

ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ ಕ್ರಮ ಸಂಖ್ಯೆ :
Q.P. Sl. No. :

ಮಾರ್ಚ್/ಏಪ್ರಿಲ್ 2026 ರ ಪರೀಕ್ಷೆ-1
MARCH/APRIL 2026 EXAMINATION-1

ಒಟ್ಟು ಮುದ್ರಿತ ಪುಟಗಳ ಸಂಖ್ಯೆ : 16]

Total No. of Printed Pages : 16]

ಒಟ್ಟು ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ : 38]

Total No. of Questions : 38]

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**CCE RF/RR/
PF/PR**

ಸಂಕೇತ ಸಂಖ್ಯೆ : **81-E**

Code No. : **81-E**

ವಿಷಯ : ಗಣಿತ

Subject : MATHEMATICS

(ಆಂಗ್ಲ ಮಾಧ್ಯಮ / English Medium)

(ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ /
ಖಾಸಗಿ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ)

(Regular Fresh / Regular Repeater / Private Fresh / Private Repeater)

ದಿನಾಂಕ : 28. 03. 2026]

[Date : 28. 03. 2026

ಸಮಯ : ಬೆಳಿಗ್ಗೆ 10-00 ರಿಂದ ಮಧ್ಯಾಹ್ನ 1-15 ರವರೆಗೆ] [Time : 10-00 A.M. to 1-15 P.M.

ಗರಿಷ್ಠ ಅಂಕಗಳು : 80]

[Max. Marks : 80

General Instructions to the Candidate :

Cut here / ಇಲ್ಲಿ ಕತ್ತರಿಸಿ

1. This question paper consists of 38 questions.
2. This question paper has been sealed by reverse jacket. **You have to cut on the right side to open the paper** at the time of commencement of the examination (**Follow the arrow mark**). **Do not cut the left side to open the paper.** Check whether all the pages of the question paper are intact.
3. Follow the instructions given against the questions.
4. Figures in the right hand margin indicate maximum marks for the questions.
5. The maximum time to answer the paper is given at the top of the question paper. It includes 15 minutes for reading the question paper.

- I. Four alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.

$$8 \times 1 = 8$$

1. The probability of an impossible event is

(A) 1

(B) 0



(C) 1.5

(D) -1

2. If $\operatorname{cosec} \theta = \frac{5}{3}$, then the value of $\sin \theta$ is

(A) $\frac{5}{3}$

(B) $\frac{5}{4}$

(C) $\frac{3}{4}$

(D) $\frac{3}{5}$



3. The quadratic equation among the following is

(A) $x^{-2} - 3x + 2 = 0$

(B) $2x + 3 = 0$

(C) $x^2 - 5x + 6 = 0$

(D) $2x^3 + 7x + 1 = 0$



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

- (A) have unique solution
(B) do not have any solution
(C) have three solutions
(D) have infinitely many solutions



5. The volume of a sphere of radius ' r ' units is

- (A) $\frac{2}{3} \pi r^2$ cubic units
(B) $\frac{1}{3} \pi r^3$ cubic units
(C) $\frac{4}{3} \pi r^3$ cubic units
(D) $\frac{4}{3} \pi r^2$ cubic units



6. In an arithmetic progression if $a_n = 2n + 1$, then the common difference of the arithmetic progression is

- (A) 1
(B) 2
(C) 3
(D) 4

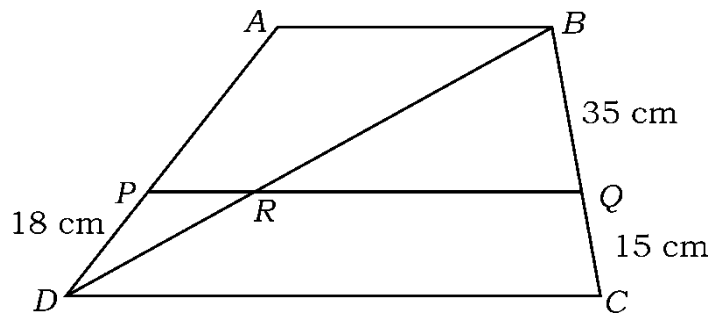


7. The coordinates of the mid-point of the line segment joining the points $(2, 3)$ and $(4, 7)$ are



- (A) $(3, 5)$ (B) $(5, 3)$
(C) $(1, 2)$ (D) $(6, 10)$

8. In trapezium $ABCD$, $AB \parallel DC$ and P, Q are points on the sides AD and BC respectively. If $PQ \parallel DC$, $PD = 18$ cm, $BQ = 35$ cm and $QC = 15$ cm, then length of AD is



