# Coordinate Geometry

Chapter Flowchart

The Chapter Flowcharts give you the gist of the chapter flow in a single glance.

To locate the position of a point in a plane, we require two perpendicular lines. One of them is horizontal, and the other is vertical. The plane is called **the Cartesian, or coordinate plane and the lines are called the coordinate axes.**

The horizontal line is called the x-axis and the vertical line is called the y-axis

The coordinate axes divide the plane into four parts called quadrants.

The point of intersection of the axes is called the origin.
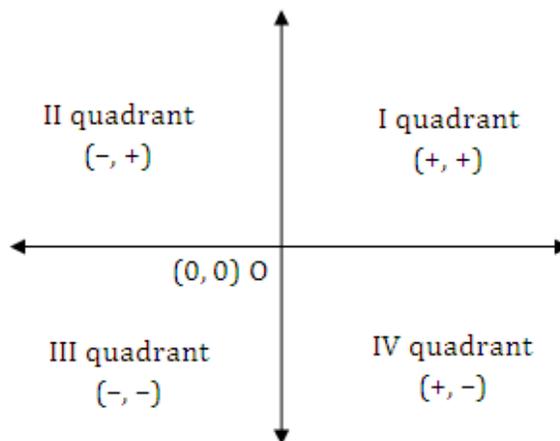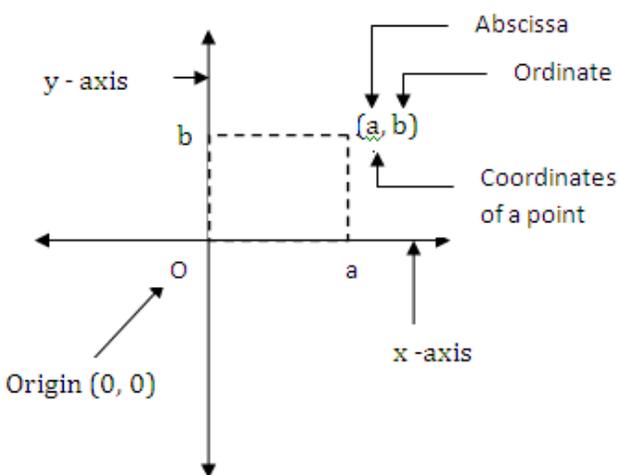
- The x-coordinate of every point on y-axis is zero. So, the coordinates of any point on y-axis are (0, y).
- The y-coordinate of every point on x-axis is zero. So, the coordinates of any point on x-axis are (x, 0).
- An equation of the type y = mx represents a straight line passing through the origin.

Revision Question Bank

1. In which quadrant the point (–7, – 5) lies?

2. See the given figure and write the following

   (i) The coordinate of B.   (ii) The coordinate of C.

   (iii) The point identified by the coordinates (–2,–3)

   (iv) The point identified by the coordinates (3,– 3).

   (v) The abscissa of the point D.   (vi) The ordinate of the point H

   (vii)The coordinate of the point L.   (viii) The coordinate of the point M.

3. Two points with coordinates (4,3) and (4, –2) lie on a line, parallel to which axis?

4. Plot the following points on a graph paper.

   (i) (3,4)   (ii) (– 2,3)   (iii) (–1, 2)   (iv)(5, –1)

   (v)(5,0)   (vi)(– 5,0)   (vii) (0, 5)   (viii)(0,– 8)

5. In which quadrant or on which axes the points (– 4,4), (3,– 9) and (–4,0) lie? verify your answer by locating them in the Cartesian plane.

6. Plot the following points, join them in order and identify the figure, thus formed A(1,3),B(1,–1),C(7, –1) and D(7, 3).

   Write the coordinates of the point of intersection of the diagonals.

7. (i) Plot the points A(0,4), B(– 3,0), C(0, –4) and D(3,0).

   (ii) Name the figure obtained by joining the points A, B, C and D.

   (iii) Also, name the quadrant in which sides AB and AD lie.

8. Plot the points 4(1,4), 6(– 2,D and C(4,1) on the Cartesian plane taking 1 cm = 1 unit of distance. Name the figure obtained on joining the points A,B, and C. if possible, find the area of the figure obtained.

