(c) Month/ माह 3
(d) Month/ माह 1 and Month/ माह 3

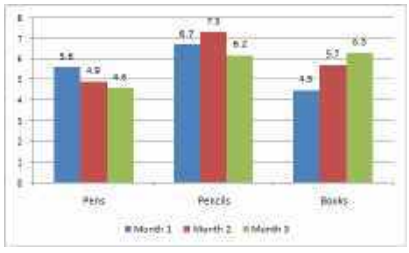
Q125. The following chart shows the sales (in thousands) of pens, pencils and books in month1, month2 and month3. Answer the question based on the chart.
निम्नलिखित चार्ट में माह1, माह2 तथा माह3 में पेन, पेंसिल और पुस्तकों की बिक्री (हजारों में) दिखाई गई है। चार्ट के आधार पर प्रश्न का उत्तर दें।



	Month 1	Month 2	Month 3
Pens	5.6	4.9	4.6
Pencils	6.7	7.3	6.2
Books	4.5	5.7	6.3

What is the average number of pens sold in the 3 months?
3 महीनों में बेची गई पेन की औसत संख्या क्या है?
CHSL 18-03-2020 (Evening shift)
(a) 3987
(b) 5432
(c) 5033
(d) 4935

Q126. The following chart shows the sales (in thousands) of pens, pencils and books in month1, month2 and month3. Answer the question based on the chart.
निम्नलिखित चार्ट में माह1, माह2 तथा माह3 में पेन, पेंसिल और पुस्तकों की बिक्री (हजारों में) दिखाई गई है। चार्ट के आधार पर प्रश्न का उत्तर दें।



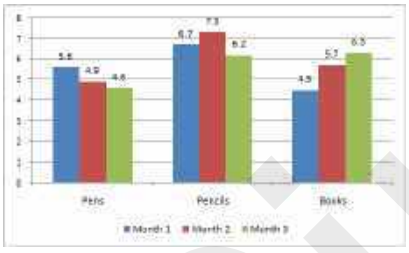
	Month 1	Month 2	Month 3
Pens	5.6	4.9	4.6
Pencils	6.7	7.3	6.2

Pinnacle

Books	4.5	5.7	6.3

Which product has the highest percentage of sales, and in which month (among all months)?
किस उत्पाद की बिक्री का प्रतिशत सबसे अधिक है,और किस महीने में (सभी महीनों में से)?
CHSL 18-03-2020 (Evening shift)
(a) Pencils; Month 3/ पेन्सिल; माह 3
(b) Pens; Month 1/ पेन ; माह 1
(c) Pencils; Month 2/ पेंसिल ; माह 2
(d) Books; Month 3/ किताबें ; माह 3

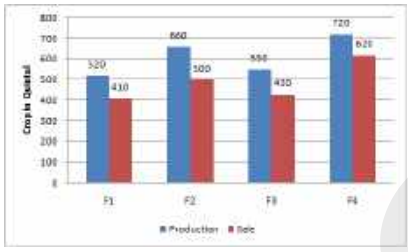
Q127. The following chart shows the sales (in thousands) of pens, pencils and books in month1, month2 and month3. Answer the question based on the chart.
निम्नलिखित चार्ट में माह1, माह2 तथा माह3 में पेन, पेंसिल और पुस्तकों की बिक्री (हजारों में) दिखाई गई है। चार्ट के आधार पर प्रश्न का उत्तर दें।



	Month 1	Month 2	Month 3
Pens	5.6	4.9	4.6
Pencils	6.7	7.3	6.2
Books	4.5	5.7	6.3

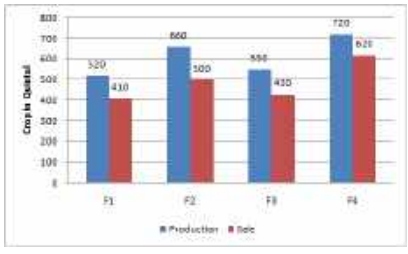
Which product has the highest sales in all 3 months?
सभी 3 महीनों में किस उत्पाद की बिक्री सबसे अधिक है?
CHSL 18-03-2020 (Evening shift)
(a) Pencils/ पेन्सिल
(b) Books/ किताबें
(c) Pens/ पेन
(d) Pens and Books/ पेन और किताबें

Q128. The bar graph represents the production and sales of a certain crop in quintals by the farmers F1, F2, F3 and F4.
दंड आरेख किसानों F 1, F 2, F 3 और F 4 द्वारा क्विंटलों में एक निश्चित फसल के उत्पादन और बिक्री को दर्शाता है।



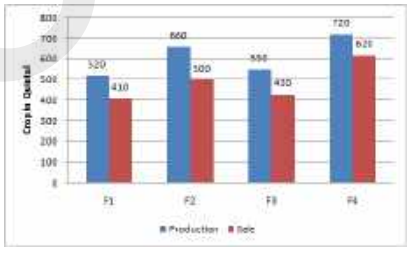
What is the percentage less in production by farmer F1 with respect to the production by farmer F2?
किसान F2 द्वारा उत्पादन के संबंध में किसान F1 द्वारा उत्पादन में कितना प्रतिशत कम है?
CHSL 19-03-2020 (Morning shift)
(a) $21\frac{7}{33}$ %
(b) $23\frac{7}{33}$ %
(c) $22\frac{7}{33}$ %
(d) $24\frac{7}{33}$ %

Q.129. The bar graph represents the production and sales of a certain crop in quintals by the farmers F1, F2, F3 and F4.
दंड आरेख किसानों F 1, F 2, F 3 और F 4 द्वारा क्विंटलों में एक निश्चित फसल के उत्पादन और बिक्री को दर्शाता है।



Which farmer recorded the highest percentage of sales with respect to production?
किस किसान ने उत्पादन के संबंध में बिक्री का उच्चतम प्रतिशत दर्ज किया गया है?
CHSL 19-03-2020 (Morning shift)
(a) F3
(b) F1
(c) F2
(d) F4

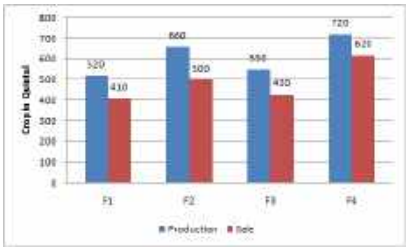
Q130. The bar graph represents the production and sales of a certain crop in quintals by the farmers F1, F2, F3 and F4.
दंड आरेख किसानों F 1, F 2, F 3 और F 4 द्वारा क्विंटलों में एक निश्चित फसल के उत्पादन और बिक्री को दर्शाता है।



What is the ratio between the total sales and total production by all farmers?
सभी किसानों द्वारा कुल बिक्री और कुल उत्पादन के बीच का अनुपात क्या है?
CHSL 19-03-2020 (Morning shift)
(a) 4 : 5
(b) 5 : 6
(c) 3 : 4
(d) 6 : 7

Q131. The bar graph represents the production and sales of a certain crop in quintals by the farmers F1, F2, F3 and F4.
दंड आरेख किसानों F 1, F 2, F 3 और F 4 द्वारा क्विंटलों में एक निश्चित फसल के उत्पादन और बिक्री को दर्शाता है।

Pinnacle



What is the average of a crop in quintals, sold by all the farmers?
सभी किसानों के द्वारा बेची गयी फसलों (क्विंटल में) का औसत क्या है?
CHSL 19-03-2020 (Morning shift)
(a) 470
(b) 490
(c) 510
(d) 530

Q132. The given bar graph shows the biscuit exports of India over a period of five years. Study the graph and answer the question that follows.
दिया गया दंड आरेख में पांच साल की अवधि में भारत के बिस्किट निर्यात को दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो पूछा गया है।



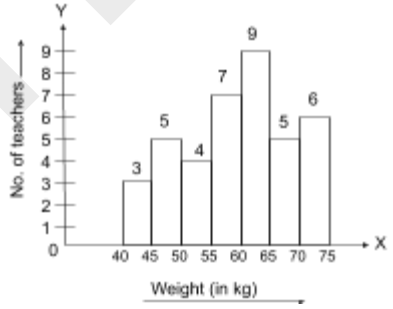
In which two years was the value per tonne equal?
किन दो वर्षों में प्रति टन मूल्य बराबर था?
CHSL 19-03-2020 (afternoon shift)
(a) 2005 and 2006
(b) 2008 and 2009
(c) 2007 and 2008
(d) 2006 and 2007

Q133. The given bar graph shows the biscuit exports of India over a period of five years. Study the graph and answer the question that follows.
दिया गया दंड आरेख में पांच साल की अवधि में भारत के बिस्किट निर्यात को दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो पूछा गया है।



What was the percentage drop in the export quantity from 2005 to 2006?
2005 से 2006 तक निर्यात की मात्रा में कितने प्रतिशत की गिरावट थी?
CHSL 19-03-2020 (afternoon shift)
(a) 75%
(b) 25%
(c) 50%
(d) 100%

Q.134. The given bar graph represents the number of teachers in different weight groups. Study the graph and answer the question that follows.
दिया गया दंड आरेख विभिन्न भार समूहों में शिक्षकों की संख्या को दर्शाता है। आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



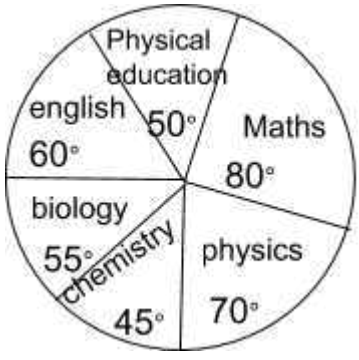
In which of the following weight groups is the number of teachers the maximum?
निम्नलिखित में से किस भार समूह में शिक्षकों की संख्या अधिकतम है?
CHSL 19-03-2020 (afternoon shift)
(a) 60-65
(b) 45-50
(c) 65-70
(d) 40-45

Q135. The given bar graph shows the biscuit exports of India over a period of five years. Study the graph and answer the question that follows.
दिया गया दंड आरेख में पांच साल की अवधि में भारत के बिस्किट निर्यात को दर्शाता है। ग्राफ़ का अध्ययन करें और उस प्रश्न का उत्तर दें जो नीचे पूछा गया है।



In which year, the percentage increase in exports was maximum from its preceding year:
किस वर्ष में निर्यात में प्रतिशत वृद्धि इसके पूर्व वर्ष से अधिकतम थी?
CHSL 19-03-2020 (afternoon shift)
(a) 2009
(b) 2006
(c) 2008
(d) 2007

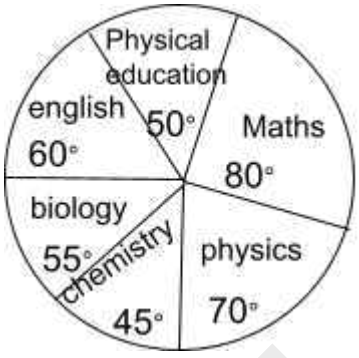
Q136. The given pie chart shows the marks obtained in an examination by a student (in degrees). Observe the pie chart and answer the question that follows:
दिया गया पाई चार्ट एक छात्र द्वारा परीक्षा में प्राप्त अंकों (डिग्री में) को दर्शाता है। पाई चार्ट का निरीक्षण करें और निम्न प्रश्न का उत्तर दें:



If the total marks are 720, then the marks obtained in Mathematics are:
यदि कुल अंक 720 हैं, तो गणित में प्राप्त अंक हैं:

CHSL 19-03-2020 (Evening shift)
(a) 80
(b) 140
(c) 120
(d) 160

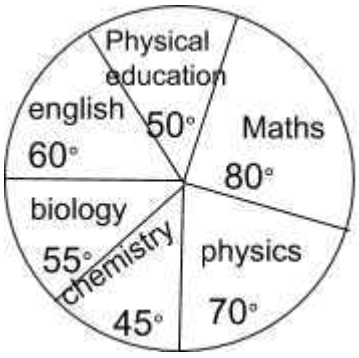
Q137. The given pie chart shows the marks obtained in an examination by a student (in degrees). Observe the pie chart and answer the question that follows:
दिया गया पाई चार्ट एक छात्र द्वारा परीक्षा में प्राप्त अंकों (डिग्री में) को दर्शाता है। पाई चार्ट का निरीक्षण करें और निम्न प्रश्न का उत्तर दें:



If the total marks are 720, then the marks obtained in English is what percentage of the marks obtained in Maths?
यदि कुल अंक 720 हैं, तो अंग्रेजी में प्राप्त अंक गणित में प्राप्त अंकों का कितना प्रतिशत है?

CHSL 19-03-2020 (Evening shift)
(a) 60%
(b) 55%
(c) 50%
(d) 75%

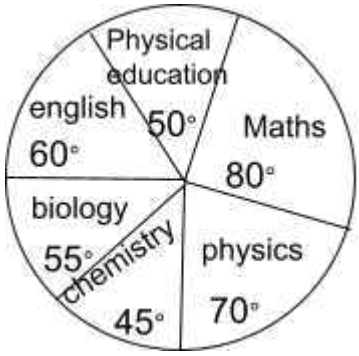
Q138. The given pie chart shows the marks obtained in an examination by a student (in degrees). Observe the pie chart and answer the question that follows:
दिया गया पाई चार्ट एक छात्र द्वारा परीक्षा में प्राप्त अंकों (डिग्री में) को दर्शाता है। पाई चार्ट का निरीक्षण करें और निम्न प्रश्न का उत्तर दें:



If total marks are 720, then the marks obtained in Chemistry, Biology and Maths together is what percentage of the total marks?
यदि कुल अंक 720 हैं, तो रसायन विज्ञान, जीव विज्ञान और गणित में प्राप्त अंक कुल अंकों का कितना प्रतिशत है?

CHSL 19-03-2020 (Evening shift)
(a) 30%
(b) 40%
(c) 50%
(d) 60%

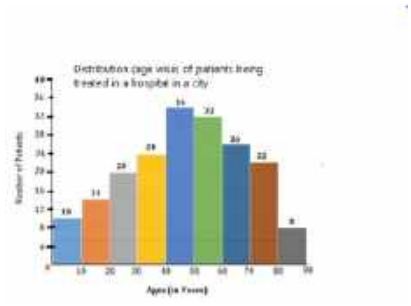
Q139. The given pie chart shows the marks obtained in an examination by a student (in degrees). Observe the pie chart and answer the question that follows:
दिया गया पाई चार्ट एक छात्र द्वारा परीक्षा में प्राप्त अंकों (डिग्री में) को दर्शाता है। पाई चार्ट का निरीक्षण करें और निम्न प्रश्न का उत्तर दें:



If the total marks are 720, then the difference between the total marks obtained in Physics, Maths and Physical Education and the total marks in Chemistry, Biology and English out of the total marks is
यदि कुल अंक 720 हैं, तो भौतिक विज्ञान, गणित और शारीरिक शिक्षा में प्राप्त कुल अंकों और कुल अंकों में से रसायन विज्ञान, जीवविज्ञान और अंग्रेजी में कुल अंकों के बीच का अंतर है:

CHSL 19-03-2020 (Evening shift)
(a) 90
(b) 110
(c) 100
(d) 80

SSC CGL 2019 TIER-II
Q140. Study the given graph and answer the question that follows.
दिए गए आरेख का अध्ययन करे और नीचे दिए गए प्रश्न का उत्तर दे।



The number of patients aged 10 or more years but below 40 years is what percent less than the number of patients aged 50 or more years but below 80 years ?
10 या उससे अधिक वर्ष लेकिन 40 वर्ष से काम आयु वाले मरीज़ों की

संख्या, 50 वर्ष या उससे अधिक लेकिन 80
वर्ष से कम आयु वाले मरीज़ों की संख्या से कितने प्रतिशत कम है ?
CGL 2019 Tier-II (15-11-2020)
(a) 30.2
(b) 25
(c) 27.5
(d) 34

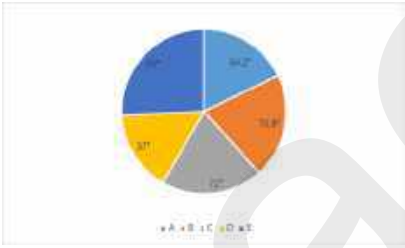
Q141. Study the given graph and answer the questions that follow.
दिए गए आरेख का अध्ययन करें और उन सवालों के जवाब दें, जो अनुसरण करते हैं।

Revenue and expenditure(in crores) of a company XYZ 2014-19



The total revenue in 2015 and 2017 is what percent of the total expenditure of the company in 2016, 2018 and 2019 (correct to one decimal place) ?
2015 और 2017 में कुल राजस्व 2016, 2018 और 2019 में कंपनी के कुल व्यय का कितना प्रतिशत है (एक दशमलव स्थान तक)?
CGL 2019 Tier-II (15-11-2020)
(a) 86.5
(b) 89.1
(c) 86.3
(d) 88.2

Q142 Study the given graph and answer the question that follows.
दिए गए आरेख का अध्ययन करें और उन सवालों के जवाब दें जो अनुसरण करते हैं।
Break up for distribution (degree wise) of the employees working in
five departments (A, B, C, D and E) in a company
एक कंपनी के पाँच विभागों (A, B, C, D और E) में कार्य करने वाले कर्मचारियों का वितरण (डिग्री अनुसार):



Total no. of employees = 3000
कर्मचारियों की कुल संख्या = 3000

If 20% of the employees working in department E are transferred to department A then the difference between the number of employees in A and 124% of the employees working in department C is:
यदि विभाग E में काम करने वाले 20% कर्मचारियों को विभाग A में स्थानांतरित किया जाता है, तो A में कर्मचारियों की संख्या और विभाग C में कार्यरत 124% कर्मचारियों के बीच का अंतर है:
CGL 2019 Tier-II (15-11-2020)
(a) 60
(b) 50
(c) 64
(d) 54

Q143. Study the given graph and answer the questions that follows
दिए गए ग्राफ़ का अध्ययन करें और उन सवालों के जवाब दें जो अनुसरण करते हैं
Break up for distribution (degree wise) of the employees working in
five departments (A, B, C, D and E) in a company
एक कंपनी के पाँच विभागों (A, B, C, D और E) में कार्य करने वाले कर्मचारियों का वितरण (डिग्री अनुसार):



Total no. of employees = 3000
कर्मचारियों की कुल संख्या = 3000

The number of employees in department B is what percent of the total number of employees working in department D and E ?
विभाग B में कर्मचारियों की संख्या विभाग D और E में कार्यरत कर्मचारियों की कुल संख्या का कितना प्रतिशत है?
CGL 2019 Tier-II (15-11-2020)
(a) 45.8
(b) 48.6
(c) 50.4
(d) 49.2

Q144. Study the given graph and answer the questions that follows
दिए गए ग्राफ़ का अध्ययन करें और उन सवालों के जवाब दें जो अनुसरण करते हैं
Break up for distribution (degree wise) of the employees working in
five departments (A, B, C, D and E) in a company
एक कंपनी के पाँच विभागों (A, B, C, D और E) में कार्य करने वाले

कर्मचारियों का वितरण (डिग्री अनुसार):



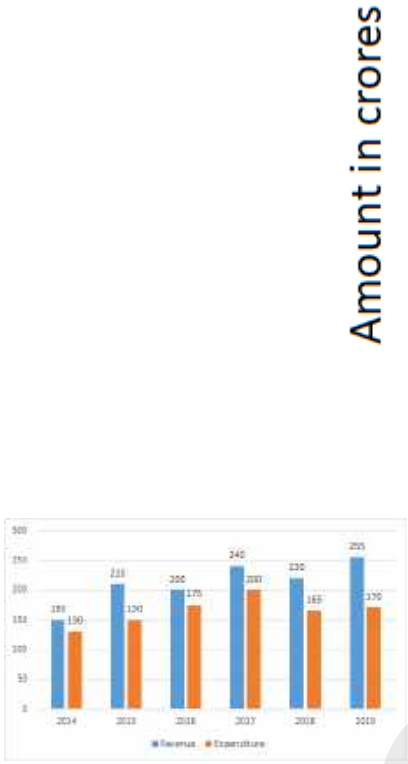
Total no. of employees = 3000
कर्मचारियों की कुल संख्या = 3000

The total number of employees working in department A and C exceeds the total number of employees working in department B and D by x. The value of x lies between:
विभाग A और C में काम करने वाले कर्मचारियों की कुल संख्या विभाग के B और D में काम करने वाले कर्मचारियों की कुल संख्या से X अधिक है। X का मान किसके बीच में है

CGL 2019 Tier-II (15-11-2020)
(a) 36 and 44
(b) 44 and 52
(c) 28 and 36
(d) 20 and 28

Q145. Study the given graph and answer the questions that follow.
दिए गए ग्राफ़ का अध्ययन करें और उन सवालों के जवाब दें जो अनुसरण करते हैं।

Revenue and expenditure(in crores) of a company XYZ 2014-19
2014-19 की अवधि में एक कंपनी XYZ का राजस्व और व्यय (करोड़ में)

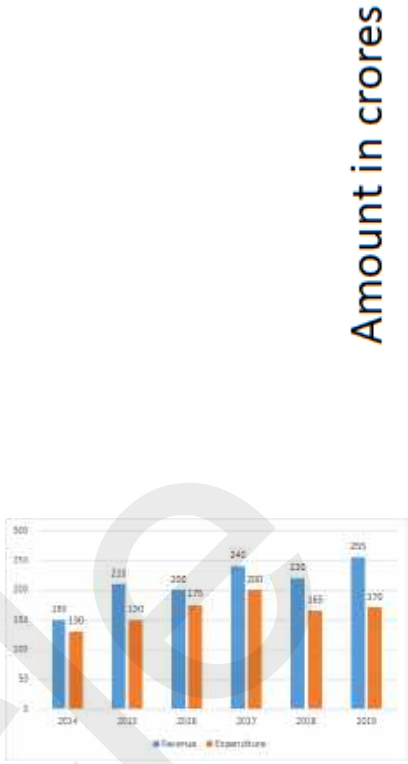


In which year was the revenue 33 $\frac{1}{3}$ % more than the average expenditure of the company during 2014 to 2019?
2014 से 2019 के दौरान किस वर्ष में कंपनी के औसत व्यय की तुलना में राजस्व 33 $\frac{1}{3}$ % अधिक था?

CGL 2019 Tier-II (15-11-2020)
(a) 2017
(b) 2016
(c) 2015
(d) 2018

Q146. Study the given graph and answer the questions that follow.
दिए गए ग्राफ़ का अध्ययन करें और उन सवालों के जवाब दें जो अनुसरण करते हैं

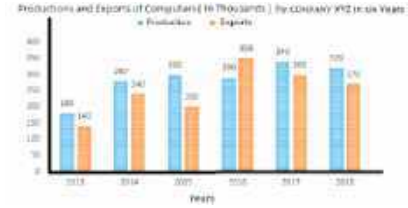
Revenue and expenditure(in crores) of a company XYZ 2014-19
2014-19 की अवधि में एक कंपनी XYZ का राजस्व और व्यय (करोड़ में)



In how many years was the profit (Revenue-Expenditure) as a percentage of the revenue more than 25%?
कितने वर्षों में राजस्व के प्रतिशत के रूप में लाभ (राजस्व-व्यय) 25% से अधिक था?

CGL 2019 Tier-II (15-11-2020)
(a) 2
(b) 1
(c) 3
(d) 4

Q147. Study the graph and answer the question that follows
आरेख का अध्ययन करें और प्रश्न का उत्तर दें।



By what percent were the total export of the computers by the company in 2013, 2014 and 2018 less than the total production of

computers in 2015 to 2017 (correct to one decimal place)?
कंपनी द्वारा वर्ष 2013, 2014 और 2018 में कंप्यूटर के कुल उत्पादन की तुलना में वर्ष 2015 से 2017 का कुल निर्यात कितने प्रतिशत कम था? (एक दशमलव स्थान तक)

CGL 2019 Tier-II (16-11-2020)

(a) 30.1
(b) 43.1
(c) 32.6
(d) 28.8

Q148. Study the graph and answer the question that follows
आरेख का अध्ययन करें और प्रश्न का उत्तर दें



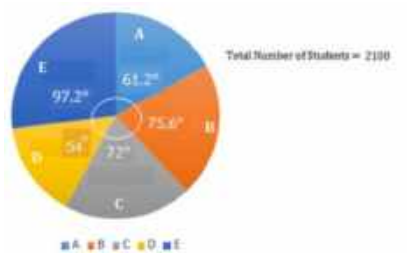
In which year was the production of computers by the company 16% more than the average exports of computers in the six years (2013 to 2018)?
किस वर्ष कंपनी के द्वारा कंप्यूटरों का उत्पादन छः वर्षों (2013 से 2018) में कंप्यूटरों के औसत निर्यात से 16% अधिक था?

CGL 2019 Tier-II (16-11-2020)

(a) 2015
(b) 2014
(c) 2016
(d) 2018

Q149. Study the pie chart and answer the question that follows
आरेख का अध्ययन करें और प्रश्न का उत्तर दें

Break up (degree wise) of students in terms of specialization in different areas (A,B,C,D&E) in MBA program.
MBA कार्यक्रम में विभिन्न क्षेत्रों (A, B, C, D और E) में विशेषज्ञता के संदर्भ में छात्रों का वितरण



The total number of students specialising in A and B exceeds the total number of students specialising in C and D by x, which lies between:
A और B में विशेषज्ञता वाले छात्रों की कुल संख्या C और D में विशेषज्ञता वाले छात्रों की संख्या से x अधिक है, जो किसके बीच में स्थित है?

CGL 2019 Tier-II (16-11-2020)

(a) 60 and 65
(b) 55 and 60
(c) 65 and 70
(d) 50 and 55

Q150. Study the graph and answer the question that follows
आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें



The total production of computers in 2013, 2015 and 2018 is x% of the total exports of computers by the company during the six years. The value of x is:
2013, 2015 और 2018 में कंप्यूटर का कुल उत्पादन छह वर्षों के दौरान कंपनी द्वारा कंप्यूटर के कुल निर्यात का x% है। X का मान है:

CGL 2019 Tier-II (16-11-2020)

(a) $53\frac{1}{3}$
(b) $49\frac{2}{3}$
(c) $52\frac{1}{3}$
(d) $46\frac{1}{3}$

Q151. Study the graph and answer the question that follows
आरेख का अध्ययन करें और उस प्रश्न का उत्तर देंI

Break up (degree wise) of students in terms of specialization in different areas (A,B,C,D&E) in MBA program.
MBA कार्यक्रम में विभिन्न क्षेत्रों (A, B, C, D और E) में विशेषज्ञता के संदर्भ में छात्रों का वितरण



If the ratio of males and females students specialising in B is 4 : 3 and that of male and female students specialising in D is 8 : 7 then the number of female students in D is what percent less than the number of male students in B (correct to one decimal places)?
यदि B में विशेषज्ञता वाले पुरुषों और महिलाओं का अनुपात 4: 3 है और D में विशेषज्ञता प्राप्त पुरुष और महिला छात्रों/छात्राओं का अनुपात 8 : 7 है, तो D में महिला छात्रों की संख्या B में पुरुष छात्रों की संख्या से कितने प्रतिशत कम है? (एक दशमलव स्थानों तक)

CGL 2019 Tier-II (16-11-2020)

(a) 40.2
(b) 55.8
(c) 71.4
(d) 41.7

Q152. Study the graph and answer the question that follows
आरेख का अध्ययन करें और प्रश्न का उत्तर दें



The number of weeks, in which the cost of living was160 or more but less than 190, is approximately what percent more

than the number of weeks in which the cost of living index was 200 or more but less than 220(correct to one decimal places)

ऐसे सप्ताहों की संख्या, जिसमें रहने की लागत 160 या उससे अधिक थी, लेकिन 190 से कम थी, उन सप्ताहों की संख्या से लगभग कितना प्रतिशत अधिक है, जिनमें रहने की लागत का सूचकांक 200 या अधिक लेकिन 220 से कम था? (दशमलव के एक स्थान तक)

CGL 2019 Tier-II (16-11-2020)

(a) 44.4
(b) 36.8
(c) 58.3
(d) 60.6

Q153. Study the graph and answer the question that follows

आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें

Break up (degree wise) of students in terms of specialization in different areas (A,B,C,D&E) in MBA program.

MBA कार्यक्रम में विभिन्न क्षेत्रों (A, B, C, D और E) में विशेषज्ञता के संदर्भ में छात्रों का वितरण



The number of students specialising in E is what percent more than that of students specialising in C?

E में विशेषज्ञता प्राप्त छात्रों की संख्या, C में विशेषज्ञता प्राप्त छात्रों की संख्या की तुलना में कितना प्रतिशत अधिक है?

CGL 2019 Tier-II (16-11-2020)

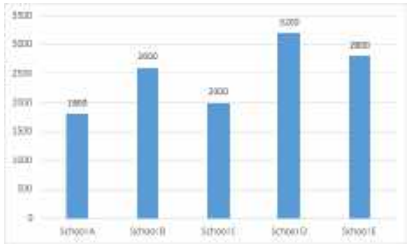
(a) 25.9
(b) 32
(c) 35
(d) 30.4

Q154. study the following bar-graph and answer the questions below

निम्नलिखित दंड आरेख का अध्ययन करें और नीचे दिए गए प्रश्नों के उत्तर दें।

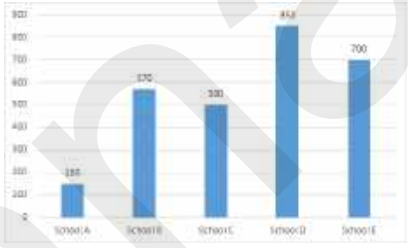
Total no. of boys and girls in school A,B,C,D and E

स्कूल A,B,C,D और E में लड़कों और लड़कियों की कुल संख्या:



Difference between the number of boys and girls in schools A, B, C, D and E.

स्कूलोंA, B, C, D और E में लड़कों और लड़कियों की संख्या के बीच अंतर।



The number of boys in school B is what percentage of the total number of students in that school ?

स्कूल B में लड़कों की संख्या उस स्कूल के छात्रों की कुल संख्या का कितना प्रतिशत है?

CGL 2019 Tier-II (18-11-2020)

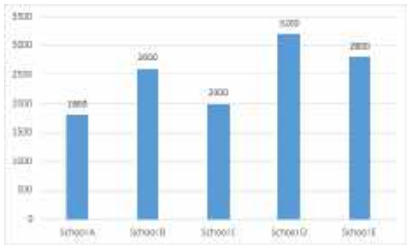
(a) 50%
(b) 55%
(c) 40%
(d) 60%

Q155. study the following bar-graph and answer the questions below

निम्नलिखित बार-आरेख का अध्ययन करें और नीचे दिए गए प्रश्नों के उत्तर दें।

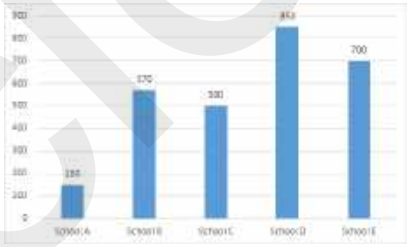
Total no. of boys and girls in school A,B,C,D and E

स्कूल A,B,C,D और E मेंलड़कों और लड़कियों के कुल संख्या



Difference between the number of boys and girls in schools A, B, C, D and E.

स्कूलों A, B, C, D और E में लड़कों और लड़कियों की संख्या के बीच अंतर।



What is the ratio of number of boys to the number of girls in school E ?

स्कूल E में लड़कियों की संख्या के लिए लड़कों की संख्या का अनुपात क्या है

CGL 2019 Tier-II (18-11-2020)

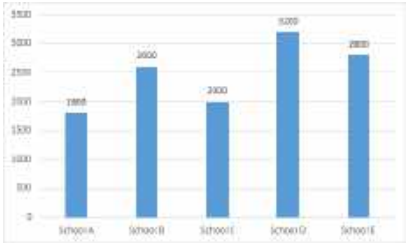
(a) 5 : 3
(b) 4 : 3
(c) 5 : 4
(d) 7 : 4

Q156. study the following bar graph and answer the questions given below.

Total number of boys and girls in school A, B, C, D and E.

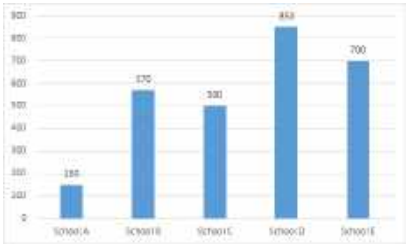
Total no. of boys and girls in school A,B,C,D and E

स्कूल A,B,C,D और E मेंलड़कों और लड़कियों के कुल संख्या



Difference between the number of boys and girls in schools A, B, C, D and E.

स्कूलों A, B, C, D और E में लड़कों और लड़कियों की संख्या के बीच अंतर।



Difference between the number of boys and girls in schools A, B, C, D and E

What is the difference between the number of girls in school A and the number of girls in school C

स्कूलों A, B C, D और E में लड़कों तथा लड़कियों की संख्या में अंतर।

स्कूल A में लड़कियों की संख्या तथा स्कूल C में लड़कियों की संख्या के बीच क्या अंतर है?

CGL 2019 Tier-II (18-11-2020)

(a) 25

(b) 20

(c) 30

(d) 35

Q157. Study the following pie-chart and table to answer the question

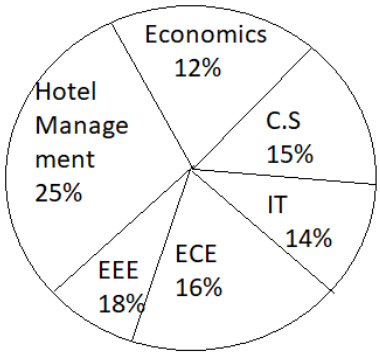
प्रश्न का उत्तर देने के लिए निम्नलिखित पाई-चार्ट और तालिका का अध्ययन करें.

Total number of students admitted in a university in various fields = 5000

Distribution of the number of students into various fields:

किसी विश्वविद्यालय में विभिन्न क्षेत्रों में नामांकित कुल छात्रों की संख्या = 5000

विभिन्न क्षेत्रों में छात्रों की संख्या का वितरण:



Field	No. of Boys
Economics	56%
C.S.	44%
I.T.	65%
E.C.E.	72%
E.E.E.	68%
Hotel Management	80%

What is the average number of boys in CS,ECE and EEE Fields?

CS, ECE और EEE क्षेत्रों में लड़कों की औसत संख्या क्या है?

CGL 2019 Tier-II (18-11-2020)

(a) 406

(b) 506

(c) 514

(d) 516

Q.158 Study the following pie-chart and table to answer the question

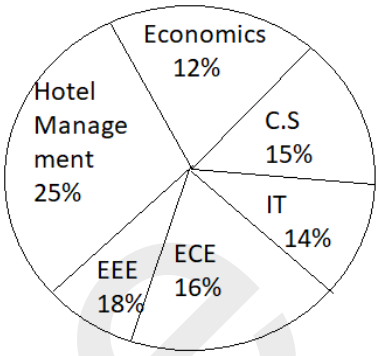
प्रश्न का उत्तर देने के लिए निम्नलिखित पाई-चार्ट और तालिका का अध्ययन करें.

Total number of students admitted in a university in various fields = 5000

Distribution of the number of students into various fields:

किसी विश्वविद्यालय में विभिन्न क्षेत्रों में नामांकित कुल छात्रों की संख्या = 5000

विभिन्न क्षेत्रों में छात्रों की संख्या का वितरण:



Field	No. of Boys
Economics	56%
C.S.	44%
I.T.	65%
E.C.E.	72%
E.E.E.	68%
Hotel Management	80%

What is the difference between the number of girls in IT and number of girls in ECE?

