MATHS

BOOKS - OSWAL PUBLICATION

SAMPLE PAPER 5

Question Bank

1. The area of the circle that can be inscribed in a square of side 6 cm is

A. 4π

B. 6π

C. 9π

D. π

Answer: C

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2. 50 people work in a cooperative society. They all use their own conveyance. 20 people use their scooters, 12 go by their cars, 16 go by

public transport and 2 use bicycle. Find H.C.F. of 20, 16, 12 and 2.

A. 2

B. 4

C. 6

D. 5

Answer: A

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3. A quadratic polynomial , whose zeroes are -3 and 4 is

A. $x^2 - x - 12$

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

C. $x^2 - x + 4$

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

Answer: A

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4. The probability of an event which is certain to happen is_____.

A. 0

B. 1

C. -1

D. ∞

Answer: B

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5. Write 98 as product of its prime factors.

A. 2×7^2

B. 3×7

C. $5^2 \times 7$

D. $2^2 \times 7^2$

Answer: A

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6. If $(x+a)$ is a factor of $2x^2+2ax+5x+10$, find a.

A. 2

B. -1

C. 0

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

Answer: A

Watch Video Solution

7. Relation between diameter and circumference

A. $C = 2\pi d$

B. $C = \pi d$

C. $C = \frac{\pi d}{2}$

D. $C = \frac{\pi d^2}{2}$

Answer: B

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8. Two coins are tossed simultaneously. What is the probability of getting at least one head?

A. $\frac{1}{4}$

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

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

D. 1

Answer: B

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9. For what value of a is -4 zero of the polynomial $p(x) = x^2 - x - (2a + 2)$?

A. 7

B. 1

C. 9

D. 4

Answer: C

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10. What are the coordinates of the mid-point of (2a, 0) and (0, 2b).

A. (a, b)

B. (a, 2)

C. (b, a)

D. (2, b)

Answer: A

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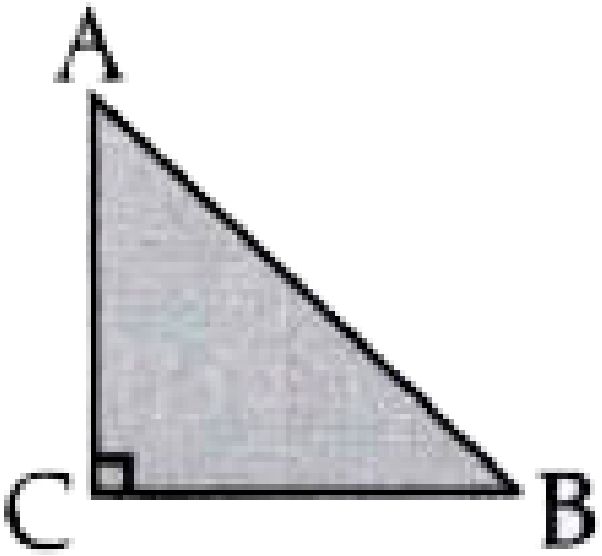
11. In Figure ABC is an isosceles triangle right angled at C with AC = 4 cm . Find the length of AB .



A. $2\sqrt{4}cm$

B. $3\sqrt{4}cm$

C. $4\sqrt{2}cm$

D. $4\sqrt{3}cm$

Answer: C

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12. In what ratio does the point $C\left(\frac{3}{5}, \frac{11}{5}\right)$ divide the line segment joining the points $A(3, 5) and B(-3, -2)$?

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

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

C. $\frac{2.5}{2}$

D. $\frac{2}{2.5}$

Answer: B

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13. Find a rational number between $\sqrt{2}$ and $\sqrt{3}$.

A. $1.41 - 1.73$

B. $3.21 - 6.10$

C. $2.41 - 3.10$

D. $7.12 - 7.88$

Answer: A

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14. A bag containing 5 red and 4 black balls. If a ball is drawn at random from the bag, what is the probability of getting a black ball.

A. $\frac{4}{9}$

B. $\frac{9}{4}$

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

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

Answer: A

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15. If the circumfernece of two circles are in the ratio $4:5$, What is the ratio of their radii?

A. $5:4$

B. $2:6$

C. $4:5$

D. $2:3$

Answer: C

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16. What is the decimal representation of $\frac{136}{1400}$?

