MATHS

BOOKS - EDUCART PUBLICATION

SAMPLE PAPER 10

Section A

1. What is the other zero of the polynomial, if one zero of the quadratic polynomial $2x^2 - 8x - m$ is $\frac{5}{2}$?

A. $\frac{1}{2}$

B. $\frac{3}{2}$

C. $\frac{5}{2}$

D. $\frac{7}{2}$

Answer:

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2. A rectangle has a length of $2x + 15$ and breadth of $y + 10$. Find the value of x and y if perimeter of rectangle is 120 cm?

A. 14, 7

B. 13, 9

C. 12, 8

D. 15, 6

Answer:

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3. A page from Girl's pass book is given below. He closed his account on $2 - 7 - 2007$. Assume that there were no transactions involving his account after $18 - 5 - 2007$.

Date	Particular	Withdrawn	Deposited	Balance
2-1-2007	B/F	–	–	4000
14-1-2007	By cash	–	5000	9000
14-2-2007	To self	3000	–	6000
7-4-2007	By cash	–	2000	8000
8-5-2007	To self	5500	–	2500
18-5-2007	By cash	–	6500	9000

Find the sum on which Giri received interest on closing his account (in Rs.) from January 2007-June 2007 (in Rs.)

A. $\frac{1}{3}$

B. $\frac{1}{9}$

C. $\frac{1}{6}$

D. $\frac{1}{2}$

Answer:

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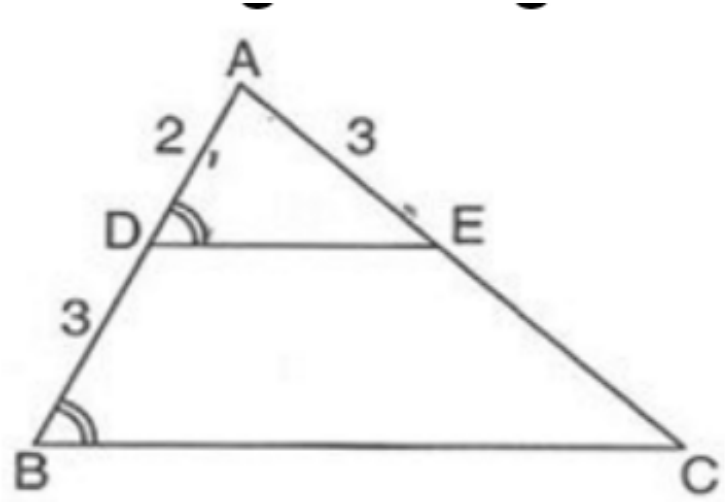
4. In ΔABC, if $\angle ADE = \angle ABC$, then what is the value of CE? (See Figure).



A. 6 cm

B. 3 cm

C. 4.5 cm

D. 5 cm

Answer:

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5. Find the radius of a circle whose centre at the origin and a point P(5, 0) lies on circumference.

A. 34 units

B. 8 units

C. 5 units

D. 7 units

Answer:

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6. The decimal representation of $\frac{129}{60}$ will terminate after

A. not terminate

B. terminate after 1 decimal place

C. terminate after 2 decimal places

D. terminate after 3 decimal places

Answer:

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7. At letter is drawn at random from the letters of the word ERROR. What is the probablity that drawn letter is R?

A. $\frac{1}{5}$

B. $\frac{2}{5}$

C. $\frac{3}{5}$

D. $\frac{4}{5}$

Answer:

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8. In Fig. 19.60, ABC is an equilateral triangle inscribed in a circle of radius 4 cm with centre O. Find the area of the shaded region. (FIGURE)

A. $\frac{4}{3}(4\pi - 3\sqrt{3})cm^2$

B. $\frac{2}{3}(2\pi - \sqrt{3})cm^2$

C. $\frac{7}{3}(7\pi - 3\sqrt{3})cm^2$

D. $\frac{5}{3}(5\pi - 3\sqrt{3})cm^2$

Answer:

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9. Evaluate the zeroes of the polynomial : $2x^2 + 14x + 20$.

A. $-2, -5$

B. $2, 5$

C. $-2, 5$

D. $-5, 2$

Answer:

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10. If the area of two similar triangles are equal then the triangles are congruent.

A. equilateral

B. Isosceles

C. congruent

D. right-angled

Answer:

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11. If one zero of the polynomial is 7 and product of zeroes is -35, then the polynomial is

A. $x^2 + 12x - 35$

B. $x^2 - 12x - 35$

C. $-x^2+2x+35$

D. $x^2+2x+35$

Answer:

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12. In (ΔABC) , $MN \mid \mid BC$ and $AM:AB=\frac{1}{3}$. Then find the ratio of $\frac{ar(\Delta AMN)}{ar(\Delta ABC)}$

A. $1:4$

B. $1:9$

C. $4:1$

D. $9:1$

Answer: B

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13. Consider a ΔPQR, in which PQ = 7 cm, QR= 25 cm, RP = 24 cm, then the triangle is right angled at

A. Q

B. R

C. P

D. can't say

Answer:

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14. From the 1000 sealed envelopes in a box, 10 of them contain a cash prize of 100 each, 100 of them contain a cash prize on 50 each and 200 of them contain a cash prize of 10 each and rest do not contain any cash prize. They are well-shuffled and an envelope is picked up out of them. The probability that it contains no cash prize is:

A. 0.54

B. 0.57

C. 0.69

D. 0.65

Answer:

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15. For two linear equations , $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$, the condition $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ is for.

A. Unique solution

B. Infinite solution

C. No solution

D. Data insufficient

Answer:

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16. If in triangles PQR and XYZ ; $\frac{PQ}{XZ} = \frac{PR}{XY} = \frac{QR}{YZ}$ then:

A. $\Delta PRQ \sim \Delta XYZ$

B. $\Delta QRP \sim \Delta YXZ$

C. $\Delta PQR \sim \Delta XYZ$

D. $\Delta PQR \sim \Delta XZY$

Answer:

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17. Calculate the minimum number by which $\sqrt{8}$ should be multipled so as to get a rational number.

A. $\sqrt{2}$

B. $\sqrt{3}$

C. $\sqrt{5}$

D. $\sqrt{6}$

Answer:

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18. Two, trees are standing parallel to each other. The bigger tree 3m high, casts a shadow of 3m. The smaller tree of height 4m cast a shadow of:

A. 6m

B. 8m

C. 4m

D. 5m

Answer:

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19. Find the distance 2AB, where A and B are the points (-6, 7) and (-1, -5) respectively.

A. 28 units

B. 24 units

C. 25 units

D. 26 units

Answer:

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20. if 3 is the least prime factor of number a and 7 is the least prime factor of number b, then the least prime factor of a+b , is

A. 0

B. 1

C. 2

D. 3

Answer:

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21. The ratio of HCF and LCM of numbers 28 and 32 is

A. $4:27$

B. $1:56$

C. $56:1$

D. $27:4$

Answer:

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22. It is given that in a group of 3 students, the probability of 2 students not having the same birthday is 0.992. What is the probability that the 2 students have the same birthday?

A. 0.001

B. 0.008

C. 0.007

D. 0.006

Answer:

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23. What is the length of side AC in ΔABC, which is right angled at B if BC=5cm and $\angle BAC = 30^\circ$?

A. 5cm

B. 15cm

C. 10cm

D. 7cm

Answer:

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24. Consider an isoceles right angled triangle ΔABC at C, then AB^2= ....times AC^2.

A. 1

B. 2

C. 3

D. 4

Answer:

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25. If the zeroes of the polynomial $x^2 - 2kx + 2$ are equal in magnitude but opposite in sign, then the vaue of k is

A. 0

B. 1

C. 2

D. 3

Answer:

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26. The distance of the point $P(3, -4)$ from the origin is

A. 3 units

B. 4 units

C. 5units

D. 6 units

Answer:

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27. Evaluate the approximate area covered by hour hand in 1 hour, where the length of hour hand of a clock is 7cm.