- (A) 5 cm (B) 50 cm
(C) 57 cm (D) 60 cm



II. Answer the following questions :**8 × 1 = 8**

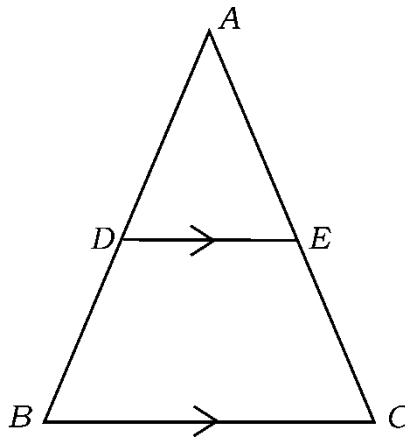
9. State the 'fundamental theorem of arithmetic'.



10. If the first term of an arithmetic progression is ' a ' and the last term is ' a_n ', then write the formula to find the sum of the first ' n ' terms of the arithmetic progression.

11. Write the degree of a cubic polynomial.

12. In the figure, D and E are the mid-points of sides AB and AC respectively. If $DE = 4$ cm, then write the measure of BC .



13. Write the formula to find the total surface area of a cube of edge of length ' a ' units.



14. If the lines represented by the equations $4x + py + 8 = 0$ and $4x + 4y + 2 = 0$ are parallel, then find the value of ' p '.

15. In the given cumulative frequency distribution table, write the median class.



Marks	Number of students	Cumulative frequency
0 – 10	3	3
10 – 20	4	7
20 – 30	7	14
30 – 40	6	20
	$n = 20$	

16. Write the coordinates of the point where the graph of linear polynomial $p(x) = x + 5$ intersects the x -axis.

III. Answer the following questions :

$8 \times 2 = 16$

17. Prove that $5 + \sqrt{3}$ is an irrational number.
18. Solve the given pair of linear equations by elimination method :



$$2x + y = 8$$

$$3x - y = 7$$

19. Find the sum of the first 20 terms of the arithmetic progression 5, 8, 11, using formula.



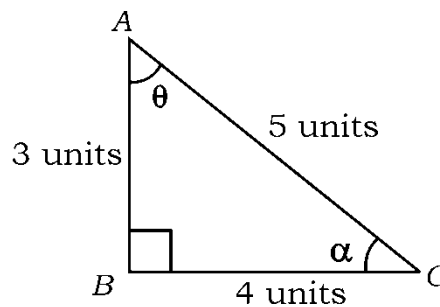
OR

Find the number of terms of the arithmetic progression 100, 96, 92, 12 using formula.

20. In the figure, $\angle ABC = 90^\circ$. Write the values of the following :



- i) $\sin \alpha$
ii) $\tan \theta$



21. Find the roots of the quadratic equation $x^2 + 4x - 60 = 0$ by factorisation method.

OR



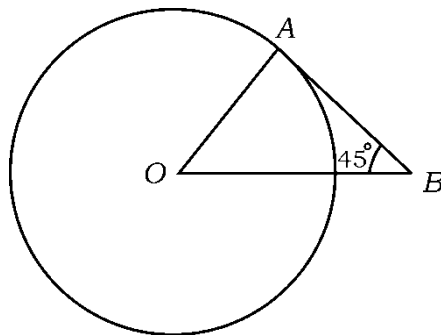
Find the discriminant of the quadratic equation $2x^2 + 3x - 7 = 0$ and write the nature of the roots.

