

MATHS

CDS PREVIOUS YEAR PAPER

PREVIOUS YEAR PAPER 2009 (I)

Multiple Choice Questions

1. When N is divided by 4, the remainder is 3. What is the remainder when $2N$ is divided by 4?

A. 1

B. 2

C. 3

D. 6

Answer:



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2. What is the last digit in the expansion of $(2457)^{754}$?

A. 3

B. 7

C. 8

D. 9

Answer:



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3. If $\log_r 6 = m$ and $\log_r 3 = n$, then what is $\log_r \left(\frac{r}{2} \right)$ equal to ?

A. $m - n + 1$

B. $m + n - 1$

C. $1 - m - n$

D. $1 - m + n$

Answer:



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4. Consider the following statements : A number $a_1a_2a_3a_4a_5$ is divisible by 9 if

1. $a_1 + a_2 + a_3 + a_4 + a_5$ is divisible by 9.

2. $a_1 - a_2 + a_3 - a_4 + a_5$ is divisible by 9.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer:



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5.

What

is

$x(y - z)(y + z) + y(z - x)(z + x) + z(x - y)(x + y)$ equal to ?

A. $(x + y)(y + z)(z + x)$

B. $(x - y)(x - z)(z - y)$

C. $(x + y)(z - y)(x - z)$

D. $(y - x)(z - y)(x - z)$

Answer:



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6. If the remainder of the polynomial $a_0 + a_1x + a_2x^2 + \dots + a_nx^n$ when divided by $(x - 1)$ is 1, then which one of the following is correct ?

A. $a_0 + a_2 + \dots = a_1 + a_3 + \dots$

B. $a_0 + a_2 + \dots = 1 + a_1 + a_3 + \dots$

C. $1 + a_0 + a_2 + \dots = (a_1 + a_3 + \dots)$

D. $1 - a_0 - a_2 + \dots = a_1 + a_3 + \dots$

Answer:



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7. When $(x^3 - 2x^2 + px - q)$ is divided by $(x^2 - 2x - 3)$, the remainder is $(x - 6)$. What are the values of p, q respectively ?

A. $-2, -6$

B. $2, -6$

C. $-2, 6$

D. $2, 6$

Answer:



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8. What are the values of c when the HCF of $x^3 + cx^2 - x + 2c$ and $x^2 + cx - 2$ over the rationals is a linear polynomial ?

A. ± 1

B. ± 2

C. ± 3

D. ± 4

Answer:



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9. If $(x + 2)$ is the HCF of $x^2 + ax + b$ and $x^2 + cx + d$ ($a \neq c$ and $b \neq d$), then which one of the following is correct?

A. $a + c = b + d$

B. $2a + b = 2c + d$

C. $b + 2c = 2a + d$

D. $b - 2c = 2a - d$

Answer:



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10. What is the LCM of $(x^2 - y^2 - z^2 - 2yz)$, $(x^2 - y^2 + z^2 + 2xz)$ and $(x^2 + y^2 - z^2 - 2xy)$?

- A. $(x + y + z)(x + y - z)(x - y + z)$
- B. $(x + y + z)(x - y - z)(x - y + z)$
- C. $(x + y + z)(x + y - z)(x - y - z)$
- D. $(x + y - z)(x - y - z)(x - y + z)$

Answer:



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11. If $3^x + 27\{3^{-x}\} = 12$, then what is the value of x ?

- A. 1 only
- B. 2 only
- C. 1 or 2

D. 0 or 1

Answer:



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12. If $x = 1 + \sqrt{2}$, then what is the value of $x^4 - 4x^3 + 4x^2$?

A. -1

B. 0

C. 1

D. 2

Answer:



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13. What is the magnitude of difference of the roots of $x^2 - ax + b = 0$?

A. $\sqrt{a^2 - 4b}$

B. $\sqrt{b^2 - 4a}$

C. $2\sqrt{a^2 - 4b}$

D. $\sqrt{b^2 - 4ab}$

Answer:



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14. What is the solution of the equations $x - y = 0.9$ and $11(x + y)^{-1} = 2$?

A. $x = 3.2$ and $y = 2.3$

B. $x = 1$ and $y = 0.1$

C. $x = 2$ and $y = 1.1$

D. $x = 1.2$ and $y = 0.3$

Answer:



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15. Pooja started her job with certain monthly salary and gets a fixed increment every year. If her salary was Rs. 4200 after 3 years and Rs. 6800 after 8 years of service, then what are her initial salary and the annual increment respectively ?