A. $9cm^2$

B. $11cm^2$

C. $13cm^2$

D. $15cm^2$

Answer:

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28. Find the value of y, from the equations $x - y = 0.9$ and $\frac{11}{x+y} = 2$.

A. 1.2

B. 2.1

C. 3.2

D. 2.3

Answer:

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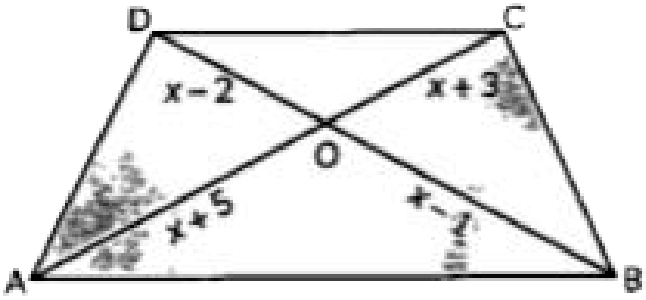
29. Evaluate for x, if, $AB \mid\mid DC$ in the given figure.



A. 6

B. 7

C. 8

D. 4

Answer:

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30. What is the area of a square inscribed in a circle of diameter x cm?

A. $\frac{p^2}{2}cm^2$

B. p^2cm^2

C. $\frac{\pi p^2}{2}cm^2$

D. πp^2cm^2

Answer:

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31. The HCF of co-prime numbers 17 and 43 is

A. 7

B. 6

C. 1

D. 3

Answer:

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32. In ΔABC, D and E are points on sides AB and AC respectively such that $DE \| BC$. If AE=1.8cm, BD= 7.2cm and CE= 5.4cm, then the length of AD is

A. 3.6cm

B. 2.8cm

C. 2.4cm

D. 1.8cm

Answer:

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33. If α and β are the zeroes of a polynomial $x^2 - 3x - 4$, then the polynomial whose zeroes are $(\alpha + \beta)$ and $\alpha\beta$ is:

A. $x^2 - x + 12$

B. $x^2 + x - 12$

C. $x^2 - x - 12$

D. $x^2 + x + 12$

Answer:

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34. What is the probability of getting a consonant, when a letter of English alphabet is chosen at random?

A. $\frac{5}{26}$

B. $\frac{21}{26}$

C. $\frac{19}{26}$

D. $\frac{17}{26}$

Answer:

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35. If AD is a median of ΔABC with vertices $A(5, -7), B(4, 7)$ and $C(6, -5)$ then what are the coordinate of D?

A. (5,1)

B. $(-1, 1)$

C. $(-5, 1)$

D. (1,1)

Answer:

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36. Write the value of k for which the system of equations $2x - y = 5,\ \ 6x + ky = 15$ has infinitely many solutions.

A. 8

B. -3

C. 3

D. 6

Answer:

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37. A situation is given. Represent it in the form of linear equations. 5 books and 7 pens together cost Rs 79 whereas 7 books and 5 pens together cost Rs 77. Here consider cost of each book as Rs x and that of each pen as Rs y.

A. $17x + 7y = 79, 5x + 5y = 77$

B. $5x + 7y = 79, 7x + 5y = 77$

C. $5x + 5y = 79, 7x + 7y = 77$

D. Data insufficient

Answer:

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38. Given two triangles ABC and DEF such that $\Delta ABC \sim \Delta DEF$. Also, $ar(\Delta ABC) = 25cm^2, ar(\Delta DEF) = 64cm^2$ and $AB = 5cm.$ Then length of side DE is

A. 8cm

B. 10cm

C. 4cm

D. 12cm

Answer:

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39. The product of $\left(3+\sqrt{3}\right)$ and $\left(3-\sqrt{5}\right)$ is

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40. $0x^2+2x-5$ is an example of a:

A. cubic polynomial

B. bi-quadratic polynomial

C. linear polynomial

D. quadratic equation

Answer:

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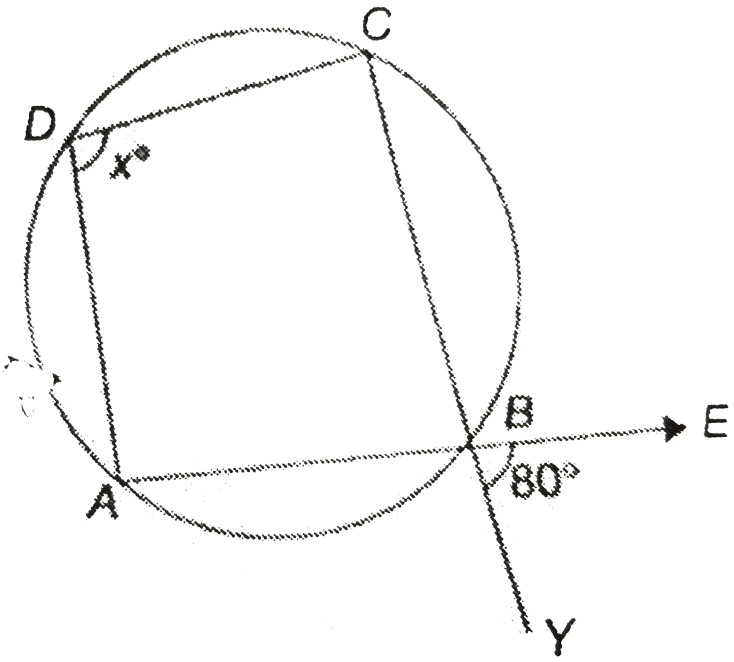
Section B

1. In Fig, find the value of x.



A. 6 cm

B. 3 cm

C. 4.5 cm

D. 5 cm

Answer:

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2. How many zeroes can a polynomial of degree n can have?

A. 0

B. n

C. (n- 1)

D. n^2

Answer:

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3. Sum of three consecutive integers is 24. Find the integers.

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4. Any two-digit number have a digit at one's place and at ten's place. lfwe consider digit at ten's place as 'x' and digit at one's place as 'y' then, a two-digit number is written in the form of an algebraic expression is shown as:

10x+y

The linear equation representing the situation. The tens digit is three times the unit digit is".

A. x-3y= 0

B. x+ 3y= 2

C. x+ 3y= 0

D. x-3y= 3

Answer:

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5. The maximum number of students among who 1001 pens and 910 pencils can be distributed in such a way that each student gets same number of pens and same number of pencils is

A. 65

B. 55

C. 11

D. 5

Answer:

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6. For what value of k, the system of equation 8x + 5y = 9 and kx + 10y = 18 has infinite many solutions.

A. k = 10

B. k = 16

C. k= 8

D. k= 15

Answer:

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7. Evaluate the value of $2\tan^2\theta + \cos^2\theta$ where θ is an acute angle and $\sin\theta = \cos\theta$

A. 1

B. $\frac{1}{2}$

C. $-\frac{3}{2}$

D. 0

Answer:

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8. Samiksha had a pack of 52 cards. She took out all the face cards and shuffled the remaining cards well

Now she took out a card from it.

What is the probability of getting neither black card nor an ace?

A. $\frac{11}{20}$

B. $\frac{3}{5}$

C. $\frac{9}{20}$

D. $\frac{11}{20}$

Answer:

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9. If the probability of winning a game is 0.7, what is the probability of losing it?

A. 0.3

B. 0.4

C. 1.0

D. 0.2

Answer:

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10. ABC and BDE are two equilateral triangles such that D is the mid-point of BC. Then, $ar(\Delta BDE) = \frac{1}{2}ar(\Delta ABC)$.