22. Find the HCF of 135 and 75 by prime factorisation method and then find the LCM of HCF (135, 75) and 20.

23. A (x , 5) and B (2, y) are the coordinates of the end points of the diameter AB of a circle with centre P (4, 3). Find the values of ' x ' and ' y '. Also find the length of the diameter of the circle.



24. AB is a tangent to the circle with centre 'O' and 'A' is the point of contact. If $\angle OBA = 45^\circ$, then prove that $\triangle AOB$ is an isosceles triangle. If $OB = 5\sqrt{2}$ cm, then find the radius of the circle.



IV. Answer the following questions :

9 × 3 = 27

25. Find the zeroes of the quadratic polynomial



$p(x) = x^2 - 2x - 8$ and verify the relationship between the zeroes and the coefficients.

26. Prove that "The tangent at any point of a circle is perpendicular to the radius through the point of contact".

27. $\triangle ABC \sim \triangle PQR$. In $\triangle ABC$, $\angle A = 55^\circ$, $\angle C = 35^\circ$ and the sides of $\triangle ABC$ are in the ratio 3 : 4 : 5. If the perimeter of $\triangle PQR$ is 60 cm, then find the measure of sides and angles of $\triangle PQR$.



28. Find the mean for the following data :



<i>Class-interval</i>	<i>Frequency</i>
0 – 10	4
10 – 20	9
20 – 30	15
30 – 40	14
40 – 50	8

OR

Find the mode for the following data :



<i>Class-interval</i>	<i>Frequency</i>
5 – 15	3
15 – 25	4
25 – 35	8
35 – 45	7
45 – 55	3

29. Prove that,

$$(\operatorname{cosec} A - \sin A) (\sec A - \cos A) = \frac{1}{\tan A + \cot A}$$

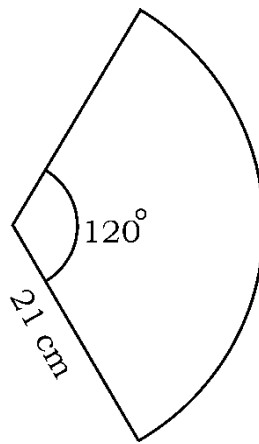
OR



Prove that,

$$\frac{\sec 60^\circ}{\cot 45^\circ} - \frac{2 \sin 90^\circ}{\cos 0^\circ} + \frac{\tan 45^\circ}{\operatorname{cosec} 30^\circ} = \sin^2 45^\circ (\operatorname{cosec}^2 45^\circ - \sec^2 0^\circ)$$

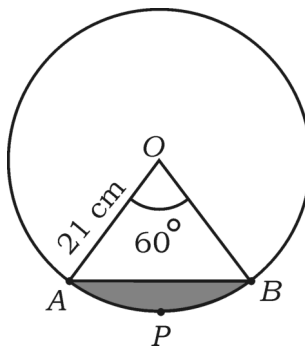
30. A hand fan is made up of cloth fixed in between the metallic wires. It is in the shape of a sector of a circle of radius 21 cm and of an angle 120° as shown in the figure. Calculate the area of the cloth used and also find the total length of the metallic wire required to make such a fan.



OR

In the given figure, 'O' is the centre of the circle of radius 21 cm. If $\angle AOB = 60^\circ$, then find the area of the segment APB.