A. 2640, 320

B. 2460, 320

C. 2460, 520

D. 2640, 520

Answer:



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16. A person bought 5 tickets from a station P to a station Q and 10 tickets from the station P to a station R. He paid Rs. 350. If the sum of a ticket from P to Q and a ticket from P to R is Rs. 42, then what is the fare from P to Q?

A. 12

B. 14

C. 16

D. 18

Answer:



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17. The product of two alternate odd integers exceeds three times the smaller by 12. What is the larger number?

A. 3

B. 5

C. 7

D. 9

Answer:



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18. If $a^x = c^q = b$ and $c^y = a^z = d$ then which one of the following is correct?

A. $x/y = q/z$

B. $x + y = q + z$

C. $xy = qz$

D. $x^y = q^z$

Answer:



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19. A ball is dropped from a height 64 m above the ground and every time it hits the ground it rises to a height equal to half of the previous. What is the height attained after it hits the ground for the 16^{th} time?

A. $2^{-12}m$

B. $2^{-11}m$

C. $2^{-10}m$

D. $2^{-9}m$

Answer:



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20. What is the value of $2\log\left(\frac{5}{8}\right) + \log\left(\frac{128}{125}\right) + \log\left(\frac{5}{2}\right)$?

A. 0

B. 1

C. 2

D. 5

Answer:



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21. If $x \cdot \cos 60^\circ + y \cdot \cos 0^\circ = 3$ and $4x \cdot \sin 30^\circ - y \cdot \cot 45^\circ = 2$,

then what is the value of x ?

A. -1

B. 0

C. 1

D. 2

Answer:



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22. If the unit of weight is $15/4$ kg, what number will $3/2$ quintal represent ?

A. 25

B. 6

C. $1/9$

D. None of the above

Answer:



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23. A dishonest dealer professes to sell his goods at cost price, but uses a false weight and thus gains 20%. For a kilogram he uses a weight of

A. 700 g

B. 750 g

C. 800 g

D. 850 g

Answer:



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24. If we divide a positive integer by another positive integer, what is the resulting number?

- A. It is always a natural number
- B. It is always an integer
- C. It is a rational number
- D. It is an irrational number

Answer:



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25. Nine numbers are written in ascending order. The middle number is the average of the nine numbers. The average of the first five larger numbers is 68 and that of five smaller numbers is 44. What is the sum of all nine numbers ?

A. 450

B. 501

C. 504

D. 540

Answer:



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26. What is the value of

$$\left(\frac{1}{\sqrt{9} - \sqrt{8}} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{\sqrt{7} - \sqrt{6}} - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - \sqrt{4}} \right)$$

?

A. 0

B. $1/3$

C. 1

D. 5

Answer:



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27. Two persons P and start at the same time from city A for city B, 60 km away. P travels 4 km/hr slower than Q. Q reaches city B and at once turns back meeting P, 12 km from city B. What is the speed of P?

A. 8 km/hr

B. 12 km/hr

C. 16 km/hr

D. 20 km/hr

Answer:



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28. A boy walks from his house to school at 2.5 km/hr and arrives 12 minutes late. The next day he walks at 4 km/hr and reaches the school 15 minutes earlier. What is the distance from his house to school ?

A. 2 km

B. 2.5 km

C. 3 km

D. 3.5 km

Answer:



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29. A and B can do a piece of work in 8 days, B and C can do the same work in 12 days. If A, B and C can complete the same work in 6 days, in how many days can A and C complete the same work?

A. 8

B. 10

C. 12

D. 16

Answer:



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30. The compound interest on a sum for 2 years is Rs. 832 and the simple interest on the same sum at the same rate for the same period is Rs. 800. What is the rate of interest?

- A. 6 %
- B. 8 %
- C. 10 %
- D. 12 %

Answer:



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31. A person invested part of Rs. 45,000 at 4% and the rest at 6%. If his annual income from both are equal, then what is the average

rate of interest ?

A. 4.6 %

B. 4.8 %

C. 5.0 %

D. 5.2 %

Answer:



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32. What would be the printed price of a watch purchased at Rs. 380, so that after giving 5% discount, there is 25% profit ?

A. Rs. 400

B. Rs. 450

C. Rs. 500

D. Rs. 600

Answer:



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33. A person A sells a table costing Rs. 2000 to a person B and earns a profit of 6%. The person B sells it to another person C at a loss of 5%. At what price did B sell the table ?