A. $1:2$

B. $2:1$

C. $1:4$

D. $4:1$

Answer:

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11. The LCM of the smallest multiple of 4 and smallest multiple of 6 is:

A. 6

B. 12

C. 24

D. 48

Answer:

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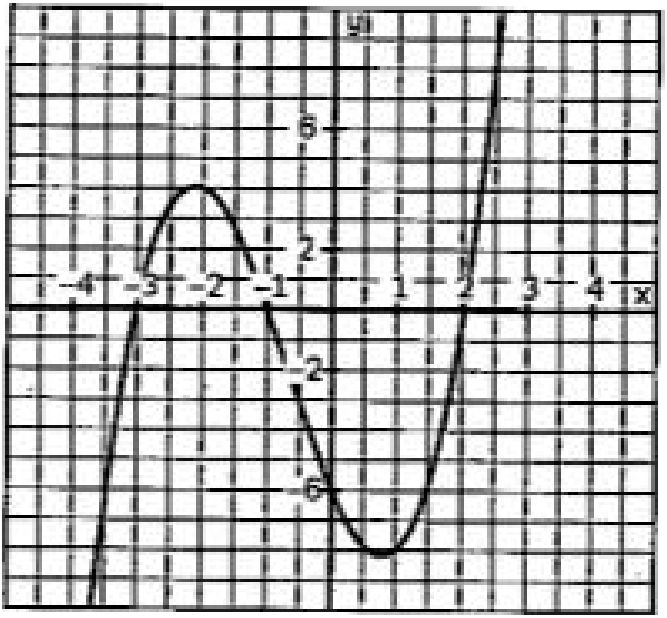
12. What are the number of zeroes of p(x) for the given graph?



A. 0

B. 1

C. 3

D. 4

Answer:

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13. Write the number of solutions of the following pair of linear equations: $x + 2y - 8 = 0, \quad 2x + 4y = 16$

A. Unique

B. Infinite

C. No solution

D. Two solution

Answer:

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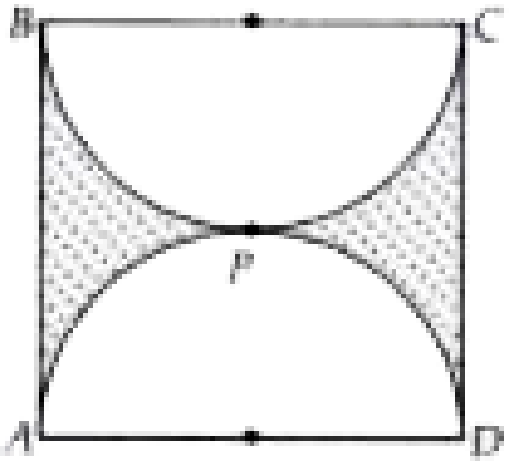
14. Find the area of the shaded region of the given figure, if ABCD is a square of side 14 cm and APD and BPC are semi-circles. $\left(\text{Take} \pi = \frac{22}{7} \right)$



A. $\frac{12}{7}cm^2$

B. $\frac{11}{5}cm^2$

C. $\frac{22}{7}cm^2$

D. $\frac{7}{12}cm^2$

Answer:

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15. The power of 2 in the prime factorization of 792 is:

A. 1

B. 2

C. 3

D. 4

Answer:

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16. Find the value of the $\alpha\beta^2 + \beta\alpha^2$, if α and β are the zeroes of polynomial $x^2 + 4x + 4$.

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17. What is the value of'a', if 2 is a zero ofpolynomial p(x) = $4x^2 + 2x - 5a$?

A. 4

B. 6

C. -1

D. 0

Answer:

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18. Evaluate the radius of the circle, if the circumference of a circle exceeds its diameter by 30.

A. 11 cm

B. 21 cm

C. 14 cm

D. 7 cm

Answer:

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19. Point of intersection of the pair of linear equations x = 4 and y = 3 is

A. (4, 0)

B. (3, 4)

C. (4, 3)

D. (3, 3)

Answer:

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20. A circular park has a path of uniform width around it. The difference between the outer and inner circumferences of the circular path is 132 m. Its width is (a) 20 m (b) 21 m (c) 22 m (d) 24 m

A. 7 m

B. 21 m

C. 42 m

D. 32 m

Answer:

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Section C

1. Find the ratio in which $C(5, 2)$ divides the line joining $W(7, 3)$ and $E(3, 1)$.

A. $5:4$

B. $5:3$

C. $2:5$

D. $1:1$

Answer:

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2. What is the ratio in which x-axis divides the line joining the points $P(4, 3)$ and $D(4, -3)$?

A. $1:1$

B. $4:5$

C. $2:1$

D. $8:3$

Answer:

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3. What is the ratio in which y-axis divides the line joining the points $L(3, 5)$ and $U(-2, 7)$?

A. $1:4$

B. $7:9$

C. $4:7$

D. $3:2$

Answer:

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4. Find the distance of point $(5, -7)$ from the origin.

A. 3 units

B. 5 units

C. 7 units

D. 10 units

Answer:

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5. A page from Richa's pass book is given below. Answer the following question by finding the missing entries. She closes her account on $30 - 6 - 2007$.

Date	Particulars	Amount With drawn (₹)	Amount deposited (₹)	Balance (₹)
5-1-2007	By Cash		500.00	500.00
23-1-2007	By Cash		6000.00	6500.00
8-2-2007	By Cash	(missing entry)		8000.00
13-2-2007	To self	(missing entry)		5000.00
18-2-2007	By Cash		2000.00	(missing entry)
9-3-2007	By Cash		5000.00	12,000.00
15-3-2007	To self	(missing entry)		9000.00
11-4-2007	To self	(missing entry)		5000.00
5-5-2007	By Cash	(missing entry)		10,050.00

Find the amount on which she will receive interest on closing her account.

A. P and L

B. U and G

C. Q and K

D. None of these

Answer:

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6. In $\triangle PQR$, right angled at Q, $PQ = 105$ and $QR = 208$, the value of $\tan R$ is:

A. $\frac{105}{233}$

B. $\frac{105}{208}$

C. $\frac{208}{105}$

D. $\frac{208}{233}$

Answer:

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7. In $\triangle PQR$, right angled at Q, the value of $\sin^2 P + \cos^2 P$ is:

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8. In $\triangle PQR$, right angled at Q, the value of $\cos ecR - \sec P$ is:

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9. In $\triangle PQR$, right angled at Q, the value of $\tan^2 P - \sec^2 P$ is:

A. 0

B. 1

C. -1

D. 2

Answer:

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10. In $\triangle PQR$, right angled at Q, $\tan P - \cot R$ is:

A. 1

B. 0

C. -1

D. 2

Answer:

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Part A Section I

1. Give examples of two irrational numbers the product of which is: a rational number (ii) an irrational number

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2. Find the H.C.F. of $(2^3 \times 3 \times 5)$ and $(2^4 \times 5^2 \times 17)$

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3. Write a quadratic polynomial, whose zeros are 2 and 4.

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4. Write the 11th term of the A.P.: $\sqrt{3}, 3\sqrt{3}, 5\sqrt{3},$ _____

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5. Discuss the nature of the quadratic equation $2x^2 + x + 4 = 0$

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6. Write the 2nd term of the AP, if its $S_n = n^2 + 2n.$

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7. Find the roots of $x + \frac{1}{x} = 2$

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8. Write a pair of linear equations which has the unique solution $x = -1, y = 3$

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9. If the distance between the points (4,p) and (1,0) is 5 , then find the value of p.

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10. Find the distance between the points (0, 6) and (0, -2).

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11. Tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Find length of PQ

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12. Pythagoras Theorem

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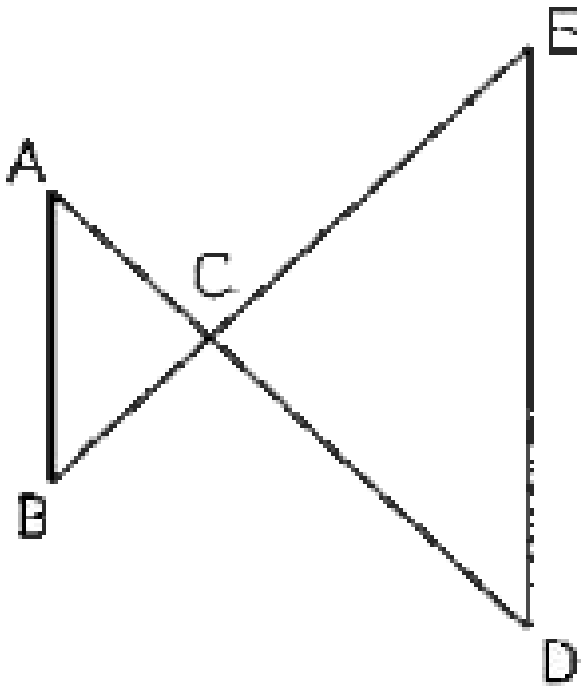
13. In the figure, AB || ED. Show that $\Delta ABC - \Delta DEC$.