A. Non-terminating and non-repeating

B. Terminating and repeating

C. Non-terminating and repeating

D. Teminating and non-repeating

Answer: A

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17. A model of a aeroplane (somewhat triangular in shape) is made on the scale of

$1:100$. The model is 150 cm long, what is the length of the actual aeroplane?

A. 170 m

B. 150 m

C. 200 m

D. 15 m

Answer: B

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18. What is the difference between the values of the polynomial $7x - 3x^2 + 7$ at x=1 and x=2?

A. -2

B. 2

C. 3

D. None of these

Answer: B

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19. A 20 m long vertical pole casts a shadow 10 m long.At the same time tower makes shadow 50 m long, the tower is _____ long.

A. 75 m

B. 100 m

C. 105 m

D. 120 m

Answer: B

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20. If ax+by=c and lx+my=n has unique solution then the relation between the coefficients will be of the form:

A. $am \neq lb$

B. $am = lb$

C. $ab = lm$

D. $ab \neq lm$

Answer: A

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21. Which of the following statement is incorrect?

A. The ratio of perimeters of two similar Δs is the same as the ratio of their corresponding sides.

B. If the areas of two similar Δs are equal, then they are congurent.

C. If the ratio of areas of two similar Δs is equal to the ratio of the sides.

D. If ratio of corresponding is $5:8$, then ratio of their areas are $25:64$.

Answer: C

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22. The value of k for which the system of equations $x + 2y - 3 = 0$ and $5x + ky + 7 = 0$ has no solution, is (a) 10 (b) 6 (c) 3 (d) 1

A. 10

B. 12

C. 13

D. None of these

Answer: A

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23. In ΔABC and ΔDEF, $\angle B = \angle E, \angle F = \angle C$ and AB=3DE. Then, the two triangles are

A. Congurent but not similar

B. Similar but not congurent

C. Neither congurent nor similar

D. Similar as well as congurent

Answer: B

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24. If (6, k) is a solution of the equation $3x+y=22$ then the value of k is:

A. -4

B. 4

C. 3

D. -3

Answer: B

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25. The line segments joining the mid-points of the sides of a triangle form four triangles, each of which is:

A. Congurent to the original triangle

B. Similar to the original triangle

C. an isosceles triangle

D. an equilateral triangle

Answer: B

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26. The ratio of the HCF and LCM of 52 and 130 is:

A. $1:10$

B. $10:1$

C. $2:5$

D. $5:2$

Answer: A

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

A. At most n

B. Exaclty n

C. n+1

D. None of these

Answer: A

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28. The perimeters of two similar triangles are 25 cm and 15 cm respectively. If one side of the

first triangle is 9 cm, then the corresponding side of second triangle is .....

A. 5.4 cm

B. 8 cm

C. 9.5 cm

D. 10 cm

Answer: A

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29. Ratios of sides of a right triangle with respect to its acute angles are known as:

A. trigonometric identities

B. trigonometry

C. trigonometric ratios of the angles

D. none of these

Answer: C

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30. Prime factors of the denominator of a rational number with the decimal expansion 25.2354 are:

A. 2, 3

B. 2, 3, 5

C. 2, 7

D. 2, 5

Answer: D

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31. A system of two simultaneous linear equations in two variables is inconsistent, if their graphs:

A. are parallel

B. are coincident

C. intersect one point

D. None of these

Answer: A

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32. If $P\left(\frac{a}{2}, 4\right)$ is the midpoint of the line segment joining the points A(-6, 5) and B(-2, 3) then the value of a is

A. -8

B. 3

C. -4

D. 4

Answer: A

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33. If $\sin\theta = \frac{a}{b}$, then $\cos\theta$ is equal to

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

B. $\frac{b}{a}$

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

D. $\frac{a}{\sqrt{b^2 - a^2}}$

Answer: C

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34. In a right triangle ABC , right angled at B, $BC = 12cm$ and $AB = 5cm$. The radius of the circle inscribed in the triangle (in cm) is

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

A. 4

B. 3

C. 2

D. 1

Answer: C

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35. The decimal expansion of π:

A. is terminating

B. is non terminating are recurring

C. is non terminating and non-recurring

D. does not exist.

Answer: C

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36. If $31x+43y=117$ and $43x+31y=105$ then, the value of $x+y$ is:

A. -3

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

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

D. 3

Answer: D

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37. If A and B are the points $(-6, 7)$ and $(-1, -5)$ respectively, then the distance 2AB is equal to

A. 13

B. 26

C. 169

D. 238

Answer: B

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38. What is the value of k for which the pair of linear equations kx-2y=3 and 3x+y=5 has a unique solution.