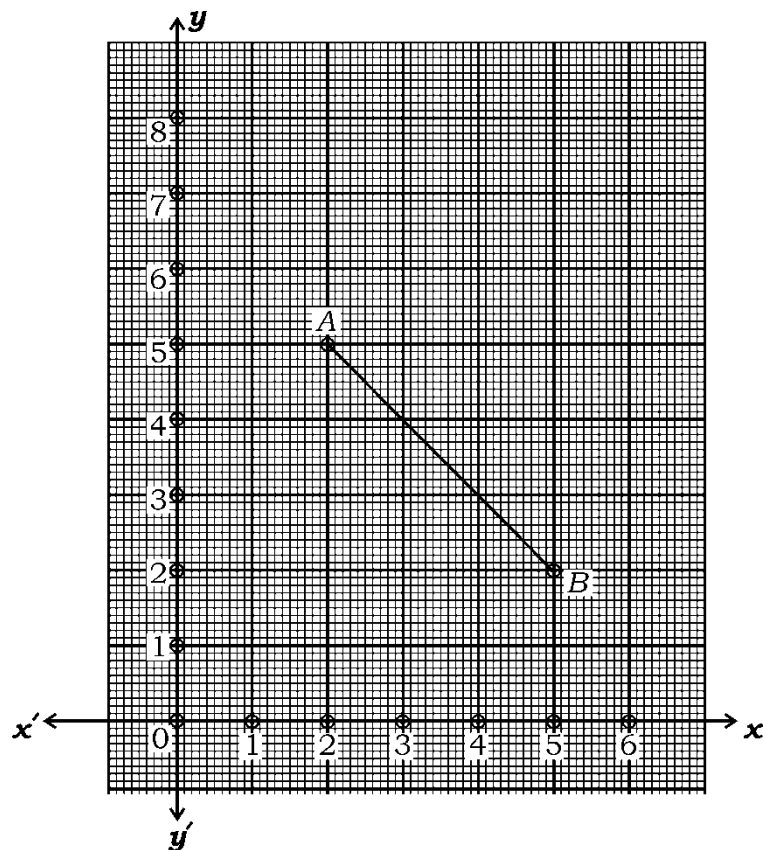
[Take $\sqrt{3} = 1.73$]



31. The perimeter of square $ABCD$ is 12 m less than the perimeter of the square $PQRS$. The sum of the areas of these two squares is 117 m^2 . Find the ratio of the area of the square $ABCD$ to the area of the square $PQRS$.



32. In the figure, find the coordinates of the point which divides the line segment AB internally in the ratio $1 : 2$ using section formula.



OR

Verify whether the points $A (1, 5)$, $B (2, 4)$ and $C (9, - 3)$ are collinear with the help of 'distance formula'.



33. Two fair dice whose faces are numbered from 1 to 6 are rolled once. Find the probability
- that the sum of the numbers on the top faces is 6
 - of getting a square number on one of the faces only.

V. Answer the following questions :

$4 \times 4 = 16$

34. Find the solution of the given pair of linear equations by graphical method :



$$x + 2y = 6$$

$$x + y = 5$$

35. The 7th term of an arithmetic progression is four times its 2nd term and the 12th term is 2 more than thrice its 4th term. Find the progression.



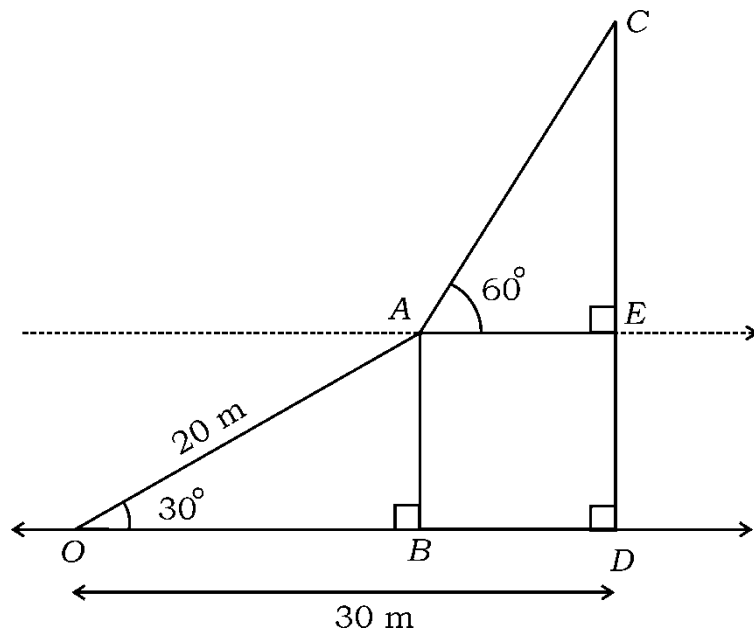
36. Prove that, "If in two triangles, corresponding angles are equal, then their corresponding sides are in the same ratio (or proportion) and hence the two triangles are similar".

