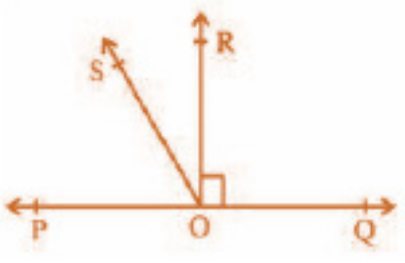
Test Paper

(Number Systems, Polynomial, Coordinate Geometry, Lines & Angles, Triangles and Heron's Formula)

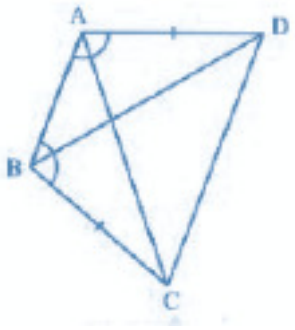
M.M.: 50 Time: 2 hrs 30 Minutes

Note: Every Question Contains Two Marks

1. Find three different irrational numbers between the rational numbers 5/7 and 9/11.
2. Visualize 3.765 on the number line, using successive magnification
3. Add $2\sqrt{2}+ 5\sqrt{3}$ and $\sqrt{2} – 3\sqrt{3}$.
4. Simplify: $(\sqrt{3}+\sqrt{7})(\sqrt{3}-\sqrt{7})$.
5. Rationalize the denominator of $1/[7+3\sqrt{3}]$.
6. Represent $\sqrt{(9.3)}$ on the number line.
7. Simplify:
8. (i)$7^{2/3}.7^{1/5}$
   (ii)$10^{1/2}/10^{1/4}$
9. Compute the value of $9x^2 + 4y^2$ if $xy = 6$ and $3x + 2y = 12$.
10. Find the value of $x^3 + y^3 + z^3 – 3xyz$ if $x^2 + y^2 + z^2 = 83$ and $x + y + z = 15$
11. Calculate the perimeter of a rectangle whose area is $25x^2 – 35x + 12$.
12. Points A (5, 3), B (–2, 3) and D (5, –4) are three vertices of a square ABCD. Plot these points on a graph paper and hence find the coordinates of the vertex C.
13. Write the coordinates of the vertices of a rectangle whose length and breadth are 5 and 3 units respectively, one vertex at the origin, the longer side lies on the x-axis and one of the vertices lies in the third quadrant.
14. Q.3: In the Figure, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. Prove that $\angle ROS = 1/2(\angle QOS – \angle POS)$.



15. Q.4: It is given that ∠XYZ = 64° and XY is produced to point P. Draw a figure from the given information. If ray YQ bisects ∠ZYP, find ∠XYQ and reflex ∠QYP.
16. If two lines intersect, prove that the vertically opposite angles are equal.
17. Bisectors of interior ∠B and exterior ∠ACD of a Δ ABC intersect at the point T. Prove that ∠ BTC = ½ ∠ BAC.
18. Q.1: ABCD is a quadrilateral in which AD = BC and ∠DAB = ∠CBA. Prove that
    (i) ΔABD ≅ ΔBAC
    (ii) BD = AC
    (iii) ∠ABD = ∠BAC.



19. Two straight lines AB and CD cut each other at O. if angle BOD = 63° then find angle BOC.
20. Two complementary angles are such that twice the measure of the one is equal to three times the measure of the other. The larger of the two measures is.
21. Show that of all line segments drawn from a given point not on it, the perpendicular line segment is the shortest.
22. A field in the form of parallelogram has sides 60 m and 40 m and one of its diagonals is 80m long. Find the area of the parallelogram.
23. The sides of a quadrilateral ABCD are 6cm, 8cm, 12cm and 14cm respectively. The angle between the first two sides is a right angle. Find its area.
24. A rhombus-shaped sheet with perimeter 40cm and one diagonal 12 cm, is painted on both sides at the rate of Rs. 5 per m^2. Find the cost of painting.
25. From a point in the interior of an equilateral triangle, perpendicular is drawn on the three sides. The lengths of the perpendicular are 14cm, 10cm and 6cm. Find the area of the triangle.