MATHS

BOOKS - OSWAAL PUBLICATION MATHS (KANNADA ENGLISH)

SOLVED PAPER SSLC KARNATAKA JUNE 2020

Choose The Correct Alternative

1. In the pair of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ if $\dfrac{a_1}{a_2} \neq \dfrac{b_1}{b_2}$ then the

A. equation have no solution

B. equations have unique solution

C. equations have three solutions

D. equations have infinitely many solutions

Answer: B

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2. In an arithmetic progression, if a = 2n +1, then the common difference of the given progression is

A. 0

B. 1

C. 2

D. 3

Answer: C

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3. The degree of a linear polynomial is

    A. 0

    B. 1

    C. 2

    D. 3

Answer: B

4. if $13 \sin \theta = 12$, then the value of $\cos ec\theta$ is

A. $\dfrac{12}{5}$

B. $\dfrac{13}{5}$

C. $\dfrac{12}{13}$

D. $\dfrac{13}{12}$

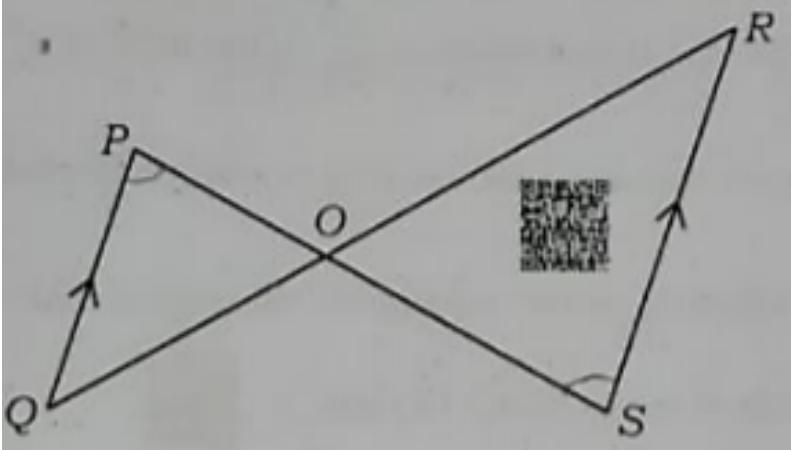**Answer: D**

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5. In the figure, if $\triangle POQ$ - $\triangle SOR$ and PQ: RS= 1:2, then OP: OS is

A. $1:2$

B. $2:1$

C. $3:1$

D. $1:3$

Answer: A

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6. A straight line passing through a point on a circle is

    A. a tangent

    B. a secant

    C. a radius

    D. a transversal

Answer: A

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7. Length of an arc of a sector of a circle of radius r and angle 0 is

    A. $\dfrac{\theta}{360°} \times \pi r^2$

B. $\dfrac{\theta}{360°} \times 2\pi r^2$

C. $\dfrac{\theta}{180°} \times 2\pi r$

D. $\dfrac{\theta}{360°} \times 2\pi r$

Answer: D

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8. If the area of the circular base of a cylinder is $22cm^2$ and its height is $10cm^2$, then the volume of the cylinder is

