CHAPTER TEST: COORDINATE GEOMETRY
Mathematics | Class IX (2026/COORGD/09/002)

Time: 1.5 Hours **Max. Marks: 40**

General Instructions:

1. All questions are compulsory.
2. Section A contains 8 MCQs (1 mark each).
3. Section B contains 4 Very Short Answer questions (2 marks each).
4. Section C contains 3 Short Answer questions (3 marks each).
5. Section D contains 2 Long Answer questions (5 marks each).
6. Section E contains 1 Case Study (5 marks total).

Section A (Multiple Choice Questions)

1. The point at which the abscissa and ordinate have equal values but opposite signs must lie in:

   (a) II and IV quadrants
   (b) II and III quadrants
   (c) I and II quadrants
   (d) I and IV quadrants

2. If $P(a, b)$ is a point in the II quadrant, then:

   (a) $a > 0, b > 0$
   (b) $a < 0, b > 0$
   (c) $a < 0, b < 0$
   (d) $a > 0, b < 0$

3. The distance of point $Q(-7, -3)$ from the Y-axis is:

   (a) 7 units
   (b) -7 units
   (c) 3 units
   (d) -3 units

4. A point whose ordinate is 4 and which lies on the Y-axis is:

   (a) $(4, 0)$
   (b) $(0, 4)$
   (c) $(1, 4)$
   (d) $(4, 4)$

5. The area of a triangle with vertices $(0, 0), (4, 0)$ and $(0, 3)$ is:

(a) 12 sq. units

(b) 7 sq. units

(c) 6 sq. units

(d) 5 sq. units

6. Which of the following points is nearest to the origin?

   (a) $(0, -2)$

   (b) $(3, 0)$

   (c) $(1, 1)$

   (d) $(-1, 0)$

7. If the coordinates of two points are $A(x, y)$ and $B(y, x)$, and $A = B$, then:

   (a) $x + y = 0$

   (b) $x - y = 0$

   (c) $xy = 0$

   (d) $x/y = 0$

8. On plotting the points $O(0, 0), A(3, 0), B(3, 4)$ and $C(0, 4)$, the figure $OABC$ is a:

   (a) Square

   (b) Rectangle

   (c) Trapezium

   (d) Rhombus

Section B (Very Short Answer Questions)

1. A point lies on the X-axis at a distance of 9 units from the Y-axis. What are its coordinates if it lies on the negative side of the X-axis? (2)

2. Find the coordinates of the point which is the reflection of $(-3, 5)$ in the: (i) X-axis (ii) Origin. (2)

3. Find the coordinates of the mid-point of the line segment joining $(0, 6)$ and $(0, -2)$ without using the distance formula. Justify based on the Y-axis representation. (2)

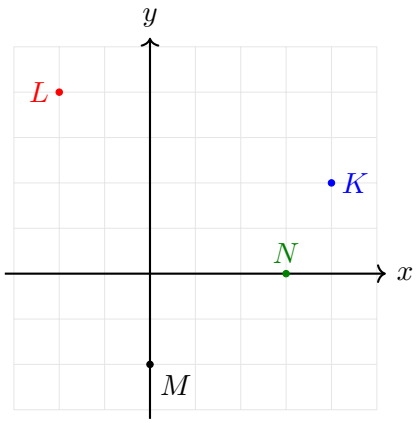
4. Plot the point $M(3, -4)$. From M, draw MP perpendicular to the X-axis and MQ perpendicular to the Y-axis. Write the coordinates of P and Q. (2)

Section C (Short Answer Questions)

1. Plot the points $A(1, 3), B(1, -1)$ and $C(5, -1)$ on the Cartesian plane. Find the coordinates of point D such that $ABCD$ is a square. (3)

2. Write the coordinates of the vertices of an equilateral triangle of side $2a$ such that its base lies on the X-axis and the origin is the mid-point of the base. (3)

3. Study the following diagram and answer the questions:



Identify the abscissa of L, the ordinate of M, and the quadrant/axis of N. (3)

Section D (Long Answer Questions)

1. Points $A(5,3), B(-2,3)$ and $D(5,-4)$ are three vertices of a square $ABCD$. (i) Plot these points on a graph paper. (ii) Find the coordinates of the fourth vertex C. (iii) Find the area of the square $ABCD$ by counting the units on the axes. (5)

2. (i) Plot the points $P(-1,0), Q(2,0)$ and $R(2,3)$. (ii) Join PQ, QR and RP to form a triangle. (iii) Find the coordinates of the image of this triangle if it is reflected in the Y-axis. (Write coordinates of P', Q', R'). (5)

Section E (Case Study Based Question)

Case Study: The Archeological Grid

Archeologists at an excavation site in Lothal have divided the dig site into a grid using a Cartesian Coordinate system to record the exact location of artifacts. The site's primary entrance is designated as the origin $(0,0)$. During the excavation, three significant items were found: an ancient clay seal at $S(2,3)$, a gold ornament at $G(-4,3)$, and a bead necklace at $B(-4,-2)$. The lead archeologist, Dr. Mehta, wants to map these findings to understand the layout of what used to be a craftsman's workshop. To protect the site from rainwater, a rectangular shed must be constructed such that its corners coincide with the positions of the artifacts found, assuming they form the vertices of a geometric boundary. The team must carefully navigate between the quadrants to ensure the grid markers are placed accurately without disturbing the fragile soil.

Based on the above information, answer the following questions:

1. In which quadrant was the bead necklace $B(-4,-2)$ discovered?

   (a) Quadrant I

   (b) Quadrant II

   (c) Quadrant III

   (d) Quadrant IV

2. If a fourth artifact, a stone tool T, is located such that $SGBT$ forms a rectangle, what must be the coordinates of T?

(a) $(2, -2)$

(b) $(-2, 2)$

(c) $(4, 2)$

(d) $(2, 4)$

3. What is the distance between the gold ornament $G(-4, 3)$ and the bead necklace $B(-4, -2)$ measured along the grid line?

   (a) 1 unit

   (b) 5 units

   (c) 6 units

   (d) 4 units

4. The ordinate of the clay seal $S(2, 3)$ is:

   (a) 2

   (b) 3

   (c) 5

   (d) -3

5. If Dr. Mehta moves from the origin 3 units to the left and 2 units up, what artifact is he closest to?

   (a) Clay Seal S

   (b) Gold Ornament G

   (c) Bead Necklace B

   (d) The origin