IT में लड़कियों की संख्या और ECE में लड़कियों की संख्या में क्या अंतर है?

CGL 2019 Tier-II (18-11-2020)

(a) 25

(b) 21

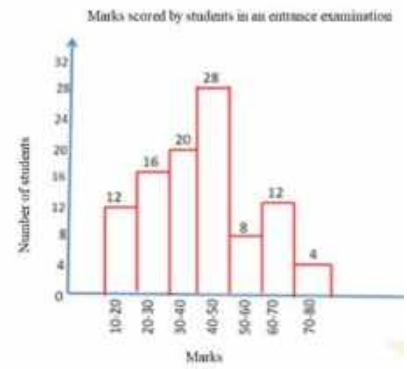
(c) 20

(d) 30

Q.159 Study the following histogram and answer the given question

निम्नलिखित आयत चित्र का अध्ययन करें और दिए गए प्रश्न का उत्तर दें।

Pinnacle



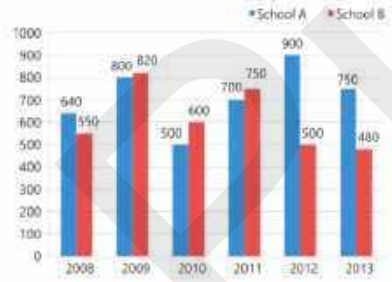
What is the ratio of the number of students who scored 30 or more marks, but below 40 marks, to the total number of students in the entrance examination ?
प्रवेश परीक्षा में 30 या अधिक लेकिन 40 से कम अंक लाने वाले छात्रों की संख्या का प्रवेश परीक्षा में शामिल कुछ छात्रों की संख्या से क्या अनुपात है?

CGL 2019 Tier-II (18-11-2020)

(a) 3 : 5
(b) 1 : 5
(c) 2 : 5
(d) 2 : 3

SSC CPO 2019

Q160. The given bar graph shows the number of students of two schools over a period of six years
दिया गया दंड आरेख में छह साल की अवधि में दो स्कूलों के छात्रों की संख्या को दर्शाता है।



In the bar graph, in which year is the sum of the students from schools A and b taken together , the minimum ?
दंड आरेख में, A और B स्कूलों के छात्रों का योग किस वर्ष में न्यूनतम है?

CPO 23-11-2020 (Morning shift)

(a) 2012
(b) 2010
(c) 2013
(d) 2011

Q161. The given bar graph shows the number of students of two schools over a period of six years.
दिया गया दंड आरेख में छह साल की अवधि में दो स्कूलों के छात्रों की संख्या को दर्शाता है।

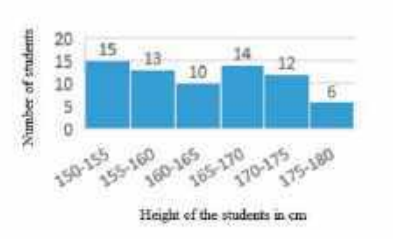


In the bar graph , what is the ratio of the students taken for the years 2009, 2011, 2013 together from school A to the students taken for the years 2008, 2012, 2013 together from school school B ?
दंड आरेख में, स्कूल A से वर्ष 2008, 2012, 2013 के लिए एक साथ और स्कूल B से वर्ष 2009, 2011, 2013 के लिए गए छात्रों का अनुपात क्या है?

CPO 23-11-2020 (Morning shift)

(a) 17 : 25
(b) 25 : 17
(c) 18 : 25
(d) 25 : 18

Q162. The given histogram shows the height of the student.
दिया गया आयत चित्र छात्रों की ऊंचाई को दर्शाता है।

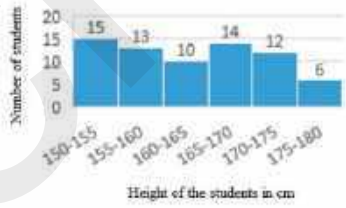


The difference between the number of students whose height is between 150- 155cm and the number of students whose height lies between 175-180cm is:
उन छात्रों की संख्या, जिनकी ऊंचाई 150- 155 सेमी है और उन छात्रों की संख्या, जिनकी ऊंचाई 175-180 सेमी है, के बीच क्या अंतर है?

CPO 23-11-2020 (Morning shift)

(a) 3
(b) 8
(c) 9
(d) 7

Q163. The given histogram shows the height of the student :
दिए गए हिस्टोग्राम छात्र की ऊंचाई को दर्शाता है|

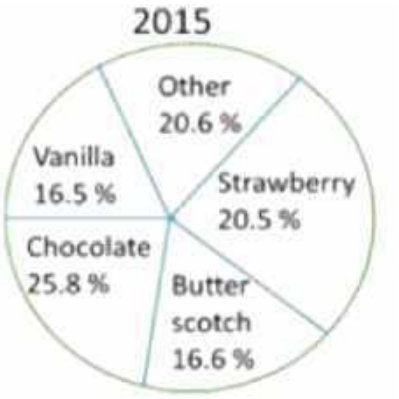


What is the percentage of students whose height is in the class interval 160-170?
उन छात्रों का प्रतिशत कितना है जिनकी ऊँचाई 160-170 के अंतराल में है?
(correct to the nearest integer) / (निकटतम पूर्णांक में)

CPO 23-11-2020 (Morning shift)

(a) 39
(b) 25
(c) 34
(d) 51

Q164.The given pie chart represents the popularity of ice-cream flavours in the year 2015.
दिया गया पाई चार्ट वर्ष 2015 में आइसक्रीम के स्वादों की लोकप्रियता को दर्शाता है।



In 2015, if the total sale of vanilla flavour is for Rs.3,300, then the total sale (in Rs.) for the chocolate flavour is:

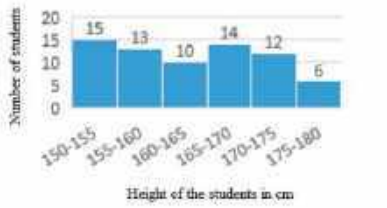
Pinnacle

2015 में, यदि वैनिला स्वाद की कुल बिक्री 3,300 रुपये की है, तो चॉकलेट स्वाद के लिए कुल बिक्री (रुपये में) ज्ञात करे।

CPO 23-11-2020 (Morning shift)

(a) 4,120
(b) 5,160
(c) 3,320
(d) 4,100

Q165. The given histogram shows the height of the student :
दिया गया आयत चित्र छात्रों की ऊंचाई को दर्शाता है।

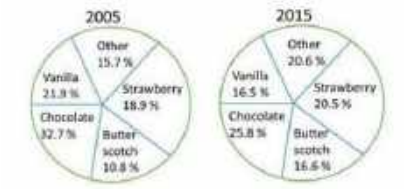


The number of students whose height is in the class interval 170-175 is what percent less than the number of students whose height is in the interval 165-170?
अंतराल 170-175 में जिन छात्रों की ऊँचाई है, उनकी संख्या 165-170 अंतराल में ऊंचाई वाले छात्रों की संख्या से कितना प्रतिशत कम है?
(correct to the nearest integer) / (निकटतम पूर्णांक में)

CPO 23-11-2020 (Morning shift)

(a) 17.3%
(b) 11.5%
(c) 14.3%
(d) 19.5%

Q166. The given pie chart represents the popularity of ice-cream flavours in the year 2005 and 2015.
दिया गया पाई चार्ट वर्ष 2005 और 2015 में आइसक्रीम के स्वादों की लोकप्रियता को दर्शाता है ।

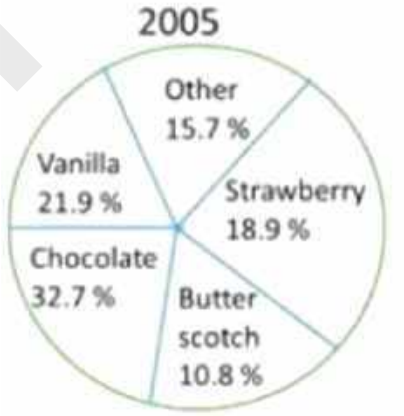


If a percentage point shift results in annual additional sales of Rs. 10,000. How much(in Rs.), did the combined annual strawberry and butterscotch sales increase from 2005 to 2015?
यदि प्रतिशत बिंदु में खिसकाव 10,000 रुपये की वार्षिक अतिरिक्त बिक्री का परिणाम देता है, तो 2005 से 2015 में स्ट्रॉबेरी और बटरस्कॉच की संयुक्त वार्षिक बिक्री में कितनी वृद्धि हुई है?

CPO 23-11-2020 (Morning shift)

(a) 65,000
(b) 74,000
(c) 37,000
(d) 10,000

Q167. The given pie chart represents the popularity of ice-cream flavours in the year 2005.
दिया गया पाई चार्ट वर्ष 2005 में आइसक्रीम के स्वादों की लोकप्रियता को दर्शाता है।

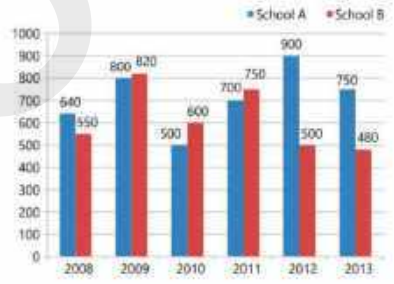


In 2005, if 10% of the 'other' category is mix fruit flavour and 1570 people surveyed preferred mix fruit flavour, then how many people were surveyed.
2005 में, यदि अन्य श्रेणी का 10% मिक्स फ्रूट स्वाद है और सर्वेक्षण में 1570 लोगों ने पसंदीदा स्वाद मिक्स फ्रूट को चुना है, तो कितने लोगों ने सर्वेक्षण में हिस्सा लिया था?

CPO 23-11-2020 (Morning shift)

(a) 1,75,000
(b) 1,00,000
(c) 1,50,000
(d) 4,00,000

Q168. The given bar graph shows the number of students of two schools over a period of six years.
दिया गया दंड आरेख छह साल की अवधि में दो स्कूलों के छात्रों की संख्या को दर्शाता है।



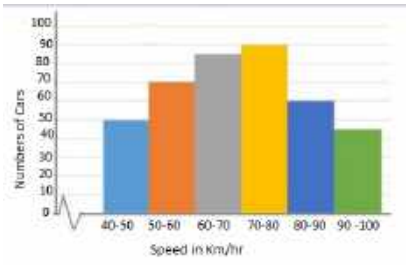
In the bar graph, What is the ratio of the average of the total students from school A to the average of the total students from school B?
दंड आरेख में, स्कूल A के कुल छात्रों के औसत का स्कूल B के कुल छात्रों के औसत से अनुपात क्या है?

CPO 23-11-2020 (Morning shift)

(a) 370 : 429
(b) 429 : 799
(c) 799 : 429
(d) 429 : 370

Q169. The given histogram shows the frequency distribution of the speed of cars passing though at a particular spot on a highway. Study the graph and answer the question that follows.

दिया गया आयत चित्र एक राजमार्ग पर किसी विशेष स्थान से गुजरने वाली कारों की गति का बारम्बारता दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें।



What percentage of cars were running with speed less than 70km/h?

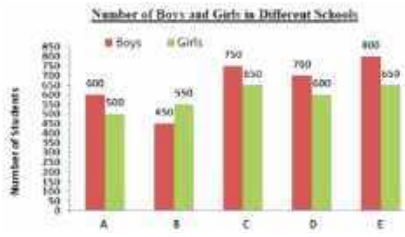
कितने प्रतिशत कारें 70 किमी / घंटा से कम गति से चल रही थींI

CPO 23-11-2020 (Evening shift)

(a) 30%
(b) 51.25%
(c) 45.75%
(d) 60%

Q170. The given bar graph represents the number of boys and girls in five different schools. Study the graph and answer the question that follows.

दिया गया दंड आरेख पांच अलग-अलग स्कूलों में लड़कों और लड़कियों की संख्या का प्रतिनिधित्व करते हैं। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो अनुसरण करता हैI



In which school is the percentage of girls the lowest?

किस स्कूल में लड़कियों का प्रतिशत सबसे कम है

CPO 23-11-2020 (Evening shift)

(a) C
(b) A
(c) E
(d) B

Q171. The given bar graph represents the number of boys and girls in five different schools. Study the graph and answer the question that follows.

दिया गया दंड आरेख पांच अलग-अलग स्कूलों में लड़कों और लड़कियों की संख्या का प्रतिनिधित्व करते हैं। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो अनुसरण करता हैI

Percentage of Employees in different dept.(Total 450 Employees)



What is the number of employees working in department B?

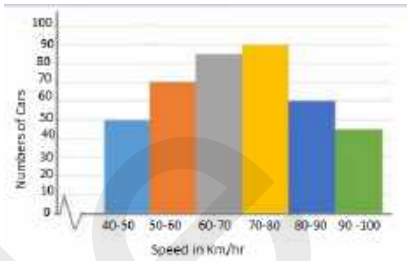
विभाग B में कार्यरत कर्मचारियों की संख्या कितनी है?

CPO 23-11-2020 (Evening shift)

(a) 36
(b) 72
(c) 63
(d) 90

Q172. The given histogram shows the frequency distribution of the speed of cars passing though at a particular spot on a highway. Study the graph and answer the question that follows:

दिए गए हिस्टोग्राम एक राजमार्ग पर किसी विशेष स्थान से गुजरने वाली कारों की गति का बारम्बारता दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें।



The number of cars with speed between 70km/hr and 80km/hr is what percentage more than the number of the cars with speed between 50km/h and 60km/h ?(correct to one decimal place)

70 किमी /घंटा और 80 किमी/घंटा के बीच गति वाली कारों की संख्या 50 किमी/घंटा और 60 किमी/घंटा के बीच की गति वाली कारों की संख्या से कितने प्रतिशत अधिक है (एक दशमलव स्थान तक)?

CPO 23-11-2020 (Evening shift)

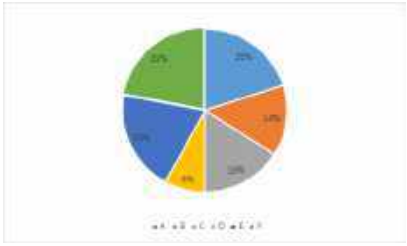
(a) 22.2%
(b) 15.5%
(c) 29.7%
(d) 28.6%

Q173. The given pie chart shows the percentage distribution of 450 employees in an organization. Study the pie chart and answer the questions that follow.

दिए गए पाई चार्ट एक संगठन में 450 कर्मचारियों के प्रतिशत को दर्शाता है। पाई चार्ट का अध्ययन करें और आने वाले प्रश्नों का उत्तर दें।

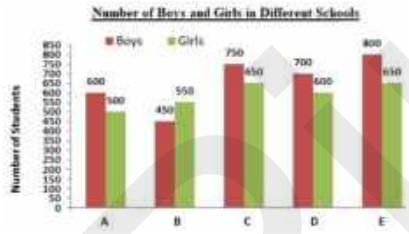
Percentage of Employees in different dept.(Total 450 Employees)

Pinnacle



What is the central angle of the sector representing the number of employees in department A?
विभाग A में कर्मचारियों की संख्या का प्रतिनिधित्व करने वाले क्षेत्र का केंद्रीय कोण क्या है?
CPO 23-11-2020 (Evening shift)
(a) 36°
(b) 90°
(c) 72°
(d) 108°

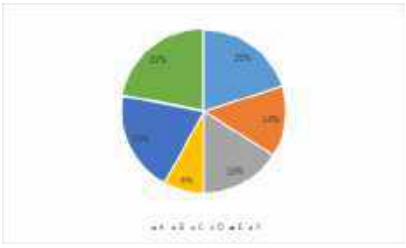
Q174. The given bar graph represents the number of boys and girls in five different schools. Study the graph and answer the question that follows
दिया गया दंड आरेख पांच अलग-अलग स्कूलों में लड़कों और लड़कियों की संख्या का प्रतिनिधित्व करते हैं। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो अनुसरण करता हैI



SCHOOLS

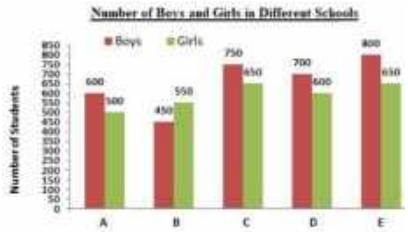
What is the ratio of girls and boys from all the schools taken together?
सभी स्कूलों के लड़कियों और लड़कों का अनुपात क्या है
CPO 23-11-2020 (Evening shift)
(a) 61 : 59
(b) 59 : 66
(c) 66 : 59
(d) 59 : 61

Q175. The given pie chart shows the percentage distribution of 450 employees in an organization. Study the pie chart and answer the questions that follow
दिए गए पाई चार्ट एक संगठन में 450 कर्मचारियों के प्रतिशत को दर्शाता है। पाई चार्ट का अध्ययन करें और आने वाले प्रश्नों का उत्तर दें।
Percentage of Employees in different dept.(Total 450 Employees)



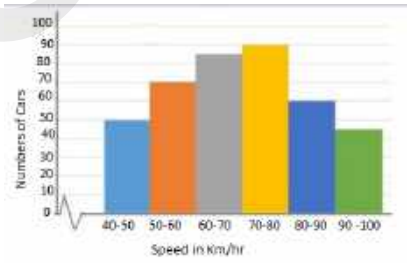
If 60% of the employees in department in department E are females, how many male employees are there in department?
यदि विभाग E में 60% कर्मचारी महिला हैं, तो विभाग में कितने पुरुष कर्मचारी हैं
CPO 23-11-2020 (Evening shift)
(a) 36
(b) 72
(c) 54
(d) 18

Q176. The given bar graph represents the number of boys and girls in five different schools. Study the graph and answer the question that follows
दिया गया दंड आरेख पांच अलग-अलग स्कूलों में लड़कों और लड़कियों की संख्या का प्रतिनिधित्व करते हैं। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो अनुसरण करता है



What is the average number of boys in school A, B, C, D and E ?
स्कूल A, B, C, D और E में लड़कों की औसत संख्या क्या है
CPO 23-11-2020 (Evening shift)
(a) 616
(b) 569
(c) 596
(d) 660

Q177. The given histogram shows the frequency distribution of the speed of cars passing though at a particular spot on a highway. Study the graph and answer the question that follows:
दिए गए हिस्टोग्राम एक राजमार्ग पर किसी विशेष स्थान से गुजरने वाली कारों की गति का बारम्बारता दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें।

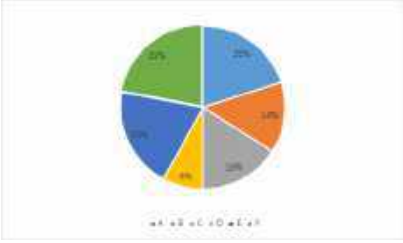


What is the ratio of the number of cars with speed less than 60km/hours to the number of cars with speed more than 80km/hr?
60 किमी / घंटा से कम गति वाली कारों की संख्या का अनुपात 80 किमी / घंटा से अधिक गति वाली कारों का अनुपात क्या है
CPO 23-11-2020 (Evening shift)
(a) 7 : 8
(b) 8 : 7
(c) 5 : 4
(d) 4: 5

Q178. The given pie chart shows the percentage distribution of 450 employees in an organisation. Read the pie chart and answer the questions that follow.
दिए गए पाई चार्ट एक संगठन में 450 कर्मचारियों के प्रतिशत को दर्शाता

है। पाई चार्ट का अध्ययन करें और आने वाले प्रश्नों का उत्तर दें|

Percentage of Employees in different dept.(Total 450 Employees)



If 75% of the employees in department D are males, how many female employees are there in that department ?

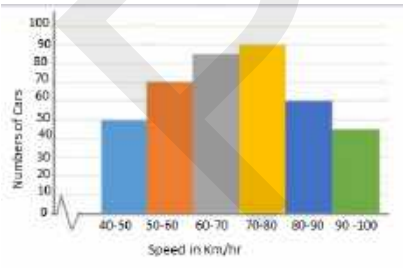
यदि विभाग D में 75% कर्मचारी पुरुष हैं, तो उस विभाग में कितनी महिला कर्मचारी हैं

CPO 24-11-2020 (Morning shift)

(a) 36
(b) 27
(c) 18
(d) 9

Q179. The given histogram shows the frequency distribution of the speed of cars passing through a particular spot on a highway. Study the graph and answer the question that follows:

दिए गए हिस्टोग्राम एक राजमार्ग पर किसी विशेष स्थान से गुजरने वाली कारों की गति का बारम्बारता दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें।



The number of cars with speed 60 (km/h) to 70km/h is what percentage less than the number of cars with speed 70 km/hr to 80 km/h? (correct to one decimal place)

60 किमी / घंटा से 70 किमी / घंटा की गति वाली कारों की संख्या 70 किमी / घंटा से 80 किमी / घंटा की गति वाली कारों की संख्या से कितने प्रतिशत कम है? (एक दशमलव स्थान तक)

CPO 24-11-2020 (Morning shift)

(a) 5.6%
(b) 7.5%
(c) 8.6%
(d) 5.9%

Q180. The given pie chart shows the percentage distribution of 450 employees in an organisation. Read the pie chart and answer the questions that follow

दिए गए पाई चार्ट एक संगठन में 450 कर्मचारियों के प्रतिशत को दर्शाता है। पाई चार्ट का अध्ययन करें और आने वाले प्रश्नों का उत्तर दें|

Percentage of Employees in different dept.(Total 450 Employees)



What is the number of employees working in department F?

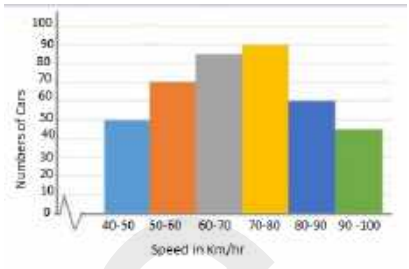
विभाग F में कार्यरत कर्मचारियों की संख्या कितनी है

CPO 24-11-2020 (Morning shift)

(a) 36
(b) 63
(c) 72
(d) 99

Q181. The given histogram shows the frequency distribution of the speed of cars passing through a particular spot on a highway. Study the graph and answer the question that follows:

दिए गए हिस्टोग्राम एक राजमार्ग पर किसी विशेष स्थान से गुजरने वाली कारों की गति का बारम्बारता दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें।



What is the ratio of the number of cars with speed less than 60km/h to the number of cars with speed more than 70 km/hr?

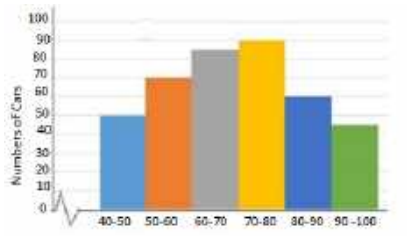
60 किमी / घंटा से कम गति वाली कारों की संख्या का अनुपात 70 किमी / घंटा से अधिक गति वाली कारों का अनुपात क्या है ?

CPO 24-11-2020 (Morning shift)

(a) 8 : 13
(b) 8 : 5
(c) 13 : 8
(d) 5 : 8

Q182. The given histogram shows the frequency distribution of the speed of cars passing through a particular spot on a highway. Study the graph and answer the question that follows:

दिए गए हिस्टोग्राम एक राजमार्ग पर किसी विशेष स्थान से गुजरने वाली कारों की गति का बारम्बारता दर्शाता है। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें।



What percentage of cars were running with the speed of 90km/hr and above ?

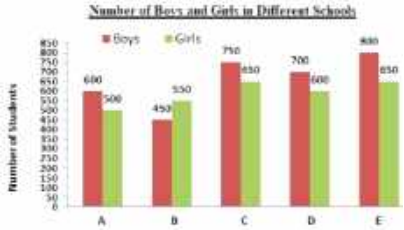
90 किमी / घंटा और उससे अधिक की गति के साथ कितने प्रतिशत कारें चल रही थीं?

CPO 24-11-2020 (Morning shift)

(a) 21.25%
(b) 10%
(c) 11.255%
(d) 15.75%

Q183. The given bar graph represents the number of boys and girls in five different schools. Study the graph and answer the question that follows

दिया गया दंड आरेख पांच अलग-अलग स्कूलों में लड़कों और लड़कियों की संख्या का प्रतिनिधित्व करते हैं। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो अनुसरण करता हैI



What is the ratio of girls from school A, B and C taken together to the boys from all schools taken together ?

स्कूल A, B और C की लड़कियों के अनुपात और सभी स्कूलों के लड़कों का अनुपात ज्ञात कीजिये

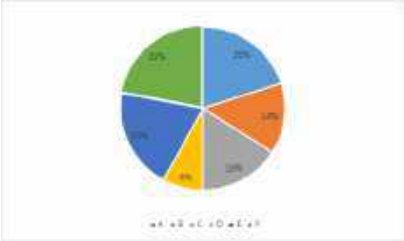
CPO 24-11-2020 (Morning shift)

(a) 66 : 59
(b) 59 : 66
(c) 17 : 33
(d) 33 : 17

Q184. The given pie chart shows the percentage distribution of 450 employees in an organization. Study the pie chart and answer the questions that follow

दिए गए पाई चार्ट एक संगठन में 450 कर्मचारियों के प्रतिशत को दर्शाता है। पाई चार्ट का अध्ययन करें और आने वाले प्रश्नों का उत्तर दें|

Percentage of Employees in different dept.(Total 450 Employees)



What is the central angle of the sector representing the number of employees in department E?

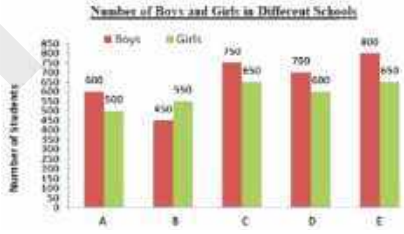
विभाग E में कर्मचारियों की संख्या का प्रतिनिधित्व करने वाले क्षेत्र का केंद्रीय कोण क्या है

CPO 24-11-2020 (Morning shift)

(a) 72°
(b) 108°
(c) 36°
(d) 90°

Q185. The given bar graph represents the number of boys and girls in five different schools. Study the graph and answer the question that follows

दिया गया दंड आरेख पांच अलग-अलग स्कूलों में लड़कों और लड़कियों की संख्या का प्रतिनिधित्व करते हैं। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो अनुसरण करता हैI



In which school is the percentage of boys more than 55%?

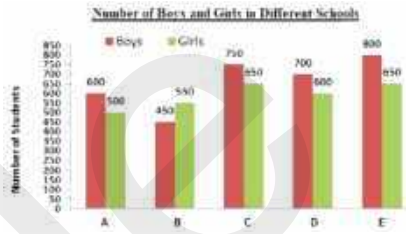
किस स्कूल में लड़कों का प्रतिशत 55% से अधिक है

CPO 24-11-2020 (Morning shift)

(a) E
(b) B
(c) C
(d) A

Q186. The given bar graph represents the number of boys and girls in five different schools. Study the graph and answer the question that follows

दिया गया दंड आरेख पांच अलग-अलग स्कूलों में लड़कों और लड़कियों की संख्या का प्रतिनिधित्व करते हैं। आरेख का अध्ययन करें और उस प्रश्न का उत्तर दें जो अनुसरण करता हैI



What is the average number of students (girls and boys) in school A, B, C, D and E?

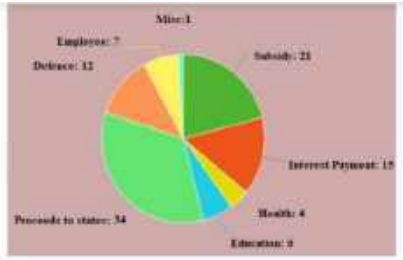
स्कूल A, B, C, D और E में छात्रों (लड़कियों और लड़कों) की औसत संख्या क्या है?

CPO 24-11-2020 (Morning shift)

(a) 1250
(b) 596
(c) 660
(d) 625

Q187. The following pie chart shows percentage expenditure of a country on different heads. The total expenditure is Rs.1,680 (in billions). Study the chart and answer the questions

निम्नलिखित पाई चार्ट अलग-अलग प्रमुखों पर किसी देश का प्रतिशत व्यय दर्शाता है। कुल खर्च रु1,680 (अरबों में)। चार्ट का अध्ययन करें और प्रश्नों का उत्तर दें |



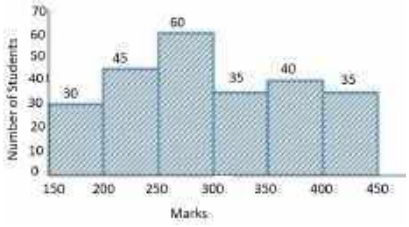
The total amount of expenditure for education and health (in billion Rs) is:

शिक्षा और स्वास्थ्य के लिए व्यय की कुल राशि (अरब रुपये में) है:

CPO 24-11-2020 (Evening shift)

(a) 84
(b) 126
(c) 168
(d) 186

Q188 Study the given histogram that shows the marks obtained by students in an examination and answer the questions that follow
दिए गए हिस्टोग्राम का अध्ययन करें जो एक परीक्षा में छात्रों द्वारा प्राप्त किए गए अंकों को दिखाता है और आने वाले प्रश्नों का उत्तर ज्ञात करे|

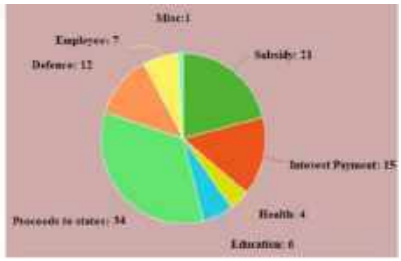


The number of students who obtained less than 250 marks is:
250 से कम अंक प्राप्त करने वाले छात्रों की संख्या है

CPO 24-11-2020 (Evening shift)

(a) 135
(b) 45
(c) 75
(d) 30

Q189. The following pie chart shows percentage expenditure of a country on different heads. The total expenditure is Rs.1,680 (in billions). Study the chart and answer the questions
निम्नलिखित पाई चार्ट अलग-अलग प्रमुखों पर किसी देश का प्रतिशत व्यय दर्शाता है। कुल खर्च रु1,680 (अरबों में)। चार्ट का अध्ययन करें और प्रश्नों का उत्तर दें |

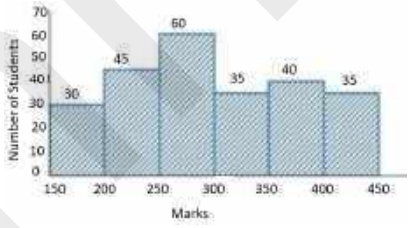


The amount of expenditure on defence is what percentage more than the expenditure on education ?
शिक्षा पर खर्च की तुलना में रक्षा पर व्यय की राशि कितना प्रतिशत अधिक है |

CPO 24-11-2020 (Evening shift)

(a) 125%
(b) 100%
(c) 50%
(d) 150%

Q190. Study the given histogram that shows the marks obtained by students in an examination and answer the questions that follow
दिए गए हिस्टोग्राम का अध्ययन करें जो एक परीक्षा में छात्रों द्वारा प्राप्त किए गए अंकों को दिखाता है और आने वाले प्रश्नों का उत्तर ज्ञात करे|

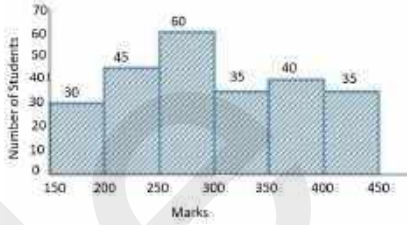


If the total marks obtained by students be represented as a pie chart, then the central angle corresponding to marks 250 or more but less than 300 is :(correct to the nearest degree)
यदि छात्रों द्वारा प्राप्त किए गए कुल अंकों को पाई चार्ट के रूप में दर्शाया जाता है, तो 250 या अधिक लेकिन 300 से कम का केंद्रीय कोण ज्ञात करे |(निकटतम डिग्री में)

CPO 24-11-2020 (Evening shift)

(a) 88°
(b) 128°
(c) 188°
(d) 68°

Q191. Study the given histogram that shows the marks obtained by students in an examination and answer the questions that follow
दिए गए हिस्टोग्राम का अध्ययन करें जो एक परीक्षा में छात्रों द्वारा प्राप्त किए गए अंकों को दिखाता है और आने वाले प्रश्नों का उत्तर ज्ञात करे|



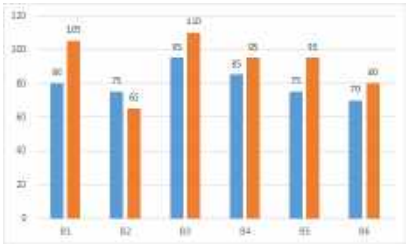
The number of students who obtained less than 350 marks is what percent more than the number of students who obtained 400 or more marks?(correct to one decimal place)
350 से कम अंक प्राप्त करने वाले छात्रों की संख्या 400 या अधिक अंक प्राप्त करने वाले छात्रों की संख्या की तुलना में प्रतिशत अधिक है| (एक दशमलव स्थान तक)

CPO 24-11-2020 (Evening shift)

(a) 100%
(b) 375.8%
(c) 385.7%
(d) 350%

Q192. The given bar graph shows the sales of cars from six branches of dealer B1, B2, B3, B4, B5, B6, during two consecutive years 2018 and 2019. Blue colour corresponds to the year 2018 and red colour corresponds to the year 2019
दिया गया दंड आरेख डीलर की छह शाखाओं से कारों की बिक्री को दर्शाता है B1, B2, B3, B4, B5, B6, लगातार दो वर्षों 2018 और 2019 के दौरान। नीला रंग 2018 को दर्शाता है और लाल रंग वर्ष 2019 को दर्शाता है।

Number of car sold



Branches

The average sale of cars (from all branches) for the year 2018 is:

वर्ष 2018 के लिए कारों (सभी शाखाओं से) की औसत बिक्री है:

CPO 24-11-2020 (Evening shift)

(a) 80

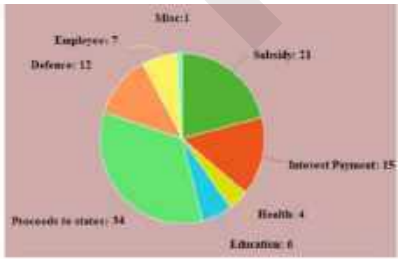
(b) 90

(c) 78

(d) 85

Q193. The following pie chart shows percentage expenditure of a country on different heads. The total expenditure is Rs.1,680 (in billions). Study the chart and answer the questions

निम्नलिखित पाई चार्ट अलग-अलग प्रमुखों पर किसी देश का प्रतिशत व्यय दर्शाता है। कुल खर्च रु1,680 (अरबों में)। चार्ट का अध्ययन करें और प्रश्नों का उत्तर दें|



The central angle of the sector representing expenditure on subsidy is :

सब्सिडी पर व्यय का प्रतिनिधित्व करने वाले क्षेत्र का केंद्रीय कोण ज्ञात करे|

CPO 24-11-2020 (Evening shift)

(a) 75.6°

(b) 54.9°

(c) 90°

(d) 108.3°

Q194. The given bar graph shows the sales of cars from six branches of dealer B1, B2, B3, B4, B5, B6, during two consecutive years 2018 and 2019. Blue colour corresponds to the year 2018 and red colour corresponds to the year 2019.