A. $2200 \ cm^2$

B. $2200 \ cm^3$

C. $220 \ cm^3$

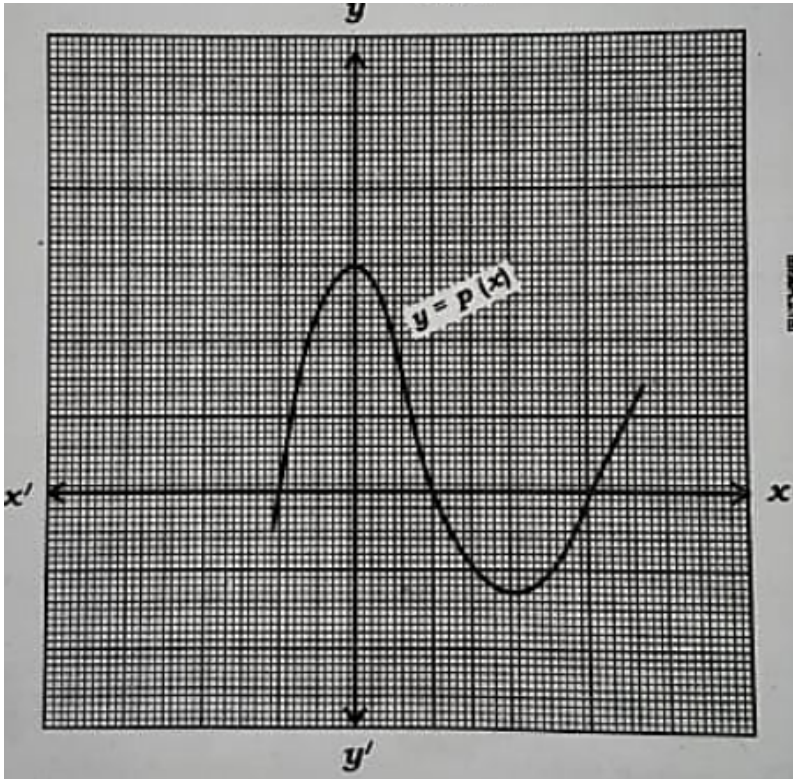D. $220\ cm^2$

Answer: C

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Answer The Following Questions

1. Express the denominator of 23/20 the form of $2^n \times 5^m$ and state whether the given fraction is terminating or non-terminating repeating decimal.

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2. The following graph represents the polynomial y = p (x). Write the number of zeroes that p(x) has.

3. Find the value of tan 45°+ cot 45°

4. Find the coordinates of the mid-point of the line joining the points (x_1, y_1) and (x_2, y_2).

5. State "Basic proportionality theorem"

6. In the figure AB and AC are the two tangents drawn from the point A to the circle with centre O, If AngleBOC =

130* then find AngleBAC
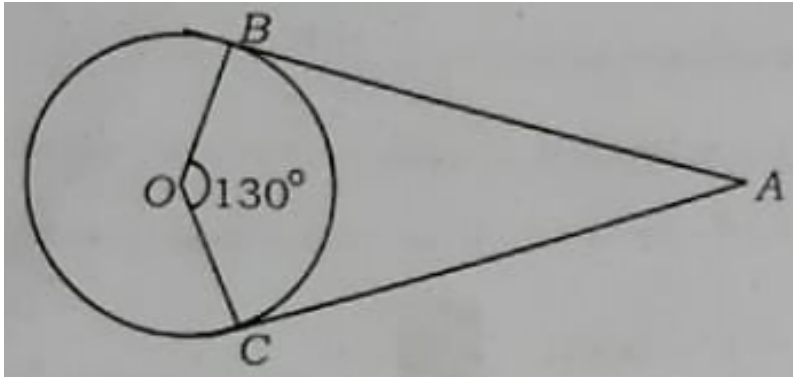
7. Write, $(x+1)/2 = (1/x)$ in the standard from of a quadratic

eqation.

8. Write the formula to find the total surface area of the

cone whose radius is 'r' units and slant height is 'l' units.

9. Solve:

$2x + y = 11$

$x + y = 8$

10. Find the Sum of $5 + 8 + 11 + \ldots$ to 10 terms using formula.

11. Find the value of k, if the pair of linear equations

$2x - 3y = 8$ and $2(k - 4)x - ky = k + 3$

12. Find the discriminant of the equation

$2x^2 - 5x + 3 = 0$ and hence write the nature of the

roots.

13. If one root of the polynomial $p(x) = x^2 - 6x + k$ is

twice the other then find the value of k.

14. Find the polynomial of least degree that should be subtracted from $p(x) = x^3 - 2x^2 + 3x + 4$ so that it is exactly divisible by $g(x) = x^2 - 3x + 1$

15. Find the distance between the points $(-5, 7)$ and $(-1, 3)$.

16. Find the coordinates of the point which divides the line joining the points (1,6) and (4,3) in the ratio $1:2$.

17. The points $A(1, 1)$, $B(3, 2)$ and $C(5, 3)$ cannot be the vertices of the triangle ABD . Justify.

18. Draw a pair of tangents to a circle of radius 3 cm which are inclined to each other at an angle of $60°$.

19. Prove that $\sqrt{5}$ is an irrational number.

20. Find the HCF of 24 and 40 by using Euclids division algorithm. Hence find the LCM of HCF (24,40) and 20.

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21. To save fuel , to avoid air pollution and for good health two persons A and B ride bicycle for a distance of 12 Km to reach their office. As the cycling speed of B is 2 km/h more than that of A, B takes 30 min less than that of A to reach the office. Find the time taken by A and B to reach the office.

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22. If $x = p\tan\theta + q\sec\theta$ and $y = p\sec\theta + q\tan\theta$ the prove that $x^2 - y^2 = q^2 - p^2$.