OR

Prove that, “If one angle of a triangle is equal to one angle of the other triangle and the sides including these angles are proportional, then the two triangles are similar”.



37. In the given figure, a rope is tightly stretched and tied from the top of a vertical pole on a level ground to a peg on the same level ground such that the length of the rope is 20 m. The angle made by the rope with the ground is 30° . A circus artist climbs the rope, reaches the top of the pole and from there he observes that the angle of elevation of the top of another pole on the same ground to be 60° . If the distance of the foot of the longer pole from the peg is 30 m, then find the height of this pole. (Take $\sqrt{3} = 1.73$)

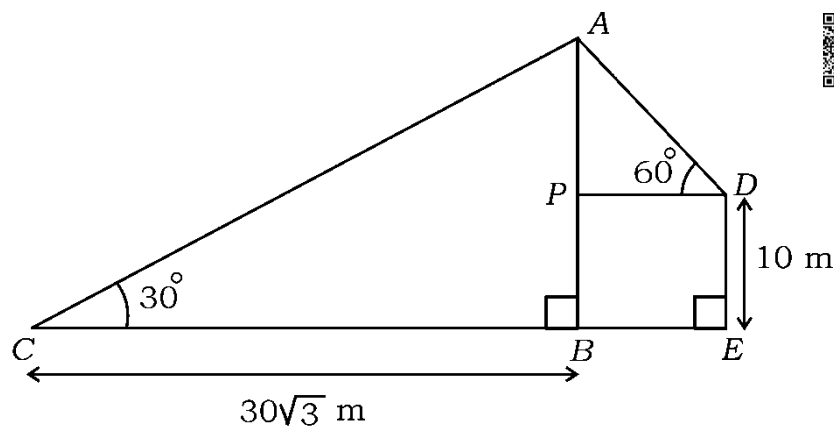


OR





A tower AB and a building DE are standing vertically on a level ground. The angles of elevation of the top of the tower from a point on the same ground and from the top of the building are found to be 30° and 60° respectively as shown in the figure. If the distance of the point from the foot of the tower is $30\sqrt{3}$ m and height of the building is 10 m, then find the distance (BE) between the foot of the tower and the building and also the distance between their tops (AD).



VI. Answer the following question :

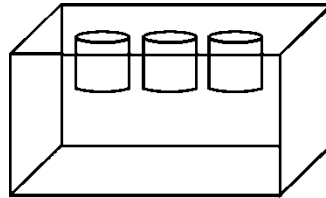


1 × 5 = 5

38. From a solid cuboidal metallic block of dimensions $15 \text{ cm} \times 10 \text{ cm} \times 8 \text{ cm}$, three cylindrical depressions each having diameter 4.2 cm and height 6 cm are drilled out as

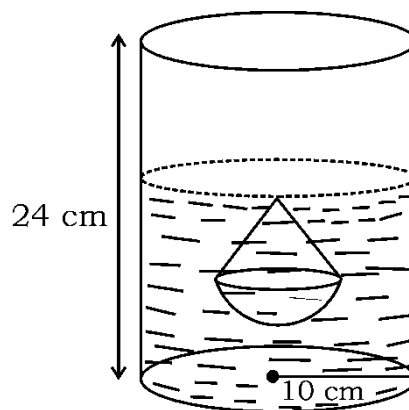


shown in the figure. Find the total surface area and volume of the remaining metallic block.



OR

In a cylinder of height 24 cm and radius 10 cm, water is filled up to the height of 14.4 cm. A solid is made by placing a cone of slant height 10 cm and curved surface area $60\pi \text{ cm}^2$ on the hemisphere having the same radius as that of the cone. If this solid is completely immersed in the cylinder as shown in the figure, then find the rise in the water level in the cylinder. Also find the amount of water still to be filled in the cylinder so that the water level rises up to the brim of the cylinder. (Take $\pi = 3.14$)



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