A. k=6

B. $k \neq -6$

C. k=-6

D. None of these

Answer: B

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39. Which of the following cannot be the probability of an event ?

A. 1/3

B. 0.1

C. 3%

D. 17/16

Answer: D

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40. A boat is rowed downstream at 15 km/h and upstream at 8 km/h. The speed of the stream is:

A. 3.5 km/h

B. 5.5 km/h

C. 6.5 km/h

D. 7.5 km/h

Answer: A

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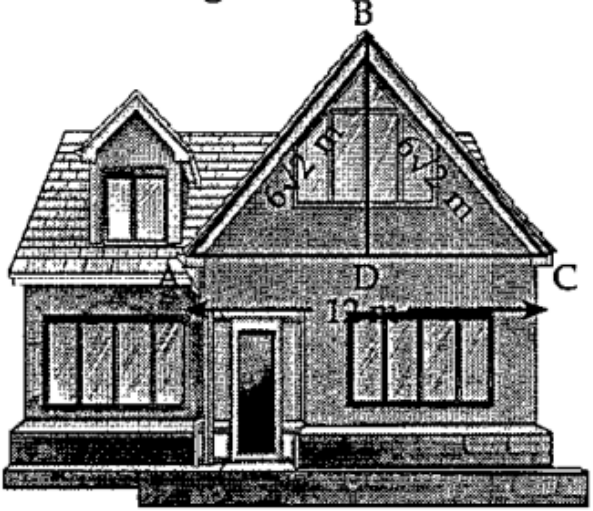
41. Case Study-1: Aanya and her father go to meet her friend Juhi for a party. When they reached to Juhi's place, Aanya saw the roof of the house, which is triangular in shape. If she imagined the dimensions of the roof as given in the figure, then answer the following questions.



If D is the mid point of AC, then BD=

A. 2 m

B. 3 m

C. 4 m

D. 6 m

Answer: D

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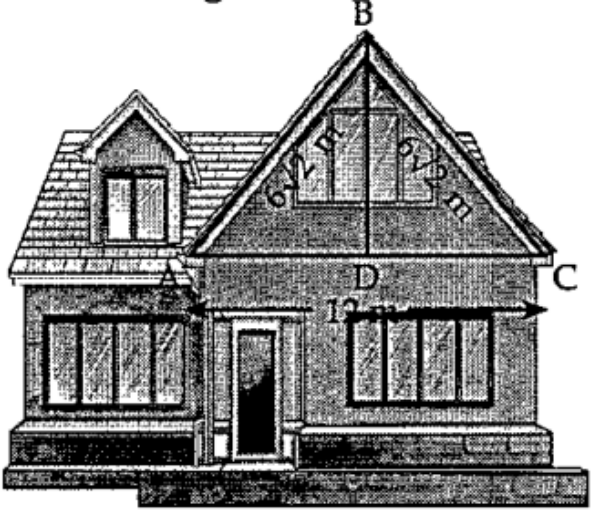

Measure of A=

A. 30°

B. 60°

C. 45°

D. None of these

Answer: C

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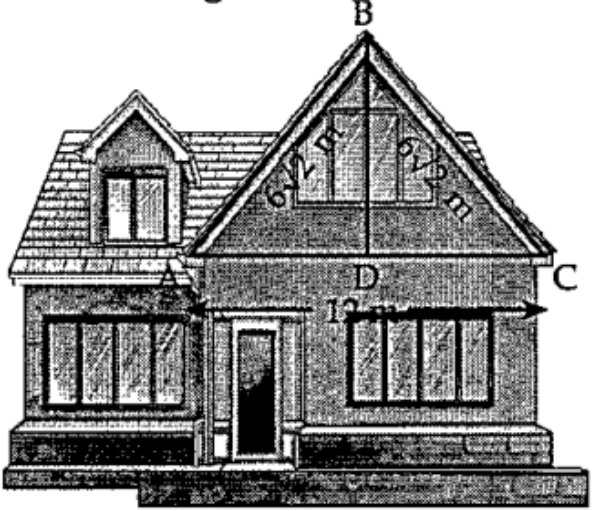