A. Rs. 2054

B. Rs. 2050

C. Rs. 2024

D. Rs. 2014

Answer:



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34. If $a:b = 1\frac{1}{2}:2\frac{1}{4}$ and $b:c = 2:3\frac{1}{2}$ then what is a:b:c equal to ?

A. 12: 8: 21

B. 8: 21: 12

C. 8: 12: 21

D. 21: 8: 12

Answer:



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35. A bag contains Rs. 114 in the form of 1 rupee, 50 paise and 10 paise coins in the ratio 3: 4: 10. What is the number of 50 paise coins ?

A. 76

B. 72

C. 56

D. 48

Answer:



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36. Two taps can fill a tub in 5 minutes and 7 minutes respectively. A pipe can empty it in 3 minutes. If all the three are kept open simultaneously, when will the tub be full ?

A. 60 min

B. 85 min

C. 90 min

D. 105 min

Answer:



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37. If $(x/y) = (z/w)$, then what is $(xy + zw)^2$ equal to ?

A. $(x^2 + z^2)(y^2 + w^2)$

B. $x^2y^2 + z^2w^2$

C. $x^2w^2 + y^2z$

D. $(x^2 + w^2)(y^2 + z^2)$

Answer:



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38. If $\frac{1}{x+1} + \frac{2}{y+2} + \frac{1009}{z+1009} = 1$ then what is the value of $\frac{x}{x+1} + \frac{y}{y+2} + \frac{z}{z+1009}$?

A. 0

B. 2

C. 3

D. 4

Answer:



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39. Suppose y is equal to the sum of two quantities of which one varies directly as x and the other inversely as x . If $y = 6$ when $x = 4$, and $y = 10/3$ when $x = 3$, then what is the relation between x and y ?

A. $y = x + \left(\frac{4}{x}\right)$

B. $y = -2x + (4/x)$

C. $y = 2x + (8/x)$

D. $y = 2x - (8/x)$

Answer:



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40. A train of length 150 m takes 10 s to cross another train 100 m long coming from the opposite direction. If the speed of first train is 30 kmph, what is the speed of second train ?

A. 72 kmph

B. 60 kmph

C. 54 kmph

D. 48 kmph

Answer:



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41. There are some coins and rings of either gold or silver in a box. 60% of the objects are coins, 40% of the rings are of gold and 30% of the coins are of silver. What is the percentage of gold articles ?

A. 16

B. 27

C. 58

D. 70

Answer:



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42. What is the total number of three digit numbers with unit digit 7 and divisible by 11 ?

A. 6

B. 7

C. 8

D. 9

Answer:



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43. What is the sum of positive integers less than 100 which leave a remainder 1 when divided by 3 and leave a remainder 2 when divided by 4 ?

A. 416

B. 620

C. 1250

D. 1314

Answer:



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44. What is the greatest number which divides 392, 486 and 627 so as to leave the same remainder in each case ?

A. 47

B. 43

C. 37

D. 34

Answer:



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45. A man walking at the rate 3 km/hr crosses a square field diagonally in 1 minute. What is the area of the field ?

A. $1000m^2$

B. $1250m^2$

C. $2500m^2$

D. $5000m^2$

Answer:



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46. The difference between the area of a square and that of an equilateral triangle on the same base is $\frac{1}{4}cm^2$ What is the length of side of triangle ?

- A. $(4 - \sqrt{3})^{1/2}cm$
- B. $(4 + \sqrt{3})^{1/2}cm$
- C. $(4 - \sqrt{3})^{-1/2}cm$
- D. $(4 + \sqrt{3})^{-1/2}cm$

Answer:



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47. A horse is tied to a pole fixed at one corner of a $50m \times 50m$ square field of grass by means of a 20 m long rope. What is the area of that part of the field which the horse can graze ?

A. $1256m^2$

B. $942m^2$

C. $628m^2$

D. $314m^2$

Answer:



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48. Two sides of a parallelogram are 10 cm and 15 cm. If the altitude corresponding to the side of length 15 cm is 5 cm, then what is the altitude to the side of length 10 cm ?

A. 5 cm

B. 7.5 cm

C. 10 cm

D. 15 cm

Answer:



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49. From a rectangular metal sheet of sides 25 cm and 20 cm, a circular sheet as large as possible is cut-off. What is the area of the remaining sheet?

A. $186cm^2$

B. $144cm^2$

C. $93cm^2$

D. $72cm^2$

Answer:



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50. Three cubes each of side 5 cm are joined end to end. What is the surface area of the resulting cuboid ?

