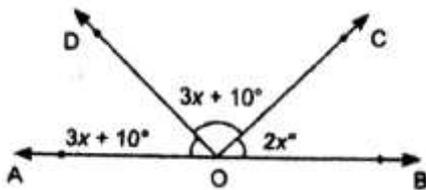


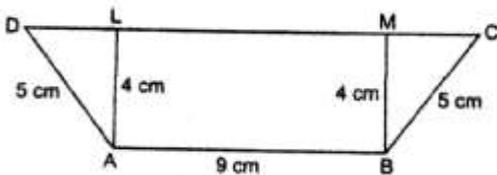
Instruction: The question paper consists of 30 questions divided into four section A, B, C, and D. Section-A comprises of 6 questions of 1 mark each; Section-B comprises of 6 questions of 2 marks each; Section-C comprises of 10 questions of 3 marks each and section-D comprises of 8 questions of 4 marks each.

SECTION A

1. Evaluate $125^{\frac{1}{3}}$
2. Give one example each of a binomial of degree 35 and of a monomial of degree 100.
3. In which quadrant points (1, -1), (2, -2), (4, -5) and (3, -4) lie?
4. Find the value of x, so that AOB is a line.



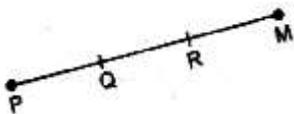
5. In the given figure, find the area of trapezium ABCD.



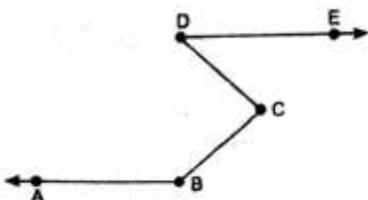
6. The following data have been arranged in ascending order of their values. 19, 20, 36, 46, 50, x - 2, x + 4, 59, 70, 80, 83, 88. If the median is 57 find x.

SECTION B

7. Find the value of the polynomial $2y^2 - 3y + 4$ at $y = 5$. & In the given figure, if $PQ = RM$; prove that $PR = QM$.



9. In quadrilateral PQRS, $\angle P : \angle Q : \angle R : \angle S = 3 : 4 : 5 : 6$. Find all the angles of the quadrilateral.
10. In the given figure, $AB \parallel DE$. Prove that $\angle ABC + \angle BCD = 180^\circ + \angle CDE$.



11. If each side of a cube is 10 cm. Find its surface area and lateral surface area.

12. Two coins are tossed simultaneously 100 times and we get two heads 25 times, one head 40 times and no head 35 times. Find the probability of occurrence of each of these events..

SECTION C

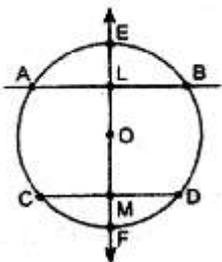
13. Find two irrational numbers between 01 and 0.12.

14. Find the value of a, if $x^3 - ax^2 + bx - a$ is exactly divisible by $(x + 2)$.

15. Draw the graph of the equation $x + 9y = 15$. Find the coordinates of the point where the graph intersect the x-axis.

16. Plot the following points on a graph paper: A (2, -5), B(8, 9), C(- 8, 4), D(0, 0), E(-5, -3).

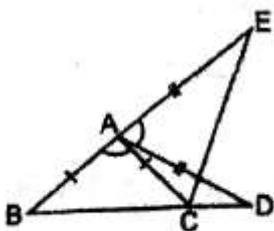
17. In the given figure, EF is a line passing through the centre O of a circle. If EF bisects chord AB and CD of the circle, prove that $AB \parallel CD$.



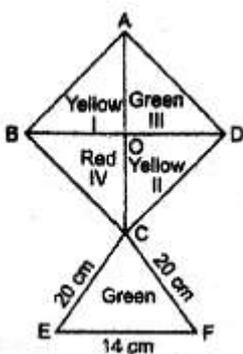
18. ABCD is a square. X and Y are points on side AD and BC respectively such that $AY = BX$. Prove that $BY = AX$ and $\angle BAY = \angle ABX$.

19. ABCD is a rectangle in which diagonal AC bisects LA and LC. Prove that ABCD is square.

20. In the given figure, $AB = AC$, $AD = AE$ and $\angle BAC = \angle DAE$. Prove that $\triangle BAD \cong \triangle CAE$.



21. How much paper of each shade is needed to make a kite given in figure, in which ABCD is a square with diagonal 44 cm.



22. 1500 families with 2 children were selected randomly and the following data were recorded:

Number of girls in family	2	1	0	Compute the probability having (a) Two girls (b) One girl (c) No girl
Number of families	475	814	211	

Section- D

23. if $x = \frac{\sqrt{p+2q} + \sqrt{p-2q}}{\sqrt{p+2q} - \sqrt{p-2q}}$ and $q \neq 0$ then prove that $qx^2 - px + q = 0$.

24. If $2x^3 + ax^2 - bx - 15$ has $2x + 3$ as a factor and leaves a remainder - 5 when divided by $(x - 1)$, find the values of a and b.

25. The linear equation that converts Fahrenheit ($^{\circ}\text{F}$) to Celsius ($^{\circ}\text{C}$) is given by the relation $^{\circ}\text{C} = \frac{5^{\circ}\text{F} - 160}{9}$

(a) if the temperature is 86°F , what is the temperature in Celsius?

(b) if the temperature is 35°C , what is the temperature in Fahrenheit ?

(c) if the temperature is 0° what is the temperature in Fahrenheit and if the temperature is 0°F , what is the temperature in Celsius ?

(d) What is the numerical value of the temperature which is same in both the scales?

26. Construct a $\triangle ABC$ in which $BC = 6$ cm, $\angle B = 60^{\circ}$ and the sum of other two sides is 9 cm.

27. If ABCD is a quadrilateral whose diagonals AC and BD intersect at O, prove that

(i) $(AB + BC + CD + DA) > (AC + BD)$ (ii) $(AB + BC + CD + DA) < 2(AC + BD)$.

28. The following data represents the death of babies in different states of India due to hunger/ malnutrition.

States	A	B	C	D	E	(i) Draw a bar graph of the above data.
No. of Infants died	400	500	600	800	200	(ii) What does this data represent?

29. The radius and height of a right circular cone are in the ratio 4 : 3 and its volume is 2156 cu. cm. Find the curved surface area and the total surface area of the cone.

30. Sanya has a piece of land which is in the shape of a rhombus. She wants her one daughter and one son to work on the land and produce different crops to suffice the needs of their family. She divided the land in two equal parts. If the perimeter of the land is 400 m and one of the diagonal is 160 m, how much area each of them will get? What value is depicted by her by dividing the land equally for producing crops to suffice the needs of their family?