CHAPTER TEST: COORDINATE GEOMETRY (HOTS)

Mathematics | Class IX | (2026/COORD/09/HOTS/001)

Time: 1.5 Hours **Max. Marks: 35**

General Instructions:

- All questions are compulsory.
- Section A contains 8 MCQs of 1 mark each.
- Section B contains 4 Very Short Answer questions of 2 marks each.
- Section C contains 3 Short Answer questions of 3 marks each.
- Section D contains 2 Long Answer/HOTS questions of 5 marks each.

Section A: Multiple Choice Questions (1 Mark Each)

1. If the coordinates of two points are $P(-2, 3)$ and $Q(-3, 5)$, then (abscissa of P) $-$ (abscissa of Q) is:

   (a) -5 (b) 1 (c) -1 (d) -2

2. The perpendicular distance of the point $P(4, 3)$ from the y-axis is:

   (a) 4 (b) 3 (c) 5 (d) 7

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

   (a) $(7, 12)$ (b) $(6, 3)$ (c) $(3, 6)$ (d) $(2, 1)$

4. A point whose abscissa is -3 and ordinate is 2 lies in:

   (a) Quadrant I (b) Quadrant II (c) Quadrant III (d) Quadrant IV

5. If the distance of a point from both axes is 4 units and it lies in the 3^{rd} quadrant, its coordinates are:

   (a) $(4, 4)$ (b) $(-4, 4)$ (c) $(4, -4)$ (d) $(-4, -4)$

6. The area of the triangle formed by the points $O(0, 0)$, $A(4, 0)$, and $B(0, 4)$ is:

   (a) 16 sq. units (b) 8 sq. units (c) 4 sq. units (d) 32 sq. units

7. On plotting the points $O(0, 0)$, $A(3, 0)$, $B(3, 4)$, and $C(0, 4)$ and joining them in order, the figure obtained is:

   (a) Square (b) Rectangle (c) Trapezium (d) Rhombus

8. The sign of the abscissa and ordinate of a point in the 4^{th} quadrant are respectively:

   (a) $(+, +)$ (b) $(-, -)$ (c) $(-, +)$ (d) $(+, -)$

Section B: Very Short Answer Questions (2 Marks Each)

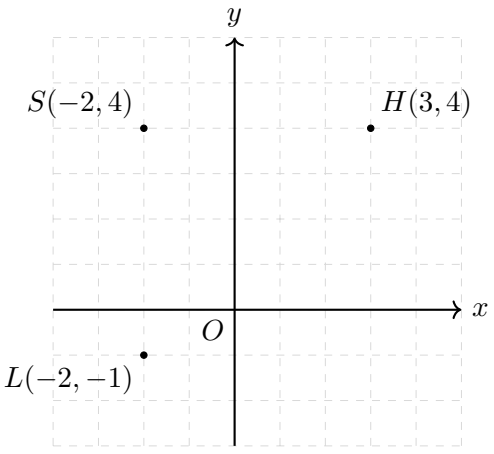
1. Point $P(3, 4)$ is reflected in the x-axis to get P'. Write the coordinates of P'. Also, find the distance between P and P'.
2. Find the value of k if the point $(k, 2k)$ lies in the 2^{nd} quadrant. What can you say about the sign of k?
3. Write the coordinates of the vertices of a square whose side is 5 units, one vertex is at the origin, and two sides lie along the positive direction of the axes.
4. In which quadrant will the point (a, b) lie if $ab > 0$ and $a + b < 0$? Justify.

Section C: Short Answer Questions (3 Marks Each)

1. Plot the points $A(1, -1)$ and $B(4, 5)$. (i) Draw the line segment joining these points. (ii) Find the coordinates of the mid-point of AB.
2. Three vertices of a rectangle are $(3, 2)$, $(-4, 2)$, and $(-4, 5)$. Plot these points and find the coordinates of the fourth vertex.
3. If a point C lies between two points A and B such that $AC = BC$, and the coordinates of A and B are $(-3, 4)$ and $(1, 4)$ respectively, find the coordinates of C. What is the distance AB?

Section D: Long Answer / HOTS Questions (5 Marks Each)

1. **Analytical Coordinate Geometry:** A square $ABCD$ has its center at the origin $O(0, 0)$. If the coordinates of vertex A are $(2, 2)$, find:
   (i) The coordinates of vertices B, C, and D (given the sides are parallel to the axes).
   (ii) The area of the square.
   (iii) The length of the diagonal AC.
2. **Real-World Application:** A city is mapped on a coordinate plane. The hospital is located at $H(3, 4)$, the school at $S(-2, 4)$, and the library at $L(-2, -1)$.
   (i) Plot these points on a Cartesian plane.
   (ii) If a park P is to be built such that $HSLP$ forms a rectangle, find the coordinates of P.
   (iii) Calculate the perimeter of the rectangle $HSLP$.



End of Question Paper