A. 300cm^2

B. 350cm^2

C. 375cm^2

D. 400 cm^2

Answer:



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51. The diameter of the Moon is approximately one-fourth of the diameter of the Earth. What is the ratio (approximate) of their volumes?

A. $1/16$

B. $1/32$

C. $1/48$

D. $1/64$

Answer:



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52. What is the area of a right angled isosceles triangle whose hypotenuse is $6\sqrt{2}\text{cm}$?

A. 12cm^2

B. 18cm^2

C. 24cm^2

D. 36cm^2

Answer:



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53. If A is the area of a triangle in cm^2 , whose sides are 9 cm, 10 cm and 11 cm, then which one of the following is correct ?

A. $A < 40cm^2$

B. $40cm^2 < A < 45cm^2$

C. $45cm^2 < A < 50cm^2$

D. $A > 50cm^2$

Answer:



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54. A roller of diameter 70 cm and length 2 m is rolling on the ground. What is the area covered by the roller in 50 revolutions ?

A. $180m^2$

B. $200m^2$

C. $220m^2$

D. $240m^2$

Answer:



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55. A cylindrical rod of length h is melted and cast into a cone of base radius twice that of the cylinder. What is the height of the cone ?

A. $3h/4$

B. $4h/3$

C. $2h$

D. $h/2$

Answer:



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56. A cylindrical vessel of base radius 14 cm is filled with water to some height. If a rectangular solid of dimensions $22cm \times 7cm \times 5cm$ is immersed in it, what is the rise in water level ?

A. $0.5cm$

B. $1.0cm$

C. $1.25cm$

D. 1.5cm

Answer:



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57. A lead pencil is in the shape of a cylinder. The pencil is 21 cm long with radius 0.4 cm and its lead is of radius 0.1 cm. What is the volume of wood in the pencil ?

A. 9cm^3

B. 9.4cm^3

C. 9.9cm^3

D. 10.1cm^3

Answer:



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58. What is the angle (in radian) included between the hands of a clock, when the time is 10 minutes past 5.?

A. $17\pi / 36$

B. $19\pi / 36$

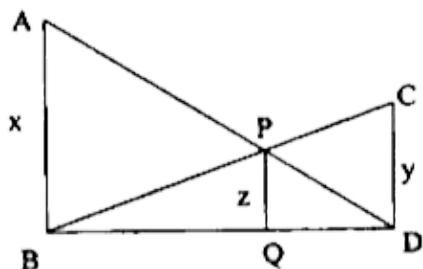
C. $5\pi / 9$

D. $7\pi / 12$

Answer:



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59.

In the figure given above $\angle ABD = \angle PQD = \angle CDQ = \frac{\pi}{2}$. If

$AB = x$, $PQ = z$ and $CD = y$, then which one of the following

is correct ?

A. $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$

B. $\frac{1}{x} + \frac{1}{z} = \frac{1}{y}$

C. $\frac{1}{z} + \frac{1}{y} = \frac{1}{x}$

D. $\frac{1}{x} + \frac{1}{y} = \frac{2}{z}$

Answer:



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60. $\triangle PQR$ is right angled at Q, $PR = 5$ cm and $QR = 4$ cm. If the lengths of sides of another triangle ABC are 3 cm, 4 cm and 5 cm, then which one of the following is correct?

A. Area of $\triangle PQR$ is double that of $\triangle ABC$

B. Area of $\triangle ABC$ is double that of $\triangle PQR$

C. $\angle B = \frac{\angle Q}{2}$

D. Both triangles are congruent

Answer:



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61. Which one of the following figures has only one line of symmetry ?

A. Rhombus

B. Rectangle

C. Isosceles trapezium

D. Parallelogram

Answer:



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62. A ladder 25 m long is leaning against a wall which is perpendicular to the level ground. The bottom of the ladder is 7 m from the base of the wall. If the top of the ladder slips down 4 m, how much will the bottom of the ladder slip?

A. A.7 m

B. B.8 m

C. C.10 m

D. D.15 m

Answer:



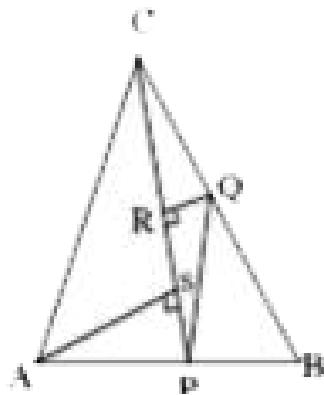
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63. If C_1 and C_2 and r_1 and r_2 are respectively the centroids and radii of incircles of two congruent triangles, then which one of the following is correct?

