Sample paper 3
Class IX
Subject: Mathematics

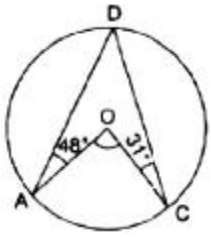
Time : 1hr **M.M 40**

General Instructions:

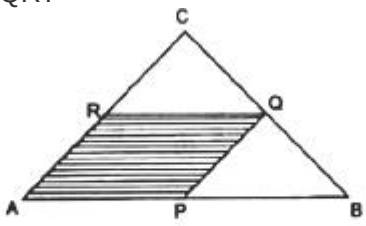
1. All questions are compulsory.
2. The paper consists of 17 questions divided into 4 section A, B , C and D . Section A comprises of 6 questions of 1mark each. Section B comprises of 2 questions of each 2 marks. Section C comprises of 6 questions of 3 marks each. Section D comprises of 3 questions of 4 marks each.
3. There is no over all choice in this question paper. Although internal choices have been provided in the same question.

Section A (6 marks)

1. In the figure, O is the centre of the circle. What is the measure of ∠AOC?
   (i) 120°
   (ii) 136°
   (iii) 128°
   (iv) 158°



2. In the figure P, Q and R are the mid-point of the sides AB, BC and AC respectively, which of the following is the area of APQR?



(i) ar (ΔABC) (ii) $\frac{1}{2}$ ar (ΔABC) (iii) $\frac{1}{4}$ ar (ΔABC) (iv) $\frac{1}{3}$ ar (ΔQPB)

3. The number $(3-\sqrt{3})(3+\sqrt{3})$ is
   (a) an irrational number
   (b) a rational number
   (c) not a natural number
   (d) none of these

4. Identify the polynomial
   (a) $x^{-2} + x^{-1} + 5$
   (b) $x^2 + 5\sqrt{x} + 7$

(c) $\frac{1}{x^3}+7$

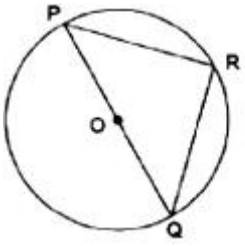
(d) $3x^2 + 7$

5. Through which of the following points, the graph of the linear equation $3x - 2y = 0$, passes?

(i) $\left(\frac{2}{3},-\frac{2}{3}\right)$ (ii) $\left(\frac{2}{3},\frac{3}{2}\right)$ (iii) $\left(\frac{1}{3},\frac{1}{2}\right)$

6. In the figure, O is the centre of the circle and PR = QR. What is the measure of ∠PQR?

(i) 60°
(ii) 110°
(iii) 75°
(iv) 45°



Section B (4 marks)

7. PQRS is a square. T and U are respectively, the mid points of PS and QR. Find the area of ΔOTS, if PQ = 8 cm, where O is the point of intersection of TU and OS.

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8. Rationalize the denominator of $\frac{1}{\sqrt{3}-\sqrt{2}}$.

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Section C (18 marks)

9. If $t+\frac{1}{t}=8,$ then find the value of $t^3+\frac{1}{t^3}.$

10. Draw the graph of the equation $2x - 3y = 12$. At what points, the graph of the equation cuts the x-axis and the y-axis?

11. An equilateral triangle is inscribed in a circle. Find the radius of the circle.

12. ABCD is a parallelogram where E is a point on AD. Area of ΔBCE = 21 cm^2. If CD = 6 cm, then find the length of AF.

13. Show how $\sqrt{5}$ can be represented on the number line.

14.

(i) Factorize $x^3 - 2x^2 - x + 2$

(ii) Expand $(2x + 1)^3$

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Section D (12 marks)

15. The taxi fare in a city is as follows:
    For the first kilometer, the fare is Rs.8 and for the subsequent distance it is Rs. 5 per km. Taking the distance covered as x km and total fare as y, write a linear equation for this information and draw its graph.

16. A circular park of radius 20 m is situated in a colony. David are sitting at equal distance on its boundary each having a toy each other. Find the length of the string of each phone.

17. The area of parallelogram PQRS is 88 cm sq. A perpendicular from S is drawn to intersect PQ at M. If SM = 8 cm, then find the length of PQ.