9. (i)Plot each of the point A(–2, 4), B(–2, 3), C(4, –3) and D(4, 4).

   (ii) Draw the segments AB, BC, CD and DA. what is the name of the figure ABCD ?

   (iii) What are the coordinates of the point where the segment AD cuts the Y-axis?

10. Plot the points (x, y) given in the following table on the plane, choosing suitable units of distance on the axes.
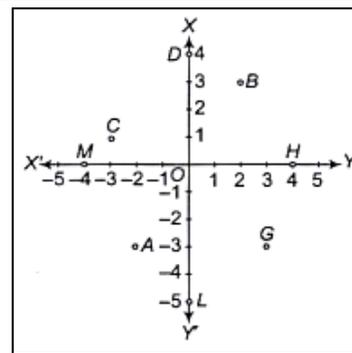
| x	–2	–1	0	1	3
y	8	7	–1.25	3	–1

Answers

1. III Quadrant   **2.** (i) (2, 3) (ii) (–3, 1) (iii) A (iv) G (v) 0 (vi) 0 (vii) (0, –5) (viii) (–4, 0)

3. Y-axis   **5.** II Quadrant, IV Quadrant, x-axis   **6.** (4, 1)

7. (ii) Rhombus   (iii) II Quadrant, I Quadrant   **8.** 10 sq. units

9. (ii) Rectangle   (iii) (0, 4)

Previous Years Question Bank

1. Plot the points A(–4, 0) and (3, 0) on the cartesian plane and hence find: **[CBSE Schools 2016-17]**

    (i) distance of A from origin   (ii) distance of B from origin

    (iii) distance between points A and B.

2. ABCD is rectangle. The co-ordinates of two vertices A and C are (2, 3) and (7, 7). Find the coordinates of the remaining vertices.   **[CBSE Schools 2016-17]**

3. Find the coordinates of the point P(a, b) whose ordinate is twice as much as abscissa and sum of the coordinates is – 12.   **[CBSE Schools 2016-17]**

4. Which of the points A(2, 2), B(2, 0), C(0, 2), D(0, 0), E(–2, 0), F(0, – 2), G(4, 0) and H(0, 7) lie on the

    (i) x-axis?   (ii) y-axis?   **[CBSE Schools 2016-17]**

5. Plot three points P(9, 9), Q(9, – 1) and R(–3, – 1) on the graph paper. Now, plot point S so that PQRS is a rectangle. Draw its diagonals. Write the coordinates of point of intersection of diagonals.

    [CBSE Schools 2016-17]

6. Find the reflection of the points (3, 6) in x-axis.   **[CBSE Schools 2016-17]**

7. Plot the points A (1, 3), B (–3, 4), C (– 5,–2) and D(0, –4) on a graph paper.   **[CBSE Schools 2016-17]**

8. Plot the points P(1, 5), Q(1, 1) and R(5, 1) on a graph paper. Now, plot point S so that PQRS is square. Write the coordinate of point of intersection of diagonals.   **[CBSE Schools 2016-17]**

9. Are the points (0, 5) and (5, 0) same? Give reason for your answer.   **[CBSE Schools 2016-17]**

10. Three vertices of rectangle are (3, 2), (–4, 2) and (–4, 5). Plot these points and find the coordinates of the fourth vertex.   **[CBSE Schools 2016-17]**

11. Plot three points X, Y and Z which have same ordinate –4 and lie in III and IV quadrants and on y-axis respectively. Also, plot mirror image of Y in x-axis.   **[CBSE Schools 2015,16]**