- A. C_1 and C_2 are the same point and $r_1 = r_2$
- B. C_1 and C_2 are not necessarily the same point and $r_1 = r_2$
- C. C_1 and C_2 are the same point and r_1 is not necessarily equal to r_2
- D. C_1 and C_2 are not necessarily the same point and r_1 is not necessarily equal to r_2

Answer:

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64.

In the above figure, P is a point on AB and $PQ \parallel AC$. Find the number of pair of similar triangles?

- A. 1
- B. 2
- C. 3
- D. 4

Answer:



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65. If the medians of two equilateral triangles are in the ratio 3:2, then what is the ratio of their sides?

A. 1 : 1

B. 2 : 3

C. 3 : 2

D. $\sqrt{3} : \sqrt{2}$

Answer:



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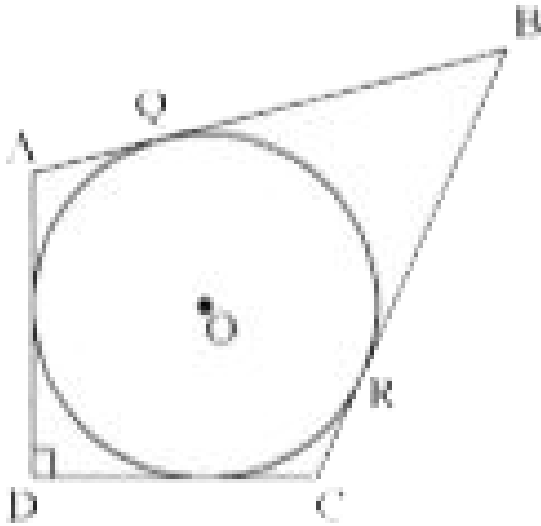
66. The centroid and the orthocenter are coincident for which one of the following triangles ?

- A. Scalene triangle
- B. Isosceles triangle
- C. Equilateral triangle
- D. Right angled triangle

Answer:



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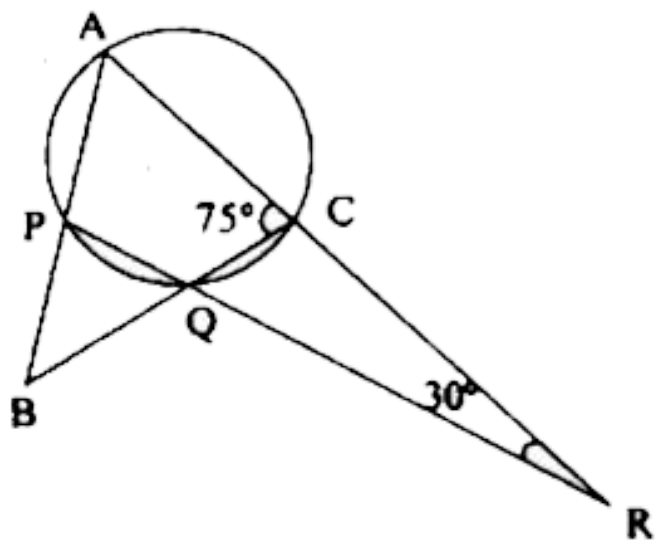
67.

In the above figure there is an incircle in quadrilateral ABCD. $BC = 38$ cm, $QB = 27$ cm, $DC = 25$ cm and $AD \perp DC$. What is the radius of the circle?

- A. 11 cm
- B. 14 cm
- C. 15 cm
- D. 16 cm

Answer:

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68.

In the figure given above, what is $\angle CBA$?

- A. 30°
- B. 45°

C. 50°

D. 60°

Answer:



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69. The ratio of the ages of A and B seven years ago was 3:4 respectively. The ratio of their ages nine years from now will be 7:8 respectively. What is B's age at present?

A. a. 23

B. b. 20

C. c. 28

D. d. 19

Answer:

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70. PQ is a common chord of two circles. APB is a secant line joining points A and B on the two circles. Two tangents AC and BC are drawn. If $\angle ACB = 45^\circ$, then what is $\angle AQB$ equal to ?