Measure of C=

A. 30°

B. 60°

C. 45°

D. None of these

Answer: C

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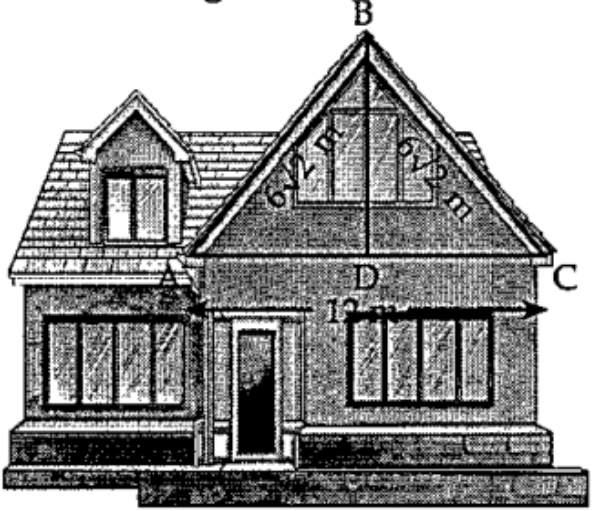

Find the value of sinA+cosC:

A. 0

B. 1

C. $\frac{1}{\sqrt{2}}$

D. $\sqrt{2}$

Answer: D

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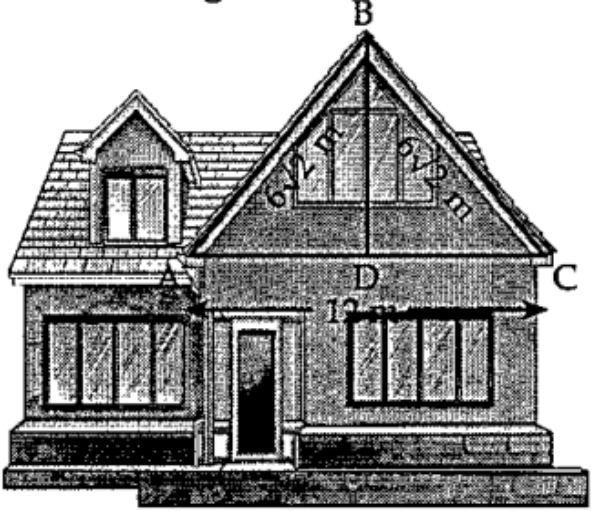

Find the value of $\tan^2 C + \tan^2 A$:

A. 0

B. 1

C. 2

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

Answer: C

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46. Case Study-2: A company manufactores two types of sanitizers Alpha and Beta. The cost of the small bottle of Alpha sanitizer is Rs. 10 and for beta sanitizer is Rs. 12. In the month of June, the company sold total 1000 bottles and makes a total sale of Rs. 10,820. Seeing the great demand and short of supply, company decided to increase the price of both the sanitizer by Rs. 1. In the next month i.e. July, the company sold 2,500 bottles and total sales of

Rs. 29,200.

Answer the following questions:

How many sanitizers of each type was sold in June?

A. 460, 510

B. 540, 460

C. 410, 590

D. 590, 410

Answer: D

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Answer the following questions:

If the store sold 500 bottles of each type of sanitizer in June, what would be their sales?

A. Rs. 5500

B. Rs. 5600

C. Rs. 10,500

D. Rs. 11,000

Answer: D

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Answer the following questions:

How many bottles of each type were sold in the next month when rate was increased?

A. 1200, 1300

B. 1300, 1200

C. 1550, 950

D. 1650, 850

Answer: D

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Answer the following questions:

What percent of increase was found in alpha sanitizer in July as compared to June?

A. $182\ \%$

B. $79\ \%$

C. $179.66\ \%$

D. $50\ \%$

Answer: C

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Answer the following questions:

In July, if total of 1050 bootles of each type were sold, what would be the sale?