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14. A cumulative frequency distribution is given below. Convert this into a frequency distribution table. Marks Below 45 Below 60 Below 75 Below 90 Below 105 Below 120 No. of Students 0 8 23 48 85 116

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15. From a tank containing 10 male fish and 12 female fish, a fish is taken out, then probability that it is a female fish is?

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16. Median of discrete frequency distribution

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17. Construction of a Grouped frequency distribution

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18. Find the number if eight times of its is added to its square, the sum so obtained is -16.

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19. Find the value of $(1+\cos A)(1-\cos A)\cos ec^2 A$.

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20. What is the maximum value of $\frac{1}{\cos ec\theta}$?

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21. If $\sin\theta + \cos ec\theta = 4$, then find the value of $\sin^2\theta + \cos ec^2\theta$

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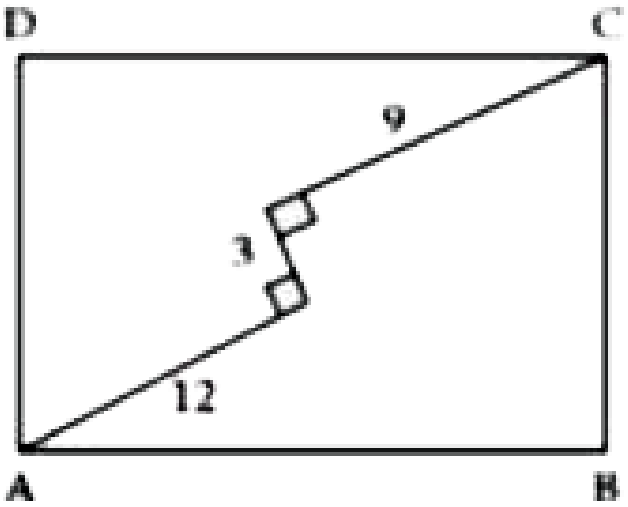
Part A Section Ii

1. ABCD is a square. Find out the side of square?



A. 18 m

B. 20 m

C. 21 m

D. 22 m

Answer: C

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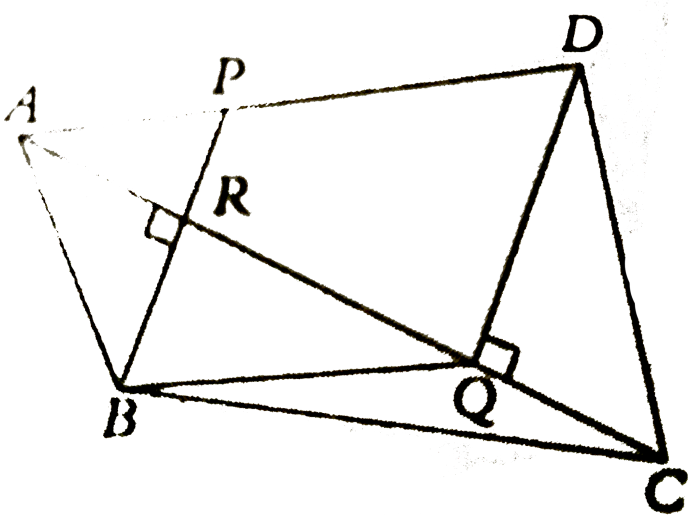

2.

In the figure given above, ABCD is a quadrilateral and BPDQ is parallelogram. AR = 50 cm, CQ = 70 cm, BR = 60, and PR = 40 cm. If the area of the quadrilateral ABCD is $15,600 cm^2$, then find the area of then find the area of the parallelogram BPDQ (in cm^2).

A. 5.25 sq m

B. 4.5 sq m

C. 5 sq m

D. 5.5 sq m

Answer: A

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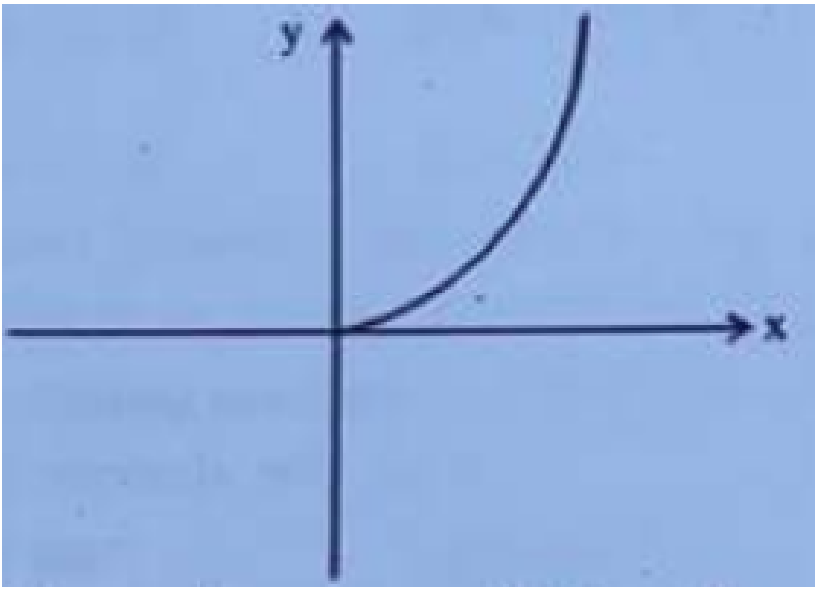
3. Which of the following equation is best representation of given graph's?



A. ₹ 575

B. ₹ 450

C. ₹ 525

D. ₹ 550

Answer: C

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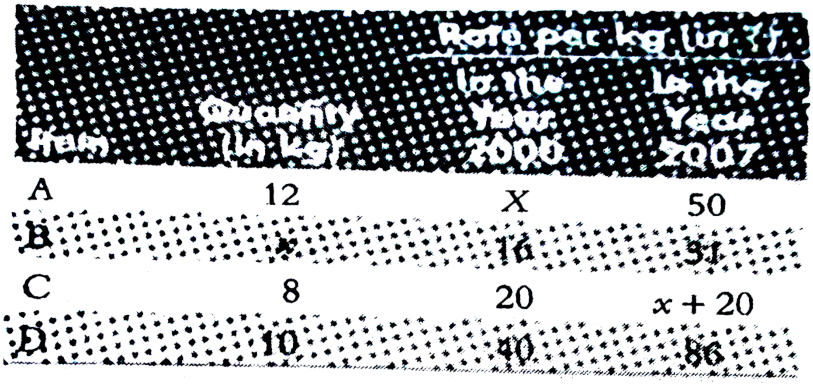
4.



The cost of living index for the year 2007 considering the base year as 2000, is 225. Find x.

A. ₹ 2800

B. ₹ 2660

C. ₹ 2521

D. ₹ 2638

Answer: D

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5. Pass the necessary Journal entries to rectify the following errors:

(i) Rs. 15,000 paid as wages for the construction of office building debited to Salaries Account.

(ii) Rs. 20,000 spent on the purchases of material for the construction of building debited to Purchases Account.

(iii) Rs. 50,000 spent on the extension of building was debited to Building Repairs Account.

(iv) Rs. 25,000 spent on whitewash of a new building was charged to Building Repairs Account.

(v) Rs. 1,000 paid as installation charges for newly purchased second hand machinery posted to Cartage Account.

(vi) Rs. 10,000 paid as repairing charges on the reconditioning of a newly purchased second hand machinery debited to General Expenses Account.