- A. 75°
- B. 90°
- C. 120°
- D. 135°

Answer:

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71. ABCD is a cyclic quadrilateral. The tangent at A and C meet at a point P. If $\angle ABC = 100^\circ$ then $\angle APC$ will be equal to :

A. 10°

B. 20°

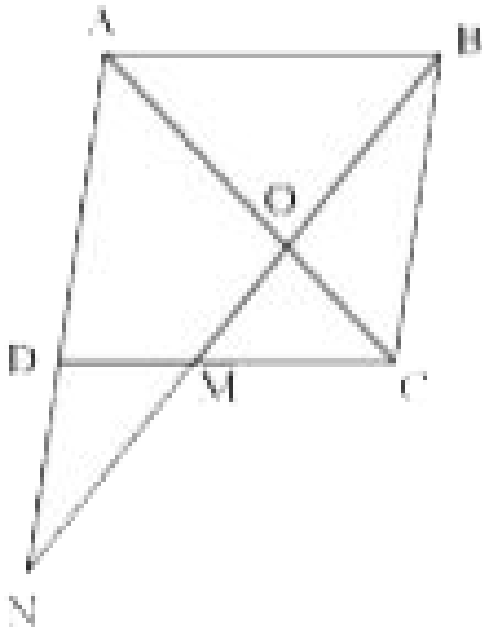
C. 30°

D. 40°

Answer:



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72.

The mid-point of side CD of parallelogram $ABCD$ is 'm' in the given figure what is the ratio $ON : OB$?

A. 3 : 2

B. 2 : 1

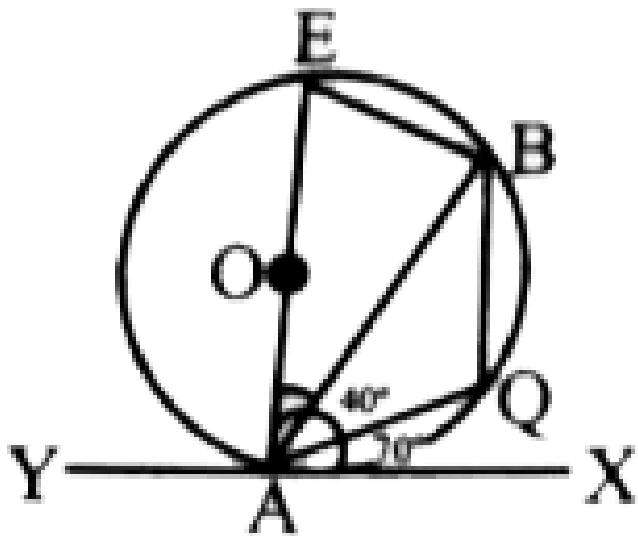
C. 3 : 1

D. 5 : 2

Answer:

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73. In the figure XY is a tangent to the circle with centre O at A . If $\angle BAX = 70^\circ$, $\angle BAQ = 40^\circ$ then $\angle ABQ$ is equal to :



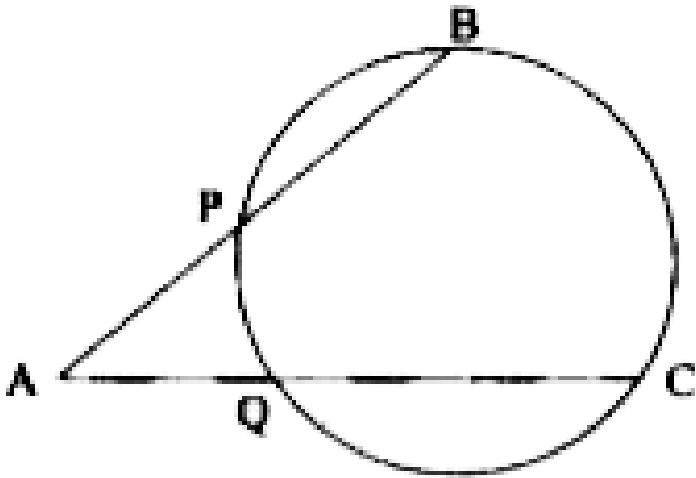
- A. 20°
- B. 30°
- C. 35°

D. 40°

Answer:



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74.

In the figure given above,
 $AP = 3cm$, $PB = 5cm$, $AQ = 2cm$ and $QC = x$. What is the value of x ?