A. Rs. 25,000

B. Rs. 25,200

C. Rs. 27,000

D. Rs. 28,500

Answer: B

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51. The area of the circle that can be inscribed in a square of side 6 cm is

A. 4π

B. 6π

C. 9π

D. π

Answer: C

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52. 50 people work in a cooperative society. They all use their own conveyance. 20 people use their scooters, 12 go by their cars, 16 go by public transport and 2 use bicycle. Find H.C.F. of 20, 16, 12 and 2.

A. 2

B. 4

C. 6

D. 5

Answer: A

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53. Find the quadratic polynomial, whose zeroes are -3 and 4.

A. $x^2 - x - 12$

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

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Answer: A

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A. 0

B. 1

C. -1

D. ∞

Answer: B

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55. Write 98 as product of its prime factors.

A. 2×7^2

B. 3×7

C. $5^2 \times 7$

D. $2^2 \times 7^2$

Answer: A

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56. If (x+a) is a factor of $f(x) = \left(2x^2 + 2ax + 5x + 10\right)$, find a.

A. 2

B. -1

C. 0

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

Answer: A

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57. What is the relation between the diameter and circumference of a circle?

A. $C = 2\pi d$

B. $C = \pi d$

C. $C = \frac{\pi d}{2}$

D. $C = \frac{\pi d^2}{2}$

Answer: B

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58. What is the probability of getting at least on head on tossing two coins?

A. $\frac{1}{4}$

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

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

D. 1

Answer: B

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59. For what value of k is -4 a zero of the polynomial $f(x) = x^2 - x - (2k + 2)$?

A. 7

B. 1

C. 9

D. 4

Answer: C

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60. What are the coordinates of the mid-point of (2a, 0) and (0, 2b).

A. (a, b)

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Answer: A

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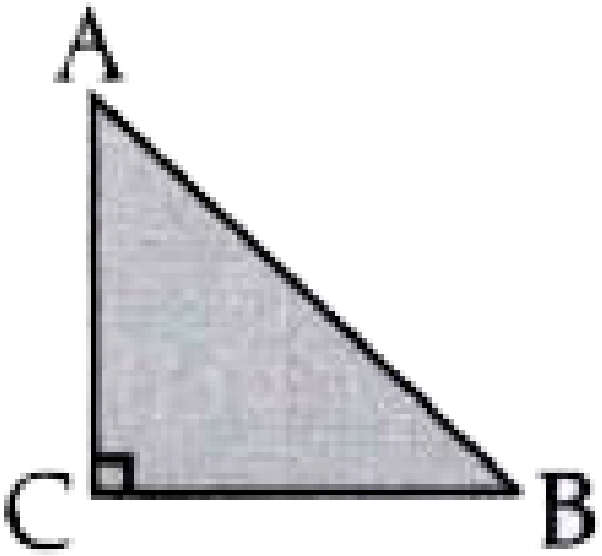

A. $2\sqrt{4}cm$

B. $3\sqrt{4}cm$

C. $4\sqrt{2}cm$

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Answer: C

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B. $\frac{9}{4}$

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

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C. $4:5$

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Answer: C

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B. 12

C. 13

D. None of these

Answer: A

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D. Similar as well as congurent

Answer: B

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A. -4

B. 4

C. 3

D. -3

Answer: B

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A. Congurent to the original triangle

B. Similar to the original triangle

C. an isosceles triangle

D. an equilateral triangle

Answer: B

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B. 8 cm

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D. 10 cm

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C. trigonometric ratios of the angles

D. none of these

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B. 2, 3, 5

C. 2, 7

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B. 3

C. -4

D. 4

Answer: A

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B. $\frac{b}{a}$

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

D. $\frac{a}{\sqrt{b^2 - a^2}}$

Answer: C

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C. 2

D. 1

Answer: C

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C. is non terminating and non-recurring

D. does not exist.

Answer: C

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86. If $31x+43y=117$ and $43x+31y=105$ then, the value of $x+y$ is:

A. -3

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

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

D. 3

Answer: D

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87. If A and B are the points $(-6, 7)$ and $(-1, -5)$ respectively, then the distance 2AB is equal to

A. 13

B. 26

C. 169

D. 238

Answer: B

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88. What is the value of k for which the pair of linear equations kx-2y=3 and 3x+y=5 has a unique solution.

