

ANSWER KEY & MARKING SCHEME · CBSE CLASS 9

Coordinate Geometry

Mathematics · Chapter 3 · Use this with the Board Paper · Companion to Quick Drill

HOW TO USE

Attempt the Board Paper first (closed-book, full time). Then come here. For 2-mark+ questions, compare your answer to the model. For 3-4 mark questions, also consult the **Topper Templates** below — these show the exact step-by-step structure that scores full marks per CBSE marking-scheme conventions.

MODEL ANSWERS · BOARD PAPER
Section A — Very Short Answer

Q1. Write the quadrant in which the point (-2, -7) lies. [1 mark]

| **Ans:** Both coordinates negative — Quadrant III.

Q2. What is the ordinate of every point on the x-axis? [1 mark]

| **Ans:** Zero. Any point on the x-axis has y-coordinate 0.

Q3. Write the coordinates of the origin. [1 mark]

| **Ans:** (0, 0).

Q4. Name the point whose abscissa is 6 and ordinate is 0. [1 mark]

| **Ans:** (6, 0) — lies on the positive x-axis, 6 units to the right of origin.

Section B — Short Answer I

Q5. Write the signs of the coordinates of a point lying in each of the four quadrants. [2 marks]

| **Ans:** Quadrant I: (+, +); Quadrant II: (-, +); Quadrant III: (-, -); Quadrant IV: (+, -).

Q6. Write the mirror image of the point (-3, 4) in (i) the x-axis (ii) the y-axis. [2 marks]

| **Ans:** (i) Reflection in x-axis flips y-sign: (-3, -4). (ii) Reflection in y-axis flips x-sign: (3, 4).

Q7. Find the distance of the point (-5, -3) from (i) the x-axis (ii) the y-axis. [2 marks]

| **Ans:** (i) Distance from x-axis = $|y| = 3$ units. (ii) Distance from y-axis = $|x| = 5$ units.

Section C — Short Answer II

Q8. Plot the points A(2, 3), B(-2, 3), C(-2, -3), D(2, -3) and name the figure ABCD. Justify your answer. [3 marks]

| **Ans:** All four vertices plotted in the four quadrants. AB and CD are horizontal of length 4 units each; BC and AD are vertical of length 6 units each; all angles 90 degrees. Hence ABCD is a rectangle with sides 4 and 6 units.

Q9. Plot the points P(0, 5), Q(5, 0), R(0, -5), S(-5, 0). Name the figure PQRS and find its area in square units. [3 marks]

| **Ans:** All four sides equal: $PQ = \sqrt{25 + 25} = 5\sqrt{2}$; similarly $QR = RS = SP = 5\sqrt{2}$. Diagonals PR and QS are both 10 units along the axes and are equal. Equal sides with equal diagonals at right angles means PQRS is a square. Area = $(\text{diagonal})^2 / 2 = 100/2 = 50$ square units.

Section D — Long Answer

Q10. (a) Define the Cartesian plane, naming all its parts. (b) Plot the points A(3, 2), B(-3, 2), C(-3, -2), D(3, -2) on a graph and name the figure ABCD. (c) Find the length of each side of ABCD. (d) Find the area of ABCD. [5 marks]

| **Ans:** (a) The Cartesian plane is the flat surface formed by two perpendicular number lines: the horizontal x-axis and vertical y-axis, meeting at the origin O(0,0), which divide the plane into four regions called quadrants (I, II, III, IV). (b) A(3,2) in Q-I, B(-3,2) in Q-II, C(-3,-2) in Q-III, D(3,-2) in Q-IV. Joined in order ABCD is a rectangle. (c) $AB = CD = 6$ units (horizontal sides between $x=3$ and $x=-3$); $BC = AD = 4$ units (vertical sides between $y=2$ and $y=-2$). (d) Area = length $\times$ breadth = $6 \times 4 = 24$ square units.

Q11. Write the coordinates of any FOUR points that satisfy ALL of: (i) abscissa is the negative of the ordinate, (ii) the point lies in Quadrant II OR Quadrant IV. Plot these four points and state what kind of figure (line, curve, or scattered points) they form. [4 marks]

Ans: The condition $x = -y$ produces points like (1, -1) in Q-IV, (2, -2) in Q-IV, (-1, 1) in Q-II, (-2, 2) in Q-II. (Any four such points are acceptable.) When plotted, all such points lie on the straight line $y = -x$ passing through the origin at 135 degrees to the positive x-axis. They form a STRAIGHT LINE, not scattered points.

★ TOPPER ANSWER TEMPLATES

4 TEMPLATES · MEMORISE THE FORMAT

MARKING SCHEME — GENERAL NOTES

- Award full marks for correct coordinates with correct sign and order (x, y).
- In plotting questions, half mark for correctly drawn and labelled axes (origin marked, arrows, scale).
- Deduct 1 mark if (x, y) is plotted as (y, x) — order is non-negotiable.
- In figure-naming questions, half mark deducted if the figure is named without measuring side lengths or angles.
- In axis questions, deduct 1 mark if the student writes (0, a) when the answer is (a, 0) or vice versa.
- Reflection questions: half mark for stating the rule (flip sign of x or y), half mark for the final coordinates.
- Arithmetic slips with correct method: deduct half mark, award method marks.
- No marks for a coordinate written without brackets and a comma, e.g. '4 3' instead of '(4, 3)'.