A. 6cm

B. 8cm

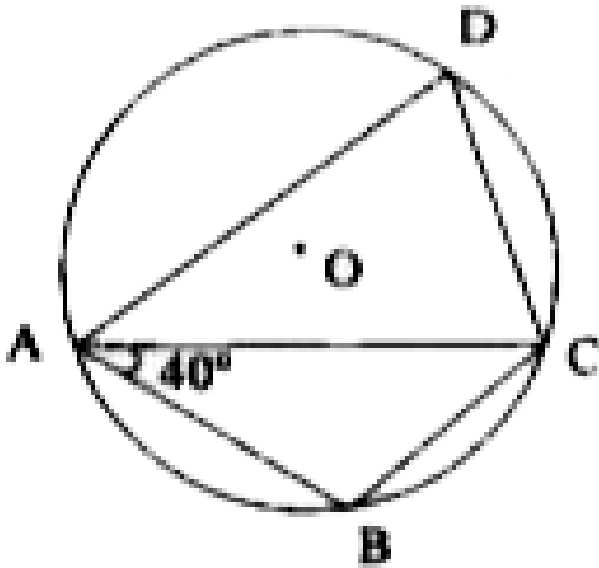
C. 10cm

D. 12cm

Answer:



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75.

In the figure given above, O is the centre of a circle circumscribing a quadrilateral $ABCD$. If $AB = BC$ and $\angle BAC = 40^\circ$, then what is $\angle ADC$ equal to ?

A. 50°

B. 60°

C. 70°

D. 80°

Answer:



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76. Let \overrightarrow{AB} and \overrightarrow{AC} be two rays intersecting at A. Let D, E be the points lying on \overrightarrow{AB} , \overrightarrow{AC} respectively and P be the point such that P divides the line DE such that $PD:PE = AD:AE$. What is the locus of the point P?

- A. The angle bisector of angle A
- B. The angle trisector of angle A
- C. The perpendicular bisector of angle A
- D. None of the above

Answer:



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77. What is $\log(\tan 1^\circ) + \log(\tan 2^\circ) + \log(\tan 3^\circ) + \dots + \log(\tan 89^\circ)$ equal to ?

A. 0

B. 1

C. 2

D. -1

Answer:



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78. Consider the following equations

(i) $\cos ec^2 x + \sec^2 x = \cos ec^2 x \sec^2 x$

(ii) $\sec^2 x + \tan^2 x = \sec x \tan^2 x$

(iii) $\cos^2 x + \tan^2 x = \cot^2 x + \sec^2 x$

Which of the above equations are correct ?

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer:



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79. If $\cos x + \cos^2 x = 1$, then what is the value of $\sin^2 x + \sin^4 x$?

A. 0

B. 1

C. 2

D. 4

Answer:



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80. If $\sin x \cos x = 1/2$, then what is the value of $\sin x - \cos x$?

A. 2

B. 1

C. 0

D. -1

Answer:



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81. If $\tan^2 y \cos ec^2 x - 1 = \tan^2 y$, then which one of the following is correct ?

A. $x - y = 0$

B. $x = 2y$

C. $y = 2x$

D. $x - y = 1^\circ$

Answer:



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82. If $\frac{\cos x}{1 + \cos ecx} + \frac{\cos x}{\cos ecx - 1} = 2$, which one of the following is one of the value of x ?

A. $\pi/2$

B. $\pi/3$

C. $\pi/4$

D. $\pi/6$

Answer:



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83. If $x + y = 90^\circ$ and $\sin x : \sin y = \sqrt{3} : 1$, then what is $x : y$ equal to ?

A. 1 : 1

B. 1 : 2

C. 2 : 1

D. 3 : 2

Answer:

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84. If $\frac{\cos x}{\cos y} = n$, $\frac{\sin x}{\sin y} = m$, then what is $(m^2 - n^2)\sin^2 y$ equal to ?

A. $1 - n^2$

B. $1 + n^2$

C. m^2

D. n^2

Answer:

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85. If $0 \leq x \leq \pi/2$, then which one of the following is always correct?

A. $\sin^2 x < 1/2$ and $\cos^2 x > 1/2$

B. $\sin^2 x < 1/2$ and $\cos^2 x < 1/2$

C. $\sin^2 x < 1/2$ and $\cos^2 x < 1/2$

D. At least one of $\sin^2 x$, $\cos^2 x$ is less than 1

Answer:



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86. If $p = \tan^2 x + \cot^2 x$, then which one of the following is correct ?

A. $p \leq 2$

B. $p \geq 2$

C. $p < 2$

D. $p > 2$

Answer:



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87. What is the value of

$$\frac{5\sin 75^\circ \sin 77^\circ + 2\cos 13^\circ \cos 15^\circ}{\cos 15^\circ \sin 77^\circ} - \frac{7\sin 81^\circ}{\cos 9^\circ} ?$$

A. -1

B. 0

C. 1

D. 2

Answer:



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88. A radio transmitter antenna of height 100 m stands at the top of a tall building. At a point on the ground, the angle of elevation of bottom of the antenna is 45° and that of top of antenna is 60° . What is the height of the building ?