दिया गया दंड आरेख डीलर की छह शाखाओं से कारों की बिक्री को दर्शाता है B1, B2, B3, B4, B5, B6, लगातार दो वर्षों 2018 और 2019 के दौरान। नीला रंग 2018 को दर्शाता है और लाल रंग वर्ष 2019 को दर्शाता है।



In the bar graph, the ratio of the total sales from branches B1, B2 and B3 taken together for the year 2018 to the sales from the branches B6, B4 and B5 for the year 2019 is :

दंड आरेख में, शाखाओं B1, B2 और B3 से कुल बिक्री वर्ष 2018 में और शाखाओं B6, B4 और B5 से वर्ष 2019 में किस अनुपात में है|

CPO 24-11-2020 (Evening shift)

(a) 25 : 27

(b) 27 : 25

(c) 25 : 29

(d) 29 : 25

Q195. The given bar graph shows the sales of cars from six branches of dealer B1, B2, B3, B4, B5, B6, during two consecutive years 2018 and 2019. Blue colour corresponds to the year 2018 and red colour corresponds to the year 2019.

दिया गया दंड आरेख डीलर की छह शाखाओं से कारों की बिक्री को दर्शाता है B1, B2, B3, B4, B5, B6, लगातार दो वर्षों 2018 और 2019 के दौरान। नीला रंग 2018 को दर्शाता है और लाल रंग वर्ष 2019 को दर्शाता है।



The total sale of cars from all the branches in the year 2018 is what percentage less than the total sales of cars from all the branches in the year 2019?(correct to one decimal place)

वर्ष 2018 में सभी शाखाओं से कारों की कुल बिक्री 2019 में सभी शाखाओं से कारों की कुल बिक्री की तुलना में कितने प्रतिशत कम है? (एक दशमलव स्थान तक)

CPO 24-11-2020 (Evening shift)

(a) 13.5%

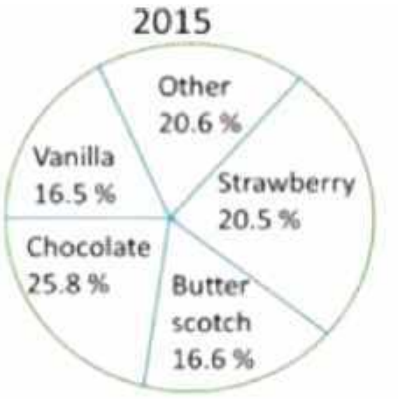
(b) 12.7%

(c) 14.3%

(d) 11.9%

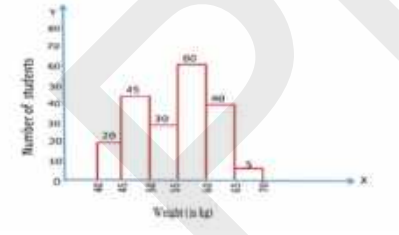
Q196. The given pie chart represents the popularity of ice-cream flavours in the year 2015

दिए गए पाई चार्ट वर्ष 2015 में आइसक्रीम के स्वादों की लोकप्रियता को दर्शाता हैं



In 2015, if the total sale of chocolate flavour if for Rs. 5,160 then the total sale (in Rs.) for vanilla flavour is:
2015 में, अगर चॉकलेट के स्वाद की कुल बिक्री 5,160 रुपये है तो वनीला स्वाद के लिए कुल बिक्री (रुपये में) है|
CPO 25-11-2020 (Morning shift)
(a) 5,160
(b) 4,100
(c) 3,300
(d) 4,120

Q197. The following histogram shows the weight of the students of class X in a school on a particular day. Total number of students enrolled in the class X = 200.
निम्नलिखित हिस्टोग्राम किसी एक दिन पर एक स्कूल में दसवीं कक्षा के छात्रों के वजन को दर्शाता है। कक्षा X = 200 में नामांकित कुल छात्र।



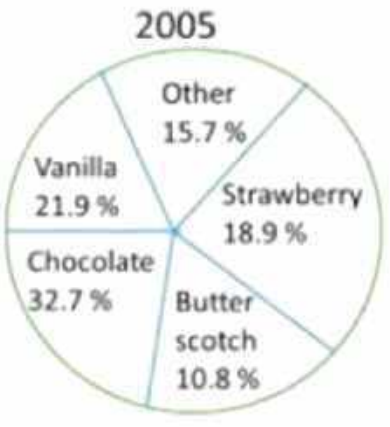
The number of students weighing less than 55kg is what percentage less than the number of students weighing 55kg to 65kg?
55 किग्रा से कम वजन वाले छात्रों की संख्या 55 किग्रा से किग्रा तक वाले छात्रों की संख्या से कितने प्रतिशत काम है ज्ञात करे|
CPO 25-11-2020 (Morning shift)
(a) 8%
(b) 5%
(c) 10%
(d) 7%

Q198.The given bar graph shows the number of students of two schools over a period of six years.
दिया गया दंड आरेख में छह साल की अवधि में दो स्कूलों के छात्रों की संख्या दिखाई गई है।



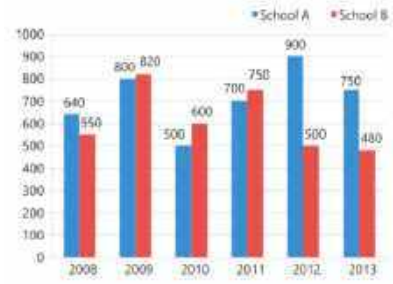
In the bar graph, what is the ratio of the students taken for the years 2008, 2012, 2013 together from school A to the students taken for the years 2009, 2010, 2011 together from school B?
CPO 25-11-2020 (Morning shift)
(a) 217 : 229
(b) 251 : 118
(c) 118 : 251
(d) 229 : 217

Q199. The given pie chart represents the popularity of ice-cream flavours in the year 2015
दिए गए पाई चार्ट वर्ष 2015 में आइसक्रीम के स्वादों की लोकप्रियता को दर्शाता हैI



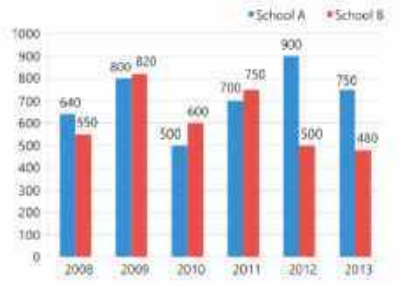
In 2005, if 40% of the 'other' category is mix fruit flavour and 1570 people surveyed preferred mix fruit flavour, then how many people were surveyed?
2005 में, यदि अन्य श्रेणी का 40% मिक्स फ्रूट स्वाद है और 1570 लोगों ने पसंदीदा मिक्स फ्रूट स्वाद है सर्वेक्षण में पता लगा है, तो कितने लोगों का सर्वेक्षण में हिस्सा लिया था|
CPO 25-11-2020 (Morning shift)
(a) 25,000
(b) 50,000
(c) 10,000
(d) 75,000

Q200. The given bar graph shows the number of students of two schools over a period of six years
दिया गया दंड आरेख में छह साल की अवधि में दो स्कूलों के छात्रों की संख्या दिखाई गई है



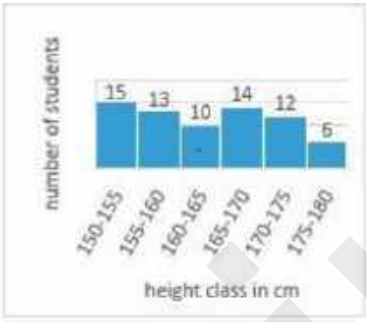
In the bar graph, in which year is the absolute difference of the students from schools A to B taken together, the maximum?
दंड आरेख में, किस वर्ष में A और B के विद्यालयों के छात्रों का पूर्ण अंतर, अधिकतम है
CPO 25-11-2020 (Morning shift)
(a) 2011
(b) 2013
(c) 2010
(d) 2012

Q201. The given bar graph shows the number of students of two schools over a period of six years
दिया गया दंड आरेख में छह साल की अवधि में दो स्कूलों के छात्रों की संख्या दिखाई गई है



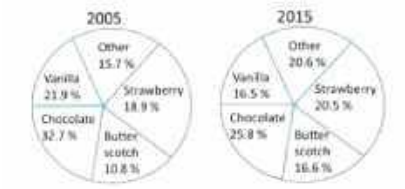
In the bar graph, what is the ratio of the average of total students from school B to the average of total students from school A?
दंड आरेख में, स्कूल B से कुल छात्रों के औसत में स्कूल A से कुल छात्रों के औसत का अनुपात क्या है|
CPO 25-11-2020 (Morning shift)
(a) 799 : 429
(b) 429 : 799
(c) 429 : 370
(d) 370 : 429

Q202. The given histogram shows the height of the students:
दिए गए हिस्टोग्राम छात्रों की लम्बाई को दर्शाता है



What is the percentage of students whose height is in the class interval 165-175?
उन छात्रों का प्रतिशत कितना है जिनकी लम्बाई 165-175 के अंतराल में है
CPO 25-11-2020 (Morning shift)
(a) 37
(b) 25
(c) 39
(d) 34

Q203. The given pie chart represents the popularity of ice-cream flavours in the years 2005 and 2015
दिए गए पाई चार्ट वर्ष 2005 और 2015 में आइसक्रीम के स्वादों की लोकप्रियता को दर्शाता हैं



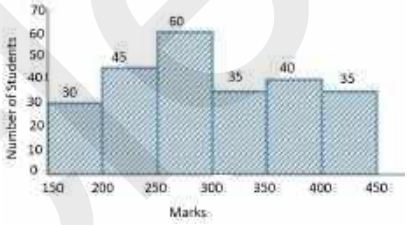
If a percentage point shift results in annual addition sales of Rs. 5,000. How much (in Rs.), did the combined annual strawberry and butterscotch sales from 2005 to 2015?
यदि प्रतिशत बिंदु चक्र 10,000 रु की वार्षिक अतिरिक्त बिक्री में बदलता है । तो 2005 और 2015 में स्ट्रॉबेरी और बटरस्कॉच की संयुक्त वार्षिक बिक्री में कितनी वृद्धि की होगी |
CPO 25-11-2020 (Morning shift)
(a) 74,000
(b) 65,000
(c) 37,000
(d) 10,000

Q204. The given histogram shows the height of the students.
दिए गए हिस्टोग्राम छात्रों की लम्बाई को दर्शाता है



The number of students whose height is in the class interval 165-170 is what percentage less than the number of students whose height is in the interval 150-155?
कक्षा अंतराल 165-170 में जिन छात्रों की लम्बाई है, उन छात्रों की संख्या प्रतिशत में कितना कम है लम्बाई अंतराल 150-155 से ज्ञात करे |
CPO 25-11-2020 (Morning shift)
(a) 1.9%
(b) 6.7%
(c) 5.5%
(d) 4.8%

Q205. Study the given histogram that shows the marks obtained by students in an examination and answer the question that follows:
दिए गए हिस्टोग्राम का अध्ययन करें जो एक परीक्षा में छात्रों द्वारा प्राप्त किए गए अंकों को दिखाता है और निम्न प्रश्न का उत्तर दे|



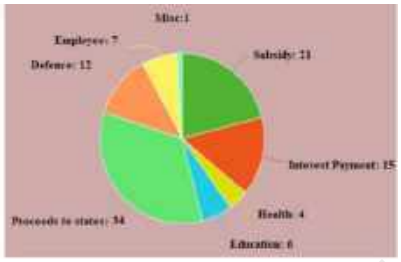
The number of students who obtained less than 200 marks is:
200 से कम अंक प्राप्त करने वाले छात्रों की संख्या है:
CPO 25-11-2020 (Evening shift)
(a) 45
(b) 75
(c) 135
(d) 30

Q206. The number of students in class XI in science, arts and commerce stream of a school over a period of 4 years (2011-2014) has been depicted through the bar chart given below:
4 साल (2011-2014) की अवधि में स्कूल के विज्ञान, कला और वाणिज्य स्ट्रीम में ग्यारहवीं कक्षा में छात्रों की संख्या को नीचे दिए गए दंड आरेख के माध्यम से दर्शाया गया है|



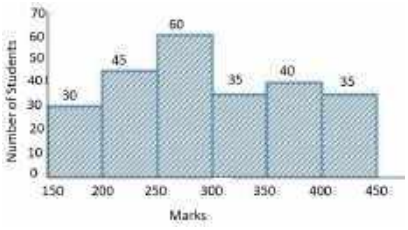
What is the average of the number of arts students in the given class over the given period of 4 years?
4 वर्ष की दी गई अवधि में दी गई कक्षा में आर्ट्स के छात्रों की संख्या का औसत क्या है
CPO 25-11-2020 (Evening shift)
(a) 30
(b) 25
(c) 32
(d) 35

Q207. The following pie chart shows percentage expenditure of a country on different heads. The total expenditure in Rs. 1,680(in billion). Study the chart and answer the question.
निम्नलिखित पाई चार्ट अलग-अलग प्रमुखों पर किसी देश का प्रतिशत व्यय दर्शाता है। 1,680 (बिलियन में) कुल खर्च। चार्ट का अध्ययन करें और प्रश्न का उत्तर दें।



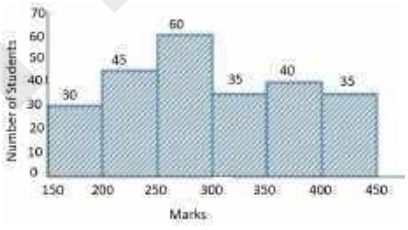
The expenditure for proceeds to state (in billion ₹) is:
CPO 25-11-2020 (Evening shift)
(a) 571.20
(b) 126
(c) 684
(d) 586.50

Q208. Study the given histogram that shows the marks obtained by students in an examination and answer the question that follows.
दिए गए हिस्टोग्राम का अध्ययन करें जो एक परीक्षा में छात्रों द्वारा प्राप्त किए गए अंकों को दिखाता है और निम्न प्रश्न का उत्तर दे|



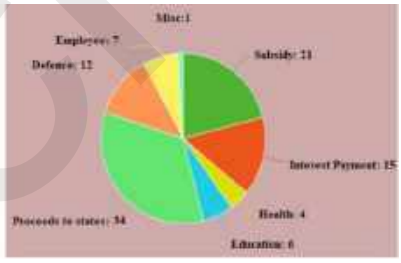
If the total marks obtained by students be represented as a pie chart, then the central angle of the sector representing marks 200 or more but less than 300, is :(correct to one decimal place)
यदि छात्रों द्वारा प्राप्त कुल अंकों को पाई चार्ट के रूप में दर्शाया जाता है, तो 200 या अधिक और 300 से कम अंकों का प्रतिनिधित्व करने वाले क्षेत्र का केंद्रीय कोण है: (एक दशमलव स्थान के लिए सही)
CPO 25-11-2020 (Evening shift)
(a) 68°
(b) 88°
(c) 154°
(d) 128°

Q209. Study the given histogram that shows the marks obtained by students in an examination and answer the question that follows:
दिए गए हिस्टोग्राम का अध्ययन करें जो एक परीक्षा में छात्रों द्वारा प्राप्त किए गए अंकों को दिखाता है और निम्न प्रश्न का उत्तर दे|



The number of students who obtained less than 250 marks is what percent more than the number of student who obtained 400 or more marks ?(correct to one decimal place)
250 से कम अंक प्राप्त करने वाले छात्रों की संख्या 400 या अधिक अंक प्राप्त करने वाले छात्र की संख्या से कितने प्रतिशत अधिक है? (एक दशमलव तक)
CPO 25-11-2020 (Evening shift)
(a) 150%
(b) 175.8%
(c) 114.35
(d) 100%

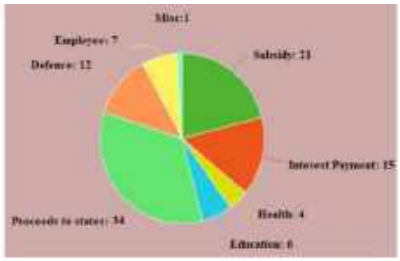
Q210. The following pie chart shows percentage expenditure of a country on different heads. The total expenditure in Rs. 1,680(in billion). Study the chart and answer the question.
निम्नलिखित पाई चार्ट अलग-अलग प्रमुखों पर किसी देश का प्रतिशत व्यय दर्शाता है। 1,680 (बिलियन में) कुल खर्च। चार्ट का अध्ययन करें और प्रश्न का उत्तर दें।



The expenditure on Education is what percentage less than the expenditure on defence ?
शिक्षा पर व्यय रक्षा पर व्यय से कितना प्रतिशत कम है|
CPO 25-11-2020 (Evening shift)
(a) 125%
(b) 150%
(c) 100%
(d) 50%

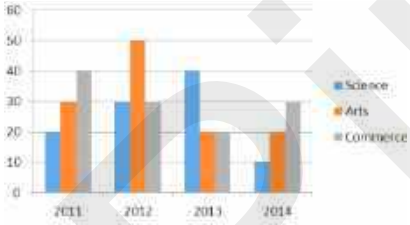
Q211. The following pie chart shows percentage expenditure of a country on different heads. The total expenditure in Rs. 1,680(in billion). Study the chart and answer the question.
निम्नलिखित पाई चार्ट अलग-अलग प्रमुखों पर किसी देश का प्रतिशत व्यय दर्शाता है। 1,680 (बिलियन में) कुल खर्च। चार्ट का अध्ययन करें और प्रश्न का उत्तर दें।

Pinnacle



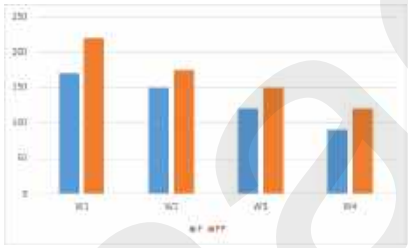
The central angle of the sector representing expenditure on interest payment is:
ब्याज भुगतान पर व्यय का प्रतिनिधित्व करने वाले क्षेत्र का केंद्रीय कोण है
CPO 25-11-2020 (Evening shift)
(a) 72°
(b) 90°
(c) 54°
(d) 108°

Q212. The number of students in class XI in science, arts and commerce stream of a school over a period of 4 years (2011-2014) has been depicted through the bar chart given below:
4 साल (2011-2014) की अवधि में स्कूल के विज्ञान, कला और वाणिज्य स्ट्रीम में ग्यारहवीं कक्षा में छात्रों की संख्या को नीचे दिए गए दंड आरेख के माध्यम से दर्शाया गया है|



What is the difference between the averages of the number of science and commerce students in the given class over the given period of 4 years?
4 वर्ष की दी गई अवधि में दिए गए वर्ग में विज्ञान और वाणिज्य छात्रों की संख्या के औसत के बीच क्या अंतर है
CPO 25-11-2020 (Evening shift)
(a) 5
(b) 8
(c) 10
(d) 12

Q213. The fasting blood sugar level (F) and the post prandial blood sugar level (PP) of a patient was monitored for weeks W1, W2, W3, W4, and the readings (in mg/dl) for the four weeks are as follows:
फास्टिंग ब्लड शुगर लेवल (F) और एक मरीज के पोस्ट प्रैंडियल ब्लड शुगर लेवल (PP) पर हफ्ते W1, W2, W3, W4, और रीडिंग (mg / dl में) चार हफ्तों तक निगरानी की जाती है।
F/PP: 170/220, 150/180, 120/150, 90/120.
These have been presented through a bar graph. The normal range is considered to be :
F/PP: 70-100/100-130



During which week was the fasting blood sugar level of the patient approximately 115.4% above the upper limit of normal PP blood sugar level?
CPO 25-11-2020 (Evening shift)
(a) W3
(b) W4
(c) W1
(d) W2

Pinnacle

SOLUTION:

Sol 1. (b)
Total cars of type E produced = 20+42+40+35+43 = 180
Type E cars produced in year 2013 = 42
The desired central angle of the sector = $\frac{42}{180}$ x 360 = 84°

Sol 2. (a)
The total production of cars of type A in 2014 and type C in 2013 = 48+36 = 84
The total production of cars of type B in 2016 and type E in 2015 = 56+35 = 91
Desired ratio = 84:91
= 12 : 13

Sol 3. (a)
total production of type B cars in 2012, 2014 and 2015 = 42+40+38 = 120
total production of type A cars in 2013 and 2016 = 35+56 = 91
Desired %age = $\frac{120-91}{91}$ x 100 = 31.9

Sol 4. (d)
the average production of type D cars = $\frac{51+24+30+46+54}{5}$ = 41
Years in which the production of cars of type B is less than the average production of type D cars is 2014 and 2015.

Sol 5. (a)
Total students in colleges D,E and F = 1800 x ($\frac{22+10+16}{100}$)
Number of girls in colleges D,E and F = 1800 x [($\frac{22}{100}$ x $\frac{5}{6+5}$)+($\frac{10}{100}$ x $\frac{3}{2+3}$)+($\frac{16}{100}$ x $\frac{7}{7+9}$)]

= 1800 x ($\frac{10+6+7}{100}$)
Desired %age = $\frac{1800 \times (\frac{10+6+7}{100})}{1800 \times (\frac{22+10+16}{100})}$ x 100 = 47.9

Sol 6. (a)
Number of the girls transferred from college A to college E = 1800 × $\frac{20}{100}$ x $\frac{5}{4+5}$ x $\frac{10}{100}$ =20
Number of students in the college E = 1800 × $\frac{10}{100}$ = 180
Number of the girls in the college E = 1800 × $\frac{10}{100}$ x $\frac{3}{2+3}$ = 108
Percentage of girls in college E before transfer = $\frac{108}{180}$ x 100 = 60%
Percentage of girls in college E after transfer = $\frac{108+20}{180+20}$ x 100 = 64%
Desired answer = 64-60 = 4%

Sol 7. (d)
Number of boys in colleges A and B = 1800 x ($\frac{20}{100}$ x $\frac{4}{4+5}$ + $\frac{18}{100}$ x $\frac{1}{1+2}$)
= 268
Number of girls in colleges A and B = 1800 x ($\frac{20}{100}$ x $\frac{5}{4+5}$ + $\frac{18}{100}$ x $\frac{2}{1+2}$)
= 416
Desired ratio = 268 : 416
= 67 : 104

Sol 8. (d)
percentage difference between the number of boys and girls in college A = $\frac{5-4}{5+4}$ x 100 = 11 $\frac{1}{9}$ %
percentage difference between the number of boys and girls in college E = $\frac{3-2}{3+2}$ x 100 = 20%
percentage difference between the number of boys and girls in college C = $\frac{4-3}{4+3}$ x 100 = 14 $\frac{2}{7}$ %
percentage difference between the number of boys and girls in college D = $\frac{6-5}{6+5}$ x 100 = 9 $\frac{1}{11}$ %
Clearly option D is the right answer.

Sol 9. (c)
Desired ratio = 18 : 21
= 6 : 7

Sol 10. (c)
Number of boys in college = 2600($\frac{20}{100}$ x $\frac{3}{2+3}$ + $\frac{18}{100}$ x $\frac{4}{4+5}$ + $\frac{21}{100}$ x $\frac{3}{3+4}$ + $\frac{22}{100}$ x $\frac{6}{6+5}$ + $\frac{19}{100}$ x $\frac{9}{9+10}$)
= 2600 x ($\frac{12}{100}$ + $\frac{8}{100}$ + $\frac{9}{100}$ + $\frac{12}{100}$ + $\frac{9}{100}$)= 1300
⇒ Number of girls = 2600-1300 = 1300
Desired ratio = 1300 : 1300
= 1 : 1

Sol 11. (c)
Number of girls in ME stream = 2600 x $\frac{22}{100}$ x $\frac{5}{6+5}$ = 260
Total number of girls in the college = 2600($\frac{20}{100}$ x $\frac{2}{2+3}$ + $\frac{18}{100}$ x $\frac{5}{4+5}$ + $\frac{21}{100}$ x $\frac{4}{3+4}$ + $\frac{22}{100}$ x $\frac{5}{6+5}$ + $\frac{19}{100}$ x $\frac{10}{9+10}$)= 1300
Desired angle = $\frac{260}{1300}$ x 360 = 72°

Sol 12. (a)
difference in the percentage of boys and girls in stream EC = $\frac{10-9}{9+10}$ x 100 = 5 $\frac{5}{19}$ %
difference in the percentage of boys and girls in stream CS = $\frac{5-4}{5+4}$ x 100 =
11 $\frac{1}{9}$ %
difference in the percentage of boys and girls in stream IT = $\frac{4-3}{3+4}$ x 100 =
14 $\frac{2}{7}$ %
difference in the percentage of boys and girls in stream ME = $\frac{6-5}{6+5}$ x 100 =
9 $\frac{1}{11}$ %
Clearly option A is the right answer.

Sol 13.(d)
The total number of type B,D and E vehicles exported in 2014 = 25+45+50 = 120
The total number of type A, C, D and E vehicles exported in 2015 = 35+40+55+57 = 187
Desired %age = $\frac{120}{187}$ x 100 ≈64.2 %

Sol 14. (b)
Total number of type A and C vehicles exported in 2014 = 27+43 = 70
Total number of type B and E vehicles exported in 2015 = 33+57 = 90
Desired ratio = 70 : 90
= 7 : 9

Sol 15. (a)
%age increase in export of type B vehicle in 2015 = $\frac{33-25}{25}$ x 100 = 32%
Note : We don't need to check further options as we got the answer in option A only.

Sol 16. (a)
Average number of type A, B and D vehicles exported in 2015 = $\frac{35+33+55}{3}$ = 41
The number of type E vehicles exported in 2014 = 50
$\Rightarrow X = \frac{50-41}{50}$ x 100 = 18%

Sol 17. (d)
the average temperature on the 3rd sunday in all the cities = $\frac{31+18+10}{3} \approx 19.7$

Sol 18. (b)
the maximum temperature recorded in Delhi is 18.9 which was recorded on 1st sunday.

Sol 19. (a)
Temperature of Mumbai on the 2nd Sunday = 21.2
Temperature of Delhi on the 2nd Sunday = 14
Desired difference = 21.2-14 = 7.2

Sol 20. (c)
Had A scored 100 in 4th and 6th matches total score of A in all the matches together = 123+12+45+100+158+100 = 538
Desired average = $\frac{538}{6} \approx 89.7$

Sol 21. (c)
Score in 2nd match = 12
Score in 4th match = 72
Clearly the score in match 4 increased by 72-12 = 60

Sol 22. (d)
Total runs scored in all the matches = 123+12+45+72+158+96 = 506
Desired average = $\frac{506}{6} = 84\frac{1}{3} \approx 84$

Sol 23. (d)
Marks in Mathematics in 2008 = 38
Marks in Mathematics in 2012 = 72
Desired %age = $\frac{72-38}{38}$ x 100 = 89.47 $\approx$ 89

Sol 24. (a)
Lowest marks scored in 2010 is 10 which are scored in english.

Sol 25. (b)
number of marks in social studies in year 2012 = 65
Let N be the total number of students.
According to the question
N x $\frac{13}{100}$ = 65
$\Rightarrow$ N = 500

Sol 26. (b)
Decrease % in May = $\frac{450-400}{450}$ x 100 = $11\frac{1}{9}$ %
Decrease % in February = $\frac{350-300}{350}$ x 100 = $14\frac{2}{7}$ %
Decrease % in April = $\frac{200-180}{200}$ x 100 = 10%
Increase % in January = $\frac{230-220}{220}$ x 100 = $4\frac{6}{11}$ %
Clearly option B is the right answer.

Sol 27. (b)
Decrease % in April = $\frac{200-180}{200}$ x 100 = 10%
Increase % in March = $\frac{240-110}{110}$ x 100 = $118\frac{2}{11}$ %
Increase % in January = $\frac{230-220}{220}$ x 100 = $4\frac{6}{11}$ %
Decrease % in May = $\frac{450-400}{450}$ x 100 = $11\frac{1}{9}$ %
Clearly option B is the right answer.

Sol 28. (a)
Total sale in 2017 = 450+200+110+350+220 = 1330
Total sale in 2018 = 400+180+240+300+230 = 1350
Desired %age = $\frac{1350-1330}{1330}$ x 100 $\approx$ 1.5%

Sol 29. (a)
Production of product A in 2007 = 7000
Sales of product A in 2007 = 7000 x $\frac{75}{100}$ = 5250
Production of product B in 2007 = 9000
Sales of product B in 2007 = 9000 x $\frac{56}{100}$ = 5040
Total sales of product A and product B = 5250+5040 = 10290

Sol 30. (d)
Production of product B in 2004 = 8500
Sales of product B in 2004 = 8500 x $\frac{55}{100}$ = 4675
Production of product B in 2008 = 11000
Sales of product B in 2008 = 11000 x $\frac{65}{100}$ = 7150
Total sales of product B in 2004 and 2008 = 4675+7150 = 11825

Sol 31. (a)
Production of product A in 2009 = 14000
Sales of product A in 2009 = 14000 x $\frac{70}{100}$ = 9800

Production of product A in 2005 = 11000
Sales of product A in 2005 = 11000 x $\frac{60}{100}$ = 6600
Total sales of product A in 2005 and 2009 = 9800+6600 = 16400

Sol 32. (a)
The total number of tourists visiting India = 1657850
⇒ Number of tourists visited from Australia = 1657850 x $\frac{34}{100}$ = 563669

Sol 33. (a)
20% indian visited Australia while 34% from Australia visited India.
7% indian visited Africa while 10% from Africa visited India.
31% indian visited Europe while 30% from Europe visited India.
42% indian visited the USA while 26% from the USA visited India.
⇒ clearly option A is the right answer.

Sol 34. (a)
people visited USA from India = 20,45,450 x $\frac{42}{100}$ = 859089
people visited India from USA = 21,35,600 x $\frac{26}{100}$ = 555256
Desired difference = 859089-555256 = 303833

Sol 35. (b) Total Interest earned = $(7 \times \frac{8}{100} \times 3 + 9 \times \frac{8}{100} \times 2 + 46 \times \frac{8}{100} \times 1)$ thousands
= (1.68+1.44+3.68) thousands = 6.80 thousands

Sol 36. (d)
Required percentage = $\frac{197}{243} \times 100$ = 81.06% approx.

Sol 37. (c)
$103 \times \frac{10}{100} + 214 \times \frac{10}{100} + 197 \times \frac{10}{100} + 232 \times \frac{10}{100} = 74.6$

SSC CGL TIER II

Sol 1. (c)
the average exports (per year) of cars of type A = $\frac{200+150+275+175+300}{5}$ = 220
10% = $\frac{1}{10}$
According to the question
(10+1) unit = 220
⇒ 10 unit = 200
So, Desired answer is year 2014.

Sol 2. (b)
total exports of cars of type A in 2014 and 2018 = 200+300 = 500
total exports of cars of type B in 2015 and 2016 = 250+200 = 450
Desired ratio = 500 : 450
= 10 : 9

Sol 3. (d)
The total exports of cars of type A in 2014 to 2017 = 200+150+275+175 = 800
The total exports of cars of type B in 2015 to 2018 = 250+200+275+325 = 1050
Desired %age = $\frac{1050-800}{1050}$ x 100 = 23.8

Sol 4. (a)
The total number of workers whose daily wages are less than Rs 500 = 45+30 = 75
The total number of workers whose daily wages are more than Rs 600 = 55+35 = 90
Desired ratio = 75 : 90
= 5 : 6

Sol 5. (d)
According to the question
total number of the employees = 360° = 2400
1° = $\frac{20}{3}$
Employees working in office A = 126° = 126 x $\frac{20}{3}$ = 840
Employees working in office B = 18° = 18 x $\frac{20}{3}$ = 120
Employees working in office C = 54° = 54 x $\frac{20}{3}$ = 360
Employees working in office D = 90° = 90 x $\frac{20}{3}$ = 600
Employees working in office E = 72° = 72 x $\frac{20}{3}$ = 480
Clearly there are three such offices (C,D and E)

Sol 6. (a)
According to the question
total number of the employees = 360° = 2400
1° = $\frac{20}{3}$
Employees working in office C = 54° = 54 x $\frac{20}{3}$ = 360
Female employees present in office C = 360 x $\frac{80}{100}$ = 288
Employees working in office E = 72° = 72 x $\frac{20}{3}$ = 480
Female employees present in office E = 480 x $\frac{40}{100}$ = 192
Desired ratio = 288 : 192
= 3 : 2

Sol 7. (a)
Employees shifted to office B = 126 x $\frac{40}{100}$ x $\frac{1}{2}$ = 25.2°
Now, Number of employees in office B = 18° + 25.2° = 43.2°
Desired difference = 54° - 43.2° = 10.8°
According to the question
total number of the employees = 360° = 2400
1° = $\frac{20}{3}$
10.8° = 10.8 x $\frac{20}{3}$ = 72

Sol 8. (c)
According to the question
100° = 1500
1° = 15
Total units sold (360°) = 360 x 15 = 5400
the total number of units sold by the company in 2017 = 5400 x $\frac{118}{100}$ = 6372

Sol 9. (b)
Number of units sold by A (50°) = 320
$1^\circ = 6.4$
units of products B and E sold together ($55^\circ + 35^\circ$)= 90 x 6.4 = 576

Sol 10. (c)
According to the question
$360^\circ = 14616$
$1^\circ = 40.6$
Total units sold (100°) = 100 x 40.6 = 4060

Sol 11. (d)
The total imports of steel in 2014, 2016 and 2017 = 360+500+550 = 1410
the total exports in 2013, 2015 and 2017 = 400+600+650 = 1650
Desired %age = $\frac{1650-1410}{1650}$ x 100 = 14.5

Sol 12. (d)
80% of the average exports (per year) of the country = $\frac{400+450+600+440+650}{5}$ x $\frac{80}{100}$ = 406.40
Clearly in three years (2015, 2016 and 2017) the imports were more than 80% of the average exports (per year) of the country.

Sol 13. (c)
total imports in 2015 and 2017 = 450+550 = 1000
total exports in 2013 and 2016 = 400+440 = 840
Desired ratio = 1000 : 840
= 25 : 21

Sol 14. (a)
The number of students who obtained less than 300 marks = 60+45+30 = 135
The number of students who obtained 350 or more marks = 40+35 = 75
Desired %age = $\frac{135-75}{75}$ x 100 = 80

Sol 15. (a)
The number of students weighing less than 50 kg = 30+40 = 70
the number of students weighing 55 kg or more = 55+45+25 = 125
Desired %age = $\frac{125-70}{125}$ x 100 = 44%

Sol 16. (d)
The total demand of motorcycles of companies A, C and E = 50+60+55 = 165
The total demand of motorcycles of companies B and C = 38+72 = 110
Desired ratio = 165 : 110
= 3 : 2

Sol 17. (b)
The total production of motorcycles of companies C, D and E = 72+75+40 = 187
the total demand of motorcycles of all the companies = 50+45+60+65+55 = 275
Desired %age = $\frac{275-187}{275}$ x 100 = 32%

Sol 18. (d)
the average demand of motorcycles (per year) over five years = $\frac{50+45+60+65+55}{5}$ = 55
Clearly company A, C and D have production equal to or more than the average demand of motorcycles (per year) over five years.

Sol 19. (b)
Angle for total marks = 360°
Angle for average marks = $\frac{360^\circ}{5}$ = 72°
Clearly in the subjects E and B the student scored more than the average marks.