(vii) Rs. 5,000 paid as repairing charges of an existing machine in use charged to Machinery Account.

Rs. 10,000 paid by cheque for a printer was charged to the Office Expenses Account.

A. 5.22 sq m

B. 11.5 sq m

C. 18.84 sq m

D. 24.11 sq m

Answer: A

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6. If $y = \tan^{-1}(\sec x - \tan x)$, then differentiation of y wrt x is equal to= ?

A. 8

B. 6

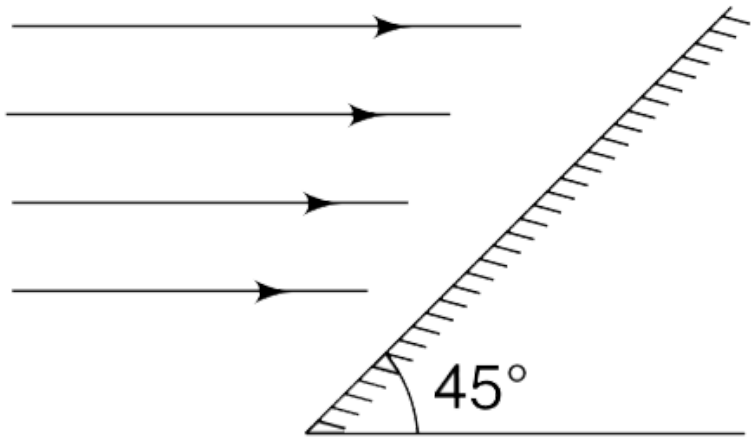
C. 5

D. 4

Answer: B

Watch Video Solution

7. A horizontal beam of light in incident on a plane mirror inclined at 45° to the hori- zontal. The percentage of light energy reflected from the mirror is $80\,\%$. Find the direction in which the mirror will experience force due to the incident light.



A. 14 cm $\times$ 14 cm $\times$ 3 cm

B. 18 cm $\times$ 18 cm $\times$ 1 cm

C. 12 cm $\times$ 12 cm $\times$ 4 cm

D. 8 cm $\times$ 8 cm $\times$ 8 cm

Answer: A

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8. Stationary sound 'S' of frequency 334 Hz and a stationary observer 'O' are placed near a reflecting surface moving away from the source with velocity 2 m/s the apparent frequency of the echo of S considering velocity of sound equal to 334 m/s is

`(##TRG_PHY_MCQ_XII_C07_E04_015_Q01.png" width="80%">

A. 14 cm $\times$ 14 cm $\times$ 3 cm

B. 19 cm $\times$ 18 cm $\times$ 1 cm

C. 13 cm $\times$ 12 cm $\times$ 4 cm

D. 9 cm $\times$ 8 cm $\times$ 8 cm

Answer: B

Watch Video Solution

9. If $y = \tan^{-1}(\sec x - \tan x)$, then differentiation of y wrt x is equal to= ?

A. $4x^3 d + 80x^2 - 400x$

B. $400x + 4x^3 - 80x^2$

C. $4x^3 + 80x^2 + 400x$

D. $400 + 4x^3 - 80x^2$

Answer: B

Watch Video Solution

10. Stationary sound 'S' of frequency 334 Hz and a stationary observer 'O' are placed near a reflecting surface moving away from the source with

velocity 2 m/s the apparent frequency of the echo of S considering velocity of sound equal to 334 m/s is

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A. 10

B. 16

C. 21

D. infinite number

Answer: D

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11. The students of a shool decided to beautifly the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags wer stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. 12^{th}

B. 13^{th}

C. 14^{th}

D. 15^{th}

Answer: C

Watch Video Solution

12. The students of a shool decided to beautifly the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags wer stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. 188 m

B. 286 m

C. 314 m

D. 364 m

Answer: D

Watch Video Solution

13. The students of a shool decided to beautifly the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags wer stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. 628 m

B. 728 m

C. 572 m

D. 376 m

Answer: B

Watch Video Solution

14. The students of a shool decided to beautifly the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags wer stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. 22 m

B. 24 m

C. 26 m

D. 28 m

Answer: C

Watch Video Solution

15. The students of a shool decided to beautifly the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags wer stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. ₹ 57

B. ₹ 390

C. ₹ 780

D. ₹ 810

Answer: D

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16. The height (in meters) at any time t (in seconds) of a ball thrown vertically varies according to equation $h(t) = -16t^2 + 256t$. How long after in seconds the ball reaches the hightest point

A. 135 m

B. 140 m

C. 128 m

D. 145 m

Answer: C

Watch Video Solution

17. A ball is released from the top of a tower of height h metre. It takes T second to reach the ground. What is the position of the ball in $\frac{T}{3}$ second?

A. 154 m

B. 144 m

C. 136 m

D. 158 m

Answer: B

Watch Video Solution

18. A ball is thrown upwards with a speed u from a height h above the ground.The time taken by the ball to hit the ground is

A. 4 seconds

B. 3 seconds

C. 5 seconds

D. 6 seconds

Answer: C

Watch Video Solution

19. A ball is thrown upwards with a speed u from a height h above the ground.The time taken by the ball to hit the ground is

A. 1 and 3 seconds

B. 1.5 and 2.5 seconds

C. 0.5 and 2.5 seconds

D. 1.6 and 2.6 seconds

Answer: A

Watch Video Solution

20. A ball is thrown upwards with a speed u from a height h above the ground.The time taken by the ball to hit the ground is

A. At the ground

B. rebounds

C. at highest point

D. fall back

Answer: B

Watch Video Solution

Part B Section Iii

1. Show that $4\sqrt{2}$ is an irrational number.

Watch Video Solution

2. Find the greatest number that divides 338 and 59 and leaves remainders of 2 and 5 respectively.

Watch Video Solution

3. Three consecutive vertices of a parallelogram are (-2,-1), (1,0) and (4,3). Find the fourth vertex

Watch Video Solution

4. The perpendicular bisector of the line segment joining the points A(1,5) and B(4,6) cuts the Y-axis at

Watch Video Solution

5. Prove that the length of the tangents drawn from an external point to a circle are equal.

Watch Video Solution

6. Find the angle of elevation of the sun when the shadow of a pole 'h' metres high is $\sqrt{3}h$ metres long.

Watch Video Solution

7. Determine the ratio of the volume of a cube to that of a sphere which will exactly fit inside the cube.

Watch Video Solution

8. Find the volume of the largest right circular cone that can be cut out of a cube whose edge is 21 cm

Watch Video Solution

Part B Section Iv

1. Determine the zeroes of the polynomial $p(x) = x^3 - 2x^2$. Also verify the relationship between the zeroes and the coefficient.

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2. ₹ 250 were divided equally among a certain number of children. If there were 25 more children, each would have received 50 paise less. Find the number of children.

Watch Video Solution

3. If the centre of a circle is (2a,a-7) ,then Find the value of a , if the ciecle passes through the point (11,-9) and has diameter $10\sqrt{2}$ units .

Watch Video Solution

4. HCF of 75 and 126 is

Watch Video Solution

5. In $\Delta ABC, \angle A$ is acute. BD and CE are perpendicular on AC and AB respectively. Prove that $AB \times AE = AC \times AD$.

Watch Video Solution

6. Draw a circle of radius 4 cm. Construct a pair of tangents to it, the angle between which is 60°. Also justify the construction. Measure the distance between the centre of the circle and the point of intersection of tangents.

Watch Video Solution

7. If $x = a\cos^3\theta$ and $y = b\sin^3\theta$, prove that $\left(\frac{x}{a}\right)^{2/3} + \left(\frac{y}{b}\right)^{2/3} = 1$.

Watch Video Solution

8. The modal class for the following frequency distribution, is

Marks:	$0-10$	$10-20$	$20-40$	$40-50$	$50-60$	$60-70$
No. of students:	4	6	14	16	14	8

Watch Video Solution

9. I toss three coins together. The possible outocmes are no heads, 1 head 2 head and 3 heads. So, I say that prbability of no heads is $\frac{1}{4}$. What is wrong with this conclusion?