23. Prove that

$$\frac{\cot^2(90° - \theta)}{\tan^2\theta - 1} + \cos ec^2\frac{\theta}{\sec^2\theta - \cos ec^2\theta} = \frac{1}{\sin^2\theta - \cos^2\theta}$$

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24. Find the median of the data:

Class-interval	Frequency
20 – 40	7
40 – 60	15
60 – 80	20
80 – 100	8

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25. Find the mode of the following data:

Class-interval	Frequency
1 – 3	6
3 – 5	9
5 – 7	15
7 – 9	9
9 – 11	1

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26. The following table gives the information of daily income of 50 workers of a factory. Draw a 'less than type

ogive' for the given data:

Daily Income	Number of workers
Less than 100	0
Less than 120	8
Less than 140	20
Less than 160	34
Less than 180	44
Less than 200	50

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27. A bag contains 3 red balls, 5 white balls and 8 blue balls. One ball is taken out of the baf at random. fine the probability that the ball taken out is

(a) a red ball,

(b) not a white ball.

**28.** Prove that "the lengths of tangents drawn from an external points to a circle are equal ".

29. Construct a triangle ABC with sides BC = 3 cm, AB = 6 cm and AC = 4.5 cm. Then construct a triangle whose sides are $\frac{4}{3}$ of the corresponding sides of the triangle ABC.
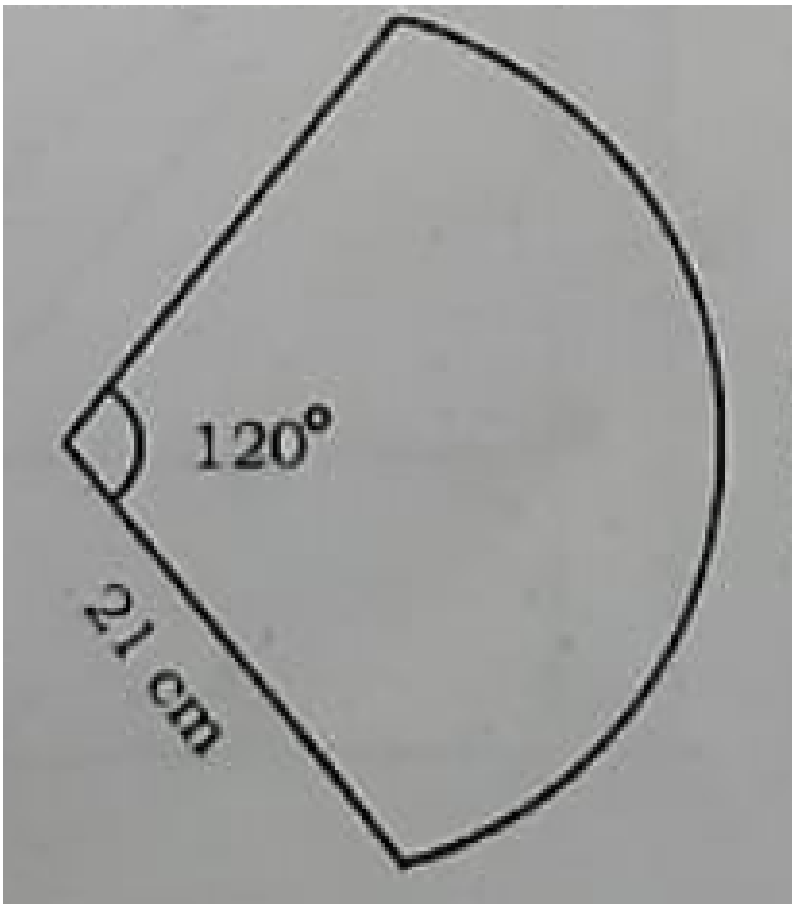
30. ABCD is a rectangle of length 20cm and breadth 10cm.