Sol 20. (a)
Central angle for the total marks obtained by the student in subjects C and E = $76^\circ + 68^\circ$ = 144°
Central angle for the total marks obtained by the student in subjects A and D = $72^\circ + 60^\circ$ = 132°
Desired percentage = $\frac{144^\circ - 132^\circ}{132^\circ}$ x 100 = 9.09 %

Sol 21. (a)
Angle for total marks = 360°
According to the question
$360^\circ = 600$
$1^\circ = \frac{5}{3}$
difference between the marks obtained by the student in subjects B and D ($84^\circ - 72^\circ$)= 12 x $\frac{5}{3}$ = 20

Practice Questions

Sol 1. (a)
The total production of cars of type B = 39+45+54+60+72 = 270
production of cars of type B in 2016 = 60
Desired angle = $\frac{60}{270}$ x 360 = 80°

Sol 2. (d)
The total production of cars of types B in 2013, 2014, 2015 and 2017 = 39+45+54+72 = 210
the total production of all types of cars in 2017 = 36+72+45+47+55 = 255
Desired %age = $\frac{255-210}{255}$ x 100 = 17.6

Sol 3. (a)
the total production of cars of type C and E taken together in 2013 = 52+36 = 88
the total production of cars of type D in 2014 and 2016 and type E in 2017 = 42+46+55 = 143
Desired ratio = 88 : 143
= 8 : 13

Sol 4. (c)

The production of cars of type A in 2015 and of type C in 2013 = 48+52 = 100
the total production of cars of type D in five years = 50+42+45+46+47 = 230
Desired %age = $\frac{100}{230}$ x 100 ≈43.5

Sol 5. (c)
the total production of type A cars in 2015 ana type B cars in 2014 = 56+48 = 104
the total production of type C cars in 2017 and type E cars in 2018 = 57+60=117
Desired ratio = 104 : 117
= 8 : 9

Sol 6. (c)
the production of type D cars = 25+45+40+55+35 = 200
production of type D cars in 2015 = 45
Desired angle = $\frac{45}{200}$ x 360 = 81°

Sol 7. (d)
The total production of type D cars during 2015 to 2017 = 45+40+55 = 140
the total production of type E cars during 2014,2015,2016 and 2018 = 40+48+52+60 = 200
Desired %age = $\frac{200-140}{200}$ x 100 = 30

Sol 8. (c)
The total production of type C cars in 2015 and type E cars in 2018 = 42+60 = 102
The total production of cars in 2014 and 2017 = 64 + 48 + 33 + 25 + 40 + 63 + 64 + 57 + 55 + 61 = 510
Desired %age = $\frac{102}{510}$ x 100 = 20%

Sol 9. (a)
the production of cars in 2018 = 38+40+54+68+70 = 270
the production of type C cars in 2018 = 54
Desired angle = $\frac{54}{270}$ x 360 = 72^0

Sol 10. (a)
The average production of type D cars in 5 years = $\frac{46+50+54+67+68}{5}$ = 57
the production of type E cars in 2018 = 70
Desired %age = $\frac{70-57}{70}$ x 100 = 18.6

Sol 11. (b)
The total production of type B cars in all the five years =54+45+47+50+40 = 236
the total production of type A, B and D cars in 2017 = 43+50+67 = 160
Desired %age = $\frac{236-160}{160}$ x 100 = 47.5

Sol 12. (d)
the total production of type C cars in 2015 and type D cars in 2017 = 53+67 = 120
the total production of type B cars in 2016 and type A cars in 2017 = 47+43 = 90
Desired ratio = 120 : 90
= 4 : 3

Sol 13. (b)
The total production of type E cars in 2012 and 2013 = 47+43 = 90
the average production of type A cars during the years 2012 to 2016 = $\frac{54+58+60+63+55}{5}$ = 58
Desired %age = $\frac{90-58}{58}$ x 100 ≈ 55.2

Sol 14. (a)
The total production of all type of cars, except type B, in 2012 = 54+46+33+47 = 180
the total production of all types of cars in 2016 = 55+67+77+49+52 = 300
Desired %age = $\frac{300-180}{300}$ x 100 = 40

Sol 15. (c)
the production of type D cars = 33+35+48+45+49 = 210
the production of type D car in 2013 = 35
Desired angle = $\frac{35}{210}$ x 360 = 60°

Sol 16. (b)
the ratio of the total production of type E cars in 2014 and type C cars in 2016 = 53+77 = 130
the total production of type B cars in 2014 and type D cars in 2013 = 56+35 = 91
Desired ratio = 130 : 91
= 10 : 7

Sol 17. (c)
The total production of type B cars during 2013 to 2016 = 47+55+58+54 = 214
the total production of cars in 2017 = 64+66+72+66+62 = 330
Desired %age = $\frac{330-214}{330}$ x 100 ≈ 35%

Sol 18. (d)
The total production of type B cars in 2015 and type C cars in 2013 = 58+52 = 110
the total production of type E cars in 2013 and 2014 = 43+47 = 90
Desired %age = $\frac{110-90}{90}$ x 100 = 22.2

Sol 19. (a)
the production of type D cars = 60+53+56+65+66 = 300
the production of type D car in 2016 = 65
Desired angle = $\frac{65}{300}$ x 360 = 78°

Sol 20. (b)
the total production of type A cars in 2017 and type D cars in 2015 = 64+56 = 120
the total production of type B and type E cars in 2013 = 47+43 = 90
Desired ratio = 120 : 90

Pinnacle

= 4 : 3

Sol 21. (a)
the total production of type E cars = 48+55+64+65+68 = 300
production of type E cars in 2013 = 55
Desired angle = $\frac{55}{300}$ x 360 = 66°

Sol 22. (a)
The average production of type C cars during 2012 to 2016 = $\frac{44+45+67+63+76}{5}$ = 59
the total production of type D cars in 2012 and type E cars in 2014 = 46+64 = 110
Desired %age = $\frac{110-59}{110}$ x 100 ≈ 46.4

Sol 23. (c)
The total production of type E cars in 2015 and type C cars in 2013 = 65+45 = 110
the total production of type A cars and type D cars taken together during 2012 to 2016 = 46+48+56+57+64+46+49+57+55+72 = 550
Desired %age = $\frac{110}{550}$ x 100 = 20%

Sol 24. (a)
the total production of type A cars in 2014 and 2016 and type C cars in 2013 = 56+64+45 = 165
the total production of type B cars and type D cars taken together in 2014 = 63+57 = 120
Desired ratio = 165:120
= 11 : 8

Sol 25. (b)
the total production of type B cars in 2011 and type E cars in 2013 = 56+64 = 120
the total production of type C cars in 2014 and type D cars in 2012= 56+44 = 100
Desired ratio = 120 : 100
= 6 : 5

Sol 26. (c)
the production of type C = 54+55+45+60+56 = 270
the production of type C car in 2012 = 45
Desired angle = $\frac{45}{270}$ x 360 = 60°

Sol 27. (a)
The average production of all type of cars in 2014 = $\frac{63+64+56+65+72}{5}$ = 64
the total production of type B cars in 2013 and type D cars in 2010 = 68+42 = 110
Desired %age = $\frac{110-64}{110}$ x 100 = 41.8

Sol 28. (c)
The total production of type A cars in 2011, and type C cars and type E cars in 2012 = 69+45+61 = 175
the total production of type B cars during 2010 to 2014 = 40+56+52+68+64 = 280
Desired %age = $\frac{175}{280}$ x 100 = 62.5%

Sol 29. (d)
the total production of type D cars = 48+56+63+65+68 = 300
the production of type D car in 2017 = 65
Desired angle = $\frac{65}{300}$ x 360 = 78°

Sol 30. (a)
The average production of cars in 2018 = $\frac{65+72+56+68+64}{5}$ = 65
the total production of type D cars in 2015 and type B cars in 2017 = 56+64 = 120
Desired %age = $\frac{120-65}{120}$ x 100 = 45.8

Sol 31. (b)
the total production of type A cars in 2017 and type C cars in 2014 taken together = 66+54 = 120
the total production of type B cars in 2014, type C cars in 2017 and type E cars in 2018 = 46+50+64 = 160
Desired ratio = 120 : 160
= 3 : 4

Sol 32. (a)
The total production of type A cars in 2016 and type E cars in 2014 = 44+46 = 90
the total production of type C cars during 2014 to 2018 = 54+45+45+50+56 = 250
Desired %age = $\frac{90}{250}$ x 100 = 36

Sol 33. (a)
The average production of type A cars = $\frac{46+53+56+58+67}{5}$ = 56
The total production of type C cars = 43+54+55+47+51= 250
Desired %age = $\frac{56}{250}$ x 100 = 22.4

Sol 34. (c)
the total production of type C and D cars in 2012 = 43+47 = 90
the total production of type A cars in 2014 and type E cars in 2015 = 56+64 = 120
Desired ratio = 90 : 120
= 3 : 4

Sol 35. (d)
The total production of type B cars in 2015 and type D cars 2016 = 66+74 = 140
the total production of type E cars in five years = 48+58+63+64+67 = 300
Desired %age = $\frac{300-140}{300}$ x 100 = 53 $\frac{1}{3}$ %

Sol 36. (b)
total production of type B cars = 50+65+67+66+72 = 320
the production of type B cars in 2016 = 72
Desired angle = $\frac{72}{320}$ x 360 = 81°

Pinnacle

Sol 37. (a)
the average number of students studying in college D = $\frac{430+450+470+420+480}{5}$ =450

Sol 38. (a)
Total number of students enrolled in 2014 = 420+290+340+480+480 = 2010
students enrolled in college C in 2014 = 340
Desired %age = $\frac{340}{2010}$ x 100 = 16.9%

Sol 39. (a)
the total students enrolled in colleges A and B in the year 2012 = 370+250 = 620
the total students enrolled in colleges D and E in the year 2013 = 420+430 = 850
Desired ratio = 620 : 850
= 62 : 85

Sol 40. (c)
The number of students studying in college E in the year 2013 = 430
the number of students studying in colleges B, C and D taken together in the year 2013 = 310+370+420 = 1100
Desired %age = $\frac{430}{1100}$ x 100 ≈ 39.1%

Sol 41. (a)
the total number of students studying in the science stream = 300+350+275+400+275 = 1600
the total number of students studying in commerce stream = 250+400+325+275+250 = 1500
Desired Ratio = 16 : 15

Sol 42. (b)
Total number of students = 300 + 350 + 275 + 400 + 275 + 250 + 400 + 325 + 275 + 250 + 400 + 450 + 250 + 300 + 500 = 5000
the total number of students studying in commerce stream = 250+400+325+275+250 = 1500
Desired %age = $\frac{1500}{5000}$ x 100 = 30%

Sol 43. (d)
Total number of students = 300 + 350 + 275 + 400 + 275 + 250 + 400 + 325 + 275 + 250 + 400 + 450 + 250 + 300 + 500 = 5000
Total students in college B = 350+400+450 = 1200
Desired angle = $\frac{1200}{5000}$ x 360 ≈ 86°

Sol 44. (b)
Total students in college B = 350+400+450 = 1200
Students of science stream in college B = 350
Desired %age = $\frac{350}{1200}$ x 100 ≈ 29.2%

Sol 45. (d)
Total students in college C = 320+540+350 = 1210
Students of science stream in college C = 540
Desired %age = $\frac{540}{1210}$ x 100 ≈ 45%

Sol 46. (d)
The number of students studying science in colleges A and B together = 620+680 = 1300
the number of students studying commerce in colleges D and E = 520+330 = 850
Desired ratio = 1300 : 850 = 26 : 17

Sol 47.(c)
the average of the number of students in the arts stream = $\frac{580+460+320+470+370}{5}$ = 440

Sol 48. (d)
Total students of the commerce stream in all colleges = 480 + 520 + 350 + 520 + 330 = 2200
Total students of the commerce stream in college D = 520
Desired angle = $\frac{520}{2200}$ x 360 ≈ 85°

Sol 49. (d)
Number of students from the discipline of Mathematics for colleges A and C = 8000 x $\frac{40}{100}$ + 15000 x $\frac{35}{100}$ = 8450
Desired %age = $\frac{8450}{8000+15000}$ x 100 = 36.7

Sol 50. (c)
the total number of students from the science discipline of all the colleges = (8000 x $\frac{25}{100}$)+ (10000 x $\frac{35}{100}$)+ (15000 x $\frac{45}{100}$)+ (9000 x $\frac{28}{100}$)+ (11000 x $\frac{35}{100}$) = 18620
Desired average = $\frac{18620}{5}$ = 3724

Sol 51. (b)
The number of students from the discipline of Economics from college B = 10000 x $\frac{40}{100}$ = 4000
the number of students from the discipline of Science from the college C =
15000 x $\frac{45}{100}$ = 6750
Desired %age = $\frac{4000}{6750}$ x 100 ≈ 59%

Sol 52. (b)
Total students = 8000+10000+15000+9000+11000 = 53000
Desired angle = $\frac{11000}{53000}$ x 360 ≈ 75°

Sol 53. (d)
The production of rice in 2014 = 6.2+4.8+6.4 = 17.4 million tonnes
The production of rice in 2016 = 6.9+5.7+7.4 = 20 million tonnes
Desired ratio = 17.4 : 20
= 87 : 100

Sol 54. (c)
Total production of rice = 5.2 + 3.8 + 4.5 + 5.4 + 4.1 + 5.2 + 5.8 +

4.4 + 5.8 + 6.2 + 4.8 + 6.4 + 6.5 + 5.2 + 6.7 + 6.9 + 5.7 + 7.4 = 100 million tonnes
production of rice in 2014 = 6.2+4.8+6.4 = 17.4 million tones
Desired angle = $\frac{17.4}{100}$ x 360 ≈ 63°

Sol 55. (c)
the production of rice in state B in 2014 = 4.8
the production of rice in state B in 2016 = 5.7
Desired %age = $\frac{5.7-4.8}{4.8}$ x 100 = 18.75%

Sol 56. (a)
the number of students passing out of college B in the year 2016 = 68
the number of students passing out of college B in the year 2017 = 77
Desired %age = $\frac{77-68}{68}$ x 100 = 13.2%

Sol 57. (b)
the average percentage of passing students in college E = $\frac{72+75+73}{3}$ = 73 $\frac{1}{3}$
the average percentage of passing students in college B = $\frac{65+68+77}{3}$ =70
the average percentage of passing students in college A = $\frac{68+72+74}{3}$ = 71 $\frac{1}{3}$
Clearly the desired answer is option B .

Sol 58. (b)
students passing from college E in 2015 = 72%
⇒ students failing from college E in 2015 = 100-72% = 28%
Desired ratio = 72 : 28
= 18 : 7

Sol 59. (b)
Desired angle = $\frac{80+88+92}{68+72+74+65+68+77+80+88+92+92+95+98+72+75+73}$ x 360 = 79°

Sol 60. (c)
Number of cars sold in 2013 = 520+530+460 = 1510
total number of cars sold by all three showrooms over the years = 500 + 450 +400 + 480 + 420 + 450 + 520 + 530 + 460 + 620 + 480 +520 + 650 + 520 + 540 + 630 + 400 + 430 = 9000
Desired angle = $\frac{1510}{9000}$ x 360 = 60°

Sol 61. (b)
the total cars sold by showroom B during the years 2014 and 2016 = 480+400 = 880
the total cars sold by showroom C during 2015 and 2016 = 540+430 = 970
Desired ratio = 880:970
= 88 : 97

Sol 62. (a)
Total number of cars sold by all three showrooms in 2016 = 630+400+430 = 1460
Total number of cars sold by all three showrooms in 2015 = 650+520+540 = 1710
Desired %age = $\frac{1710-1460}{1710}$ x 100 = 14.6

Sol 63. (b)
The average number of cars sold by showroom A = $\frac{500 + 480 + 520 + 620 + 650 + 630}{6}$ = 566.7

Sol 64. (b)
Expenditure on Royalty is less than that on Printing = $\frac{20-15}{20}$ x 100 = 25%

Sol 65. (d)
Total marks obtained by all the seven students in Physics =
120 x ($\frac{90}{100}$ + $\frac{80}{100}$ + $\frac{70}{100}$ + $\frac{80}{100}$ + $\frac{85}{100}$ + $\frac{65}{100}$ + $\frac{50}{100}$) = 624
Desired average = $\frac{624}{7}$ = 89.14

Sol 66. (d)
the total sales of books from branches B1, B3 and B6 = 80 + 95 + 70 + 105 + 110 + 80 = 540

Sol 67. (d)
the average amount of Interest on loans = $\frac{23.4+32.5+41.6+36.4+49.4}{5}$ = 36.66

Sol 68. (c)
the combined target production of AC Machines in January and April = 60+90 = 150
he combined actual production of AC Machines in March and April = +4100+80 = 180
Desired ratio = 150 : 180
= 5 : 6

Sol 69. (d)
The total target production of AC Machines in February, April and May = 30+90+100 = 220
the total actual production of AC Machines over all the five months = 70+50+100+80+120 = 420
Desired %age = 47.6 %

Sol 70.(b)
The actual production of AC Machines in April = 80
the average target production of AC Machines over five months = $\frac{60+30+80+90+100}{5}$ = 72
Desired %age = $\frac{80-72}{72}$ x 100 = 11 $\frac{1}{9}$ %

Sol 71. (b)
the actual production of AC Machines in february = 50
the target production of AC Machines in february = 30
%age increase = $\frac{50-30}{30}$ x 100 = 66 $\frac{2}{3}$

Pinnacle

the actual production of AC Machines in march = 100
the target production of AC Machines in march = 80
%age increase = $\frac{100-80}{80}$ x 100 = 25%
Clearly option B is the right answer.

Sol 72. (b)
The total number of Arts students in 2011, 2013 and 2015 = 275+350+325 = 950
The total number of Science students = 225+250+300+280+375 = 1430
Desired %age = $\frac{1430-950}{1430}$ x 100 = 33.6%

Sol 73. (c)
The average number of Science students in 2011, 2013 and 2015 = $\frac{225+300+375}{3}$ = 300
the number of Arts students in 2011 = 275
Desired %age = $\frac{300-275}{275}$ x 100 = 9 $\frac{1}{11}$ %

Sol 74. (c)
the total number of Science students in 2011 and 2015 = 225+375 = 600
the total number of Arts students in 2012 and 2015 = 325+325 = 650
Desired ratio = 600 : 650
= 12 : 13

Sol 75. (c)
2013 :
%age difference = $\frac{350-300}{300}$ x 100 = 16 $\frac{2}{3}$ %
2014 :
%age difference = $\frac{320-280}{280}$ x 100 = 14 $\frac{2}{7}$ %
2012 :
%age difference = $\frac{325-250}{250}$ x 100 = 30%
Clearly option 'c' is the right answer.

Sol 76. (a)
The average Production of motorcycles of companies B, C and E = $\frac{90+135+120}{3}$ = 115
Demand of motorcycles of D = 125
Desired %age = $\frac{125-115}{125}$ x 100 = 8%

Sol 77. (c)
the total Demand of motorcycles of companies A and D = 100+125 = 225
the Production of motorcycles of company C = 135
Desired ratio = 225 : 135
= 5 : 3

Sol 78. (a)
The total Production of motorcycles of companies B and D = 90+140 = 230
The demand of motorcycles of all the companies = 100+70+110+125+95 = 500
Desired %age = $\frac{230}{500}$ x 100 = 46%

Sol 79. (b)
Company B :
%Age difference = $\frac{90-70}{70}$ x 100 = 28 $\frac{4}{7}$ %
Company C :
%Age difference = $\frac{135-110}{110}$ x 100 =22.7 ≈ 23%
Company D :
%Age difference = $\frac{140-125}{125}$ x 100 =12%
Company E :
%Age difference = $\frac{120-95}{95}$ x 100 =26.3%
Clearly option 'B' is the correct answer.

Sol 80. (c)
Vehicle C :
%Age difference = $\frac{52.5-45}{45}$ x 100 = 16.67%
Vehicle D :
%Age difference = $\frac{60-47.5}{47.5}$ x 100 =26.3%
Vehicle E :
%Age difference = $\frac{62.5-52.5}{52.5}$ x 100 ≈ 19%
Vehicle B :
%Age difference = $\frac{50-40}{40}$ x 100 =25%
Clearly option 'C' is the correct answer.

Sol 81. (b)
the total number of Vehicles of type D and E = 47.5+52.5 = 100
the total number of Vehicles of type C and E = 52.5+62.5 = 115
Desired ratio = 100 : 115
= 20 : 23

Sol 82. (b)
The total number of vehicles of type C and E exported by the company in 2017 = 52.5+62.5 = 115
the total number of vehicles of type A, B and C exported in 2016 = 25+40+45 = 110
Desired %age = $\frac{115-110}{110}$ x 100 = 4.5

Sol 83. (d)
The average number of all types of vehicles exported by the company in 2016 = $\frac{25+40+45+47.5+52.5}{5}$ = 42
the number of type B vehicles exported in 2017 = 50
Desired %age = $\frac{50-42}{50}$ x 100 = 16%

Sol 84. (a)
The average number of students (per year) enrolled in B during 2015, 2016 and 2018 = $\frac{360+375+225}{3}$ = 320

Pinnacle

the number of students enrolled in A during 2017 = 250
Desired %age = $\frac{320-250}{250}$ x 100 = 28%

Sol 85. (b)
The total number of students enrolled in A during 2014, 2016 and 2018 = 160+300+260 = 720
the total number of students enrolled in B during the five years = 225+360+375+325+225 = 1510
Desired %age = $\frac{720}{1510}$ x 100 = 47.7

Sol 86. (a)
the total numbers enrolled in A during 2015 and 2018 = 280+260 = 540
students enrolled in B during 2014 and 2016 = 225+375 = 600
Desired ratio = 540:600
= 9 : 10

Sol 87. (a)
2015 :
%age = $\frac{360-280}{280}$ x 100 = 28 $\frac{4}{7}$ %
2017 :
%age = $\frac{325-250}{250}$ x 100 = 30 %
2016 :
%age = $\frac{375-300}{300}$ x 100 = 25 %
2014 :
%age = $\frac{225-160}{160}$ x 100 = 40.625 %
Clearly option A is the right answer.

Sol 88. (d)
The average Income (per year) of the company = $\frac{225+280+325+350+350}{5}$ = 306
Expenditure in 2015 = 250
Desired %age = $\frac{306-250}{250}$ x 100 = 22.4

Sol 89. (a)
The total Income of the company in 2015, 2017 and 2018 = 280+350+350 = 980
The total Expenditure in the five years = 175+250+275+300+325 = 1325
Desired %age = $\frac{1325-980}{1325}$ x 100 = 26.03

Sol 90. (b)
2016 :
%age = $\frac{275-250}{250}$ x 100= 10%
2015 :
%age = $\frac{250-175}{175}$ x 100= 42.85%
2018 :
%age = $\frac{325-300}{300}$ x 100 = 8 $\frac{1}{3}$ %
2014 :
%age = $\frac{300-275}{275}$ x 100 = 9 $\frac{1}{11}$ %
Clearly option B is the right answer.

Sol 91.(d)
Total Expenditure in 2014, 2016 and 2017 = 175+275+300 = 750
Total Income of the company in 2014, 2016 and 2017 = 225+325+350 = 900
Desired ratio = 750:900
= 5 : 6

Sol 92. (c)
Total revenue of the company in 2015 and 2018 = 300+375 = 675
Total expenditure of the company in 2014 and 2018 = 225+300 = 525
Desired ratio = 675 : 525
= 9 : 7

Sol 93. (c)
The expenditure of the company in 2017 = 275
the average revenue (per year) in 2014, 2015 and 2016 = $\frac{260+300+340}{3}$ = 300
Desired %age = $\frac{300-275}{300}$ x 100 = 8 $\frac{1}{3}$ %

Sol 94. (b)
The total expenditure of the company from 2016 to 2018 = 320+275+300 = 895
the total revenue for the five year = 260+300+340+350+375 = 1625
Desired %age = $\frac{895}{1625}$ x 100 ≈ 55%

Sol 95. (d)
2015 :
%age = $\frac{250-225}{250}$ x 100= 10%
2017 :
Expenditure is decreasing
2016 :
%age = $\frac{320-250}{320}$ x 100 = 21.875 %
2018 :
%age = $\frac{300-275}{300}$ x 100 =8 $\frac{1}{3}$ %
Clearly option D is the right answer.

Sol 96. (d)
The total number of students (2017-2018) = 300+100 = 400
The total number of students (2016-2017) = 250+100 = 350
%age increase = $\frac{400-350}{350}$ x 100 = 14 $\frac{2}{7}$ %
The total number of students (2015-2016) = 300+50 = 350
The total number of students (2014-2015) = 200+100 = 300
%age increase = $\frac{350-300}{300}$ x 100 = 16 $\frac{2}{3}$ %

The total number of students (2016-2017) = 250+100 = 350
The total number of students (2015-2016) = 300+50 = 350
Clearly there is no change.
The total number of students (2014-2015) = 200+100 = 300
The total number of students (2013-2014) = 150+100 = 250
%age increase = $\frac{300-250}{250}$ x 100 = 20%
Clearly option D is the right answer.

Sol 97. (d)
the average of failed students in five academic years = $\frac{100+100+50+100+100}{5}$ = 90

Sol 98. (a)
2015-2016 :
The difference between the number of students passed and those who failed = 300-50 = 250
2014-2015 :
The difference between the number of students passed and those who failed = 300-100 = 200
2017-2018 :
The difference between the number of students passed and those who failed = 300-100 = 200
2016-2017 :
The difference between the number of students passed and those who failed = 250-100 = 150
Clearly option A is the right answer.

Sol 99. (d)
Total students passed during five academic years = 150 + 200 + 300 + 250 + 300 = 1200
Total number of students = (150 + 100) + (200 + 100) + (300 + 50) + (250 + 100) + (300 + 100) = 1650
Desired %age = $\frac{1200}{1650}$ x 100 = 72.7 ≈ 73%

Sol 100. (c)
the average of Import (in tonnes) during the five financial years = $\frac{824 + 1014 + 1137 + 1513 + 1658}{5}$ = 1229.2

Sol 101. (a)
Total Exports = 638 + 1256 + 1661 + 1538 + 1305 = 6398
Total Imports = 824 + 1014 + 1137 + 1513 + 1658 = 6146
Desired ratio = 6398 : 6146
= 3199 : 3073

Sol 102. (c)
2017-2018 :
the absolute difference between the Exports and the Imports = 1658-1305 = 353
2014-2015 :
the absolute difference between the Exports and the Imports = 1256-1014 = 242
2015-2016 :
the absolute difference between the Exports and the Imports = 1661-1137 = 524
2016-2017 :
the absolute difference between the Exports and the Imports = 1538-1513 = 25

Sol 103. (b)
2016-2017 :
Total Imports and Exports in 2016-2017 = 1538+1513 = 3051
Total Imports and Exports in 2015-2016 = 1661+1137 = 2798
%age = $\frac{3051-2798}{2798}$ x 100 = 9.04
2014-2015 :
Total Imports and Exports in 2014-2015 = 1256+1014 = 2270
Total Imports and Exports in 2013-2014 = 638+824 = 1462
%age = $\frac{2270-1462}{1462}$ x 100 = 55.26
2017-2018 :
Total Imports and Exports in 2017-2018 = 1305+1658 = 2963
Total Imports and Exports in 2016-2017 = 1538+1513 = 3051
%age = $\frac{2963-3051}{3051}$ x 100 = -2.88
2015-2016 :
Total Imports and Exports in 2015-2016 = 1661+1137 = 2798
Total Imports and Exports in 2014-2015 = 1256+1014 = 2270
%age = $\frac{2798-2270}{2270}$ x 100 = 23.25
Clearly option B is the right answer.

Sol 104. (c)
Total Exports = 638 + 1256 + 1661 + 1538 + 1305 = 6398
Total Imports = 824 + 1014 + 1137 + 1513 + 1658 = 6146
Desired ratio = 6146 : 6398
= 3073 : 3199

Sol 105. (c)
2017-2018 :
Total Imports and Exports in 2017-2018 = 1305+1658 = 2963
2015-2016 :
Total Imports and Exports in 2015-2016 = 1661+1137 = 2798
2016-2017 :
Total Imports and Exports in 2016-2017 = 1538+1513 = 3051
2014-2015 :
Total Imports and Exports in 2014-2015 = 1256+1014 = 2270
Clearly option C is the right answer.

Sol 106. (b)
2014-2015 :
%age = $\frac{1014-824}{824}$ x 100= 23.05
2016-2017 :
%age = $\frac{1513-1137}{1137}$ x 100= 33.06
2017-2018 :
%age = $\frac{1658-1513}{1513}$ x 100= 9.58
2015-2016 :
%age = $\frac{1137-1014}{1014}$ x 100= 12.13

Clearly option B is the right answer.

Sol 107. (a)
the average of exports (in tonnes) during the five financial years = $\frac{638 + 1256 + 1661 + 1538 + 1305}{5}$ = 1279.6

Sol 108. (c)
2015-2016 :
Total Imports and Exports in 2015-2016 = 1661+1137 = 2798
Total Imports and Exports in 2014-2015 = 1256+1014 = 2270
%age = $\frac{2798-2270}{2270}$ x 100 = 23.25
2017-2018 :
Total Imports and Exports in 2017-2018 = 1305+1658 = 2963
Total Imports and Exports in 2016-2017 = 1538+1513 = 3051
%age = $\frac{2963-3051}{3051}$ x 100 = -2.88

Pinnacle

2014-2015 :
Total Imports and Exports in 2014-2015 = 1256+1014 = 2270
Total Imports and Exports in 2013-2014 = 638+824 = 1462
%age = $\frac{2270-1462}{1462}$ x 100 = 55.26
2016-2017 :
Total Imports and Exports in 2016-2017 = 1538+1513 = 3051
Total Imports and Exports in 2015-2016 = 1661+1137 = 2798
%age = $\frac{3051-2798}{2798}$ x 100 = 9.04
Clearly option C is the right answer.

Sol 109. (c)
total Imports during 2013-2014, 2015-2016 and 2017-2018 = 638 + 1661 + 1305 = 3604
total Exports during 2013-2014, 2015-2016 and 2017-2018 = 824 + 1137 + 1658 = 3619
Desired ratio = 3619 : 3604

Sol 110. (b)
Total Exports = 638 + 1256 + 1661 + 1538 + 1305 = 6398
Total Imports = 824 + 1014 + 1137 + 1513 + 1658 = 6146
Desired average = $\frac{6398+6146}{5}$ = 2508.8

Sol 111. (b)
2014-2015 :
Total Imports and Exports in 2014-2015 = 1256+1014 = 2270
2013-2014 :
Total Imports and Exports in 2013-2014 = 638+824 = 1462
2015-2016 :
Total Imports and Exports in 2015-2016 = 1661+1137 = 2798
2017-2018 :
Total Imports and Exports in 2017-2018 = 1305+1658 = 2963
Clearly option B is the right answer.

Sol 112. (a)
2016-2017 :
the absolute difference between the Exports and the Imports = 1538-1513 = 25
2015-2016 :
the absolute difference between the Exports and the Imports = 1661-1137 = 524
2014-2015 :
the absolute difference between the Exports and the Imports = 1256-1014 = 242
2013-2014 :
the absolute difference between the Exports and the Imports = 824-638 = 186

Sol 113. (b)
total Imports during 2014-2015, 2015-2016 and 2016-2017 = 1014 + 1137 + 1513 = 3664
total Exports during 2014-2015, 2015-2016 and 2016-2017 = 1256 + 1661 + 1538 = 4455
Desired ratio = 3664 : 4455

Sol 114. (d)
Total Imports = 824 + 1014 + 1137 + 1513 + 1658 = 6146
Total Exports = 638 + 1256 + 1661 + 1538 + 1305 = 6398
Absolute difference = 252

Sol 115. (c)
2015-2016 :
Total Imports and Exports in 2015-2016 = 1661+1137 = 2798
Total Imports and Exports in 2014-2015 = 1256+1014 = 2270
%age = $\frac{2798-2270}{2270}$ x 100 = 23.25
2014-2015 :
Total Imports and Exports in 2014-2015 = 1256+1014 = 2270
Total Imports and Exports in 2013-2014 = 638+824 = 1462
%age = $\frac{2270-1462}{1462}$ x 100 = 55.26
2017-2018 :
Total Imports and Exports in 2017-2018 = 1305+1658 = 2963
Total Imports and Exports in 2016-2017 = 1538+1513 = 3051
%age = $\frac{2963-3051}{3051}$ x 100 = -2.88
2016-2017 :
Total Imports and Exports in 2016-2017 = 1538+1513 = 3051
Total Imports and Exports in 2015-2016 = 1661+1137 = 2798
%age = $\frac{3051-2798}{2798}$ x 100 = 9.04
Clearly option B is the right answer.

Sol 116. (c)
2013 :
absolute difference between the numbers of students = 750-480 = 270
2010 :
absolute difference between the numbers of students = 600-500 = 100
2012 :
absolute difference between the numbers of students = 900-500 = 400
2011 :
absolute difference between the numbers of students = 750-700 = 50

Sol 117. (a)
Total students from school B = 550 + 820 + 600 + 750 + 500 + 480 = 3700
Total students from school A = 640 + 800 + 500 + 700 + 900 + 750 = 4290
Desired ratio = 3700 : 4290
= 370 : 429

Sol 118. (b)
Total students from school B = 550 + 820 + 600 + 750 + 500 + 480 = 3700
Desired average = $\frac{3700}{6}$ = 616.67

Sol 119. (c)
2011 :
%age = $\frac{750-600}{600}$ x 100 = 25%
2013 :
%age = $\frac{480-500}{500}$ x 100 = -4%
2009 :

%age = $\frac{820-550}{550}$ x 100 = 49.09%

2010 :

%age = $\frac{600-820}{820}$ x 100 = -26.82%

Sol 120. (c)

Total students from school A = 640 + 800 + 500 + 700 + 900 + 750 = 4290

Desired average = $\frac{4290}{6}$ = 715

Sol 121. (c)

2008 :

absolute difference between the numbers of students = 640-550 = 90

2011 :

absolute difference between the numbers of students = 750-700 = 50

2009 :

absolute difference between the numbers of students = 820-800 = 20

2012 :

absolute difference between the numbers of students = 900-500 = 400

Sol 122. (c)

2010 :

%age = $\frac{500-800}{800}$ x 100 = -37.5%

2012 :

%age = $\frac{900-700}{700}$ x 100 = 28 $\frac{4}{7}$ %

2011 :

%age = $\frac{700-500}{500}$ x 100 = 40%

2009 :

%age = $\frac{800-640}{640}$ x 100 = 25%

Sol 123. (c)

Total students from school B = 550 + 820 + 600 + 750 + 500 + 480 = 3700

Total students from school A = 640 + 800 + 500 + 700 + 900 + 750 = 4290

Desired ratio = 4290 : 3700

= 429 : 370

Sol 124. (c)

Total students from school B = 550 + 820 + 600 + 750 + 500 + 480 = 3700

Total students from school A = 640 + 800 + 500 + 700 + 900 + 750 = 4290

Desired average = $\frac{3700+4290}{6}$ = 1331.67

Sol 125. (a)

Total number of students in school A in 2008, 2012 and 2013 = 640 + 900 + 750 = 2290

Total number of students in school B 2008, 2012 and 2013 = 550 + 500 + 480 = 1530

Desired ratio = 2290 : 1530

= 229 : 153

Sol 126. (a)

2009 :

sum of the students in two schools = 800 + 820 = 1620

2012 :

sum of the students in two schools = 900+500 = 1400

2011 :

sum of the students in two schools = 700+750 = 1450

2008 :

sum of the students in two schools = 640+550 = 1190

Sol 127. (d)

2012 :

Total students in 2012 = 900+500 = 1400

Total students in 2011 = 700+750 = 1450

%age = $\frac{1450-1400}{1450}$ x 100 = -3.45%

2011 :

Total students in 2010 = 600+500 = 1100

Total students in 2011 = 700+750 = 1450

%age = $\frac{1450-1100}{1100}$ x 100 = 31.8%

2010 :

Total students in 2010 = 600+500 = 1100

Total students in 2009 = 800+820 = 1620

%age = $\frac{1100-1620}{1620}$ x 100 = -32.09%

2009 :

Total students in 2008 = 640+550 = 1190

Total students in 2009 = 800+820 = 1620

%age = $\frac{1620-1190}{1190}$ x 100 = 36.13%

Sol 128. (d)

the average number of students who passed in the five academic years = $\frac{150+200+300+250+300}{5}$ = 240

Sol 129. (a)

2013-2014 :

the difference between the number of students passed and that of those failed = 150-100 = 50

2014-2015 :

the difference between the number of students passed and that of those failed = 200-100 = 100

2016-2017 :

the difference between the number of students passed and that of those failed = 250-100 = 150

2015-2016 :

the difference between the number of students passed and that of those failed = 300-50 = 250

Clearly option 'A' is the desired answer.