A. 100 m

B. 50 m

C. $50(\sqrt{3} + 1)m$

D. $50(\sqrt{3} - 1)m$

Answer:



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89. The angle of elevation of the top of an unfinished pillar at a point 150 m from its base is 30° . If the angle of elevation at the

same point is to be 45° , then the pillar has to be raised to a height of how many meters ?

A. $59.4m$

B. $61.4m$

C. $62.4m$

D. $63.4m$

Answer:



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90. Which one of the following represents statistical data ?

A. The names of all owners of shops located in a shopping complex

B. A list giving the names of all states of India

C. A list of all European countries and their respective capital cities

D. The volume of a rainfall in certain geographical area, recorded every month for 24 consecutive months

Answer:



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91. If $\sin x + \sin y = a$ and $\cos x + \cos y = b$, what is $\sin x \cdot \sin y + \cos x \cdot \cos y$ equal to ?

A. $a + b - ab$

B. $a + b + ab$

C. $a^2 + b^2 - 2$

D. $\left(\frac{a^2 + b^2 - 2}{2} \right)$

Answer:



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92. The arithmetic mean of a set of 10 numbers is 20. If each number is first multiplied by 2 and then increased by 5, then what is the mean of new numbers ?

A. 20

B. 25

C. 40

D. 45

Answer:



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93. Consider the following types of data :

1. Marks of students who appeared for a test of 100 marks.
2. Collar sizes of 200 shirts sold in a week.
3. Monthly incomes of 250 employees of a factory.

For which of the above data, mode is a suitable measure of central tendency?

- A. 1 and 2 only
- B. 2 only
- C. 1 and 3 only
- D. 1, 2 and 3

Answer:



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94. The mean of 25 observations is 36. The mean of first 13 observations is 32 and that of last 13 observations is 39. What is the value of 13th observation ?

A. 20

B. 23

C. 32

D. 40

Answer:



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95. Data on percentage distribution of area of land in acres owned by households in two districts of a particular state are as follows :

Land holding	District-A	District-B
0.01 – 0.99	5.62	13.53
1.0 – 2: 49	18.35	21.84
2.5 – 7.49	47.12	39.32
7.5 – 12.49	19.34	12.15
12.5 – 19.99	7.21	7.43
20.0 – 29.99	2.36	5.73

What is the appropriate diagram to represent the above data ?

- A. Pie diagram
- B. Histogram
- C. Bar chart
- D. None of the above

Answer:



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96. If α is the angle of first quadrant such that $\cos ec^4 \alpha = 17 + \cot^4 \alpha$, then what is the value of $\sin \alpha$?

A. a) $1/3$

B. b) $1/4$

C. c) $1/9$

D. d) $1/16$

Answer:



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97. If $x + (1/x) = 2 \cos \alpha$, then what is the value of $x^2 + (1/x^2)$?

A. $4 \cos^2 \alpha$

B. $4 \cos^2 \alpha - 1$

C. $2 \cos^2 \alpha - 2 \sin^2 \alpha$

D. $\cos^2 \alpha - \sin^2 \alpha$

Answer:



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98. Assertion (A) : If two triangle have same perimeter , then they are congruent.

Reason (R) : If under a given correspondence, the three sides of one triangle are equal to the three sides of the other triangle, then the two triangles are congruent.

A. Both A and R are individually true and R is the correct explanation of A

B. Both A and R are individually true but R is not the correct explanation of A.

C. A is true but R is false

D. A is false but R is true

Answer:



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99. ABC is a triangle. Let D, E denote the mid points of BC, CA respectively. Let AD and BE intersect at G. Let O be a point on AD such that $AO:OD = 2:7$.

Assertion (A): $AO = (2GD) / 3$

Reason (R) : $OD = (2AG) / 3$

A. A. Both A and R are individually true and R is the correct explanation of A

B. B. Both A and R are individually true but R is not the correct explanation of A.

C. C. A is true but R is false

D. D. A is false but R is true

Answer:



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100. ABC is a given triangle. AD, BE and CF are altitudes of $\triangle ABC$.

Assertion (A) : $(AB^2 + BC^2 + CA^2) > (AD^2 + BE^2 + CF^2)$

Reason (R) :

$$(AE^2 - AF^2) + (BF^2 - BD^2) + (CD^2 - CE^2) = 0$$

A. Both A and R are individually true and R is the correct explanation of A

B. Both A and R are individually true but R is not the correct explanation of A.

C. A is true but R is false

D. A is false but R is true

Answer:



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