# SECOND MIDTERM TEST – 2023

**Mathematics**

**IX - STD**



**Time: 1.30 Hrs.** **Maximum Marks – 50**

## PART– I (Marks - 7)

**Note:** i) Answer ALL the 7 questions

ii) Choose the most suitable answer from given the four alternatives and write the option code with the corresponding answers. 7 x 1 = 7

1. The exterior angle of a triangle is equal to the sum of two

(A) Exterior angles (B) Interior opposite angles

(C) Alternate angles (D) Interior angles

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 $\angle POQ = 70^0$ , then $\angle ORS =$ ____

(A) $100^0$ (B) $105^0$ (C) $85^0$ (D) $90^0$

4. If $(x+2, 4) = (5, y-2)$ then the coordinates $(x, y)$ are ____

(A) $(7, 12)$ (B) $(6, 3)$ (C) $(3, 6)$ (D) $(2, 1)$

5. Th e distance between the point $(5, -1)$ and the origin is ____

(A) $\sqrt{24}$ (B) $\sqrt{37}$ (C) $\sqrt{26}$ (D) $\sqrt{17}$

6. If the coordinates of one end of a diameter of a circle is $(3, 4)$ and the coordinates of its centre is $(3, -2)$, then the coordinate of the other end of the diameter is

(A) $(0, -3)$ (B) $(0, 9)$ (C) $(3, 0)$ (D) $(-9, 0)$

7. In what ratio does the $y$-axis divides the line joining the points $(-5, 1)$ and $(2, 3)$ internally

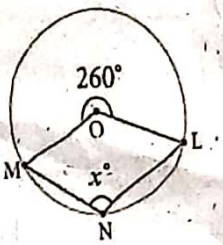
(A) 1 : 3 (B) 2 : 5 (C) 3 : 1 (D) 5 : 2

## PART – II (Marks - 10)

**Note: Answer any FIVE questions. Question Number 14 is compulsory.** 5 x 2 = 10

8. Define Congruent Circles. Give an example

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




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

11. 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.

12. Find the mid-points of the line segment joining the points $(a, b)$ and $(a+2b, 2a-b)$

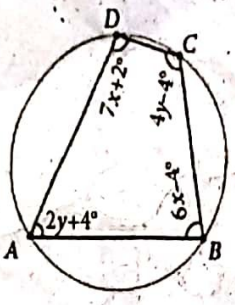
13. In what ratio does the point $P(2, -5)$ divide the line segment joining $A(-3, 5)$ and $B(4, -9)$.

14. Find the centroid of the triangle whose veritices are $A(6, -1)$, $B(8, 3)$ and $C(10, -5)$

## PART – III (Marks - 25)

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

15. Find all the angles of the given cyclic quadrilateral $ABCD$ in the figure




16. 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?

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

18. $A(-3, 2)$, $B(3, 2)$ and $(-3, -2)$ are the vertices of the right triangle, right angled at $A$. Show that the mid-point of the hypotenuse is equidistant from the vertices.

19. Find the points which divide the line segment joining $A(-11, 4)$ and $B(9, 8)$ into four equal parts.

20. Th e angles of a quadrilateral are in the ratio 2 : 4 : 5 : 7 . Find all the angles.

21. Show that $(4, 3)$ is the centre of the circle passing through the points $(9, 3)$, $(7, -1)$ and $(-1, 3)$. Also find its radius.



## PART - IV (Marks- 8)

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

22. **(A).** Construct the circumcenter of the $\Delta ABC$ with $AB = 8$ cm, $BC = 6$ cm, $\angle B = 70^0$. Also draw the circumcircle and find the circumradius of the $\Delta ABC$.

**OR**

**(B).** Construct the incentre of triangle $ABC$ with $AB = 6$ cm, $\angle B = 65^0$ and $AC = 7$ cm Also draw the incircle and measure its radius.