Sol 130. (a)

2016-2017 :

total number of students in 2016-2017 = 250+100 = 350

total number of students in 2015-2016 = 300+50 = 350

There is no change or 0% in total number of students.

2017-2018 :

total number of students in 2017-2018 = 300+100 = 400

Pinnacle

total number of students in 2016-2017 = 250+100 = 350
%age = $\frac{400-350}{350}$ x 100 = 14 $\frac{2}{7}$ %
2015-2016 :
total number of students in 2015-2016 = 300+50 = 350
total number of students in 2014-2015 = 200+100 = 300
%age = $\frac{350-300}{300}$ x 100 = 16 $\frac{2}{3}$ %
2014-2015 :
total number of students in 2014-2015 = 200+100 = 300
total number of students in 2013-2014 = 150+100 = 250
%age = $\frac{300-250}{250}$ x 100 = 20%
Clearly option A is the right answer.

Sol 131. (b)
Total students failed = 100 + 100 + 50 + 100 + 100 = 450
Total students = (150+100) + (200+100) + (300+50) + (250+100) + (300+100) = 1650
Desired %age = $\frac{450}{1650}$ x 100 = 27%

Sol 132. (c)
Total sales by all branches for the year 2001 = 105+65+110+95+95+80 = 550
Total sales by all branches for the year 2000 = 80+75+95+85+75+70 = 480
Desired ratio = 550 : 480
= 55 : 48

Sol 133. (d)
Desired average = $\frac{80+105+75+65+95+110+85+95+75+95+70+80}{6}$
= 171.67

Sol 134. (b)
total sales by branches B1, B3 and B5 = 80 + 105 + 95 + 110 + 75 + 95 = 560
total sales by branches B2, B4 and B6 = 75 + 65 + 85 + 95 + 70 + 80 = 470
Desired ratio = 560 : 470
= 56 : 47

Sol 135. (d)
Total sales = 80 + 105 + 75 + 65 + 95 + 110 + 85 + 95 + 75 + 95 + 70 +80 = 1030

Sol 136. (d)
growth in sales of B in March 2018 = $\frac{9-7}{7}$ x 100
growth in sales of C in March 2018 = $\frac{8-5}{5}$ x 100
Desired ratio = $\frac{9-7}{7}$ x 100 : $\frac{8-5}{5}$ x 100 = 10 : 21

Sol 137.(a)
average sale per month by A during Jan-Mar, 2018 = $\frac{8000+6000+8000}{3}$ = 7333.33 kg

Sol 138. (d)
average sale per month from B = $\frac{9000+7000+9000+11000}{4}$ = 9000
average sale per month from C = $\frac{10000+5000+8000+9000}{4}$ = 8000
Clearly quantity from B is 9000-8000 = 1000 kg more.

Sol 139. (b)
Jan 2018 :
Ratio of B : A+C = 9 : 10+8 = 1 : 2
$\Rightarrow \frac{1}{2}$ = 0.5
Feb 2018 :
Ratio of B : A+C = 7 : 6+5 = 7 : 11
$\Rightarrow \frac{7}{11}$ = 0.63
Mar 2018 :
Ratio of B : A+C = 9 : 8+8 = 9 : 16
$\Rightarrow \frac{9}{16}$ = 0.56
Apr 2018 :
Ratio of B : A+C = 11 : 9+9 = 11 : 18
$\Rightarrow \frac{11}{18}$ = 0.61
Now, 0.5 $\prec$ 0.56 $\prec$ 0.61 $\prec$ 0.63
Clearly option B is the right answer.

Sol 140. (b)
Desired average = $\frac{100+90+75+100}{5}$ = 91.25

Sol 141. (c)
Run scored in 3rd match = 30
Strike rate = 75
Number of balls faced = $\frac{30 \times 100}{75}$ = 40

Sol 142. (a)
the average strike rate of the second and the fifth match to be 120 strike rate in the fifth innings = 2 (120) - 90 = 150.
For the strike rate of 150 runs to be scored in 100 balls = 100 x $\frac{150}{100}$ = 150

Sol 143. (b)
Desired average = $\frac{50+45+30+20+100}{5}$ = 49

Sol 144. (c)
royalties earned By X for sale of books in India in 2013 and 2014 =
(3+3.5) x 800 x $\frac{10}{100}$ x $\frac{5}{8}$ = 325
royalties earned By Y for sale of books in abroad in 2015 and 2016 =
(5.5+6) x 1000 x $\frac{16}{100}$ x $\frac{3}{8}$ = 690
Desired ratio = 325 : 690
= 65 : 138

Sol 145. (d)
2012 :
Annual income of IT officer = 6 lakhs
Expenditure of IT officer = 5 lakhs
$\Rightarrow$ Savings = 6-5 = 1 lakh
Savings : Expenditure = 1 :5
2013 :
Annual income of IT officer = 7 lakhs
Expenditure of IT officer = 5.5 lakhs
$\Rightarrow$ Savings = 7-5.5 = 1.5 lakh

Pinnacle

Savings : Expenditure = 1.5 : 5.5
= 3 : 11

2014 :

Annual income of IT officer = 8 lakhs

Expenditure of IT officer = 6 lakhs

⇒ Savings = 8-6 = 2 lakh

Savings : Expenditure = 2 : 6
= 1 : 3

2015 :

Annual income of IT officer = 9 lakhs

Expenditure of IT officer = 7.5 lakhs

⇒ Savings = 9-7.5 = 1.5 lakh

Savings : Expenditure = 1.5 : 7.5
= 1 : 5

Clearly option D is the right answer.

Sol 146. (d)

2015 :

Annual income of IT officer = 9 lakhs

Expenditure of IT officer = 7.5 lakhs

⇒ Savings = 9-7.5 = 1.5 lakh

2016 :

Annual income of IT officer = 10 lakhs

Expenditure of IT officer = 8 lakhs

⇒ Savings = 10-8 = 2 lakh

Desired average = $\frac{(2+1.5)\ lakhs}{24}$ = 14583.33

Sol 147. (d)

Total income for the period 2012-15 = 6+7+8+9 = 30 lakhs

Total expenditure for the period 2012-15 = 5+5.5+6+7.5 = 24 lakhs

Total savings for the period 2012-15 = 30 - 24 = 6 lakhs

Desired %age = $\frac{6}{30}$ x 100 = 20%

Sol 148. (b)

Savings in 2012-2013 = (6-5) + (7-5.5) = 2.5

Savings in 2015-2016 = (9-7.5) + (10-8) = 3.5

2012-2013 :

Savings : Expenditure = 2.5 : 10.5
= 5 : 21

2015-2016 :

Savings : Expenditure = 3.5 : 15.5
= 7 : 31

Desired ratio = $\frac{5}{21}$: $\frac{7}{31}$ = 155 : 147

Sol 149. (b)

Total marks of Practical = 300 x $\frac{5}{6+5+4}$ = 100

%age of marks scored in Practical by B = $\frac{50}{100}$ x 100 = 50%

%age of marks scored in Practical by C = $\frac{80}{100}$ x 100 = 80%

Desired answer = 80-50 = 30%

Sol 150. (a)

aggregate marks scored by B = 50 + 50 + 30 = 130

aggregate marks scored by C = 70 + 80 + 60 = 210

aggregate marks scored by B = 80 + 70 + 30 = 180

Clearly option A is the desired answer.

Sol 151. (b) Total marks scored by the four students in theory = 60 + 50 + 70 + 80 = 260

Desired average = $\frac{260}{4}$ = 65

Sol 152. (d)

Total marks scored by B (%Age) = $\frac{50+50+30}{300}$ x 100 = 43 $\frac{1}{3}$ .. (<60%)

Clearly B failed in the exam.

Marks scored by D in project (%age) = $\frac{30}{80}$ x 100 = 37.5
.. (<50%)

Clearly D also failed in the exam.

But A and C cleared all the criteria. So option D is the right answer

Sol 153. (b)

Total cars sold by C in april 2016 = 250

Defective cars sold by C in april 2016 = 250 x $\frac{6}{100}$ = 15

Desired %age = $\frac{15}{350+450+250}$ = 1 $\frac{3}{7}$ %

Sol 154. (d)

The number of cars sold by A in Jan-Feb, 2016 = 3+2 = 5

The number of cars sold by B in Mar-Apr, 2016 = 5+4.5 = 9.5

Desired ratio = 5 : 9.5
= 10 : 19

Sol 155. (b)

The number of cars sold by A during Feb-Apr, 2016 = 200 + 500 + 350 = 1050

Desired average = $\frac{1050}{3}$ = 350

Sol 156. (c)

all cars sold by A and B during Jan-Mar 2016 = 900+700+1000+ = 2600

Non-defective cars sold by C during Jan-Mar 2016 = (400 x $\frac{85}{100}$) + (300 x $\frac{90}{100}$) + (400 x $\frac{92}{100}$)=978

Desired ratio = 978 : 2600
= 489 : 1300

Sol 157. (c)

The number of persons having ages below 20 years in villages, B and C = (6000 x $\frac{20}{100}$) + (8000 x $\frac{35}{100}$) = 4000

Desired percentage = $\frac{4000}{6000+8000}$ x 100 = $\frac{200}{7}$

Sol 158. (c)

the total number of persons in the age group of 20 to 50 years in the villages A and B = (5000 x $\frac{40}{100}$) + (6000 x $\frac{35}{100}$) = 4100

Sol 159. (d)

The difference between the number of persons of ages below

20 years in villages D and E = (6000 x $\frac{25}{100}$) -(4500 x $\frac{20}{100}$) = 600

the number of persons of ages below 20 years in villages D = (4500 x $\frac{20}{100}$) = 900

Desired %age = $\frac{600}{900}$ x 100 = $\frac{200}{3}$ %

Sol 160. (b)

the total number of persons of ages above 50 years in the villages, B and C

(6000 x $\frac{45}{100}$) + (8000 x $\frac{25}{100}$) = 4700

the total number of persons having ages between 20 and 50 years in the villages, B and C = (6000 x $\frac{35}{100}$) + (8000 x $\frac{40}{100}$) = 5300

Desired ratio = 4700 : 5300

= 47 : 53

Sol 161. (b)

Desired %age = $\frac{10-6}{10}$ x 100 = 40%

Sol 162. (c) From histogram,

Total no. of students = 15 + 13 + 10 + 14 + 12 + 6 = 70

Mean = $\frac{70}{2}$ = 35 So, the 35th student will be the median.

Therefore, From the histogram 35th student lies in the range of 160-65.

Sol 163. (a)

Desired %age = $\frac{800-500}{800}$ x 100 = 37.5

Sol 164. (b)

Total no. of students = 15 + 13 + 10 + 14 + 12 + 6 = 70

Desired %age = $\frac{14}{70}$ x 100 = 20%

Sol 165. (d)

Desired ratio = (500+450+750) : (600+350+650)

= 1700:1600 = 17:16

Sol 166. (c)

Desired %Age = $\frac{40}{50}$ x 100 = 80%

Sol 167. (a)

the number of students enrolled in institute A in the year 2016 = 500

the number of students enrolled in institute B in the year 2016 = 600

Desired %age = $\frac{600}{500}$ x 100 = 120%

Sol 168. (d)

Total angle corresponding to the number of persons using train and car = 120+40 = 160°

Total angle corresponding to the number of persons using transports other than train and car = 360° - 160° = 200°

Desired ratio = 160° : 200°

= 4 : 5

Sol 169. (d)

Desired number of persons = $\frac{120}{360}$ x 1080 = 360

Sol 170. (c)

Percentage of boys in school C = $\frac{750}{750+650}$ x100 = 53.57%

Percentage of boys in school D = $\frac{700}{700+600}$ x100 = 53.84%

Percentage of boys in school E = $\frac{800}{800+650}$ x100 = 55.17%

Percentage of boys in school A = $\frac{600}{600+500}$ x100 = 54.54%

Clearly option C is the desired answer.

Sol 171. (a)

Mean speed of cars = $\frac{50\times45 + 70\times55 + 85\times65 + 90\times75 + 60\times85 + 45\times95}{50+70+85+90+60+45}$

= $\frac{2250 + 3850 + 5525 + 6750 + 5100 + 4275}{400}$

= $\frac{27750}{400}$ = 69.37 ≈ $69km/h$

Sol 172.(d)

Total number of boys = 600 + 450 + 750 + 700 + 800 = 3300

Total number of girls = 500 + 550 + 650 + 600 + 650 = 2950

Desired Ratio = 3300 : 2950 = 66:59

Sol 173. (c) No. of male employees = 450 × $\frac{8}{100}$ × $\frac{25}{100}$ = 9

Sol 174.(d)

Total number of girls = 500 + 550 + 650 + 600 + 650 = 2950

Desired average = $\frac{2950}{5}$ = 590

Sol 175. (b) No. of employees working in department A = 450 × $\frac{20}{100}$ = 90

Sol 176. (a) Central angle of employees in dept. D = $\frac{8}{100}$ × 360 = 28.8°

Sol177. (a)

Cars were running with the speed less than 60 km/h = 50+70 = 120

Total number of cars = 50 + 70 + 85 + 90 + 60 + 45 = 400

Desired Percentage = $\frac{120}{400}$ × 100 = 30%

Sol 178. (b) Mean = $\frac{400}{2}$ = 200

⇒ Median lies in the class interval of 60-70

Sol 179. (d) Desired %age = $\frac{108}{360}$ × 100 = 30%

Sol 180. (c)

College E :

the percentage of the difference between boys and girls = $\frac{750-650}{750+650}$ = 7 $\frac{1}{7}$ %

College B :

the percentage of the difference between boys and girls = $\frac{600-500}{600+500}$ = 9 $\frac{1}{11}$ %

College D :

the percentage of the difference between boys and girls = $\frac{600-450}{600+450}$ = $14\frac{2}{7}$ %

College A :

the percentage of the difference between boys and girls = $\frac{500-400}{400+500}$ = $11\frac{1}{9}$ %

Clearly option C is the right answer.

Sol 181. (b) Total Height of the students = 11 × 102.5 + 14 × 107.5 + 17 × 112.5 + 15 × 117.5 + 13 × 122.5 + 10 × 127.5 = 9175

Total number of students = 11 + 14 + 17 + 15 + 13 + 10

the mean height of all students= $\frac{9175}{80}$ = 114.7

Sol 182. (a) Total no. of girls = 500 + 500 + 700 + 450 + 650 = 2800

Desired Average = $\frac{500+500+700+450+650}{5}$ = 560

Sol 183. (a)

The number of students have height in the interval of 105-110 = 14

The total number of students = 11 + 14 + 17 + 15 + 13 + 10 = 80

Desired %age = $\frac{14}{80}$ x 100 = 17.5

Sol 184. (b)

Desired %age = $\frac{36}{72}$ x 100 = 50

Sol 185. (c)

the total number of boys = 400 + 600 + 650 + 600 + 750 = 3000

the total number of girls = 500 + 500 + 700 + 450 + 650 = 2800

Desired ratio = 3000 : 2800

= 15 : 14

Sol 186. (d)

The total number of students = 11 + 14 + 17 + 15 + 13 + 10 = 80

Mean = $\frac{80}{2}$ = 40

Therefore, Median lies in the class of 110-115.

Sol 187. (d)

the total expenditure on steel, cement and bricks = 36+74+54 = 162

the total expenditure on labour and miscellaneous expenses = 108+90 = 198

Desired ratio = 162 : 198

= 9 : 11

Sol 188. (d)

Desired %age = $\frac{60}{80}$ x 100 = 75%

Sol 189. (c)

Total number of females = 300 + 275 + 250 + 200 + 125 = 1150

Desired average = $\frac{1150}{5}$ = 230

Sol 190. (a)

Total number of males = 250 + 225 + 325 + 275 + 150 = 1225

Total number of females = 300 + 275 + 250 + 200 + 125 = 1150

Desired ratio = 1225 : 1150

= 49 : 46

Sol 191. (b)

Number of students who got marks less than 45 = 8 + 14 + 28 = 50

Total number of students = 8 + 14 + 28 + 30 + 32 + 16 = 128

Desired % = $\frac{50}{128}$ × 100 = 39.1

Sol 192. (d)

Rent and Education = 70+60 = 130

Food and Miscellaneous = 105+45 = 150

Therefore, Required % = $\frac{150-130}{150}$ × 100 = $\frac{40}{3}$ %

Sol 193. (b) Mean no. of students = $\frac{8+14+28+30+32+16}{2}$ = 64

Therefore, Median marks lies in the interval of 45-60.

Sol 194. (a)

Organization D :

the percentage difference between the males and females = $\frac{275-200}{275+200}$ x 100 = 15.78 %

Organization E :

the percentage difference between the males and females = $\frac{150-125}{150+125}$ x 100 = 9.09 %

Organization B :

the percentage difference between the males and females = $\frac{275-225}{275+225}$ x 100 = 10 %

Organization C :

the percentage difference between the males and females = $\frac{325-250}{325+250}$ x 100 = 13.04 %

Clearly, Percentage difference between Male and Female is maximum in organization D.

Sol 195. (d) Total Marks = 8 × 7.5 + 14 × 22.5 + 28 × 37.5 + 30 × 52.5 + 32 × 67.5 + 16 × 82.5 = 6480

Total Students = 8 + 14 + 28 + 30 + 32 + 16 = 128

Mean marks = $\frac{6480}{128}$ = 50.6

Sol 196. (a) Expenditure on rent = $\frac{70}{360}$ × 43200 = *Rs*. 8400

Sol 197. (a)

According to the question

18% = 234

1 % = 13

39 % = 39 x 13 = 507

Sol 198. (a)

Difference in percentage = (39+18) - (21+22) = 14%

⇒ Desired No. of students = 14% of 1300= 182

Sol 199. (c) Percentage increase = $\frac{107-40}{40}$ × 100 = 167.5%

Sol 200. (c)

Electricity charges = (42 x 2.4) + (50 x 2.4 + 5 x 3.5) + (50 x 2.4 + 11 x 3.5)
= 142 x 2.4+16 x 3.5
=340.8+56 = 396.80

Sol 201. (c) Required percentage difference = (21+39) - (18+22) = 20 %

Sol 202. (c) Required difference = (95+100+84) - (61+55+42) = 121

Sol 203. (b)
Total sales = 80+105+95+110+75+95 = 560
Sol 204. (c) Total sale of B1, B3 and B5 = 80+105+95+110+75+95 = 560
Total sale of B2, B4 and B6 = 75+65+85+95+70+80 = 470
Required ratio = 560 : 470
= 56 : 47

Sol 205. (b)
Required %age = $\frac{20-15}{20} \times 100$ = 25

Sol 206. (d)
Total sales in 2000 = 80 + 75 + 95 + 85 + 75 + 70 = 480
Total sales in 2001 = 105 + 65 + 110 + 95 + 95 + 80 = 550
Required ratio = 48 : 55

Sol 207. (c)
Required percentage = $\frac{25-10}{25} \times 100 = 60\%$

Sol 208. (d)
Required percentage = $\frac{60-40}{60} \times 100 = \frac{100}{3}$ %

Sol 209. (a)
Required average = $\frac{325+250+500}{3}$ = 358.33

Sol 210. (b)
Production of steel for company A = 150+300+500 = 950 tonnes
Production of steel for company B = 200+400+400 = 1000 tonnes
Production of steel for company C = 325+250+500 = 1075 tonnes
Production of steel for company D = 400+500+600 = 1500 tonnes
Clearly option B is the right answer.

Sol 211. (d)
Required percentage = $\frac{200}{150+200+325+400}$ = 18.60%

Sol 212. (d)
Required number of students = $1280 \times \frac{30}{100}$ = 384

Sol 213. (d)
Average of type A TV = $\frac{430+360+550}{3} = \frac{1340}{3}$
Average of type B TV = $\frac{350+430+380}{3} = \frac{1160}{3}$
Required difference = $\frac{1340}{3} - \frac{1160}{3}$
= 60

Sol 214. (a)
Students after 2016 in standard 1 = 232+12-8+23-36 = 223

Sol 215. (b)
Total profit earned = 620000 × 825 = 5115 lakhs

Sol 216. (a)
Required ratio = 550 : 550 = 1:1

Sol 217. (d)
Required difference = 30-18 = 12

Sol 218. (a)
Total students = 232 + 241 + 248 + 12 + 6 + 16 - 8 - 11 - 13 = 723

Sol 219. (c)
Desired number of students = $2500 \times \frac{44-8}{100}$ = 900

Sol 220. (a)
Required difference = 24-21 = 3

Sol 221. (b) Ratio between Mumbai and Delhi = 155:180 = 31:36

Sol 222. (b) Since only in Mumbai and Kolkata has an increase, and they have the same value increased over the preceding year.
Hence, Mumbai has more percentage increase. As its previous year value is less than that of Kolkata.

Sol 223. (d) Required difference = 128-51 = 77

Sol 224. (a) Increase in expenditure on entertainment = $\frac{38}{279} \times 37200$
= Rs. 50.7 (approx.)

Sol 225. (d) Required ratio = (135-30):(180-10) = 105:170 = 21:34

Sol 226. (a) Required ratio = 72:10 = 36:5

Sol 227. (d) For J, % on food = $\frac{180}{279} \times 100 = 64.52$
For K, % on food = $\frac{135}{260} \times 100 = 51.92$
Therefore, Difference in % = 64.51-51.92 = 12.6%

Sol 228. (d) Sales in 2014 = 265
Sales in 2015 = 305
Therefore, Percentage increase = $\frac{40}{265} \times 100 = 15.1\%$

Sol 229. (b) Central angle representing football = $\frac{51}{300} \times 360$ = 61.2°

Sol 230. (a) Desired ratio = (60-55) : (68-60) = 5 : 8

Pinnacle

Sol 231. (a) Total increase in population of Kerala and Tamil Nadu from 2005 to 2015 = (28-21) + (44-38) = 7+6 = 13 cr.

Sol 232. (b) New tax paid by B = $0.9 \times \frac{112}{100} = 1.008$

Sol 233. (b) Average temperature on 1st Sunday = $\frac{29+24.2+18.9}{3} \approx 24$ (approx)

Sol 234. (b) Chennai had maximum temperature on 3rd Sunday.

Sol 235. (a) Difference in temperature = 31-10 = 21

Sol 236. (b) Required tax percentage = $\frac{2.46+0.9+0.36}{8.2+4.5+3.6+1.2} \times 100$
$= \frac{3.72}{17.5} \times 100 = 21.3\%$

Sol 237. (c)
Kerala = $\frac{7}{21} \times 100 = 33.33\%$
Tamil Nadu = $\frac{6}{38} \times 100 = 15.78\%$
Bihar = $\frac{13}{55} \times 100 = 23.63\%$
Assam = $\frac{10}{10} \times 100 = 100\%$
Therefore, Assam has maximum increase in population.

Sol 238. (a) Tax on A = $\frac{2.46}{8.2} \times 100 = 30\%$

Sol 239. (a)
Total number of books of subject $S_1 = 26$
Average number of books per subject = $\frac{26+29+31+34+36+38+44}{7} = 34$
Desired ratio = 26 : 34
= 13 : 17

Sol 240. (a) Total number of books of subject $S_3 = 31$
Average number of science books = $\frac{29+34+38}{3} = 33\frac{2}{3}$
Desired %age = $\frac{31 \times 3}{101}$ x 100 = 92.1

Sol 241. (c)
Total number of arts books = 26+31+36+44 = 137
Total number of science books = 29+34+38 = 101
Desired ratio = 137 : 101

Sol 242. (c)
Desired angle = $\frac{11}{100}$ x 360 = 39.6°

Sol 243. (c)
Desired ratio = 12 : 18
= 2 : 3

Sol 244. (c)
Total laptops = 3800
Desired difference = 3800 x $\frac{22-13}{100}$ = 342

Sol 245. (a)
Total marks obtained by all the students = 92 + 88 + 87 + 94 + 99 + 97 + 86 + 85 + 100 + 91 = 919
Desired average = $\frac{919}{10} = 91.9$

Sol 246. (a) The average of marks obtained by S3 and S5 = $\frac{87+99}{2}$ = 93
Marks scored by S9 = 100
Desired %age = $\frac{100-93}{100}$ x 100 = 7%

Sol 247. (a)
Total marks obtained by all the students = 92 + 88 + 87 + 94 + 99 + 97 + 86 + 85 + 100 + 91 = 919
Average marks = $\frac{919}{10} = 91.9$
Marks obtained by S5 = 99
Desired %age = $\frac{99-91.9}{91.9}$ x 100 = 7.73%

Sol 248. (b)
The marks obtained by S1 in Exam E5 = 87
The marks obtained by S2 in Exam E3 = 80
Desired %age = $\frac{87-80}{80}$ x 100 = 8.75 %

Sol 249. (b)
Total marks obtained by S3 = 85 + 99 + 82 + 93 + 84 = 443
Desired average = $\frac{443}{5} = 88.6$

Sol 250. (a) Total marks obtained by S1 in Exam E4, S2 in Exam E1, S3 in Exam E3 and E5 = 96 + 84 + 82 + 84 = 346

Sol 251. (d)
Highest recorded temperature = 40.3
Lowest recorded temperature = 12.2
Desired difference = 40.3-12.2 = 28.1

Sol 252. (d)
Desired %age = $\frac{35-30}{30}$ x 100 = 16.67%

Sol 253. (b)
Total temperature of 10 days = 38.3 + 40.3 + 30 + 28.7 + 35 + 37.4 + 38.2 + 39.3 + 40.2 + 12.2 = 339.6
Desired average = $\frac{339.6}{10}$ = 33.96°

Sol 254. (a)
Cars parked in D3 = 281
Cars parked in D8 = 322
Desired difference = 322-281 = 41

Sol 255. (c)
Total number of cars parked = 242 + 262 + 281 + 309 + 312 + 314 + 318 + 322 + 346 + 356 = 3062

Sol 256. (d)
Cars parked in D10 = 356
Cars parked in D8 = 242

Desired %age = $\frac{356-242}{242}$ x 100 = 47.11

Sol 257. (a)
Number of Males in C2 and C3 = 89+92 = 181
Number of Females in C1 and C5 = 81+36 = 117
Desired ratio = 181 : 117

Sol 258. (a)
Total number of males = 76+89+92+96+44 = 397
Total number of Females = 81+83+81+72+36 = 353
Desired %age = $\frac{397-353}{353}$ x 100 = 12.46%

Sol 259. (d)
Total number of Females = 81+83+81+72+36 = 353
Desired average = $\frac{353}{5}$ = 70.6

Sol 260. (d)
Desired angle = $\frac{13}{100}$ x 360 ≈ 47°

Sol 261. (d)
Total motor cycles parked = 2300
Red coloured motor cycles = 2300 x $\frac{12}{100}$ = 276

Sol 262. (d)
Total motor cycles parked = 2300
Desired number of motor cycles = 2300 x $\frac{21-18}{100}$ = 69

Sol 263. (b)
Total amount of water = 12 + 14 + 15 + 17 + 21 + 24 + 28 + 31 + 34 + 40 = 236
Average amount of water = $\frac{236}{10}$ = 23.6
Desired difference = 28 - 23.6 = 4.4

Sol 264. (b)
Amount of water in mixture M3 = 15
Amount of water in mixture M6 = 24
Desired %age = $\frac{15}{24}$ x 100 = 62.5

Sol 265. (b)
Total amount of water = 12 + 14 + 15 + 17 + 21 + 24 + 28 + 31 + 34 + 40 = 236
Average amount of water = $\frac{236}{10}$ = 23.6

Sol 266. (d)
Total number of employees = 2262 + 3485 + 4342 + 4801 + 5326 + 5918 + 6426 + 7028 = 39588
Desired average = $\frac{39588}{8}$ = 4948.5

Sol 267. (c)
number of employees from Y5 = 5326
number of employees from Y6 = 5918
Desired %age = $\frac{5918-5326}{5326}$ x 100 = 11.11

Sol 268. (a)
Total number of employees = 2262 + 3485 + 4342 + 4801 + 5326 + 5918 + 6426 + 7028 = 39588
Average number of employees = $\frac{39588}{8}$ = 4948.5
Number of employees from Y2 = 3485
Desired %age = $\frac{4948.5-3485}{4948.5}$ x 100 = 29.57 %

Sol 269. (a)
rainfall on day D2 in city 1 = 78 mm
rainfall on day D4 in city 2 = 77.7 mm
Desired %age = $\frac{78-77.7}{77.7}$ x 100 = $\frac{100}{259}$

Sol 270. (b)
Average rainfall in city 1 = $\frac{82+78+76.2+81.6+79.4+84+83.8}{7}$ = 80.71
Average rainfall in city 2 = $\frac{81.6+79.4+78.3+77.7+84+83+82}{7}$ = 80.86
Desired Difference = 80.86 - 80.71 = 0.15 mm

Sol 271. (d)
Total rainfall in city 1 = 82 + 78 + 76.2 + 81.6 + 79.4 + 84 + 83.8 = 565
Desired angle = $\frac{82}{565}$ x 360 = 52.2

Sol 272. (a)
The number of books sold in month M3 = 297
The number of books sold in month M6 = 332
Desired %age = $\frac{297}{332}$ x 100 = 89.45%

Sol 273. (c)
the total number of books sold by the bookseller = 232 + 262 + 297 + 313 + 328 + 332 + 365 + 389 + 413 + 433 + 457 + 481 = 4302

Sol 274. (a)
The total number of books sold by the bookseller = 232 + 262 + 297 + 313 + 328 + 332 + 365 + 389 + 413 + 433 + 457 + 481 = 4302
Average number of books sold = 358.5
The number of books sold in month M8 = 389
Desired difference = 389-358.5 = 30.5

Sol 275. (d)
Difference between C1 and C5 = 26-21 =5%
Going through all the options only option d is the multiple of 5.

Sol 276. (b)
The total number of refrigerators in the hotel = 3700
The number of refrigerators of company C5 = 3700 x $\frac{21}{100}$ = 777

Pinnacle

Sol 277. (b)
Desired angle = $\frac{19-13}{100}$ x 360 = 21.6°

Sol 278. (c)
Total number of shoes manufactured = 720 + 628 + 740 + 942 + 966 + 1034 + 1200 = 6230
Average number of shoes manufactured per day = $\frac{6230}{7}$ = 890
Number of shoes manufactured on day D5 = 966
Desired difference = 966-890 = 76

Sol 279. (b)
The number of shoes manufactured on D1 = 720
The number of shoes manufactured on D7 = 1200
Desired %age = $\frac{720}{1200}$ x 100 = 60%

Sol 280. (d)
Total number of shoes manufactured = 720 + 628 + 740 + 942 + 966 + 1034 + 1200 = 6230

Sol 281. (c)
Average runs per match scored by Shikhar = $\frac{1050}{25}$ = 42
Average runs per match scored by Rohit = $\frac{840}{20}$ = 42
Desired difference = 42-42 = 0

Sol 282. (a)
Total runs scored by all the batsmen = 900+840+1050+450 = 3240

Sol 283. (c)
Total runs scored by all the batsmen = 900+840+1050+450 = 3240
Desired average = $\frac{3240}{4}$ = 810

Sol 284. (a)
Only in 2013 and 2015 profit earned by company P was more than the profit earned by it in the previous year.
Extra profit earned by Pin 2013 = 45-25 = 20 lakhs
Extra profit earned P in 2015 = 60-42 = 18 lakhs
Clearly option A is the right answer.

Sol 285. (d)
Average profit of company P = 32 + 25 + 45 + 42 + 60 + 40 + 35 = 279
Average profit of company Q = 48 + 40 + 55 + 50 + 36 + 20 + 35 = 284
Desired ratio = 279 : 284

Sol 286. (c)
the profit of two companies in 2014 = 42+50 = 92 lakhs
the profit of two companies in 2015 = 60+36 = 96 lakhs
the profit of two companies in 2013 = 45+55 = 100 lakhs
the profit of two companies in 2017 = 35+35 = 92 lakhs

Sol 287. (a)
Units produced by company A, B and C = 900 + 700 + 300 = 1900
Units sold by company A, B and C = 650 + 300 + 150 = 1100
Desired %age = $\frac{1100}{1900}$ x 100 ≈ 58

Sol 288. (c)
Total units produced by all the companies = 900 + 700 + 300 + 850 + 550 + 600 = 3900
Desired average = $\frac{3900}{6}$ = 650

Sol 289. (b)
Company B :
Sales to production %age = $\frac{300}{700}$ x 100 = 42.85 %
Company A :
Sales to production %age = $\frac{650}{900}$ x 100 = 72.22 %
Company E :
Sales to production %age = $\frac{300}{550}$ x 100 = 54.54 %
Company D :
Sales to production %age = $\frac{450}{850}$ x 100 = 52.94 %
Clearly option B is the right answer.

Sol 290. (b)
Number of candidates who did not qualify in Bank K = 980 x $\frac{80}{100}$ = 784
Number of candidates who did not qualify in Bank I = 2200 x $\frac{74}{100}$ = 1628
Desired %age = $\frac{784}{1628}$ x 100 ≈ 48

Sol 291. (a)
Desired average = $\frac{1500+3000+1200}{3}$ = 1900

Sol 292. (c)
Number of candidates qualified in Bank H = 1500 x $\frac{14}{100}$ = 210
Number of candidates qualified in Bank L= 1200 x $\frac{28}{100}$ = 336
Desired ratio = 210 : 336
= 5 : 8

Sol 293. (a)
the total number of Laptops and Desktops manufactured in 2009 = 20500+24700 = 45200
the total number of Laptops and Desktops manufactured in 2011 = 16400+20200 = 36600
Desired ratio = 45200-36600 = 8600

Sol 294. (d)
Total number of desktops manufactured in 2012 = 14900
Total number of desktops manufactured in 2012 = 20200
Desired %age = $\frac{20200-14900}{20200}$ x 100 ≈ 26

Pinnacle

Sol 295.(c)
Total number of laptops manufactured by a company from 2008 to 2012 = 14400 + 20500 + 12800 + 16400 + 18600 = 82700
Desired average = $\frac{82700}{5}$ = 16540

Sol 296. (a)
Total number of articles sold by seller C to shopkeeper Q = 44
Total number of articles sold by seller F to shopkeeper P = 55
Desired %age = $\frac{44}{55}$ x 100 = 80%

Sol 297. (b)
total articles sold to P by sellers A, B, C, D, E and F = 45 + 53 + 28 + 38 + 35 + 55 = 254
total articles sold to P by all the sellers other than A, B, C, D, E and F = 300-254 = 46
total articles sold to Q by sellers A, B, C, D, E and F = 56 + 49 + 44 + 38 + 65 + 60 = 312
total articles sold to Q by all the sellers other than A, B, C, D, E and F = 500-312 = 188
Desired difference = (188) - (46) = 142

Sol 298. (b)
Total number of articles sold to the shopkeeper P by the sellers A, B, C and D = 45+53+28+38 = 164
Desired average = $\frac{164}{4}$ = 41

Sol 299. (c)
the number of students getting ≥ 20% in English = 4320
the number of students getting ≥ 80% in Hindi = 200
the number of students getting ≥ 40% in English = 3840
the number of students getting ≥ 80% in Hindi = 960
Desired ratio = (4320+200) : (3840+960)
= 113 : 120

Sol 300. (a)
According to the question
(20+25) unit = 35000
total population of the district (90 unit) = 2 x 35000 = 70000

Sol 301. (c)
Total production of food grains = 2400 + 3300 + 3000 + 3900 + 1800 + 3600 = 18000
Average production of food grains = $\frac{18000}{6}$ = 3000
Clearly in years 2012 and 2016 the production is less than the average production.