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Part B Section V

1. `If a line is drawn to one side of a triangle to intersect the other two sides in distinct points, prove that the other two sides are divided in the same ratio.

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2. From the top of a building AB, 60 m high, the angles of depression of the top and bottom of a vertical lamp post CD are observed to be $30o$ and $60o$ respectively. Find the height of the lamp post.

Watch Video Solution

3. Prove that $\frac{1+\sec A-\tan A}{1+\sec A+\tan A}=1-\frac{\sin A}{\cos A}$

Watch Video Solution

4. In the following frequency distribution, if the arithmetic mean is 45.6, find out missing frequency.

Wages(Rs.)	$10-20$	$20-30$	$30-40$	$40-50$	$50-60$	$60-$
Number of Workers	5	6	7	X	4	3

Watch Video Solution

Section B

1. A girl of height 90 cm is walking away from the base of a lamp-post at a speed of 1.2 m/s. If the lamp is 3.6 m above the ground, find the length of her shadow after 4 seconds.

A. 1.6m

B. 1.5m

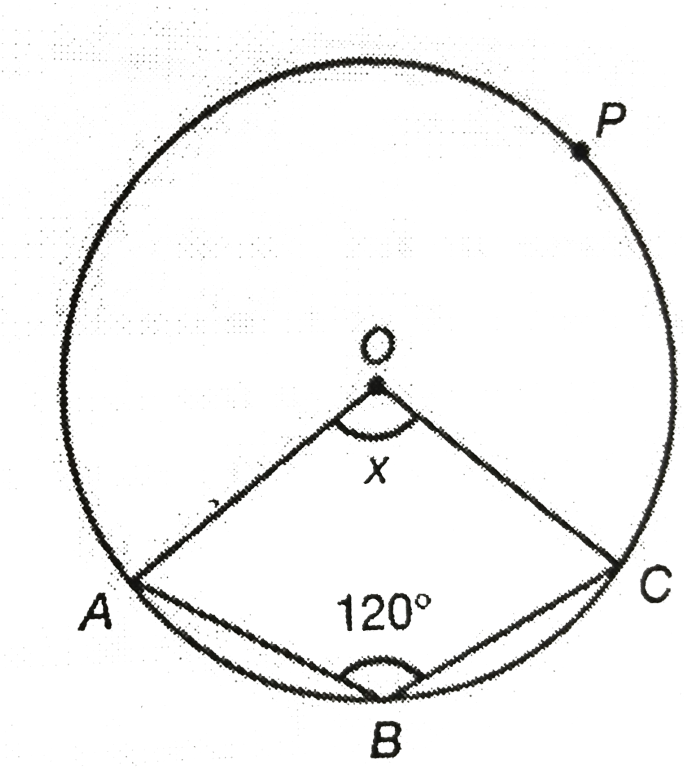
C. 3m

D. 2m

Answer:

Watch Video Solution

2. In fig. O is the center of the circle. Find the value of x.



A. $(s, a+t)$

B. $(a, s+t)$

C. $(a+s, t)$

D. $(s+t, a)$

Answer:

Watch Video Solution

3. If $\alpha and \beta$ ar the zeros of the polynomial $f(x) = x^2 - 5x + k$ such that $\alpha - \beta = 1,$ find the value of k.

A. 7

B. 6

C. 5

D. 4

Answer:

Watch Video Solution

4. For two linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$, then condition $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ is for

A. Unique solution

B. Infinite solutions

C. No solution

D. Data insufficient

Answer:

Watch Video Solution

5. Find the probability of getting the same number of two dice in a single throw of two dice.

A. $\frac{1}{36}$

B. $\frac{5}{36}$

C. $\frac{7}{36}$

D. $\frac{11}{36}$

Answer:

Watch Video Solution

6. Evaluate $\sin\theta.\cos\theta$, if $\sin\theta+\cos\theta=\sqrt{2}$.

A. $\sqrt{2}$

B. 1

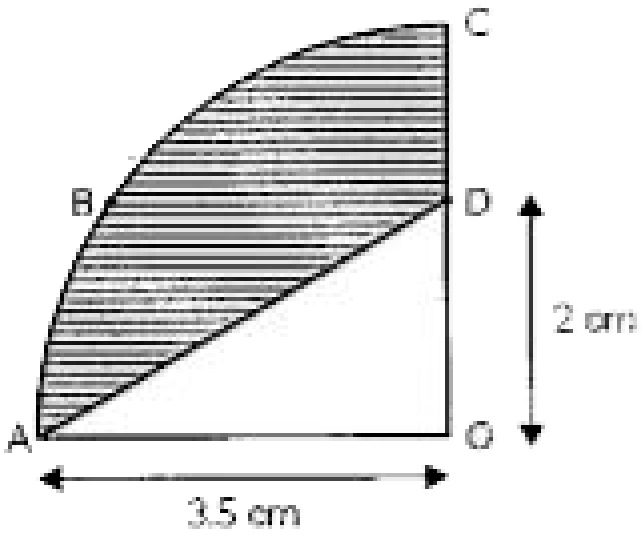
C. 0

D. $\frac{1}{2}$

Answer:

Watch Video Solution

7. The area of shaded region in the given figure is



A. $6.125cm^2$

B. $5.5cm^2$

C. $2.625cm^2$

D. $12.25cm^2$

Answer:

Watch Video Solution

8. Which is the smallest number, which on dividing by 18, 24, 30 and 42 leaves remainder as 1?

A. 4221

B. 2521

C. 3862

D. 1221

Answer:

Watch Video Solution

9. The decimal expansion of $\frac{17}{125}$ is

A. 0.017

B. 0.136

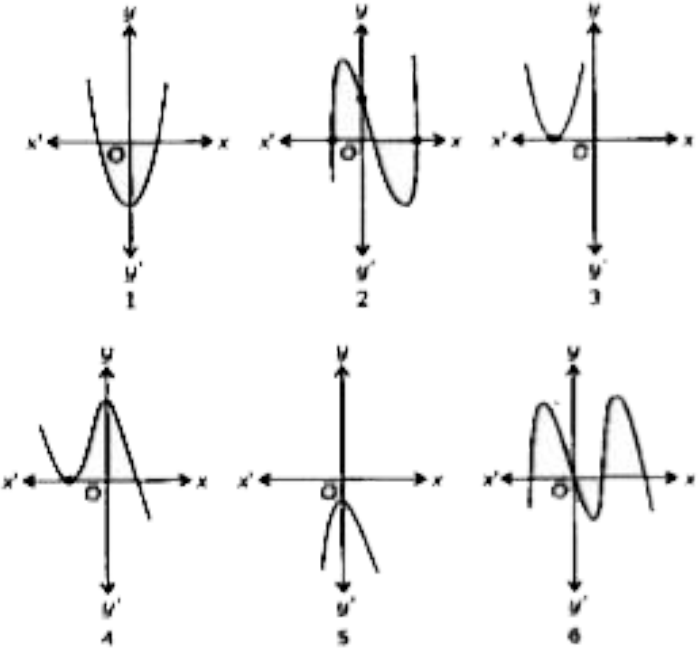
C. 0.68

D. 4.25

Answer:

Watch Video Solution

10. The graph of a polynomial function is a smooth continuous curve. By looking at graph, we can find the number of zeros of the polynomial. Graphs are the geometrical meaning of the polynomials. They help us to understand their type, nature of its zeroes and coefficients of its various terms.



Which of the above graph represents quadratic polynomials?