OAPB is a sector of a circle of radius $10\sqrt{2}$cm. calculate the

area of the shaded region. [Take πe= 3.14] `
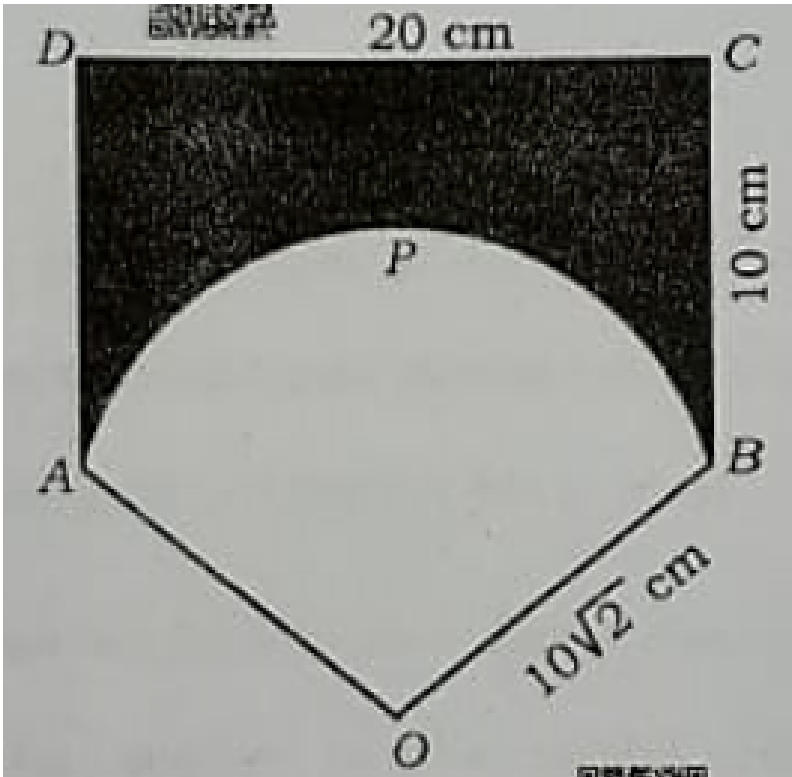
31. A hand fan is made up of cloth fixed in between the metallic wires. it is in the shape of a sector of a circle of radius 21cm anf of angle $120°$ as shown in the figure. calculate the area of the cloth used and also find the total length of the metallic wire required to make such a fan.

32. find the solution of the pair of linear equations by graphical method.

$$x + y = 7$$

$$3x - y = 1$$

33. There are five terms in an arrithmetic progression. the Sum of these terms is 55, and the fourth term is five more than the sum of the first two terms.Find the terms of the Arithmaetic progression.

34. In an arithmetic progression sixth term is one more than twice the thrid term. Tha sum of the fourth and fifth terms is five times the secon term. Find the tenth term of the arithmatic progression.

35. A tower and a pole stand vertically on the same level ground. it is observed that the angles of depression of top and foot of the pole from the top of the tower of height 60m is $30°$ and $60°$ respectively. find the height of the

pole.
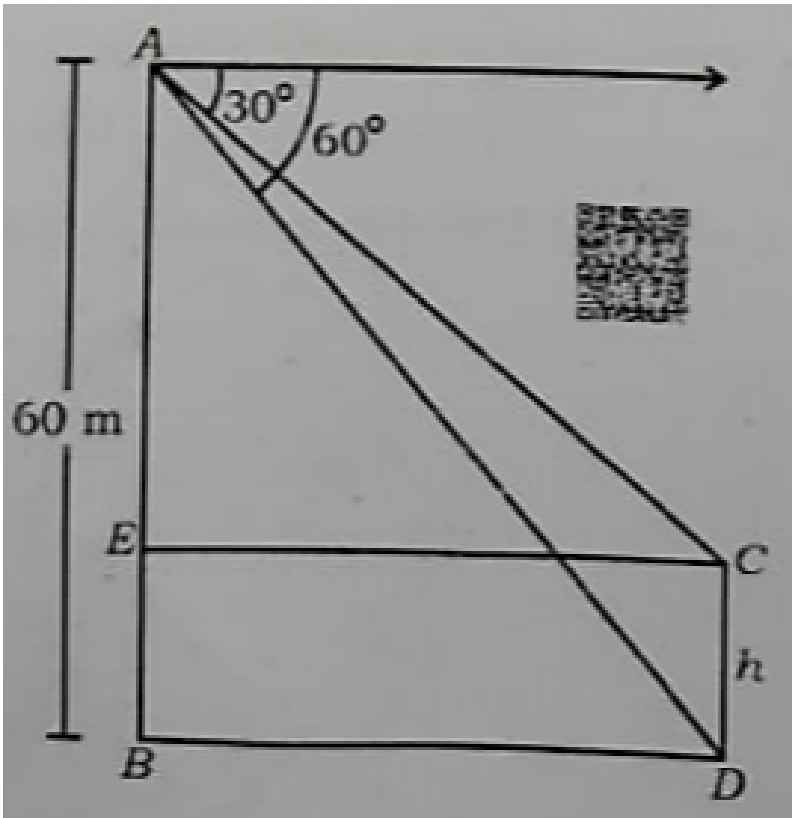
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36. A container opened from the top is in the form of a frustrum of a cone of height 16cm with radii of its lower and upper ends 8cm and 20cm respectively. find the cost

of the milkwhich can completely fill the container at the rate of Rs. 20 per litre.[Take $\pi e = 3.14$]

37. State and prove pythagoras theorem .