Sol 302. (a)
Total number of employees = 7,20,000
Desired number of employees 7,20,000 x $\frac{120+36+24}{360}$ = 3,60,000

Sol 303. (b)
Total number of employees = 7,20,000
Desired number of employees 7,20,000 x $\frac{108-24}{360}$ = 1,68,000

Sol 304. (c)
Desired %age = $\frac{72}{360}$ x 100 = 20%

Sol 305. (d)
Total expenditure on purchases = 23500 + 28500 + 38500 + 41000 + 50000 = 181500
Average expenditure on purchases = $\frac{181500}{5}$ = 36300
Total expenditure on rent = 40000 + 34000 + 36000 + 20000 + 28000 = 158000
Average expenditure on purchases = $\frac{158000}{5}$ = 31600
Desired %age = $\frac{36300-31600}{31600}$ x 100 = 14.87

Sol 306. (c)
Highest runs scored = 10800
Lowest runs scored = 2100
Difference between scores = 10800-2100 = 8700
Clearly option C is the right answer.

Sol 307. (b)
According to the question
5% = 0.50
⇒ 100% = CP = 10
Desired SP = 10 x $\frac{120}{100}$ = 12

Sol 308. (d)
Revenue allocated to expenses = 4000000 x $\frac{75}{100}$ = 3000000
According to the question
100 % = 3000000
1% = 30000
Amount spent on wages and delivery (35%) = 35 x 30000 = Rs. 10,50,000

Sol 309. (c)
According to the question
15% = 15 million
1% = 1 million
20% = 20 million
Desired quantity = 20 million x $\frac{40}{100}$ = 8 million

Sol 310. (a)
Maximum export = 37500
Minimum export = 18750
Desired %age = $\frac{37500-18750}{18750}$ x 100 = 100%

Sol 311. (a)
Total production of wheat = 2500 + 2000 + 6000 + 4500 + 6500 + 5000 + 7500 + 7000 = 41000
Average production = $\frac{41000}{8}$ = 5125
Clearly production in the year 2011, 2012, 2014 and 2016 is less than the average production.

Sol 312.(b)
Average profit of the years (2015-2017) = $\frac{11000+8000+11000}{3}$ = 10000
Profit of the year 2012 = 8000
Desired %age = $\frac{10000-8000}{8000}$ x 100 = 25%

Pinnacle

Sol 313. (c)
the average milk sold per day by Milkman 1 = $\frac{28+34+38+37+53+58+63+67}{8}$ = 47.25
the average milk sold per day by Milkman 2 = $\frac{31+32+43+41+49+59+62+69}{8}$ = 48.25
Desired difference = 48.25 - 47.25 = 1 litre

Sol 314. (a)
According to the question
A = 34 +38 = 72
B = 62+69 = 131
⇒ B-A = 131-72 = 59

Sol 315. (a)
The total amount of milk (in litres) sold by milkman 2 in all 8 days = 31 + 32 + 43 + 41 + 49 + 59 + 62 + 69 = 386
Total milk sold by Milkman 1 in first six days = 28+34+38+37+53+58 = 248
Desired %age = $\frac{386-248}{248}$ x 100 = 55.6

Sol 316. (d)
Desired %Age = $\frac{19}{12}$ x 100 = 158.33

Sol 317. (d)
Total expense on D2, D4 and D5 = 20 lakhs x $\frac{23+13+16}{100}$ = Rs. 10,40,000

Sol 318. (d)
Desired angle = $\frac{23-17}{100}$ x 360 = 21.6°

Sol 319. (a)
Total export of tea = 400 + 350 + 500 + 420 + 480 = 2150
Total export of coffee = 450 + 470 + 630 + 500 + 600 = 2650
Desired %age = $\frac{2650-2150}{2150}$ x 100 =23.26≈23

Sol 320. (b)
total export of tea in 2012, 2014 and 2015 = 400+500+420 = 1320
total export of coffee in 2013 and 2014 = 470+630 = 1100
Desired ratio = 1320 : 1100
= 6 : 5

Sol 321. (b)
2012 :
%age = $\frac{450-400}{400}$ x 100 =12.5
2013 :
%age = $\frac{470-350}{350}$ x 100 =34.28
2014 :
%age = $\frac{630-500}{500}$ x 100 =26
2015 :
%age = $\frac{500-420}{420}$ x 100 =19.04
2016 :
%age = $\frac{600-480}{480}$ x 100 = 25
Clearly option B is the right answer.

Sol 322. (b)
Total export of cosmetics in 4 years = 400 x $\frac{15}{100}$ +650 x $\frac{15}{100}$ +500 x $\frac{15}{100}$ +600 x $\frac{15}{100}$ = 322.5
Export of garments and jewelry in 2015 and 2018 = (400 x $\frac{28}{100}$ + 600 x $\frac{28}{100}$) + (400 x $\frac{8}{100}$ + 600 x $\frac{8}{100}$) = 360
Desired %age = $\frac{360-322.5}{360}$ x 100 =10.4

Sol 323. (c)
Total export of jewelry in (2015, 2016 and 2018) = 400 x $\frac{8}{100}$ +650 x $\frac{8}{100}$ +600 x $\frac{8}{100}$ =132
Total export of cloths in (2017 and 2018) = 500 x $\frac{25}{100}$ +600 x $\frac{25}{100}$ = 275
Desired %age = $\frac{132}{275}$ x 100 = 48%

Sol 324. (c)
Total export of computers in (2015 and 2017) = 400 x $\frac{24}{100}$ + 500 x $\frac{24}{100}$ = 216
Total export of cosmetics in (2015 and 2018) = 400 x $\frac{15}{100}$ + 600 x $\frac{15}{100}$ = 150
Desired ratio = 216 : 150
= 36 : 25

Sol 325. (d)
Units sold in 2013 and 2015 = 328+242 = 570
Units produced in 2015 and 2016 = 256 +504 = 760
Desired ratio = 570 : 760
= 3 : 4

Sol 326. (d)
Units sold in 2016 = 470
Total Units produced in (2012 to 2016) = 320 + 338 + 432 + 256 + 504 = 1850
Average units produced in (2012 to 2016) = $\frac{1850}{5}$ = 370
Desired %age = $\frac{470-370}{370}$ x 100 ≈ 27

Sol 327. (a)
Units sold in 2017 = 630
Desired units = 630 x $\frac{100-31.4}{100}$ ≈ 432
Clearly option A is the right answer.

Sol 328. (b)
Desired angle = $\frac{30.5}{100}$ x 360 = 109.8°

Sol 329. (c)
Expenses on Debt, Annuity, Insurance and other savings are less than the expanses on Tax.

Sol 330. (d)
Amount spent on housing = 1,20,000 x $\frac{0.28}{100}$ = 33600

Sol 331. (c)
Desired number of candidates = 720 x $\frac{20+15}{100}$ = 252

Sol 332. (b)
Total candidates worked in 2012 and 2015 = 20+10 = 30%
Clearly option B is the correct answer.

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Sol 333. (b)
Desired %age = $\frac{25-10}{25}$ x 100 = 60%

Sol 334. (b)
Total number of 2000 notes = 250 + 225 + 200 + 100 = 775
Total number of 200 notes = 150 + 175 + 100 + 250 = 675
Desired difference = 775-665 = 100

Sol 335. (d)
Number of 500 notes in Axis bank = 150
Amount = 150 x 500 = 75000
Number of 2000 notes in Axis bank = 100
Amount = 100 x 2000 = 200000
Desired %age = $\frac{75000}{200000}$ x 100 = 37.5

Sol 336. (d)
Number of 500 notes in ICICI bank = 200
Amount = 200 x 500 = 100000
Number of 200 notes in ICICI bank = 175
Amount = 175 x 200 = 35000
Desired ratio = 100000 : 35000
= 20 : 7

Sol 337. (c)
Target Production of cement in 2014 and 2016 = 350+450 = 800
Actual Production of cement in 2013, 2016 and 2017 = 245 + 355 + 400 = 1000
Desired ratio = 800 : 1000
= 4 : 5

Sol 338. (c)
Average actual production = $\frac{245+250+300+355+400}{5}$ = 310
2013:
Target production is less than the average actual production.
2014 :
%Age = $\frac{350-310}{310}$ x 100 = 12.90
2015:
%Age = $\frac{400-310}{310}$ x 100 = 29.03
2016 :
%Age = $\frac{450-310}{310}$ x 100 = 45.16 ≈ 45
Clearly option C is the right answer.

Sol 339. (d)
Targeted production in 2013 to 2017 = 270+350+400+450+330 = 1800
Actual production in 2014, 2015 and 2017 = 250+300+400 = 950
Desired %age = $\frac{950}{1800}$ x 100 = 52.8

Sol 340. (d)
the average production of type D vehicles = $\frac{65+63+73+71+70+72}{6}$ = 69
the production of type C vehicles is less than the average production of type D vehicles in the four year (2013, 2014, 2015 and 2016).

Sol 341. (a)
The total production of type A vehicles in 2013 and 2016 = 52+68 = 120
The total production of type C vehicles during 2015 to 2017 = 66+65+69 = 200
Desired ratio = 120 : 200
= 3 : 5

Sol 342. (c)
The total production of all types of vehicles in 2018 = 66+65+77+72 = 280
the total production of all types of vehicles in 2015 = 53+58+66+73 = 250
Desired %age = $\frac{280-250}{250}$ x 100 = 12

Sol 343.(a)
According to the question
360° = 450
1° = $\frac{5}{4}$
Desired difference = 80° - 76° = 4
x $\frac{5}{4}$ = 5

Sol 344. (a)
Central angle for average marks = $\frac{360^\circ}{5}$ = 72°
Clearly Amit scored more than the average marks in Hindi and Mathematics.

Sol 345. (a)
Desired %Age = $\frac{(64+68)-80}{80}$ x 100 = 65%

Sol 346. (d)
The average export of vehicles in 2018 = $\frac{35+45+50+43+47}{5}$ = 44
The export of vehicle A in 2017 = 25
Desired %age = $\frac{44-25}{25}$ x 100 = 76 %

Sol 347. (c)
The number of vehicles exported in 2017 of types B, C and D = 30 + 38 + 32 = 100
The vehicles exported in 2018 of the types A, D and E = 35 + 43 + 47 = 125
Desired ratio = 100 : 125
= 4 : 5

Sol 348. (c)
B :
%age = $\frac{45-30}{30}$ x 100 = 50%
A :
%age = $\frac{35-25}{25}$ x 100 = 40%
C :
%age = $\frac{50-38}{38}$ x 100 = 31.57%
D :
%age = $\frac{43-32}{32}$ x 100 = 34.37%
Clearly option C is the right answer.

Sol 349. (b)
Average import = $\frac{15000 + 17500 + 22000 + 19500 + 21000}{5}$ = 19000

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Clearly option B is the correct answer.

Sol 350. (b)
Desired Average = $\frac{45000 + 22500 + 47500 + 25000 + 25000}{5}$ = 33000

Sol 351. (a)
According to the question
90 unit = 18000
1 unit = 200
Total Expanse (540 unit) = 540 x 200 = 108000

Sol 352. (d)
Desired average = $\frac{125 + 250 + 150 + 175}{4}$ = 175

Sol 353. (b)
the total students who play cricket in schools A and B = 125 + 250 = 375
the total students who play hockey in schools C and D = 200 + 150 = 350
Desired ratio = 375 : 350
= 15 : 14

Sol 354. (c)
The number of students who play football in school A = 175
The number of students who play football in all schools = 175 + 200 + 250 + 125 = 750
Desired %Age = 23.33

Sol 355. (c)
Desired angle = $\frac{200}{75 + 125 + 200 + 150}$ x 360 ≈ 131°

Sol 356. (a)
the total amount of royalty paid (in Rs) to the authors during the years 2012, 2013 and 2016 = (250 x 800 x $\frac{10}{100}$ + 400 x 1000 x $\frac{16}{100}$) + (300 x 800 x $\frac{10}{100}$ + 500 x 1000 x $\frac{16}{100}$) + (400 x 800 x $\frac{10}{100}$ + 600 x 1000 x $\frac{16}{100}$)
= (950 x 800 x $\frac{10}{100}$) + (1500 x 1000 x $\frac{16}{100}$) = 3,16,000

Sol 357. (d)
the total number of the copies of the book sold in India during 2012-2015 = 250 + 300 + 350 + 500 = 1400

Sol 358. (d)
Total royalties earned by X in 2014 and 2015 =
(500 x 800 x $\frac{10}{100}$ + 550 x 1000 x $\frac{16}{100}$) + (350 x 800 x $\frac{10}{100}$ + 450 x 1000 x $\frac{16}{100}$) = 228000
Desired difference = 2,28,000 x $\frac{5-3}{8}$ = 57,000

Sol 359. (c)
Revenue = 300000
Total expense = 150000 + 60000 + 20000 + 30000 + 10000 = 270000
Margin = 300000 - 270000 = 30000
Margin for upcoming year = 300000 x $\frac{20}{100}$ = 60,000
Desired %age = $\frac{60000-30000}{30000}$ x 100 = 100%

SSC CGL TIER I

Sol 1. (c) Total number of cars produced in the year 2015 is 100
20% of 100 is 20 cars
Only E produced exactly 20 cars in 2015.

Sol 2. (d) Total cars produced in 2013 and 2014 is 300
25% of 300 is 75
Only D produced a total of 75 cars in 2013 and 2014.

Sol 3. (d) Total cars in 2012 = 120
Total cars in 2016 = 180
Difference = 60
% increase in cars = $\frac{60}{120}$ × 100 = 50%

Sol 4. (d) In 2017 with reference to 2016, % decrease in production of car A= $\frac{36-12}{36}$ × 100 = 66.6%
Car B has increased in 2017
% decrease in production of car C = $\frac{44-40}{44}$ × 100 = 9.09%
% decrease in production of car D= $\frac{38-22}{38}$ × 100 = 42.1%
% decrease in production of car E= $\frac{50-28}{50}$ × 100 = 44%
Car A has shown maximum decrease % from 2016 to 2017

Sol 5. (c) Total number of engineers recruited by company A and B in 2015 and 2018 = 132+ 148+ 118+112 = 510
Total number of engineers recruited by company C and D in 2014 and 2018 = 85+105+105+ 125 = 420
Required ratio= $\frac{510}{420} = \frac{17}{14}$

Sol 6. (a) Total engineers recruited by company B = 90 + 118 + 98 + 106 + 112 + 118 = 642
Average engineers recruited by B = 107
In 2014,2015 and 2016, D recruited less than average engineers recruited by B

Sol 7. (d) Total number of engineers recruited by company A in 2014 to 2017= 120+132+128+140= 520
Total engineers recruited by all four companies in 2019 = 150+118+110+122= 500
Required % = $\frac{520-500}{500}$ × 100 = 4%

Sol 8. (c) Total number of engineer recruited by company B in 2014 and 2017 = 90+106 = 196
Total number of engineer recruited by company C in 2015

to 2019 = 93+94+98+105+110 = 500
Required % = $\frac{196}{500} \times 100 = 39.2\%$

Sol 9. (c) Total number of students studying in a school = 250
Students studying in science or vocational studies = 35+18+10+30 = 93
% students studying in science or vocational studies = $\frac{93}{250} \times 100 = 37.2\%$

Sol 10. (d) Total number of students = 13 + 15 + 18 + 12 + 14 + 19 + 6 + 3 = 100
Students who got 20 or more marks = 14 + 19 + 6 + 3 = 42
% students with more than 20 marks = 42%

Sol 11. (a) The number of patients between age group 40-60 = 45-29= 16

Sol 12. (b) Salaries of employees and other income is as follows:
Clearly, B and C have their salary more than four times the other income.

Sol 13. (b) Average number of computers sold by dealer C = $\frac{95+104+100+99+100+102}{6} = \frac{600}{6} = 100$
From January to April, dealer B sold less computers than average computers sold by dealer C.

Sol 14. (b) Total computers sold by dealer A in February, April and May = 94+108+98= 300
Total computers sold by dealer D in March, May and June = 90+89+91 = 270
Required ratio = 10:9

Sol 15. (d) Total number of computers sold by dealer B in April, May and June = 97+102+108= 307
Total number of computers sold by all dealers in February and April = (94+108) + (96+97) + (104+99) + (106+96) = 800
Required % = $\frac{307}{800} \times 100 = 38\frac{3}{8}$

Sol 16. (d) Total number of computers sold by dealer A during February to June = 94 + 85 + 108 + 98 + 95 = 480
Total number of computer sold by all dealers in June = 94 + 108 + 102 + 91 = 395
Required % = $\frac{480-395}{395} \times 100 = 21.5\%$

Sol 17. (b) Total revenue of the company in 2014 = 80 + 92 + 96 + 92 = 360
Sale of product C from 2014 to 2017 = 96 + 88 + 93 + 103 = 380
Required ratio = 360: 380
= 18:19

Sol 18. (d) Total revenue from A,B and D in 2012 and 2013 = (98+74+74) + (94+96+102) = 538
Revenue of company B in 2013 to 2016 = 96+92+84+98= 370
Required % = $\frac{538-370}{370} \times 100 = 45.40\%$

Sol 19. (d) Average revenue of company from sale of product A over the six years = $\frac{98+94+80+95+110+115}{6} = \frac{592}{6} = 98.66$
In 2013 and 2017, revenue of company from sale of product D is more than average revenue of company from sale of product A over the six years.

Sol 20. (b) Total revenue of company from sale of B, C and D in 2014 = 92+96+92 = 280
Total revenue of company from sale of C = 82+98+96+88+93+103 = 560
Total revenue of company from sale of D = 74+102+92+93+97+102= 560
Total revenue from C and D = 1120
Required % = $\frac{280}{1120} \times 100 = 25\%$

Sol 21. (d) Total production in 2017 = 80+96+100+104 = 380
25% of 380 = 95
In 2015, D had more than 25% of total production in 2017.

Sol 22. (c) Total production of motorcycles in 2014 = 84 + 87 + 89 + 100 = 360
Total production of motorcycles in 2018 = 98+92+110+120 = 420
Required % = $\frac{60}{360} \times 100 = 16\frac{2}{3}$

Sol 23. (d) Total production of type A motorcycles over six years = 95+84+85+89+80+98 = 531
Total production of all motorcycles in 2013 and 2016 = (95+98+104+103) + (89+88+92+95) = 764
Required % = $\frac{764-531}{764} \times 100 = \frac{233}{764} \times 100 = 30.5\%$

Sol 24. (c) Total number of motorcycle of type B in 2016 and 2018 = 88+92 = 180
Type D motorcycles produced in 2013, 2015 and 2016 = 103+102+95 = 300
Required ratio = 180:300 = 3:5

Sol 25. (b) Average export of item B during six years = $\frac{128+134+138+169+182+209}{6} = \frac{960}{6} = 160$ crore
1.4 × 160 = 224 crore
In 2013, export of item D was 224 crore.

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Sol 26. (d) Total exports of item A in 2014 and 2015 = 425+400 = 825
Total exports of item C in 2011 and 2015 = 244+306 = 550
Required ratio = 825:550 = 3:2

Sol 27. (d) Total export of item D in 2010, 2012 and 2014 = 214 + 247 + 309 = 770
Total export of all four item in 2011 and 2012 = (250 + 134 + 244 + 282) + (225 + 138 + 230 + 247) = 1750
Required % = $\frac{770}{1750} \times 100 = 44\%$

Sol 28. (d) Total export of item A from 2012 to 2014 = 225 + 370 + 425 = 1020
Total export in 2015 = 400 + 209 + 306 + 275 = 1190
Required % = $\frac{1190-1020}{1190} \times 100 = 14.28\%$

Sol 29. (c) Total number of cars sold by A,B and D in 2017 = 52+53+75 = 180
Total number of cars sold by all companies in 2018 = 63+67+76+74 = 280
Required ratio = 180:280 = 9:14

Sol 30. (b) Total cars sold by company B in 2015, 2017 and 2018 = 60 + 53 + 67 = 180
Total cars sold by company C in 2013, 2015, 2017 and 2018 = 65+66+63+76 = 270
Required % = $\frac{270-180}{270} \times 100 = 33\frac{1}{3}\%$

Sol 31. (c) Cars sold by company A in 2017 and C in 2013 = (52)+(65) = 117 thousand
Total cars sold by all four companies in 2013 and 2016 = (45+63+65+67) + (72+58+70+63) = 503 thousand
Required % = $\frac{117}{503} \times 100 = 23.26\%$

Sol 32. (c) Average cars sold by company A during 2014 to 2018 = $\frac{52+61+72+52+63}{5}$ = 60 thousand
Total cars sold by company C in 2018 = 76 thousand
Required difference = 16 thousand

Sol 33. (b) Total number of students = 32+18+28+45+42+42+13+30 = 250
Students studying in science = 32+18 = 50
Students not studying in science = 200
Required % = $\frac{200}{250} \times 100 = 80\%$

Sol 34. (a) Average arrears = $\frac{5500+4500+4000+3000+1500}{5} = \frac{18500}{5} = 3700$
A,B and C got more arrear than average arrears of all employees.

Sol 35. (d) Total number of girls = 100
Girls with height 135 cm or more but less than 150 cm = 64

Sol 36. (d) Families with monthly salary less than ₹ 40,000 = 6+12+9 = 27

Sol 37. (a) Total production of wheat = 2500+4218+3482+4500+3300 = 18000
Average production = $\frac{18000}{5} = 3600$

Sol 38. (c) Required % = $\frac{840-490}{490} \times 100 = 71.43\%$

Sol 39. (b) % increase in sugarcane in 2016 = $\frac{120}{1000} \times 100 = 12\%$
% increase in sugarcane in 2017 = $\frac{130}{1120} \times 100 = 11.6\%$
% increase in sugarcane in 2018 = $\frac{75}{1250} \times 100 = 6\%$
% increase in sugarcane in 2019 = $\frac{125}{1325} \times 100 = 9.4\%$
Highest growth in sugarcane production is in 2016.

Sol 40. (b) Average production of barley = $\frac{975+825+700+625+775}{5}$ = 780
Average production of rice = $\frac{415+520+585+625+600}{5}$ = 549
Required difference = 231 tonnes

Sol 41. (c) Income other than salary = total - salary
For A = ₹(66000-52000) = ₹ 14000
For B = ₹(59000-48500) = ₹ 10500
For C = ₹(52000-42000) = ₹ 10000
For D = ₹(40000-31000) = ₹ 9000
For E = ₹(31700-25000) = ₹ 6700
A and B got more than ₹ 10000 income other than their salary.

Sol 42. (b) Workers earning less than ₹ 1,100 = 4+15+10+10 = 39

Sol 43. (d) Total number of boys in college = 18+47+40+30 = 135
Total number of girls in college = 35+25+45+10 = 115
Required ratio = 135:115 = 27:23

Sol 44. (b) Students with height 165 cm or more = 40-25 = 15 cm

Sol 45. (c) Required % = $\frac{85-75}{75} \times 100 = 13.33\%$

Sol 46. (a) Total amount spent on five commodities in 2019 = 15 × 80 + 20 × 60 + 12 × 40 + 40 × 85 + 8 × 72 = ₹ 6,856

Sol 47. (b) Required ratio = 15 × 80 : 40 × 85 = 6:17

Sol 48. (a) Extra amount spent on B = 20 × (60-50) = ₹ 200
Extra amount spent on C = 12 × (40-35) = ₹ 60

Pinnacle

Total extra amount spent by B and C in 2019 over 2016 = ₹ 260

Sol 49. (c) Teachers of age less than 40years = 2+3+5+2 = 12

Sol 50. (c) % students who have passed with distinction in 2012 = $\frac{210}{840} \times 100 = 25\%$

Sol 51. (a) Total number of boys = 32 + 28 + 42 + 13 = 115
Total number of girls = 18 + 45 + 42 + 30 = 135
Total number of students = 250
% of girls = $\frac{135}{250} \times 100 = 54\%$

Sol 52. (d) Total number of students = 50
Students scoring more than 40 and less than 70 = 46-22 = 24
Required % = $\frac{24}{50} \times 100 = 48\%$

Sol 53. (b) Total C mobile phones till date = 5000
Mobile phone sold to more than 1 year old = 90% of 5000 = 4500

Sol 54. (a) Employees working in 2016 = 500 + 130 + 50 + 145 = 1325
Employees working in 2017 = 940 + 146 + 60 + 140 = 1286
Employees working in 2018 = 1000 + 160 + 70 + 146 = 1376
Employees working in 2019 = 1010 + 150 + 75 + 150 = 1385
Clearly, in 2019 maximum employees are working in the organization.

Sol 55. (d) % increase in profit in 2015-2016 = $\frac{690-625}{625} \times 100 = 10.4\%$
% increase in profit in 2016-2017 = $\frac{725-690}{690} \times 100 = 5.07$
% increase in profit in 2017-2018 = $\frac{775-725}{725} \times 100 = 6.89\%$
% increase in profit in 2018-2019 = $\frac{815-775}{775} \times 100 = 5.16$
In 2015-2016, there was a maximum increase in % profit over the previous year.

Sol 56. (d) Total marks obtained by all students in physics = (80+90+70+80+65+85+50)% of 120 = 624
Required Average = $\frac{624}{7} = 89.14\%$

Sol 57. (a) For state B, let total population is 'B'
According to question:
75% of B is above the poverty line.
75% of B = 5x
Male population above poverty line = 2x = 2.5 million
Then, 5x = $\frac{25}{4}$ million
100% of B = $\frac{25}{4} \times \frac{4}{3} = \frac{25}{3} = 8\frac{1}{3}$ million

Sol 58. (a) For state C, the ratio of male and female below poverty line = 3:2 or 3x and 2x respectively.
3x = 3 million
5x = 5 million
19% of C's population = 5x = 5 million
100 % of C's population = 26.316 million

Sol 59. (a) Total interest = 23.5 + 30 + 40 + 35 + 45 = 173.5 lakh
Average interest = $\frac{173.5}{5} = 34.7$ lakh

Sol 60. (c) Total population = 50,000 people
% population below 35 years = 31+5.25+14.25 = 50.5%
number of people below 35 years = 50.5% of 50,000 = 25,250

Sol 61. (d) Total number of candidates appearing in 1997= 5200 + 7500 + 6400 + 8100 = 27,200

Sol 62. (c) Required difference = 1020-980 = 40 candidates

Sol 63. (a) Total candidates qualified in 2001 = 1125+1020+1250+995 = 4390
Total candidates qualified in 1998 = 980+1050+1020+1240 = 4290
Required % = $\frac{4290}{4390} \times 100 = 97.72\%$

Sol 64. (a) Average number of candidates that appeared from state Q = $\frac{8100+9500+8700+9700+8950}{5} = 8990$

Sol 65. (c) Total expenditure in 2014 = 284 + 98 + 3 + 23.4 + 74 = 482.4
Total expenditure in 2018 = 425 + 141 + 3.96 + 49.4 + 108 = 727.36
Required % = $\frac{482.4}{727.36} \times 100 = 66.32$

Sol 66. (a) Total fertilizer production of company II = 180 + 179 + 160 + 167 + 150 = 836
Average production of company II = $\frac{836}{5} = 167.2$
In April, approximately 20% fertilizer production was done by Company II.

Sol 67. (c) Trade balance = Export - Import
Total trade balance = (130-125) + (150-145) + (175-165) + (200-188) = 32 crores
Average trade balance = $\frac{32}{4} = 8$ crores

Sol 68. (c) Company I had a continuous decrease in production of fertilizers during five months.

Sol 69. (c) Required ratio = $\frac{45}{18+42+30} = \frac{45}{90} = \frac{1}{2}$

Pinnacle

Sol 70. (c) Clearly, from given it can be seen that vowels a,o and u occurred less than 80 times.

Sol 71. (c)
Required % = $\frac{2500}{40000} \times 100 = 6.25\%$

Sol 72. (b) Total number of students = 5+11+18+38+39+24+15 = 150
Students who got less than 50 marks = 5+11+18+38 = 72
Required % = $\frac{72}{150} \times 100 = 48\%$

SSC CHSL 2019

1.Sol: (a)
Dr. Kalra = 97-85 = 12
Mr. Saxena = 87-78 = 9
Mrs. Taneja = 100-98 = 2
Mr. Joshi = 92-85 = 7
so, Dr. Kalra has maximum improvement.

2.Sol: (c)
1996-1997 = $\frac{55-45}{45} \times 100 =$ 22.22%
2000-2001 = negative growth
1998-1999 = $\frac{65-50}{50} \times 100 = 30\%$
1997-1998 = negative growth
so, answer (c) is correct

3.Sol: (b)
we can observe clearly that in 2000 it had maximum profit

4.Sol: (b)
(a) Madhu : $\frac{10}{76} \times 100 = 13.16\%$
(b) Alka : $\frac{14}{72} \times 100 = 19.44\%$
(c) Veena : $\frac{5}{85} \times 100 = 5.88\%$
(d) Meena : $\frac{9}{62} \times 100 = 14.52\%$
Clearly, we can see that alka gets maximum improvement from class X to class XII

5.Sol(b)
the total expenditure on 'Infrastructure' and 'Transport = 25 + 17.5 = 42.5
the total expenditure on 'Taxes' and 'Interest on Loans' = 10 + 22.5 = 32.5
So, ratio will be 17:13

6.Sol (d)
Total expenditure of the company = 25+17.5+20+10+5+15+22.5 = 115
total expenditure on 'Research and Development' and 'Salary' = 5+15 = 20
Now, 115/20 = 5.75

7.Sol (a)
Expenditure on 'Interest on loans = 22.5%
Expenditure on 'Transport' = 17.5%
The expenditure on 'Interest on loans' is 5 % more than the expenditure on 'Transport'.

8.Sol.(a) C : $\frac{5550}{15000} \times 100 = 37\%$
(b) A : $\frac{6000}{12000} \times 100 = 50\%$
(c) B : $\frac{7500}{18000} \times 100 = 41.67\%$
(d) D : $\frac{6000}{16000} \times 100 = 37.5\%$
Clearly, we can see the expenditure as a percentage of salary is the least for C.

9.Sol:(a) D : $\frac{600}{16000} \times 100 =$ 3.75%
(b) A : $\frac{450}{12000} \times 100 = 3.75\%$
(c) B : $\frac{950}{18000} \times 100 = 5.28\%$
(d) C : $\frac{550}{15000} \times 100 = 3.67\%$
Clearly, we can see the tax as a percentage of salary is the least for C.

10.Sol: (a) D : $\frac{600}{16000} \times 100 =$ 3.75%
(b) B : $\frac{950}{18000} \times 100 = 5.28\%$
(c) A : $\frac{450}{12000} \times 100 = 3.75\%$
(d) C : $\frac{550}{15000} \times 100 = 3.67\%$
Clearly, we can see the tax as a percentage of salary is the highest for B.

11.Sol:(a) B : $\frac{9550}{18000} \times 100 =$ 53.05%
(b) D : $\frac{9400}{16000} \times 100 = 58.75\%$
(c) C : $\frac{8900}{15000} \times 100 = 59.33\%$
(d) A : $\frac{5550}{12000} \times 100 = 46.25\%$
Clearly, we can see the savings as a percentage of salary is the highest for C.

12.Sol:(c)
As we can see from the graph that performance of C in physics is 87 which is higher than B and E so Option C is 100% correct

13.Sol:(c)

Places	Production Ratio
S1	$\frac{765}{415} = 1.84$
S2	$\frac{856}{390} = 2.19$
S3	$\frac{729}{354} = 2.06$
S4	$\frac{964}{550} = 1.75$
S5	$\frac{580}{280} = 2.07$
S6	$\frac{864}{440} = 1.96$

Highest Production ratio = S2
Lowest Production ratio = S4

14.Sol:(b)
Required difference= (23% of 4.2 lakhs)-(15% of 3.6 lakhs)

=.(966-.54)lakhs
=42600

15.Sol:(c) Average expenditure in 2016-17, 2017-18, 2018-19 = $\frac{720+820+845}{3} = 795$
30% of the average expenditure in 2016-17, 2017-18, 2018-19 = 238.5
Amount (in billion of rupees) to be spent in 2020-21 = 795+238.5 = 1033.5

16.Sol: (d)
Total number of males = 35+32+30+45+40 = 182
Total number of females =

28+40+35+42+32 = 177
x% of 182 = 177
x = $\frac{177}{182} \times 100$ = 97.25% or 97%

17.Sol:(b)
In 2016= $\frac{125}{100} = \frac{5}{4}$
5 unit=250 million
4 unit=200 million
Export in 2007=500-200=300 million
In 2017= $\frac{14}{10} = \frac{7}{5}$
5 unit =300 million
7 unit =420 million

18.Sol:(d)
Total number of students=140 thousand
Student in school D=140 × $\frac{1}{4}$
=35 thousand
Number of boys=35000 × $\frac{3}{4}$
=26250

19.Sol:(a)
By the above graph,
We can see clearly that curtains have increased by 55%

20.Sol:(a)
Average income= $\frac{22+30+20+38}{4}$
= $\frac{110}{4}$ =27.5 or 27500

21.Sol:(b)
total expenditure=7+13+25+10 = 55
Total income=22+30+20+38 = 110
Required percentage = x% of 110 = 55
x = 50%

22.Sol: (d)
Average admission of S3 and S4 in 2018 = $\frac{150+250}{2}$ = 200
Average admission of S1 and S2 in 2017 = $\frac{250+240}{2}$ = 245
x% of 245 = 200
x = 81.63%
) $S_3 + S_4$ in 2018=150+250=400
$S_1 + S_2$ in 2017=250+240=420
x% of 490=400
x=81.63%

23.Sol: (d)
Total number of admitted students in 2017 = 250+240+200+300 = 990
Total number of admitted students in 2018 = 320+360+150+250 = 1080
Required ratio = 990 : 1080 = 11 : 12

24.Sol: (d)
The total number of students admitted in school S3 in both years = 200+150 = 350
Total number of students admitted in school in S2 in both years = 240+360 = 600
so, x% of 600 = 350
Therefore, x = 58.33%

25.Sol: (d)
The average number of students admitted to all schools in 2018 = $\frac{320+360+150+250}{4}$ = 270

26.Sol . (d)
B4 : $\frac{6}{34} \times 100 = 17.65\%$
B1 : $\frac{9}{43} \times 100 = 20.9\%$
B3 : $\frac{7}{28} \times 100 = 25\%$
B6 : $\frac{13}{25} \times 100 = 52\%$
So, we can see clearly that the highest rate of collection is for the branch: B6

27.Sol. (b)
Total number of students who did not pass in the course A = 24% × 18% × 60000 = 2592
Total number of students who did not pass in the course C = 20% × 20% × 60000 = 2400
Total number of students who did not pass in the courses A, C = 2592 + 2400 = 4992

28.Sol:(b)Average marks in Maths = $\frac{86+69+60+70+78+92}{6}$ = 75.83
3 students crossed the average marks.
Average marks in Economics = $\frac{98+58+70+80+73+74}{6}$ = 75.5
2 students crossed the average marks.
so, option (b) is correct.