A. 1 and 3

B. 1, 3 and 5

C. only 5

D. only 6

Answer:

Watch Video Solution

11. If $a+b+c=0$ and A(a,b), B(b,c) and C(c,a) are vertices of ΔABC, then the coordinates of its centroid are:

A. $\left(\frac{a+b+c}{2}, \frac{a+b+c}{2}\right)$

B. $\left(\frac{a+b+c}{3}, \frac{a+b+c}{3}\right)$

C. (1,1)

D. (0,0)

Answer:

Watch Video Solution

12. A number is selected at random from the numbers 1 to 30. The probability that it is a prime number is $\frac{2}{3}$ (b) $\frac{1}{6}$ (c) $\frac{1}{3}$ (d) $\frac{11}{30}$

A. $\frac{1}{2}$

B. $\frac{2}{5}$

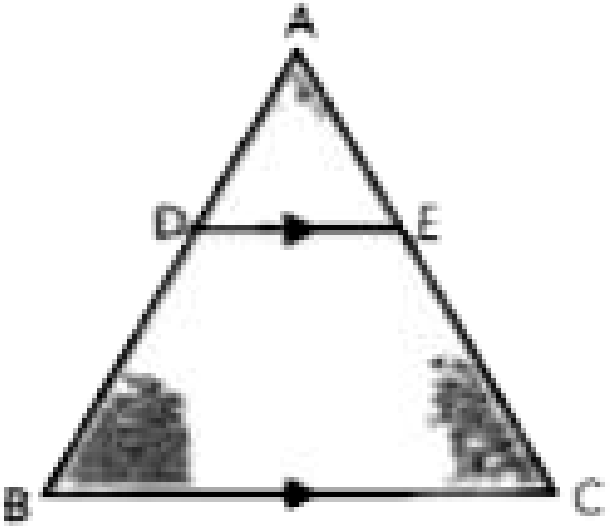
C. $\frac{1}{3}$

D. $\frac{3}{4}$

Answer:

Watch Video Solution

13. In the figure, $DE \| BC$. If AD=1cm and BD=2cm, then the ratio of areas of ΔADE and ΔABC is



A. $1:4$

B. $1:2$

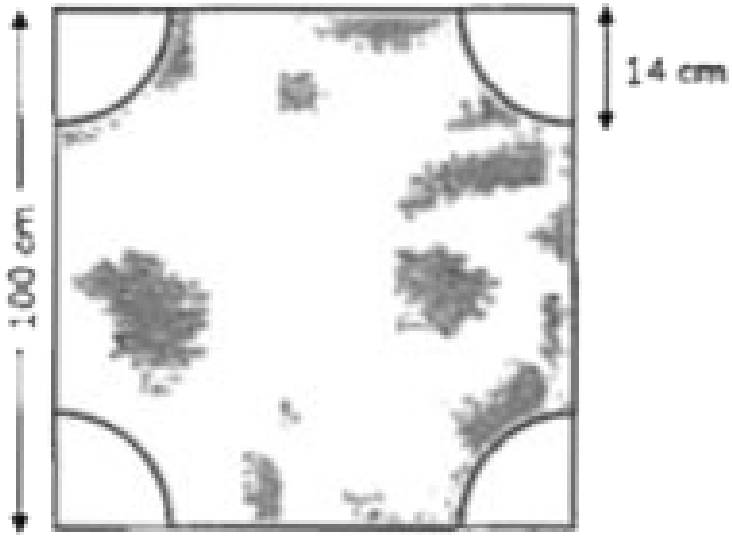
C. $2:3$

D. $1:9$

Answer:

Watch Video Solution

14. Find the ara of shaded region in the given figure in which the square is of side 100cm and quadrant of radius 14cm is formed at four corners.



A. $9384cm^2$

B. $8998cm^2$

C. $9212cm^2$

D. $9656cm^2$

Answer:

Watch Video Solution

15. One of the common solution of $ax + by = c$ and y axis is

A. (0,b)

B. $\left(0, \frac{c}{b}\right)$

C. $\left(0, \frac{a}{c}\right)$

D. (0,0)

Answer:

Watch Video Solution

16. The graphical representation of $x + 2y - 4 = 0$ and $2x + 4y - 12 = 0$ will be

A. coincident lines

B. parallel lines

C. intersecting lines

D. Data insufficient

Answer:

Watch Video Solution

17. Which of the following is an example of non-terminating decimal?

A. $\frac{5}{8}$

B. $\frac{9}{30}$

C. $\frac{4}{45}$

D. $\frac{1}{25}$

Answer:

Watch Video Solution

18. If x=2 is a zero of polynomial $ax^2 - bx + 2$, then what is the relation between a and b?

A. $2a - b + 1 = 0$

B. $a + b + 1 = 0$

C. $a - b + 1 = 0$

D. $7a - 5b + 1 = 0$

Answer:

Watch Video Solution

19. $\Delta ABC \sim \Delta PQR$. If AB= 4cm, BC=3cm, CA=7cm and PR=2cm, then the perimeter of ΔPQR is

A. 2cm

B. 4cm

C. 14cm

D. 7cm

Answer:

Watch Video Solution

20. If the HCF of 408 and 1032 is expressible in the form $1032\,m - 408 \times 5$, find m.

A. -10

B. -15

C. -5

D. 10

Answer:

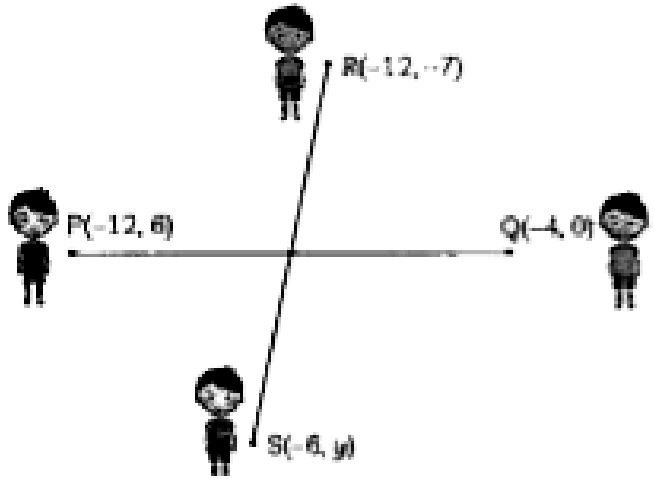
Watch Video Solution

Section C Case Study Based Questions

1. Case Study-1

Four friends visited a nearby park to plya. They decided to play with the

ball. So they get stood the four corners P, Q, R, S of the rectangulor park PQRS and started playing pass the ball.



If A is the mid-point of P and Q, then find the coordinates of A.

A. $(3, -8)$

B. $(2, -8)$

C. $(-8, 2)$

D. $(-8, 3)$

Answer:

Watch Video Solution

2. Your friend Veer wants to participate in a 200m race. He can currently run that distance in 51 seconds and with each day of practice it takes him 2 seconds less.He wants to do in 31 seconds .

If n^{th} term of an AP is given by $a_n = 2n + 3$ then common difference of an AP is

A. 5

B. 4

C. 3

D. 2

Answer:

Watch Video Solution

3. If $A(-9, 1)$ bisects the line segment joining $R(-12, -7)$ and $S(-6, y)$, then find y.

A. $(-6, 9)$

B. $(-6, 8)$

C. $(-6, 7)$

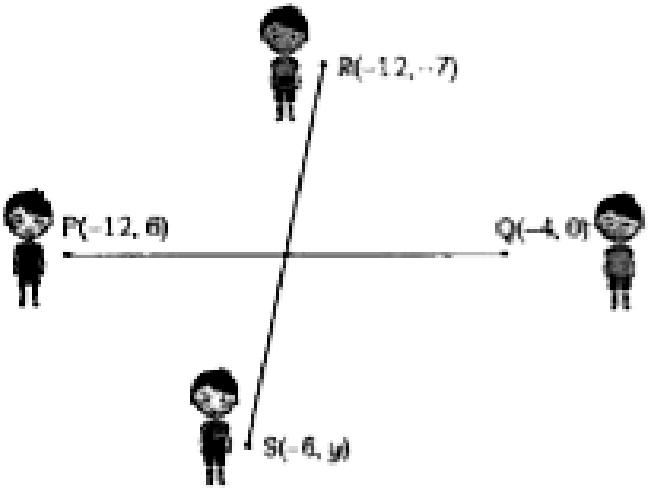
D. $(-6, 6)$

Answer:

Watch Video Solution

4. Case Study-1

Four friends visited a nearby park to play. They decided to play with the ball. So they get stood the four corners P, Q, R, S of the rectangular park PQRS and started playing pass the ball.