A. k=6

B. $k \neq -6$

C. k=-6

D. None of these

Answer: B

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89. Which of the following cannot be the probability of an event ?

A. 1/3

B. 0.1

C. 3%

D. 17/16

Answer: D

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90. A boat is rowed downstream at 15 km/h and upstream at 8 km/h. The speed of the stream is:

A. 3.5 km/h

B. 5.5 km/h

C. 6.5 km/h

D. 7.5 km/h

Answer: A

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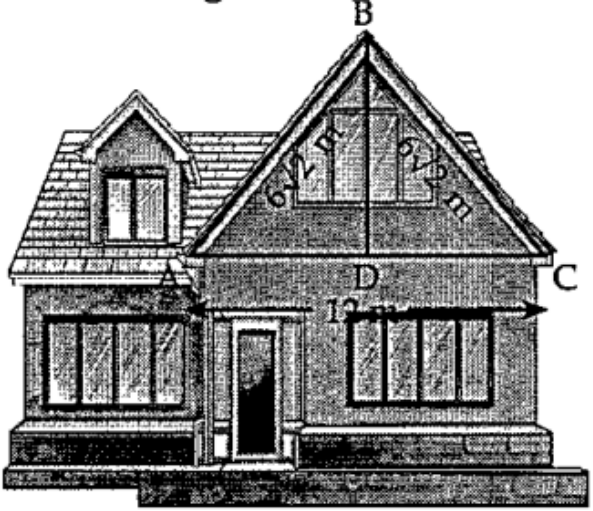
91. Case Study-1: Aanya and her father go to meet her friend Juhi for a party. When they reached to Juhi's place, Aanya saw the roof of the house, which is triangular in shape. If she imagined the dimensions of the roof as given in the figure, then answer the following questions.



If D is the mid point of AC, then BD=

A. 2 m

B. 3 m

C. 4 m

D. 6 m

Answer: D

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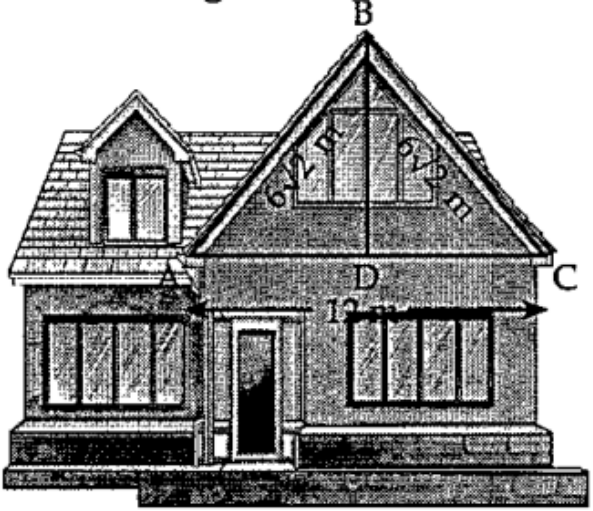
92. Case Study-1: Aanya and her father go to meet her friend Juhi for a party. When they reached to Juhi's place, Aanya saw the roof of the house, which is triangular in shape. If she imagined the dimensions of the roof as given in the figure, then answer the following questions.



Measure of A=

A. 30°

B. 60°

C. 45°

D. None of these

Answer: C

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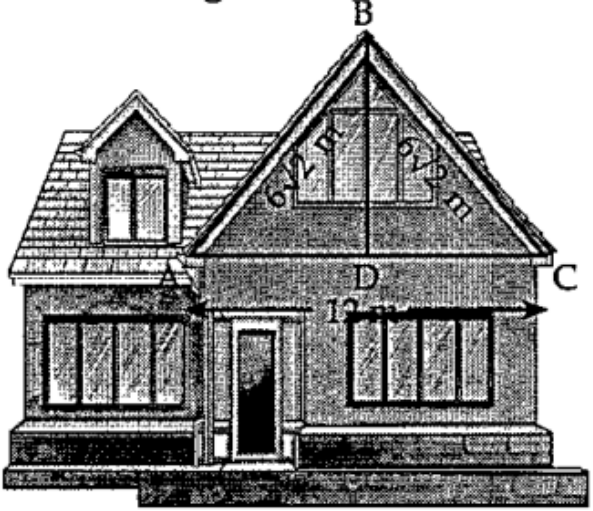
93. Case Study-1: Aanya and her father go to meet her friend Juhi for a party. When they reached to Juhi's place, Aanya saw the roof of the house, which is triangular in shape. If she imagined the dimensions of the roof as given in the figure, then answer the following questions.