29.Sol: (b)
Average production of A = $\frac{23+26+28+25+30}{5}$ = 28.4
Average production of B = $\frac{25+29+27+35+31}{5}$ = 29.4
Average production of C = $\frac{28+31+36+28+35}{5}$ = 31.6
Average production of D = $\frac{32+35+40+46+50}{5}$ = 40.6
therefore, D has the highest and A has least.

30.Sol: (c)
Sales of City-1 = 4.3+3.5+3.9+4.1 = 15.8
Sales of City-2 = 3.6+3.9+4.2+4.3 = 16.0
Sales of City-3 = 5.2+4.3+4.9+4.9 = 19.3
Sales of City-4 = 4.5+4.6+5.1+4.9 = 19.1
Clearly, City-3 has maximum sales.

31.Sol: (c)
Sales in 2016 = 4.3+3.6+5.2+4.5 = 17.6
Sales in 2017 = 3.5+3.9+4.3+4.6 = 16.3
Sales in 2018 = 3.9+4.2+4.9+5.1 = 18.1
Sales in 2019 = 4.1+4.3+4.9+4.9 = 18.2
Clearly, in 2019 has highest sales.

32.Sol: (a)
Sales of City-1 = 4.3+3.5+3.9+4.1 = 15.8
Sales of City-2 = 3.6+3.9+4.2+4.3 = 16.0

Pinnacle

Sales of City-3 = 5.2+4.3+4.9+4.9 = 19.3
Sales of City-4 = 4.5+4.6+5.1+4.9 = 19.1
In terms of percentage, sales of City-3 is highest.
(if production is high then percentage will also be high)

33.Sol: (d)
Total number of sales in 2019 = 4.1+4.3+4.9+4.9 = 18.2 thousands
Required average = $\frac{18.2\times1000}{4}$ = 4,550

34.Sol: (d)
2007-2008 = 100-80 = 20
2006-2007 = 100-50 = 50
2008-2009 = 80-20 = 60
2005-2006 = 50-40 = 10
Clearly, 2005-2006 has minimum rainfall.

35.Sol: (c)
Required average = $\frac{52+60+72+71}{4}$ = 63.75%

36.Sol: (d)
Percentage of passed students = $\frac{71+82+66+86}{4}$ = 76.25
Percentage of passed students = 100-76.25 = 23.75%

37.Sol: (c)
Total number of lecturers in Physics = $500\times\frac{22}{100}$ = 110
Number of male lecturers = $110\times\frac{2}{5}$ = 44

38.Sol: (c)
required average = $\frac{58+57+62+59}{4}$ = 59

39.Sol: (d)
Number of students in class VII = 60+62 = 122
Number of students in class VI = 59+57 = 115
Number of students in class VIII = 61+59 = 120
Number of students in class V = 65+58 = 123
so, class V has a maximum number of students.

40.Sol: (c)
Total number of boys = 65+59+60+61 = 245
Total number of girls = 58+57+62+59 = 236
required percentage = $\frac{9}{245}\times100$ = 3.67%

41.Sol: (a)
In class VIII = $\frac{61-60}{60}\times100$ = 1.67%
In class VII = $\frac{60-59}{59}\times100$ = 1.69%
so, option (a) is correct.

42.Sol: (d)
Birth rate of Country C = 20
Birth rate of Country E = 33
33% of x = 20
x = $\frac{20\times100}{33}$ = 60.6% or 60%

43.Sol: (d)
Income in 2001 = 30
Clearly, in 2004, the expenditure is equal to income in 2001

44.Sol: (*)
Expenditure in 2001 = 20
Expenditure in 2002 = 15
Difference = 20-15 = 5
Percentage decrease = $\frac{5}{20}\times100$ = 25%

45.Sol: (c)
income in 2002 = 25
income in 2001 = 30
required percentage = $\frac{5}{30}\times100$ = $16\frac{2}{3}$%

46.Sol: (c)
Number of students playing 5 hours or more than 5 hours = 8+6 = 14

47.Sol: (b)
The number of students in school T = 20%
Total number of students in school Q and S = 22%+18% = 40%
40% of x = 20%
x = 50%

48.Sol: (c)
Total number of books sold during these five month = 900+800+500+350+300 = 2850

49.Sol: (c)
Difference between marks scored in History and Hindi = 70°-55° = 15°
360° = 600
15° = $\frac{600}{360}\times15$ = 25

50.Sol: (d)
Total production = 25+40+60+45+50+30 = 250
One-fifth of the total production = 250/5 = 50
We clearly see, on Friday 50 units are production.

51.Sol: (a)
Total number of teachers = 4+5+6+3+2+5 = 25
Total number of teachers less than 45 years = 4+5+6+3+2 = 20
x% of 25 = 20
x = 80%

52.Sol: (d)
Production on friday = 50 unit
Production on saturday = 30 unit
Decline = 50-30 = 20 unit
Required percentage = $\frac{20}{50}\times100$ = 40%

53.Sol: (d)
Total number of students in 2007 = 2.5+1.5+5+1 = 10
required average = $\frac{10}{4}$ = 2.5

54.Sol: (d)

Pinnacle

Total number of students in the year 2007 who admitted to course A = 3.8
Total number of students in the year 2009 who admitted to course C = 4
required ratio = $\frac{38}{40} = \frac{19}{20}$

55.Sol: (b)
Total number of students in M.Sc = 2.4+2.9+5.2+1.4 = 11.9

56.Sol: (a)
Required ratio = 150 : 300 = 1:2

57.Sol: (c)
In 2014 = $\frac{400}{900} \times 100 = 44.4\%$
In 2016 = $\frac{500}{1000} \times 100 = 50\%$
In 2011 = $\frac{300}{500} \times 100 = 60\%$
In 2012 = $\frac{400}{800} \times 100 = 50\%$
Clearly, in 2011 has maximum

58.Sol: (d)
Number of female lecturers in chemistry = $500 \times \frac{20}{100} \times \frac{1}{5} = 20$
Number of female lecturers in Mathematics = $500 \times \frac{30}{100} \times \frac{3}{10} = 45$
Required difference = 45-20 = 25

59.Sol: (b)
A = $\frac{200-100}{100} \times 100 = 100\%$
B = $\frac{170-50}{50} \times 100 = 240\%$
C = $\frac{300-220}{220} \times 100 = 36.36\%$
D = $\frac{200-150}{150} \times 100 = 33.3\%$
Clearly, B is the answer.

60.Sol: (c)
In 2001 = $\frac{440-410}{410} \times 100 = 7.31$
In 2004 = $\frac{710-710}{710} \times 100 = 0\%$
In 2002 = $\frac{570-440}{440} \times 100 = 29.54\%$
In 2003 = $\frac{710-570}{570} \times 100 = 24.56\%$
In 2002 has maximum

61.Sol: (*)
Discrepancy has been found in the above question
Answer should be 6600
As expenditure=5500
And to obtain 20% profit the gross receipt should be 120% of 5500=6600

62.Sol: (c)
Total expenditure in 1998-99 = 8500
Total expenditure in 1994-95 = 4800
required difference = 8500-4800 = 3700

63.Sol: (c)
Profit = 8200-7700 = 500
Profit percentage = $\frac{500}{8200} \times 100 = 6.1\%$

64.Sol: (d)
Gross receipts in 1994-95 = 5000
Gross receipts in 1996-97 = 7200
increment = 7200-5000 = 2200
required percentage = $\frac{2200}{5000} \times 100 = 44\%$

65.Sol: (d)
Total sales of F1 = 65+72+83 = 220
Total sales of F4 = 200
required ratio = 220 : 200 = 11 : 10

66.Sol: (a)
Sales in F1 = 65+72+83 = 220
Sales in F2 = 69+71+73 = 213
Sales in F3 = 58+64+69 = 191
Sales in F4 = 63+68+69 = 200
so, F1 had the highest sales.

67.Sol: (b)
Sales in F1 = 65+72+83 = 220
Sales in F2 = 69+71+73 = 213
Sales in F3 = 58+64+69 = 191
Sales in F4 = 63+68+69 = 200
so, F3 had the least sales.

68.Sol: (c)
Sales in F1 = 65+72+83 = 220
Sales in F2 = 69+71+73 = 213
Sales in F3 = 58+64+69 = 191
Sales in F4 = 63+68+69 = 200
in terms of percentage, F1 had the highest sales

69.Sol: (c)
Number of players in cricket = $2800 \times \frac{23}{100} = 644$
Number of players in kabaddi = $2800 \times \frac{12}{100} = 336$
After shifted 24 students from cricket to kabaddi
new players in cricket = 644-24 = 620
new players in kabaddi = 336+24 = 360
required average = 620 : 360 = 31 : 18

70.Sol: (c)
production in 1998 = 45
Production in 1999 = 65
required percentage = $\frac{65-45}{45} \times 100 = 44.4\%$

71.Sol: (a)
The average production in 2000 and 2001 = $\frac{50+75}{2} = 62.5$
The average production in 2001 and 2002 = $\frac{75+80}{2} = 77.5$
The average production in 1996 and 1997 = $\frac{40+60}{2} = 50$
The average production in 1997 and 1998 = $\frac{60+45}{2} = 52.5$
The average production in 1999 and 2000 = $\frac{65+50}{2} = 57.5$
The average production in 2000 and 2001 was less than the average production of 2001 and 2002

72.Sol: (d)
Number of students enrolled in Hockey = $2800 \times \frac{26}{100} = 728$
Number of students enrolled in Tennis = $2800 \times \frac{14}{100} = 392$
required average = $\frac{728+392}{2} = 560$

73.Sol.(d)

55%=165 crore
100%=300 crore

74.Sol.(a)
required ratio=(300+400):(350+100)
=700:450
=14:9

75.Sol.(d)
100%= 360°
15%= $\frac{360}{100}$ × 15
= 54°

76.Sol.(c)
Total number of persons=300+400+200+350+100+50+200 =1600
No. of person from age group 25-30=200
Required percentage= $\frac{200}{1600}$ × 100
=12.5%

77.Sol: (b)
In 2010 and 2011 = $\frac{9.8+10.9}{2}$ = 10.35
In 2013 and 2014 = $\frac{11.5+12.4}{2}$ = 11.95
In 2011 and 2012 = $\frac{10.9+11.8}{2}$ = 11.35
In 2012 and 2013 = $\frac{11.8+11.5}{2}$ = 11.65
So, in 2013 and 2014, the average export of diamonds was closest to Rs.12 crores.

78.Sol: (d)
In 2010 = $\frac{9.8-8.5}{8.5}$ × 100 = 15.29%
In 2012 = $\frac{11.8-10.9}{10.9}$ × 100 = 8.26%
In 2014 = $\frac{12.4-11.5}{11.5}$ × 100 = 7.83%
In 2009 = $\frac{8.5-7.2}{7.2}$ × 100 = 18.05%

79.Sol: (c)
Total production of 2005, 2006 and 2008 = 60+45+75 = 180
Total production in 2001, 2002, 2003 and 2004 = 20+35+55+40 = 150
Required ratio = 180 : 150 = 6 : 5

80.Sol: (d)
Demand of company U = 6000
Production of company Z = 4500
P% of 6000 = 4500
P = 75

81.Sol. (d)
The total number of teachers teaching English, Maths and Physics = 26%+14%+18% = 58%
58% × 1650 = 957

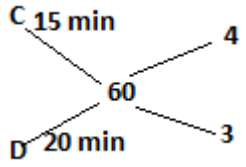
82.Sol. (b) :
Birth rate of country E = 36
Birth rate of country A = 20
Required percentage = $\frac{36}{20}$ × 100
= 180%

83.Sol. (c):
Total number of teachers who teach Physics and Maths = 18% + 14% = 32%
Total number of teachers who teach chemistry and biology = 34% + 12% =36%
The difference between the total number of teachers who teach Physics and Maths and the total number of Teachers who teach chemistry and biology = 36%-32% = 4% of 1650 = 66

84.Sol (b)
Birth rate of country D = 18
150% of 18 = 27
Here we can clearly see that country C is exactly 50% more than that of country D

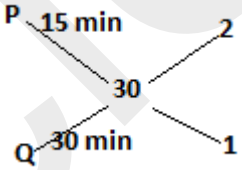
85.Sol (a) :
The number of students in school R = 12%
the total number of students in schools Q and T together = 16% + 24% = 40%
Required percentage = 12/40 × 100 = 30%

86.Sol (c) :
Let the tank filled completely in 2T minutes
Pipe D opens for 2T minutes and Pipe C opens for T minutes



4T + 3(2T) = 60
10T = 60
T = 6 min
tank filled completely = 2T minutes = 12 min

87.Sol (b):



pipe P is opened first which fills 2 units in 1 min and then pipe Q is opened which fills 1 unit in 1 min, so 3 units filled in 2 min
3 units = 2 min
30 units = 20 min

88.Sol(c) :
The difference between the school T and R = 24 - 12 = 12%
100% = 360°
12% = 43.2°

89.Sol (a)
the number of students admitted in the year 2012 = 8
the average number of students passed out in the years 2013 and 2014 = $\frac{10+10}{2}$ =10
The ratio of the number of students admitted in the year 2012 to the average number of students passed out in the years 2013 and 2014 is 8 : 10 = 4 : 5.

90.Sol (c):

Pinnacle

No. of petrol cars produced = 55% × 40 *lakh* = 22 *lakh*

91.Sol (d)
The number of cars produced by country B = 30%
The number of cars produced by country E = 20%
The number of cars produced by country B more than that produced by country E = 10/20 × 100 = 50%

92.Sol (a)
(a) 2014 : 10/12 × 100 = 83.33%
(b) 2011 : 6/10 × 100 = 60 %
(c) 2013 : 10/14 × 100 = 71.43%
(d) 2012 : 6/8 × 100 = 75%
Now , we can clearly see that the pass percentage between 80 and 85 is in 2014.

93.Sol (b)
the average production of LCDs from 2011 to 2013 = (7+9+14)/3 = 10 thousand
the average production of TVs from 2011 to 2013 = (6+8+13)/3 = 9 thousand
The difference between the average production of LCDs and that of the TVs from 2011 to 2013 = (10-9)
= 1000

94.Sol (a)
total production of LCDs in the year 2012 and 2014 = 9+14 = 23
the total production of TV's in the year 2012 and 2014 = 8+12 = 20
The ratio of the total production of LCDs in the year 2012 and 2014 to the total production of TV's in the year 2012 and 2014 = 23 : 20

95.Sol: (*)
360° = 64,800
45° = 8100
Then, yearly income = 12 × 8100 = 97,200

(Note- Question is wrong. A pie chart should be 360° but according to question it is 370°)

96.Sol (c)
the expenditure on education = 75°
the expenditure on housing = 60°
Difference = 15°
15° = 2700
1° = 180
the total expenditure on food and clothings = 125°+18° = 143°
143° × 180 = *Rs*.25740

Sol 97. (c)
Average number of students in Science and Humanity in 2017-18 = $\frac{25+53}{2}$ = $\frac{78}{2}$ = 39
Average number of students in Commerce and Vocational in 2018-19 = $\frac{48+38}{2}$ = $\frac{86}{2}$ = 43
Required difference = 43 - 39 = 4

Sol 98. (c)
Total number of students = 8400
% students in R and S = 14% + 22% = 36%
Students in R and S = $\frac{36}{100}$ × 8400 = 3024
Average students in R and S = $\frac{3024}{2}$ = 1512

Sol 99. (a)
Total number of students appeared in 2017-18 = 25 + 40 + 53 + 32 = 150
Total number of students appeared in 2018-19 = 30 + 48 + 64 + 38 = 180
Required ratio = 150 : 180 = 5 : 6

Sol 100. (d)
Total number of students appeared in 2017-18 = 25 + 40 + 53 + 32 = 150
Total number of students appeared in 2018-19 = 30 + 48 + 64 + 38 = 180
Required % = $\frac{180-150}{180}$ × 100 = $\frac{30}{180}$ × 100 = $\frac{50}{3}$ = 16.66%

Sol 101. (a)
Total students = 900
Students who travel on foot = 70°
= 900 × $\frac{70}{360}$ = 175

Sol 102. (d)
Amount invested by Vivek in scheme A = 80000 × $\frac{50}{100}$ = 40000
Amount invested by Vivek in scheme C = 30000 × $\frac{40}{100}$ = 12000
Vivek's total investment = 52000
Amount invested by Shalini in scheme A = 80000 - 40000 = 40000
Amount invested by Shalini in scheme C = 30000 - 12000 = 18000
Shalini's total investment = 58000
Required ratio ⇒ 52000 : 58000
⇒ 26 : 29

Sol 103. (c)
Amount invested by Vivek in scheme A = 80000 × $\frac{50}{100}$ = 40000
Amount invested by Vivek in scheme B = 70000 × $\frac{60}{100}$ = 42000
Amount invested by Vivek in scheme C = 30000 × $\frac{40}{100}$ = 12000
Amount invested by Vivek in scheme D = 50000 × $\frac{30}{100}$ = 15000
Total invested amount = 40000 + 42000 + 12000 + 15000 = 109000
Average amount invested by Vivek = $\frac{109000}{4}$ = 27250

Sol 104. (a)
From the graph it is clear that villages A, C and E have at most 30% or less non-electrified villages.

105.Sol (a)

Fall in number of deaths from 7 July to 14 July:-180 - 145 = 35 (decrease)
Fall in number of deaths from 28 July to 4 August:- 160 - 150 = 10 (decrease)
Fall in number of deaths from 30 June to 7 July:- 142 - 180 = -38 (increase)
Fall in number of deaths from 21 July to 28 July:- 155 - 160 = -5 (increase)

Clearly, from 7 July to 14 July, the fall in the number of deaths was the greatest.

106.Sol. (a)
Value per tonne in 2005 = $\frac{150}{100}$ = 1.5
Value per tonne in 2007 = $\frac{330}{150}$ = 2.2
Value per tonne in 2009 = $\frac{500}{200}$ = 2.5
Value per tonne in 2006 = $\frac{150}{75}$ = 2
Clearly, in 2005, the value per tonne was minimum.

107.Sol (d)
Rise in number of deaths from 21 July to 28 July:- 160 - 155 = 5
Rise in number of deaths from 14 July to 21 July:- 155 - 145 = 10
Rise in number of deaths from 4 August to 11 August:- 165 - 150 = 15
Rise in number of deaths from 30 June to 7 July:- 180 - 142 = 38

108.Sol. (c)
C-1 = 65-59 = 6
C-2 = 67-62 = 5
C-3 = 71-68 = 3
C-4 = 62-59 = 3
Clearly, C-1 has the highest increase.

109.Sol 7. (a)
Mobiles manufactured by company C-1 across all years = 59+65+68 = 192
Mobiles manufactured by company C-2 across all years = 62+67+72 = 201
Mobiles manufactured by company C-3 across all years = 68+71+74 = 213
Mobiles manufactured by company C-4 across all years = 59+62+65 = 186
Clearly, company C-4 manufactures the least number of mobiles.

110.Sol 8. (b)
Mobiles manufactured by company C-1 across all years = 59+65+68 = 192
Mobiles manufactured by company C-2 across all years = 62+67+72 = 201
Mobiles manufactured by company C-3 across all years = 68+71+74 = 213
Mobiles manufactured by company C-4 across all years = 59+62+65 = 186
Clearly, company C-3 manufactures the highest number of mobiles.

111.Sol 9. (d)
Required ratio $\Rightarrow$ C-1 : C-4 $\Rightarrow$ 192 : 186 $\Rightarrow$ 32 : 31

Sol 112. (c)
Total number of students = 45+12+3 = 60
Number of passed students = 45+12 = 57
Required percentage = $\frac{57}{60} \times 100$ = 95%

Sol 113. (a)
Number of passed students in class 4 = 45+12 = 57
Number of passed students in class 5 = 38+15 = 53
Number of passed students in class 6 = 42+10 = 52
Number of passed students in class 7 = 30+25 = 55
Clearly, class 4 has the highest number of passed students.

Sol 114. (b)
Number of passed students in class 4 = 45+12 = 57
Number of passed students in class 5 = 38+15 = 53
Number of passed students in class 6 = 42+10 = 52
Number of passed students in class 7 = 30+25 = 55
Clearly, class 6 has the least number of passed students.

Sol 115. (c)
Total number of students in class 6 = 42+10+8 = 60
Number of passed students = 42+10 = 52
Required percentage = $\frac{52}{60} \times 100$ = 86.66%

116.Sol . (b)
% increase in profit in 2013 = 26.88
% increase in profit in 2015 = 22.96
% increase in profit in 2017 = 12.64
% increase in profit in 2018 = 17.46
Highest % increase in profit is in 2013.

117.Sol. (c)
Total number of students = 9800
No. of students in B = 16% of total students = $\frac{16}{100} \times 9800$
Boys:Girls in college B = 5 : 9
Girls in college B = $\frac{9}{14} \times \frac{16}{100} \times 9800$ = 1008

118.Sol. (b)

Pinnacle

In company D, 16% employees are above average salary = 80
Total employees in company D = $80 \times \frac{100}{16} = 500$
No. of employees below average salary = 500 - 80 = 420.

Sol 119. (d)
Total students in college B = 560
Qualified % in college B = $\frac{420}{560} \times 100 = 75\%$
Total students in college D = 480
Qualified % in college D = $\frac{432}{480} \times 100 = 90\%$
Required % difference = 90 - 75 = 15%

120.Sol. (d)

Boys	12	45	8
Girls	7	53	5
Total	19	98	13

Total boys + girls = 19 + 98 + 13 = 130

121.Sol. (b)
No. of girls who got >= 75% = 7
Total no. of girls = 7 + 53 + 5 = 65
% girls who got distinction = $\frac{7}{65} \times 100 = 10.76\ \%$

122.Sol. (c)
Required ratio = $\frac{45}{12+45+8} \times 100 : \frac{53}{7+53+5} \times 100 = \frac{45}{65} \times 100 : \frac{53}{65} \times 100 = 69.23 : 81.53$

Sol 123. (a)
From the graph it is evident that 12 boys got distinction.
Total boys = 12 + 45 + 8 = 65
Required % = $\frac{12}{65} \times 100 =$ 18.46%

124.Sol. (b)

	Month 1	Month 2	Month 3
Pens	5.6	4.9	4.6
Pencils	6.7	7.3	6.2
Books	4.5	5.7	6.3
Total sales	16.8	17.9	17.1

∴ Highest sales in done in the Month 2.

125.Sol. (c)
Total pens sold in 3 months = (5.6 + 4.9 + 4.6) × 1000 = 15.1 × 1000
Average pens sold in 3 months = $\frac{15.1}{3} \times 1000 = 5.033 \times 1000 =$ 5033

126.Sol . (d)

	Month 1	Month 2	Month 3	Total sale
Pens	5.6 = 37.08%	4.9 = 32.45%	4.6 = 30.46%	15.1
Pencils	6.7 = 33.16%	7.3 = 36.13%	6.2 = 30.6%	20.2
Books	4.5 = 27.27%	5.7 = 34.54%	6.3 = 38.18%	16.5

Clearly, Books have the highest % = 38.18% of sales in the month 3.

127.Sol. (a)

	Month 1	Month 2	Month 3	Total sale
Pens	5.6	4.9	4.6	15.1
Pencils	6.7	7.3	6.2	20.2
Books	4.5	5.7	6.3	16.5

Clearly, sales of pencils are highest.

128.Sol. (a)
Required % = $\frac{660-520}{660} \times 100 = \frac{140}{660} \times 100 = \frac{7}{33} \times 100 = 21\ \frac{7}{33}\ \%$

129.Sol. (d)
% sales with respect to production of F1 = $\frac{410}{520} \times 100 =$ 78.84%
% sales with respect to production of F2 = $\frac{500}{660} \times 100 =$ 75.75%
% sales with respect to production of F3 = $\frac{430}{550} \times 100 =$ 78.18%
% sales with respect to production of F4 = $\frac{620}{720} \times 100 =$ 86.11%

130.Sol 16. (a)
Total sales : Total production = (410 + 500 + 430 + 620) : (520 + 660 + 550 + 720)
⇒ 1960 : 2450
⇒ 4 : 5

131.Sol . (b)
Total crop sold by farmers = 410 + 500 + 430 + 620 = 1960
Average crop sold = $\frac{1960}{4} = 490$

Sol 132. (b)
Value per tonne in 2005 = $\frac{150}{100} =$ 1.5
Value per tonne in 2006 = $\frac{150}{75} =$ 2
Value per tonne in 2007 = $\frac{330}{150} =$ 2.2
Value per tonne in 2008 = $\frac{400}{160} =$ 2.5
Value per tonne in 2009 = $\frac{500}{200} =$ 2.5

Sol 133. (b)
% drop in exports from 2005 to 2006 = $\frac{100-75}{100} \times 100 = 25\%$

Sol 134. (a)
From the diagram it is clear that in the age group 60-65, there are a maximum number of teachers.

Sol 135. (d)
% increase in exports in 2006 = $\frac{75-100}{100} \times 100 = \frac{-25}{100} \times 100 =$ -25%
% increase in exports in 2007 = $\frac{150-75}{75} \times 100 = \frac{75}{75} \times 100 =$ 100%
% increase in exports in 2008 = $\frac{160-150}{150} \times 100 = \frac{10}{150} \times 100 = 6\frac{2}{3}$ %
% increase in exports in 2009 = $\frac{200-160}{160} \times 100 = \frac{40}{160} \times 100 =$ 25%

136.Sol: (d)
360° = 720
80° = 160

137.Sol: (d)
Marks obtained in English = 60°
Marks obtained in Math = 80°
x% of 80° = 60°
x = 75°

138.Sol: (c)
Marks obtained in Chemistry, Biology and Maths = 45°+55°+80° = 180°
Marks obtained in all category = 360°
x% of 360° = 180°
x = 50%

139.Sol: (d)
Total marks obtained in Physics, Maths and Physical Education = 70°+80°+50° = 200°
Total marks in Chemistry, Biology and English = 45°+55°+60° = 160°
Difference = 200°-160° = 40°
360° = 720
40° = 80
Required marks = 80

SSC CGL 2019 TIER-II
140.Sol:(c)
number of patients aged 10 or more years but below 40 years = 14+20+24 = 58
number of patients aged 50 or more years but below 80 years = 32+26+22 = 80
Percentage = $\frac{(80-58)}{80} \times 100 =$ 27.5%

141.Sol:(d)
The total revenue in 2015 and 2017 = 210+240 = 450
total expenditure of the company in 2016, 2018 and 2019 = 175+165+170=510
Percentage = $\frac{450}{510} \times 100 = 88.2\%$

142.Sol:(d)
Employee working in E = $\frac{93}{360} \times 3000 = 775$
20% employee of E = 775 × $\frac{20}{100} = 155$
Employee of A = $\frac{64.2}{360} \times 3000 =$ 535
Employee of A after transfer = 535 + 155 = 690
Employee working in c = $\frac{72}{360} \times 3000 = 600$
124% of C = 600 × $\frac{124}{100} = 744$
Difference = 744 - 690 = 54

143.Sol.(d)
number of employees in department B = 73.8
total number of employees working in department D and E = 57+93 = 150
Percentage = $\frac{73.8}{150} \times 100 = 49.2\%$

144.Sol:(b)
total number of employees working in department A and C = 64.2 + 72 = 136.2
total number of employees working in department D and B = 57 + 73.8 = 130.8
Difference = 5.4°
Number of employees = $\frac{5.4°}{360} \times 100 = 45$
So option B is correct

145.Sol:(d)
the average expenditure of the company during 2014 to 2019 = ($\frac{130+150+175+200+165+170}{6}$)

= 165
$133\frac{1}{3}$% of 165 = 220
Revenue of 2018 is 220

146.Sol:(a)
Profit in 2014 = 20
Profit in 2015 = 60
Profit in 2016 = 25
Profit in 2017 = 40
Profit in 2018 = 55
Profit in 2019 = 85
Profit as a percentage of revenue in 2014 = $\frac{20}{150} \times 100 = 13.33\%$
Profit as a percentage of revenue in 2015 = $\frac{60}{210} \times 100 = 28.57\%$
Profit as a percentage of revenue in 2016 = $\frac{25}{200} \times 100 = 12.5\%$
Profit as a percentage of revenue in 2017 = $\frac{40}{240} \times 100 = 16.66\%$
Profit as a percentage of revenue in 2018 = $\frac{55}{220} \times 100 = 25\%$
Profit as a percentage of revenue in 2019 = $\frac{85}{255} \times 100 = 33.33\%$
Year 2015 and 2019 greater than 25%

147.Sol:(a)
total export of the computers by the company in 2013, 2014 and 2018 = 140 + 240 + 270 = 650
total production of computers in 2015 to 2017 = 300 + 290 + 340 = 930
Percentage less = $\frac{280}{930} \times 100 = 30.1$

148.Sol.(c)
average exports of computers in the six years (2013 to 2018) = $\frac{140+240+200+350+300+270}{6} = 250$
116% of 250 = 290

Pinnacle

290 is the production in 2016

149.Sol:(a)
total number of students specialising in A and B = 61.2° + 75.6° = 136.8°
total number of students specialising in C and D = 72° + 54° = 126°
Difference = 10.8°
=> $\frac{10.8}{360} \times 2100 = 63$
So, option a is correct

150.Sol.(a)
total production of computers in 2013, 2015 and 2018 = 180 + 300 +320 =800
Total exports = 140 + 240 + 200 + 350 + 300 + 270 = 1500
Percentage = $\frac{800}{1500} \times 100 = 53\frac{1}{3}\%$

151.Sol:(d)
Number of female student in D = $\frac{54}{360} \times 2100 \times \frac{7}{15} = 147$
Number of male student in B = $\frac{75.6°}{360} \times 2100 \times \frac{4}{7} = 252$
Females in D is less by = 252 -147 = 105
Percentage = $\frac{105}{252} \times 100 = 41.66\% \sim 41.7\%$

152.Sol.(c)
cost of living index was160 or more but less than 190 =4 + 6 +9 = 19
cost of living index was 200 or more but less than 220 = 7 + 5= 12
Percentage = $\frac{7}{12} \times 100 = 58.33$

153.Sol:(c)
number of students specialising in E = 97.2
number of students specialising in C = 72
Difference = 25.2
Percentage = $\frac{25.2}{72} \times 100 = 35\%$

154.Sol:(b)
Total no. of students in school B=2600
B+G=2600
B-G=570
B=1585
Number of boys in school B=1585
Percentage of boys in school B=60.9%≈60%

155.Sol:(a)
Total number of boys and girls in school= 2800
G+B=2800
G-B=700
2G=3500 , G=1750
B=2800-1750=1050
Required ratio of boys and girls= $\frac{1750}{1050} = \frac{5}{3}$

156.Sol:(a)
In school A
B + G = 1800
B - G = 350
G = 725
In school C
B + G = 2000
B - G = 500
G = 750
Difference n number of girls = 750 - 725 = 25

157.Sol.(b)
No. of students in CS= 15% of 5000=750
No. of boys in CS= 44% of 750=330
No. of students in ECE= 16% of 5000=800
No. of boys in ECE= 72% of 800=576
No. of students in EEE= 18% of 5000=900
No. of boys in EEE= 68% of 900=612
Total no. of boys =1518
Average number of boys in CS, ECE, EEE=506

158.Sol:(b)
Total number of students in IT=14%of 5000=700
No. of girls in IT=35% of 700=245
Total number of students in ECE=16%of 5000=800
No. of girls in ECE=28%of 800=224
Difference= 245-224=21

159.Sol:(b)
Total students = 100
number of students who scored 30 or more marks, but below 40 marks = 20
Ratio = 20 : 100 = 1 : 5

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160.Sol:(b)
From the given graph its obvious that in 2010 the number of students taken from Schools A and B together is minimum in 2010

161.Sol:(b)
Number of students from A in 2009=800
Number of students from A in 2011=700
Number of students from A in 2013=750
Number of students from A in 2008=550
Number of students from A in 2012=500
Number of students from A in 2013=480
Total number of students from A in 2009,2011, 2013= 2250
Total number of students from B in 2008,2012,2013=1530
Required ratio= 2250/1530= 25/17 (dividing by 25)

162.Sol:(c)
As we can see from the Histogram that number of students between height of 150-155 cm is 15 and the number of students between height

Pinnacle

175-180 cm is 6 . so the difference between them will be 15-6=9

163.Sol:(c)
From the graph we can see that the number of students in the class interval 160-170 is 24
Total number of students are 15+13+10+12+14+6=70
Percentage of students in class interval 160-170 will be $\frac{24}{70} \times 100$ =34.28 ≅34

164.Sol:(b)
In the pie chart we can see that the Vanilla flavour is 16.5% which is equal to 3300
16.5%=3300
100%=20000
As chocolate flavour is 25.8% so 25.8%= 5160

165.Sol:(c)
Number of students whose height is in the class interval 170-175 =12

Number of students whose height is in the class interval 165-170 =14
Difference = 2
Required difference in percentage= $\frac{2}{14} \times 100 = 14.28\%$

166.Sol:(b)
Combined annual strawberry and butterscotch sales in 2005 =18.9+10.8= 29.7%
Combined annual strawberry and butterscotch sales in 2015=20.5+16.6=37.1%
Net difference in sales = 7.4%
1%= 10000 (given)
7.4%=74000

167.Sol:(b)
From the given pie-chart we can see that15.7% of the people preferred others of which 10% prefer mix fruit flavour which is given as 1570
So 15.7% of 10% of total = 1570
So 1%= 1000
Therefore 100%=100000

168.Sol:(d)
Total students from school A =640+800+500+700+900+750=4290
Total students from school B=550+820+600+750+500+480=3700
Required ratio will be 429:370

169.Sol:.(b)
Number of cars = 50 + 70 + 85 + 90 + 60 + 45 = 400
Number of cars with speed less than 70 is = 50 + 70 + 85 = 205
Percentage = $\frac{205}{400} \times 100 =$ 51.25%

170.Sol:.(c)
Total number of students in school A = 600 + 500 = 1100
Total number of students in school B = 450 + 550 = 1000
Total number of students in school C = 750 + 650 = 1400
Total number of students in school D = 700 + 600 = 1300
Total number of students in school E = 800 + 650 = 1450
Percentage of girls in school A = $\frac{500}{1100} \times 100 = 45.45\%$
Percentage of girls in school B = $\frac{550}{1000} \times 100 = 55\%$
Percentage of girls in school C = $\frac{650}{1400} \times 100 = 46.42\%$
Percentage of girls in school D = $\frac{700}{1300} \times 100 = 53.84\%$
Percentage of girls in school E = $\frac{650}{1450} \times 100 = 44.82\%$
So, school E has least girls percentage

171.Sol:.(c)
Number of employee in department B = $\frac{14}{100} \times 450 = 63$

172.Sol:.(d)
number of cars with speed between 70km/hr and 80km/hr = 90
number of cars with speed between 50km/hr and 60km/hr = 70
Extra cars = 90 - 70 = 20
Percentage = $\frac{20}{70} \times 100 =$ 28.5714%
Approximately = 28.6%

173.Sol:.(c)
Central angle of department A = $\frac{20}{100} \times 360 = 72°$

174.Sol.(b)
Total number of girls = 500 + 550 + 650 + 600 + 650 = 2950
Total number of boys = 600 + 450 + 750 + 700 + 800 = 3300
Ratio of girls to boys = 2950 : 3300 = 59 : 66

175.Sol:.(a)
Employees in department E = $\frac{20}{100} \times 450 = 90$
Males = 40% of total = $\frac{40}{100} \times 90$ = 36

176.Sol:.(d)
Total number of boys = 600 + 450 + 750 + 700 + 800 = 3300
Average = $\frac{3300}{5} = 660$

177.Sol:.(b)
number of cars with speed less than 60km/hr = 50 + 70 = 120
number of cars with speed more than 80km/hr = 60 + 45 = 105
Ratio = 120 : 105 = 8 : 7

178.Sol.(d)
Number of employees in department D is = $\frac{8}{100} \times 450 = 36$
Female candidate = 25% = $\frac{25}{100} \times 36 = 9$

179.Sol:.(a)
number of cars with speed 60km/h to 70km/h = 85
number of cars with speed 70km/h to 80km/h = 90
Percentage less = $\frac{5}{90} \times 100$ = 5.55% = approximately = 5.6%

180.Sol:.(d)
Number of employee working in department F = $\frac{22}{100} \times 450 = 99$

181Sol:.(a)
Number of cars with speed less than 60km/h = 50 + 70 = 120
Number of cars with speed more than 70 km/hr = 90 + 60 + 45 = 195
Ratio = 120 : 195 = 8 : 13

182.Sol:.(c)
Total numbers of cars = 50 + 70 + 85 + 90 + 60 + 45 = 400
Number of cars above 90 = 45
Percentage = $\frac{45}{400} \times 100 = 11.25\%$

183Sol:.(c)
Girls in school A, B and C = 500 + 550 + 650 = 1700
Boys in school A, B and C = 600 + 450 + 750 = 1800
Total students in school A, B and C = 3,300
Ratio = 1700 : 3300 = 17 : 33

184Sol:.(a)
Central angle of E = $\frac{20}{100} \times 360 = 72°$

185.Sol:.(a)
Percentage of boys in school A = $\frac{600}{1100} \times 100 = 54.54\%$
Percentage of boys in school B = $\frac{450}{1000} \times 100 = 45\%$
Percentage of boys in school C = $\frac{750}{1400} \times 100 = 53.57\%$
Percentage of boys in school D = $\frac{700}{1300} \times 100 = 53.84\%$
Percentage of boys in school E = $\frac{800}{1450} \times 100 = 55.17\%$
So, clearly in school E percentage of boys is more than 55%

186.Sol:.(a)
Students in school A = 1,100

187.Sol(c)
The total amount of expenditure on education and health
=6%+4%=10%
=10% of 1680=168

188.Sol:(c)
Number of students who scored less than 250 marks =45+30=75

189.Sol:(b)
Expenditure on education=6
Expenditure on defence=12
% increase in expenditure on education than defence= $\frac{12-6}{6} \times 100=100\%$

190.Sol:(a)
Marks more than 250 but less than 300=60
Total marks obtained by students=30+45+60+35+40+35=245
245=360° s
60=88.16 ≅ 88°

191.Sol:(c)
Number of students who scored less than 350 marks=35+45+30+60=170
Number of students who scored 400 or more marks=35
% of students who scored less than 350 is greater by $\frac{170-35}{35} \times 100= \frac{135}{35} \times 100 = 385.7\%$

192. Sol:(a)
The average sales of the car for year 2018= $\frac{\textit{Total numbers of cars sold}}{\textit{total number of branches}}$
Total number of cars=80+75+95+85+75+70=480
Total number of branches=6
average= $\frac{480}{6}$ =80

193.Sol:(a)
Percentage expenditure on subsidy=21%
As we know that 100%=360°
So 21%=3.6 × 21=75.6%

194.Sol:(a)
The total sales from branches B1, B2 and B3 in 2018=80+75+95=250
The total sales from branches B4, B5 and B6 in 2019=95+95+80=270
Required ratio= 250:270 =25:27

195Sol:(b)
The total sales of all cars from all branches in 2018=80+75+95+85+75+70=480
The total sales of cars from all branches in 2019=105+65+110+95+95+80=550
% reduction of sales of cars in 2018 as compared to 2019= $\frac{550-480}{550} \times 100 = 12.72\%$

196.Sol:(c)
As given in the pie chart the chocolate flavour is 25.8%=5160 (given)
So Vanilla flavour= 16.5%
Which will be equal to $\frac{5160}{25.8} \times 16.5 = 3300$

197.Sol:(b)
Number of students weighing less than 55kg=95
Number of students weighing 55kg to 65kg=100
Less number of students weighing less than 55 kg is=5
percentage of students weighing less than 55 kg = $\frac{5}{100} \times 100 = 5\%$

198.Sol:(d)

Number of students taken from A in year 2008=640
Number of students taken from A in year 2012=900
Number of students taken from A in year 2013=750
Number of students taken from B in year 2009=820
Number of students taken from B in year 2010=600
Number of students taken from B in year 2011=750
Total sum of students from A= 2290
Total sum of students from B =2170
Required ratio= 229:217

199.Sol:(a)
As mentioned in the pie chart
15.7% of 40% of total =1570
40% of total= 10000
Total= 25000.