Calculate the total distance between the points P and Q

A. 9 units

B. 10 units

C. 8 units

D. 7 units

Answer:

Watch Video Solution

5. What is the distance between the points $S(-6, -3)$ and $R(-12, -7)$?

A. $2\sqrt{29}$ units

B. $3\sqrt{29}$ units

C. $\sqrt{26}$ units

D. $2\sqrt{26}$ units

Answer:

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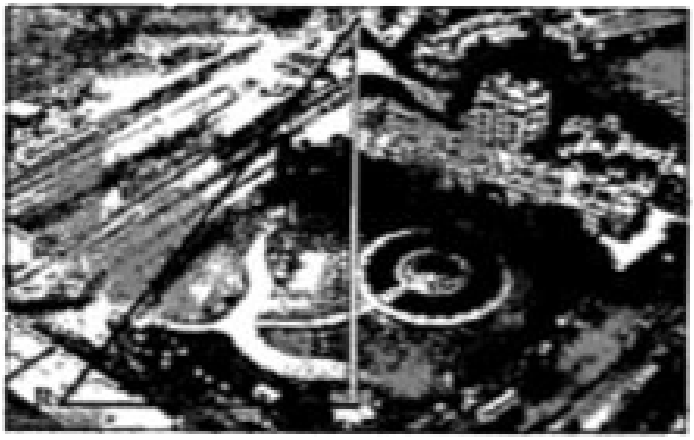
6. Locataed in Nigdi, the Bhakti Shakti flag was set up by the Pimpri Chinchwad Municipal Corporation (PCMC) in 2018. The approximately 105 metre high flagpole weighs 42 tonnes and the flag is made up of knitted polyester and the flag itself weighs 90kg and can sustain winds up to 25km per hour. The height of the flag is shown in the picture as PQ and the distance between the foot of the flagpole Q and a point R on the

ground is 208m.



The value of cos R is

A. $\frac{105}{233}$

B. $\frac{105}{208}$

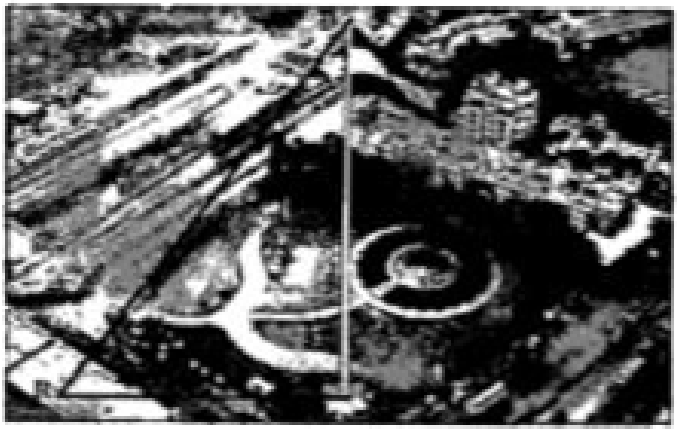
C. $\frac{208}{105}$

D. $\frac{208}{233}$

Answer:

Watch Video Solution

7. Locataed in Nigdi, the Bhakti Shakti flag was set up by the PCMC in 2018. The approximately 105 metre high flagpole and the flag is made up of knitted polyester. The height of the flagpole is PQ and the distance between the foot of the flagpole Q and a point R on the ground is 208m.



The value of sin P is

A. $\frac{208}{233}$

B. $\frac{105}{208}$

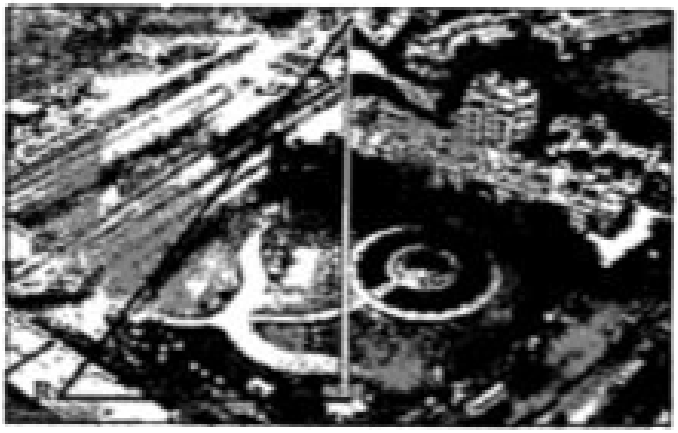
C. $\frac{208}{105}$

D. $\frac{105}{233}$

Answer:

Watch Video Solution

8. Locataed in Nigdi, the Bhakti Shakti flag was set up by the PCMC in 2018. The approximately 105 metre high flagpole and the flag is made up of knitted polyester. The height of the flagpole is PQ and the distance between the foot of the flagpole Q and a point R on the ground is 208m.



The value of $\cos ecR$ is

A. $\frac{208}{233}$

B. $\frac{233}{105}$

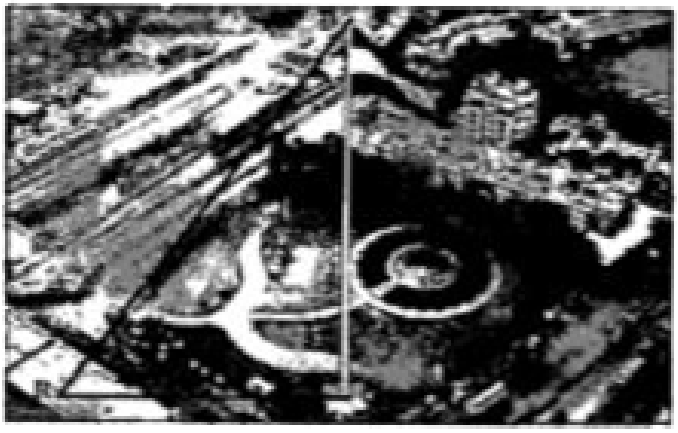
C. $\frac{208}{105}$

D. $\frac{105}{233}$

Answer:

Watch Video Solution

9. Locataed in Nigdi, the Bhakti Shakti flag was set up by the PCMC in 2018. The approximately 105 metre high flagpole and the flag is made up of knitted polyester. The height of the flagpole is PQ and the distance between the foot of the flagpole Q and a point R on the ground is 208m.



The value of $\tan^2 P - \sec^2 P$ is

A. 0

B. 1

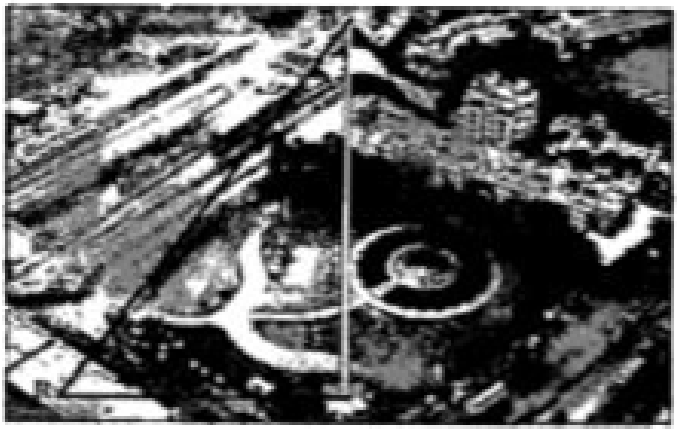
C. -1

D. 2

Answer:

Watch Video Solution

10. Locataed in Nigdi, the Bhakti Shakti flag was set up by the PCMC in 2018. The approximately 105 metre high flagpole and the flag is made up of knitted polyester. The height of the flagpole is PQ and the distance between the foot of the flagpole Q and a point R on the ground is 208m.



$\tan P - \cot R$ is

A. 1

B. 0

C. -1

D. 2

Answer:

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