Measure of C=

A. 30°

B. 60°

C. 45°

D. None of these

Answer: C

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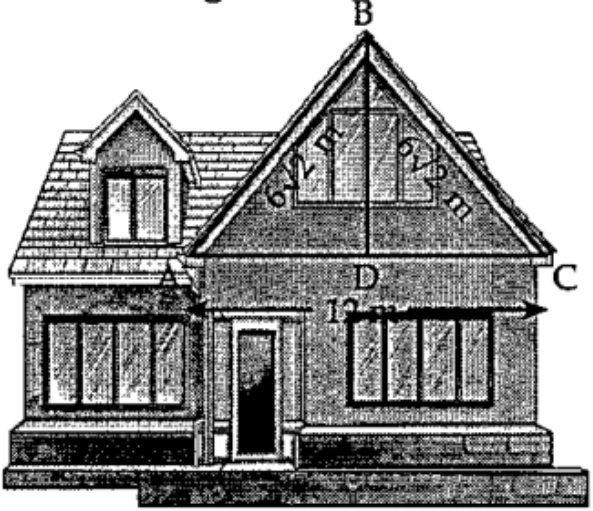
94. Case Study-1: Aanya and her father go to meet her friend Juhi for a party. When they reached to Juhi's place, Aanya saw the roof of the house, which is triangular in shape. If she imagined the dimensions of the roof as given in the figure, then answer the following questions.



Find the value of sinA+cosC:

A. 0

B. 1

C. $\frac{1}{\sqrt{2}}$

D. $\sqrt{2}$

Answer: D

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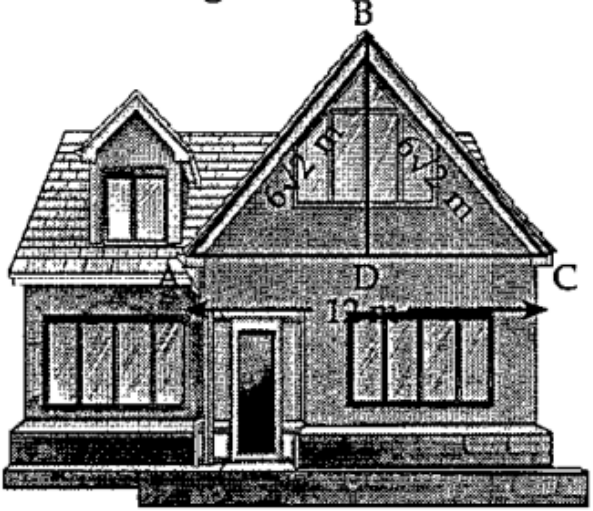
95. Case Study-1: Aanya and her father go to meet her friend Juhi for a party. When they reached to Juhi's place, Aanya saw the roof of the house, which is triangular in shape. If she imagined the dimensions of the roof as given in the figure, then answer the following questions.



Find the value of $\tan^2 C + \tan^2 A$:

A. 0

B. 1

C. 2

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

Answer: C

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96. Case Study-2: A company manufactores two types of sanitizers Alpha and Beta. The cost of the small bottle of Alpha sanitizer is Rs. 10 and for beta sanitizer is Rs. 12. In the month of June, the company sold total 1000 bottles and makes a total sale of Rs. 10,820. Seeing the great demand and short of supply, company decided to increase the price of both the sanitizer by Rs. 1. In the next month i.e. July, the company sold 2,500 bottles and total sales of

Rs. 29,200.

Answer the following questions:

How many sanitizers of each type was sold in June?

A. 460, 510

B. 540, 460

C. 410, 590

D. 590, 410

Answer: D

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97. Case Study-2: A company manufactores two types of sanitizers Alpha and Beta. The cost of the small bottle of Alpha sanitizer is Rs. 10 and for beta sanitizer is Rs. 12. In the month of June, the company sold total 1000 bottles and makes a total sale of Rs. 10,820. Seeing the great demand and short of supply, company decided to increase the price of both the sanitizer by Rs. 1. In the next month i.e. July, the company sold 2,500 bottles and total sales of Rs. 29,200.