200.Sol:(d)
By simply looking at the bar graph we can clearly say that in year 2012 the gap (900-500) was maximum. So answer will be year 2012

201.Sol:(d)
Total number of students from school A=640+800+500+700+900+750= 4290
Total number of students from school B=550+820+600+750+500+480= 3700
Average of students from A= $\frac{4290}{5}$
Average of students from B = $\frac{3700}{5}$
Required ratio= 370:429

202.Sol:(a)
Students whose height is in the class interval 165-175= 14+12=26
Total number of students =15+13+10+14+12+6=70
Percentage of students= $\frac{26}{70} \times 100$ =37.14% $\cong$ 37%

203.Sol:(c)
Annual strawberry and butterscotch sales in 2005=18.9%+10.8%=29.7%
Annual strawberry and butterscotch sales in 2015 =20.5%+16.6%=37.1%
Net difference in sales= 7.4%
It's given in the question that 1%= 5000
So 7.4%= 7.4 × 5000=37000

204.Sol:(b)
The number of students in class interval 165-170=14
The number of students in class interval 150-155=15
Students in the class interval 165-170 are less than those in 150-155 by 1
So the required percentage = $\frac{1}{15} \times 100$=6.67%

Sol:205.(d)
The number of student who scored less than 200 = 30

Sol:206.(a)
Total number of students in arts = 30 + 50 + 20 + 20 = 120
Average = $\frac{120}{4}$ = 30

Sol:207.(a)
Expenditure for proceeds to states = $\frac{34}{100} \times 1680$ = 571.20

Sol:208.(c)
Total number of students = 30 + 45 + 60 + 35 + 40 + 35 = 245
Student from 200 to 300 = 45 + 60 = 105
Central angle = $\frac{105}{245} \times 360$ = 154.2857
Approximately = 154°

Sol:209.(c)
students who obtained less than 250 marks = 30 + 45 = 75
student who obtained 400 or more marks = 35
Difference = 75 - 35 = 40
Change in percentage = $\frac{40}{35} \times 100$ = 114.285%

Sol:210.(d)
Expenditure on education = 6%
Expenditure on defence = 12%
Difference = 12% - 6% = 6%
Education is less by = $\frac{6}{12} \times 100$ = 50%

Sol:211.(c)
Central angle representing interest payment = $\frac{15}{100} \times 360$ = 54°

Sol:212.(a)
Total of science = 20 + 30 + 40 + 10 = 100
Average of science = $\frac{100}{4}$ = 25
Total of commerce = 40 + 30 + 20 + 30 = 120
Average of commerce = $\frac{120}{4}$ = 30
Difference = 30 - 25 = 5

Sol:213.(d)
Upper limit of normal PP = 130
115.4 % of 130 = 150
So,
Week 2 is the answer

Pinnacle

Variety Questions

Q1. The table given below shows the number of students having obtained different marks
नीचे दी गयी तालिका अलग-अलग अंक प्राप्त करने वाले छात्रों की संख्या को दर्शाती है |

Marks/अंक	Number of Students / छात्रों की संख्या
9-11	6
11-13	5
13-15	2
15-17	2
17-19	5

What is the mean marks per student ?
प्रति छात्र माध्य अंक कितना है ?
SSC MTS- 2 August 2019 (Morning)
(a) 13.5
(b) 12.25
(c) 15.5
(d) 14.25

Q2. The median date of the year 2019, given in the form of DD.MM, is
DD.MM के रूप में लिखित, वर्ष 2019 की माध्यमिका-तिथि (मीडियन डेट) है:
SSC MTS- 2 August 2019 (Afternoon)
(a) 01.07
(b) 30.06
(c) 02.07
(d) 03.07

Q 3. What is the median of 6, 9, 13, 8, 3, 2, 5, 7 and 11?
6, 9, 13, 8, 3, 2, 5, 7 और 11 की मध्यिका क्या है ?
SSC MTS- 2 August 2019 (Evening)
(a) 7
(b) 6.5
(c) 8
(d) 6

Q4. Given below is the data of the age of the various children.
नीचे विभिन्न बच्चों की उम्र के आंकड़े दिए गए हैं :

Age (years) उम्र (वर्ष)	Number of children बच्चों की संख्या
6	17
7	16
8	16
9	17
10	19
11	15

What is the difference between the mean and mode of the ages?
उम्रों के माध्य एवं बहुलक में क्या अंतर है ?
SSC MTS- 5 August 2019 (Morning)
(a) 1.5
(b) 1
(c) 2.5
(d) 2

Q5. What is the mode of the given data
दिए गए आंकड़ों का बहुलक कितना है ?
4,3,4,3,2,2,2,5,5,3,4,6,4,3,3
SSC MTS- 5 August 2019 (Afternoon)
(a) 4
(b) 3
(c) 2
(d) 5

Q6. Median of the given data is
दिए गए आंकड़ों की मध्यिका है :
6,2,3,5,9,4,8,7
SSC MTS- 5 August 2019 (Evening)
(a) 5.5
(b) 5
(c) 6
(d) 6.5

Q7. In the data given below, the number of sixes and the batsmen who hit them, has been shown.
नीचे दिए गए आंकड़ों में छक्कों की संख्या तथा उन्हें जड़ने वाले बल्लेबाजों की संख्या को दिखाया गया है |

Number of Sixes	Number of batsman
1	2
2	3
3	1
4	3
5	2

What is the median of the number of sixes ?
छक्कों की संख्या की मध्यिका (Median) कितनी है ?
SSC MTS- 6 August 2019 (Morning)
(a) 3
(b) 5
(c) 4
(d) 4.5

Q8. The marks obtained by various students have been shown in the data given below.
नीचे दिए गए आंकड़े विभिन्न छात्रों द्वारा प्राप्त अंको को दर्शाया गया है

Marks अंक	Number of students छात्रों की संख्या
10-12	6
12-14	8
14-16	5
16-18	7
18-20	4

What is the mean marks (correct to two decimal places) of the given data ?
दिए गए आंकड़े का माध्य अंक (दो दशमलव स्थान तक) कितना है ?
SSC MTS- 6 August 2019 (Afternoon)
(a) 13.67
(b) 13.33
(c) 14.67
(d) 15.33

Q9. The data below shows the number of batsman having different batting averages.

नीचे दिए गए आंकड़ों में विभिन्न बल्लेबाजी औसत वाले बल्लेबाजों की संख्या को दर्शाया गया है |

Average Numberof batsman /औसत /बल्लेबाजों की संख्या	
40-44	
12	
44-48	
10	
48-52	8
52-56	6
56-60	4

What is the mean batting average per batsman ?
प्रति बल्लेबाज माध्य बल्लेबाज़ी औसत कितना है ?
SSC MTS- 6 August 2019 (Evening)
(a) 48
(b) 47
(c) 46
(d) 45

Q 10. What is the median of 7, 18, 6, 9, 4, 15, 21, 14, 26?
7, 18, 6, 9, 4, 15, 21, 14, 26 की मध्यिका कितनी है ?
SSC MTS- 7 August 2019 (Morning)
(a) 14.5
(b) 14
(c) 15
(d) 16

Q11. The data below shows the number of wickets taken by each bowler and the number of bowlers who took them.
नीचे दिए गए आंकड़ों में प्रत्येक गेंदबाज़ के द्वारा लिए गए विकटों की संख्या तथा इन विकटों को लेने वाले गेंदबाजों की संख्या दी गयी है |

No. of Wickets per bowler/ प्रति गेंदबाज़ विकटों की संख्या	No. of Bowlers गेंदबाजों की संख्या
5	2
4	3
3	4
2	5
1	9

What is the median of the number of wickets?
विकटों की संख्या की मध्यिका कितनी है ?
SSC MTS- 7 August 2019 (Afternoon)
(a) 3
(b) 2
(c) 4
(d) 2.5

Q 12. What is the mode of the given data?
दिए गए आंकड़ों का बहुलक ज्ञात करें |
4, 3, 7, 13, 16, 23, 3, 4, 7, 4, 3, 3, 9, 6, 9, 6
SSC MTS- 7 August 2019 (Evening)
(a) 9
(b) 4
(c) 3
(d) 6

Q 13. What is the difference of mean and median of the given data .
दिए गए आंकड़ों के माध्य एवं मध्यिका में क्या अंतर है ?
4, 13, 8, 15, 9, 21, 18, 23, 35, 1?
SSC MTS- 8 August 2019 (Morning)
(a) 0.7
(b) 1.7
(c) 1.2
(d) 2.1

Q14. The data given below presents number of households corresponding to the number of children residing therein.
नीचे दिए गए आंकड़ें घरों की संख्या तथा उनमें रहने वाले बच्चों की संख्या को दर्शाते हैं |

Number of Children/बच्चों की संख्या	Number of Household/ घरों की संख्या
0	8
1	7
2	3
3	8
4	4

What is the difference (correct up to two decimal places) between the mean and the median of the number of the children?
बच्चों की संख्या के माध्य एवं मध्यिका में क्या अंतर (दशमलव के दो स्थान तक) है ?
SSC MTS- 8 August 2019 (Afternoon)
(a) 0.26
(b) 0.28
(c) 0.27
(d) 0.25

Q15. What is the median of the given data?
दिए गए आंकड़ों की मध्यिका ज्ञात करें |
41, 43, 46, 50, 85, 61, 76, 55, 68, 95
SSC MTS- 8 August 2019 (Evening)
(a) 61
(b) 58
(c) 57
(d) 55

Q16. What is the median of the numbers
इन संख्याओं की मध्यिका क्या है ?
29, 27, 32, 23, 18, 18, 32, 31, 28, 15, 35, 30?
SSC MTS- 9 August 2019 (Morning)
(a) 29.5

(b) 30.5
(c) 28.5
(d) 30

Q17. The marks of Nine students in ascending order for a test are given below with Median as 34, the value of k is:
नीचे एक परीक्षा में नौ छात्रों के द्वारा प्राप्त किये गए अंक आरोही क्रम में दिए गये हैं तथा मध्यिका 34 है | k का मान है :
12, 16, k, 28, k + 5, 32, 39, 47, 53.
SSC MTS- 9 August 2019 (Afternoon)
(a) 29
(b) 27
(c) 30
(d) 32

Q18. The mean of 20 observations was 85 but later it was found that 97 was misread as 79. The correct mean is :
20 अवलोकनों का माध्य 85 था, परंतु बाद में यह पाया गया कि 97 को गलती से 79 पढ़ लिया गया था | सही माध्य है :
SSC MTS- 9 August 2019 (Evening)
(a) 85.8
(b) 85.7
(c) 85.6
(d) 85.9

Q19. The median of the given data is :
दिए गए डाटा की माधियका है :
$\frac{1}{2}, \frac{2}{7}, \frac{3}{4}, \frac{1}{3}, \frac{5}{8}$
SSC MTS- 13 August 2019 (Morning)
(a) $\frac{3}{4}$
(b) $\frac{2}{7}$
(c) $\frac{1}{3}$
(d) $\frac{1}{2}$

Q20. The temperature in ${}^0C$ of 11 days recorded as follows:
29, 32, 30, 15, 21, 24, 23, 27, 26, 30, 33 the Median of the temperature is:
11 दिनों का तापमान (${}^0C$) में इस प्रकार दर्ज किया गया है :
29, 32, 30, 15, 21, 24, 23, 27, 26, 30, 33 ; तापमान की मध्यिका है :
SSC MTS- 13 August 2019 (Afternoon)
(a) 27
(b) 26
(c) 23
(d) 18

Q21. The heights of students are given in cm as 161, 190, 185, 163, 172, 180, 162. The median height of the student is:
छात्रों की लंबाई सेमी में दी गयी है :
161, 190, 185, 163, 172, 180, 162
छात्रों की मध्यिका ऊंचाई है :
SSC MTS- 13 August 2019 (Evening)
(a) 131
(b) 172
(c) 170
(d) 180

Q22. A set of data is given. The mean of the set is 35 while the median is set as 60. Find the mode of the data.
आंकड़ों का एक समुच्चय दिया गया है | इस समुच्चय का माध्य 35 है जबकि मध्यिका 60 है | इन आंकड़ों का बहुलक ज्ञात करें |
SSC MTS- 14 August 2019 (Morning)
(a) 25
(b) 30
(c) 20
(d) 110

Q23. A set of data is as under
आंकड़ों का एक समुच्चय इस प्रकार है :
4, 2, 3, 2, 7, 4, 8, 5, 2, 4, 5, 6, 2, 5, 6, 6, 5, 4, 6, 5, 3, 5, 4, 3
What is the mode of the set?
इन आंकड़ों का बहुलक ज्ञात करें |
SSC MTS- 14 August 2019 (Afternoon)
(a) 2
(b) 5
(c) 6
(d) 4

Q24. The marks of Eleven students in ascending order for a test are given below with Median as 36, the value of k is:
नीचे एक परीक्षा में ग्यारह छात्रों के द्वारा प्राप्त किये गए अंक आरोही क्रम में दिए गए हैं जिनकी मध्यिका 36 है | k का मान है :
10, 12, 16, 25, 28, k + 3, k + 5, 43, 45, 47, 53.
SSC MTS- 14 August 2019 (Evening)
(a) 36
(b) 37
(c) 35
(d) 33

Q25. Find the median of the given data:
दिए गए आंकड़ों की मध्यिका ज्ञात करें |
3, 2, 6, 4, 9, 7, 11, 5, 15
SSC MTS- 16 August 2019 (Morning)
(a) 4
(b) 5
(c) 6
(d) 7

Q26. The median of the first 7 prime numbers is :
प्रथम 7 अभाज्य संख्याओं की माधियका है :
SSC MTS- 16 August 2019 (Afternoon)
(a) 7
(b) 13
(c) 5
(d) 11

Q27. What is the mean of the first 20 whole numbers ?

प्रथम 20 पूर्ण संख्याओं का माध्य कितना है ?
SSC MTS- 16 August 2019 (Evening)
(a) 10.5
(b) 9
(c) 9.5
(d) 10

Q28. What is the difference between mean and median of the given data.
दिए गए आंकड़ों के माध्य एवं मध्यिका में क्या अंतर है ?
4, 6, 3, 7, 10, 13, 16 and 5 ?
SSC MTS- 19 August 2019 (Morning)
(a) 5
(b) 1.5
(c) 3
(d) 4.5

Q29. What is the difference between the mean and median of the given data ?
निम्नलिखित आँकड़ों के माध्य तथा माधियका के बीच कितना अंतर है :
5, 7, 8, 13, 12, 14, 9, 2, 26, 10 ?
SSC MTS- 19 August 2019 (Afternoon)
(a) 0.4
(b) 1.8
(c) 2.3
(d) 1.1

Q30. Let x be the median of data: 33, 42, 28, 49, 32, 37, 52, 57, 35, 41.
If 32 is replaced by 36 and 41 by 63, then the median of the data, so obtained, is y. What is the value of (x + y)?
मान लीजिये कि x इन आंकड़ों की मध्यिका है : 33, 42, 28, 49, 32, 37, 52, 57, 35, 41.
यदि 32 के स्थान पर 36 और 41 के स्थान पर 63 आ जाए, तो इस प्रकार प्राप्त होने वाली मध्यिका y है | (x+y) का मान क्या होगा ?
SSC MTS- 19 August 2019 (Evening)
(a) 78
(b) 78.5
(c) 79.5
(d) 79

Q31. What is the median for the data given below :
निम्नलिखित आंकड़ों (डाटा) के लिए मध्यिका है :

Group	Frequency
160-170	20
170-180	110
180-190	130
190-200	80
200-210	60

SSC MTS- 20 August 2019 (Morning)
(a) 183.6
(b) 185.4
(c) 176.2
(d) 182.8

Q32. The weight of 20 students has been shown in the table given below :
निम्न तालिका में 20 छात्रों के वजन को दर्शाया गया है -

वजन (kg में)	48	51	60	53	56
छात्रों की संख्या	6	3	2	4	5

What are the Mode and the Median of the data given above respectively ?
उपरोक्त आँकड़ों का क्रमश: बहुलक (Mode) और माधियका (Median) क्या हैं?
SSC MTS- 20 August 2019 (Afternoon)
(a) 53 और 56
(b) 60 और 53
(c) 51 और 48
(d) 48 और 53

Q33. A person has office hours from 9 am to 5 pm in the evening. Find the median time of his office hours.
किसी आदमी, जिसके कार्यालय का समय प्रात: काल 9 बजे से सांयकाल 5 बजे के बीच है, के कार्यालय घंटों का माधियका समय क्या है ?
SSC MTS- 20 August 2019 (Evening)
(a) 12:30
(b) 12:00
(c) 13:00
(d) 13:30

Q34. The median of the data 2, 9, 7, 21, 43, 35, 33, 36, 58, 47 is :
संख्या-समूह 2, 9, 7, 21, 43, 35, 33, 36, 58, 47 की माधियका है :
SSC MTS- 21 August 2019 (Morning)
(a) 34
(b) 23
(c) 22
(d) 21

Q35.Mode of the given data is :
दिए गए आंकड़ों का बहुलक है :
2,5,5,7,2,6,8,6,9,6 is :
SSC MTS- 21 August 2019 (Afternoon)
(a) 7
(b) 6
(c) 2
(d) 5

Q36. The mode of the following data is 36. What is the value of x?
निम्नलिखित आंकड़ों का बहुलक 36 है | x का मान ज्ञात करें |

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	13	10	10	16	x	8

SSC MTS- 22 August 2019 (Morning)
(a) 11
(b) 15
(c) 13
(d) 12

Q37. The heights (in cm) of students in a group are given below :
एक समूह के छात्रों की ऊंचाई (सेमी में) नीचे दी गयी है |

Height	Number of students
155	9
153	3
154	10
150	7
156	6
151	12
152	3

What is the median of the students :
छात्रों की मध्यिका कितनी है ?
SSC MTS- 22 August 2019 (Afternoon)
(a) 154.5 cm
(b) 153.5 cm
(c) 154 cm
(d) 153 cm

Q38. What is the sum of median and mode of the data
इन आंकड़ों की मध्यिका एवं बहुलक का जोड़ ज्ञात करें |
8,1,5,4,9,6,3,6,1,3,6,9,1,7,2,6,5 ?
SSC MTS- 22 August 2019 (Evening)
(a) 13
(b) 11
(c) 12
(d) 14

Q39.Mode of 2,2,3,3,5,5,5,7,8,8,9,10 is
2,2,3,3,5,5,5,7,8,8,9,10 का बहुलक है **SSC MTS- 9 August 2019 (Evening)**
(a) 3
(b) 5
(c) 6
(d) 2

SSC CHSL 2019
Q1. Given that the mean of five numbers is 28. If one is excluded, the mean gets reduced by 5. Determine the excluded number.
पाँच संख्याओं का माध्य 28 है। यदि एक को बाहर रखा जाता है, तो माध्य 5 से घट जाता है। बाहर रखी गयी संख्या निर्धारित कीजिए।
CHSL 15-10-2020 (Evening shift)
(a) 46
(b) 48
(c) 47
(d) 45

Pinnacle

SOLUTION:

Sol 1. (a)

Marks	Number of Students(f_i)	x_i	f_ix_i
9-11	6	$\frac{9+11}{2}$ =10	60
11-13	5	$\frac{11+13}{2}$ =12	60
13-15	2	$\frac{13+15}{2}$ =14	28
15-17	2	$\frac{15+17}{2}$ =16	32
17-19	5	$\frac{17+19}{2}$ =18	90
	$\sum f_i$ =20		$\sum f_ix_i$ =270

the mean marks per student = $\frac{\Sigma f_ix_i}{\Sigma f_i} = \frac{270}{20} = 13.5$

Sol 2.(c)

Total number of days in 2019 = 365

Median will be the 183th day of the year which is 2 july or 02.07

Sol 3. (a)

Arrange the data in ascending order

6, 9, 13, 8, 3, 2, 5, 7 and 11

$\Rightarrow$ 2, 3, 5, 6, 7, 8, 9, 11, 13

The median will be the middle value of this order which is 7.

Sol 4. (a)

Age(x_i)	Number of children(f_i)	
6	17	102
7	16	112
8	16	128
9	17	153
10	19	190
11	15	165
	$\sum f_i$ =100	$\sum f_ix_i$ =850

Mean age = $\frac{850}{100} = 8.5$

The number of students shows that 10 is the most common age so mode of the data = 10.

Required difference = 10-8.5 = 1.5

Sol 5. (b)

The mode is the number that is repeated most often. Here 3 is repeated maximum number of times (5) so the mode will be 3.

Sol 6.(a)

Ascending order of the data = 2,3,4,5,6,7,8,9

Middle values are 5 and 6

Median of the data = $\frac{6+5}{2} = 5.5$

Sol 7. (a)

Number of Sixes(x_i)	Number of batsman (f_i)	Cumulative frequency(cf)
1	2	2
2	3	2+3=5
3	1	5+1=6
4	3	6+3=9
5	2	9+2=11
	Cumulative mean =	$\frac{11}{2} = 5.5$

Since, 5.5 lies in the 6th cumulative frequency zone. Hence, Median of sixes will be 3.

Sol 8. (c)

Marks	Number of students	x_i	f_ix_i
10-12	6	$\frac{10+12}{2}$ =11	66
12-14	8	$\frac{12+14}{2}$ =13	104
14-16	5	$\frac{14+16}{2}$ =15	75
16-18	7	$\frac{16+18}{2}$ =17	119
18-20	4	$\frac{18+20}{2}$ =19	76
	$\sum f_i$ =30		$\sum f_ix_i$ =440

the mean marks per student = $\frac{\Sigma f_ix_i}{\Sigma f_i} = \frac{440}{30} = 14.67$

Sol 9. (a)

Average	Number of batsman(f_i)	x_i	f_ix_i
40-44	12	$\frac{40+44}{2}$ =42	504
44-48	10	$\frac{44+48}{2}$ =46	460
48-52	8	$\frac{48+52}{2}$ =50	400
52-56	6	$\frac{52+56}{2}$ =54	324
56-60	4	$\frac{56+60}{2}$ =58	232
	$\sum f_i$ =40		$\sum f_ix_i$ =1920

the mean marks per student = $\frac{\Sigma f_ix_i}{\Sigma f_i} = \frac{1920}{40} = 48$

Sol 10. (b)

Arrange the data in ascending order

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7, 18, 6, 9, 4, 15, 21, 14, 26
$\Rightarrow 4, 6, 7, 9, 14, 15, 18, 21, 26$
The median is the middle value of this order which is 14.

Sol 11. (b)

No. of Wickets (x_i)	No. of bowlers(f_i)	Cumulative frequency(cf)
5	2	2
4	3	2+3=5
3	4	5+4=9
2	5	9+5=14
1	9	14+9=23
	Cumulative Mean=	$\frac{23}{2}$ =11.5

Since, 11.5 lies in the 14th cumulative frequency zone.
Hence, median of number of wickets = 2

Sol 12.(c) The mode is the number that is repeated most often. Here 3 is repeated maximum number of times so the mode will be 3.

Sol 13.(a)
Mean = $\frac{Sum\ of\ data}{Number\ of\ data}$ = $\frac{4+13+8+15+9+21+18+23+35+1}{10}$ = 14.7
Ascending order of the data = 1,4,8,9,13,15,18,21,23,35
Middle values are 13 and 15
Median = $\frac{13+15}{2}$ = 14
Required difference = 14.7-14 = 0.7

Sol 14. (c)

No. of children(x)	Number of Household(f)	(fx)
0	8	0
1	7	7
2	3	6
3	8	24
4	4	16
	$\sum f$ =30	$\sum fx$ = 53

Mean no. of children = $\frac{53}{30}$ = 1.766 $\simeq$ 1.77

No. of Children (x)	No. of Household(f)	Cumulative Frequency(Cf)
0	8	8
1	7	8+7=15
2	3	15+3=18
3	8	18+8=26
4	4	26+4=30
	N = $\sum f$ =30	

$\Rightarrow \frac{N}{2} = \frac{30}{2} = 15$
The cumulative frequency just greater than N/2 is 18 and corresponding value of x = 2
$\Rightarrow$ Median = $\frac{2+1}{2}$ = 1.5
Therefore, the Difference between Mean and Median = 1.77-1.5
= 0.27

Sol 15.(b)
Ascending order of the data = 41,43,46,50,55,61,68,76,85,95
Middle values are 55 and 61
Median = $\frac{55+61}{2}$ = 58

Sol 16.(c)
Ascending order of the data =15,18,18,23,27,28,29,30,31,32,32,35
Middle values are 28 and 29
Median = $\frac{28+29}{2}$ = 28.5

Sol 17. (a)
Given data is in ascending order.
The middle value of data = Median = k+5
According to the question
k+5 = 34
$\Rightarrow k = 34 - 5 = 29$

Sol 18.(d)
Difference in the data = 97-79 = 18
Mean will increase by $\frac{18}{20}$ = 0.9
Required mean = 85+0.9 = 85.9

Sol 19.(d)
Ascending order of the data = $\frac{2}{7}, \frac{1}{3}, \frac{1}{2}, \frac{5}{8}, \frac{3}{4}$
Median of the data = $\frac{1}{2}$

Sol 20. (a)
Ascending order of the data =15,21,23,24,26,27,29,30,30,32,33
Median of the data = 27

Sol 21. (b)
Ascending order of the height = 161,162,163,172,180,185,190.
Median of the height = 172

Sol 22. (d)
Mode = 3(Median) - 2(Mean)
= 3(60)-2(35) = 110

Sol 23.(b)
The mode is the number that is repeated most often. Here 3 is repeated maximum number of times (6 times) so the mode will be 5.

Sol 24. (d)
Given data is in ascending order.
The middle value of data = Median = k+3
According to the question
k+3 = 36
$\Rightarrow k = 36 - 3 = 33$

Sol 25. (c)

Ascending order of the data =2,3,4,5,6,7,9,11,15
Median of the data = 6

Sol 26. (a)
First seven odd numbers are 1,3,5,7,9,11,13
Median of the data = 7

Sol 27. (c)
First 20 whole numbers = 0,1,2,3,4…..19
Sum of the numbers from 1 to 19 = $\frac{n(n+1)}{2} = \frac{19(19+1)}{2}$ =190
Sum of the first 20 whole numbers = 190+0 = 190
Mean of the data = $\frac{190}{20} = 9.5$

Sol 28.(b)
Mean of the data = $\frac{4+6+3+7+10+13+16+5}{8} = 8$
Ascending order of the data = 3,4,5,6,7,10,13,16
Middle numbers are 6 and 7.
Median of the data = $\frac{6+7}{2} = 6.5$
Required difference = 8-6.5 = 1.5

Sol 29.(d)
Mean of the data = $\frac{5+7+8+13+12+14+9+2+26+10}{10} = 10.6$
Ascending order of the data = 2,5,7,8,9,10,12,13,14,26
Middle numbers are 9 and 10.
Median of the data = $\frac{9+10}{2} = 9.5$
Required difference = 10.6-9.5 = 1.1

Sol 30.(b)
Ascending order of the data = 28,32,33,35,37,41,42,49,52,57
Middle numbers are 37 and 41.
Median of the data = x = $\frac{37+41}{2}$ = 39
Ascending order of modified data = 28,33,35,36,37,42,49,52,57,63
Middle numbers are 37 and 42.
Median of the data = y = $\frac{37+42}{2}$ = 39.5
$\Rightarrow x + y = 39 + 39.5 = 78.5$

Sol 31. (b)

Group	Frequency(f)	x	Cumulative Frequency(cf)	f.x
160-170	20	$\frac{160+170}{2}$ =165	20	3300
170-180	110	$\frac{170+180}{2}$ =175	20+110 =130	19250
180-190	130	$\frac{180+190}{2}$ =185	130+130=260	24050
190-200	80	$\frac{190+200}{2}$ =195	260+80 =340	15600
200-210	60	$\frac{200+210}{2}$ =205	340+60 =400	12300
	N= $\sum f$ =400			$\sum fx$ =74500

Median = $L + \frac{(\frac{N}{2} - B)}{G} \times W$
Where, L = lower cost boundary of the group containing the median
B = cumulative frequency of the groups before the median group
G = frequency of the median group
W = width of the median group
Median = $180 + \frac{(\frac{400}{2} - 130)}{130} \times 10$
≈ 185.4

Sol 32. (d) Mode is the number that appears most frequently in a set.
Hence, Mode of the given data = 48

वजन (kg में)	48	51	60	53	56
छात्रों की संख्या	6	3	2	4	5

Maximum no. of times appeared

For calculating median:

Weight(Kg)(x)	No. of Students(f)	Cumulative Frequency
48	6	6
51	3	6+3=9
53	4	9+4=13
56	5	13+5=18
60	2	18+2=20
	N= $\sum f$	20

$\frac{N}{2} = \frac{20}{2} = 10$
Since, 10 lies in the 53 weight.
Therefore, Median = 53

Sol 33. (c)
Ascending order of time = 9:00, 10:00, 11:00, 12:00, 1:00, 2:00, 3:00, 4:00, 5:00
Median of the time = 1:00 PM or 13:00

Sol 34. (a)
Ascending order of the data = 2,7,9,21,33,35,36,43,47,58
Middle values are 33 and 35.
Median = $\frac{33+35}{2} = 34$

Sol 35.(b)
The Mode is the number that is repeated most often. Here 6 is repeated maximum number of times (3 times) so the mode will be 6.

Sol 36. (d)

Class	0-10	10-20	20-30	30-40	40-50	50-60
frequency	13	10	10	16	x	8

Mode = $l + \{\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\} \times h$
Where, 1 = Lower limit of modal class
f_1 = Frequency of modal class
f_0 = Frequency of previous modal class

f_2 = Frequency of next modal class
h = Class size
By formula,
$36 = 30 + \{\frac{16-10}{2(16)-10-x}\} \times 10$
$\Rightarrow 36 - 30 = \frac{6}{22-x} \times 10$
$\Rightarrow 22 - x = 10$
$\Rightarrow x = 12$

Sol 37. (b)

Height(x)	No. of Students(f)	Cumulative Frequency
150	7	7
151	12	7+12=19
152	3	19+3=22
153	3	22+3=25
154	10	25+10=35
155	9	35+9=44
156	6	44+6=50
	N=$\sum f$	=50

$\frac{N}{2} = \frac{50}{2} = 25$
The cumulative frequency just greater than N/2 is 35 and corresponding value of x = 154
$\Rightarrow$ Median = $\frac{153+154}{2} = 153.5$

Sol 38. (b)
Ascending order of the data = 1,1,1,2,3,3,4,5,5,6,6,6,6,7,8,9,9
Middle value = Median = 5
The mode is the number that is repeated most often. Here 6 is repeated maximum number of times (6 times) so the mode will be 6.
Required sum = 5+6 = 11

Sol 39. (b)
The mode is the number that is repeated most often. Here 5 is repeated maximum number of times (3 times) so the mode will be 5.

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Sol:1. (b)
Sum of five numbers = 5 × 28 = 140
sum of four numbers = 4 × 23 = 92
so, excluded number = 140-92 = 48

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