SECOND MIDTERM TEST – NOVEMBER 2022

**IX - Std**   **Mathematics**

Time: 1.30 Hrs.   Maximum Marks - 50

PART – I (Marks - 7)

Note: Answer ALL questions: - $7 \times 1 = 7$

1. The interior angle made by the side in a parallelogram is 90^0 then the parallelogram is a
   (A) rhombus   (B) rectangle   (C) trapezium   (D) kite

2. If one angle of a cyclic quadrilateral is 75°, then the opposite angle is
   (A) 100^0 (B) 105^0 (C) 85^0 (D) 90^0

3. PQ and RS are two equal chords of a circle with centre O such that $\lfloor POQ = 70^0$; then $\lfloor ORS = $ ____
   (A) 100^0 (B) 105^0 (C) 85^0 (D) 90^0

4. The mid-point of the line joining $(-a, 2b)$ and $(-3a, -4b)$ is
   (A) $(2a, 3b)$ (B) $(-2a, -b)$ (C) $(2a, b)$ (D) $(-2a, -3b)$

5. The point whose ordinate is 4 and which lies on the y-axis is ____
   (A) $(4, 0)$ (B) $(0, 4)$ (C) $(1, 4)$ (D) $(4, 2)$

6. If $(x+2, 4) = (5, y-2)$ then the coordinates (x, y) are ____
   (A) $(7, 12)$ (B) $(6, 3)$ (C) $(3, 6)$ (D) $(2, 1)$

7. The distance between the point $(5, -1)$ and the origin is ____
   (A) $\sqrt{24}$ (B) $\sqrt{37}$ (C) $\sqrt{26}$ (D) $\sqrt{17}$

PART – II (Marks - 10)

Note: Answer any FIVE questions. Question Number 14 is compulsory: - $5 \times 2 = 10$

8. Define Concentric Circles. Give an exmple

9. Find the value of $x°$ in the figure

10. Find the length of a chord which is at a distance of $2\sqrt{11}$ cm from the centre of a circle of radius 12cm.

11. Find the distance between the points $(-4, 3), (2, -3)$

12. Find the centroid of the triangle whose vertices are $A(2, -4), B(-3, -7)$ and $C(7, 2)$
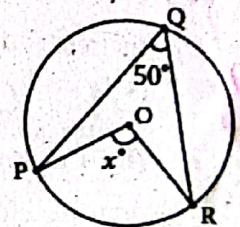
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13. Find the coordinates of the point which divides the line segment joining the points $A(4, -3)$ and $B(9, 7)$ internally in the ratio $3:2$.

14. The point $(3, -4)$ is the centre of a circle. If AB is a diameter of the circle and B is $(5, -6)$, find the coordinates of A.

PART – III (Marks - 25)

Note: Answer any FIVE questions. Question Number. 21 is compulsory: -   **5 x 5 = 25**

15. In a circle, AB and CD are two parallel chords with centre O and radius 10 cm such that $AB = 16$ cm and $CD = 12$ cm determine the distance between the two chords?

16. The angles of a quadrilateral are in the ratio $2:4:5:7$. Find all the angles.

17. If $PQRS$ is a cyclic quadrilateral in which $\angle PSR = 70^0$ and $\angle QPR = 40^0$, then find $\angle PRQ$.

$\angle PSR + \angle PQR = 180^0$
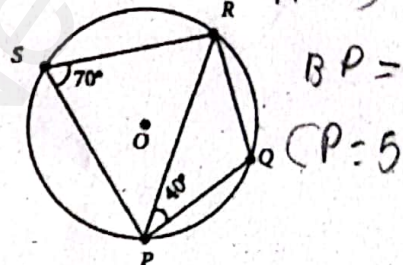
18. Show that $(4, 3)$ is the centre of the circle passing through the points $(9, 3), (7, -1) (-1, 3)$. Also find its radius. $P(4,3) \quad A(9,3) \; B(7,-1) \; C(-1, 3)$

19. If $(x, 3)$, $(6, y)$, $(8, 2)$ and $(9, 4)$ are the vertices of a parallelogram taken in order, then find the value of x and y.

20. Find the coordinates of the points of trisection of the line segment joining the points $A(-5, 6)$ and $B(4, -3)$.

21. Show that the points $A(7, 10), B(-2, 5), C(3, -4)$ are the vertices of a right-angled triangle.

$\angle PQR = 180^0 - 70^0 = 110^0$

PART - IV (Marks- 8)

Note: Answer any one question: -   **1 x 8 = 8**

22. (A). Construct the incentre of triangle ABC with $AB = BC = 6$ cm and $\angle B = 80^0$ Also draw the incircle and measure its radius.

$\angle PQR + \angle PRQ + \angle QPR = 180^0$

OR

(B). Construct the circumcenter of the $\triangle ABC$ with $AB = 5$ cm, $\angle A = 60^0$ and $\angle B = 80^0$. Also draw the circumcircle and find the circumradius of the $\triangle ABC$.

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$110^0 + \angle PRQ + 40^0 = 180^0$

$\angle PRQ = 180^0 - 150^0$

$= 30^0$

Notes on circle diagram: $AP = 5$, $BP = 5$, $CP = 5$, with angles 70° and 40° marked.