Answer the following questions:

If the store sold 500 bottles of each type of sanitizer in June, what would be their sales?

A. Rs. 5500

B. Rs. 5600

C. Rs. 10,500

D. Rs. 11,000

Answer: D

Watch Video Solution

98. Case Study-2: A company manufactores two types of sanitizers Alpha and Beta. The cost of the small bottle of Alpha sanitizer is Rs. 10 and for beta sanitizer is Rs. 12. In the month of June, the company sold total 1000 bottles and makes a total sale of Rs. 10,820. Seeing the great demand and short of supply, company decided to increase the price of both the sanitizer by Rs. 1. In the next month i.e. July, the company sold 2,500 bottles and total sales of Rs. 29,200.

Answer the following questions:

How many bottles of each type were sold in the next month when rate was increased?

A. 1200, 1300

B. 1300, 1200

C. 1550, 950

D. 1650, 850

Answer: D

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99. Case Study-2: A company manufactores two types of sanitizers Alpha and Beta. The cost of the small bottle of Alpha sanitizer is Rs. 10 and for beta sanitizer is Rs. 12. In the month of June, the company sold total 1000 bottles and makes a total sale of Rs. 10,820. Seeing the great demand and short of supply, company decided to increase the price of both the sanitizer by Rs. 1. In the next month i.e. July, the company sold 2,500 bottles and total sales of Rs. 29,200.

Answer the following questions:

What percent of increase was found in alpha sanitizer in July as compared to June?

A. $182\ \%$

B. $79\ \%$

C. $179.66\ \%$

D. $50\ \%$

Answer: C

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100. Case Study-2: A company manufactores two types of sanitizers Alpha and Beta. The cost of the small bottle of Alpha sanitizer is Rs. 10 and for beta sanitizer is Rs. 12. In the month of June, the company sold total 1000 bottles and makes a total sale of Rs. 10,820. Seeing the great demand and short of supply, company decided to increase the price of both the sanitizer by Rs. 1. In the next month i.e. July, the company sold 2,500 bottles and total sales of Rs. 29,200.

Answer the following questions:

In July, if total of 1050 bootles of each type were sold, what would be the sale?

A. Rs. 25,000

B. Rs. 25,200

C. Rs. 27,000

D. Rs. 28,500

Answer: B

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Section A

1. Solve: $\sqrt{3}x^2 - 2\sqrt{2}x - 2\sqrt{3} = 0$

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2. From a point Q, 13 cm away from the centre of a circle, the length of tangent PQ to the circle is 12 cm. What will be it the radius of the circle (in cm)?

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3. If n^{th} term of an A.P. is (2n + 1), what is the sum of its first three terms ?

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4. The median of the following frequency distribution will be:

x	6	7	5	2	10	9	3
y	9	12	8	13	11	14	7

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5. A solid is hemispherical at the bottom and conical (of same radius) above it. If the surface area of the two are equal then find the ratio of the radius and the slant height of the conical part.

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6. The roots of the quadratic equation $x^2 - 0.04 = 0$.

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7. The difference in the roots of the equation

$2x^2 - 11x + 5 = 0$

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Section B

1. Consider the frequency distribution of the heights of 60 students of a class :

Height (in cm.)	No. of students	Cumulative frequency
150 – 155	16	16
155 – 160	12	28
160 – 165	9	37
165 – 170	7	44
170 – 175	10	54
175 – 180	6	60

Find the sum of the lower limit of the modal class and the upper limit of the median class.

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2. The angle of elevation of the top of a tower at a point on the ground is 30°. If the height of the tower is tripled, find the angle of elevation of the top of the same point.

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3. The tops of two towers of height x and y, standing on level ground, subtend angles of 30° and 60° respectively at the centre of the line joining their feet, then find x:y.

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Section C

1. If S_n denotes the sum of the first n terms of an A.P., prove that $S_{30} = 3(S_{20} - S_{10})$

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2. Find the sum of the following:

$$\left(1 - \frac{1}{n}\right) + \left(1 - \frac{2}{n}\right) + \left(1 - \frac{3}{n}\right) + \ldots$$

upto n terms.

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