12. In the given figure, complete the rectangle OABC and write coordinates of its vertices.

    [CBSE Schools 2015–16]
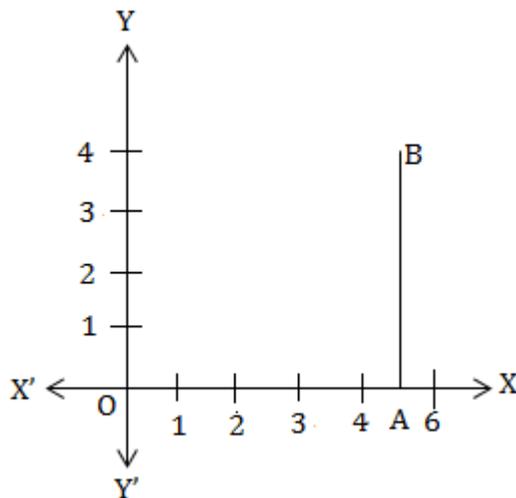
13. Write the shape of the quadrilateral formed by joining the points:

A(1, 1), B(6, 1), C(4, 5), D(3,5), on graph paper.   **[CBSE Schools 2015,16]**

14. (i) What is the perpendicular distance of point (3, 6) from the y-axis?   **[CBSE Schools 2014–15]**

(ii) What are the coordinates of the origin?

15. What will be the co-ordinates of the point which lies on y-axis at a distance of 4 units in negative

direction of x-axis.   **[CBSE Schools 2014–15]**

16. Name the quadrants in which the following points lie?   **[CBSE Schools 2014–15]**

(–5, –4), (1, –3), (–6, 5) and (3, 2).

17. Locate the points A(1, 4) B(2, –2), C(–3, –4) D(–1, 2), E(–4, 0) and F(3, 6) on the graph paper which

three points are in straight line?   **[CBSE Schools 2014–15]**

18. If the perpendicular distance of a point P from the x-axis is 5 units and the foot of the perpendicular lies

on the negative direction of x-axis, then write the ordinate(s) of point P.   **[CBSE Schools 2014–15]**

19. In the given fig., find the co-ordinate of A and B.   **[CBSE Schools 2014–15]**
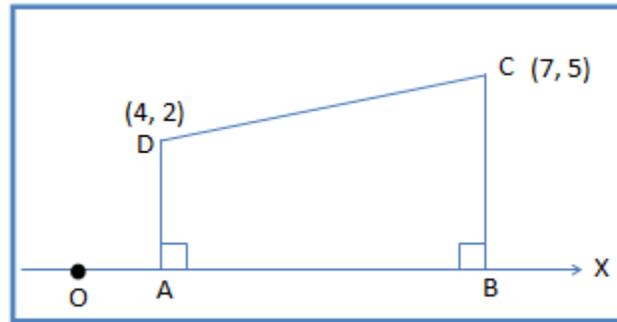
20. Plot the points P (1, 0), Q (4, 0) and S (1, 3) on a Cartesian plane. Find the co-ordinates of the point R such

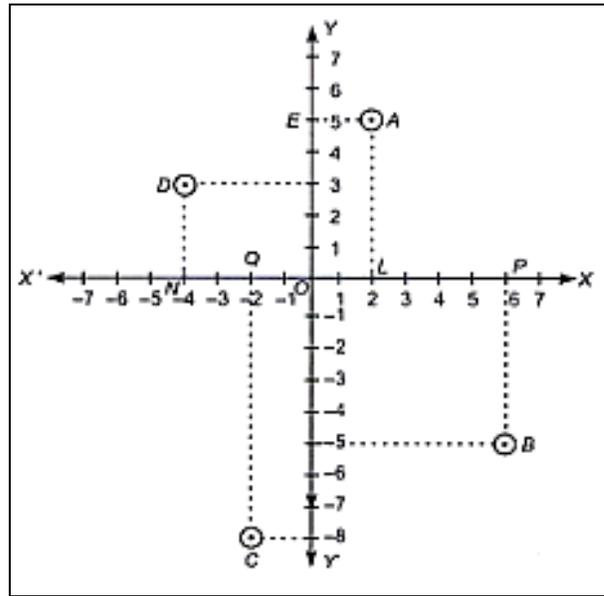that PQRS is a square.   **[CBSE Schools 2014–15]**

Chapter Test

Maximum Marks: 30   **Maximum Time: 1 hour**

1.   On which axes to the given points lie ?

(i) (6, 0)   (ii) (0, – 6)   (iii) (–7, 0)   (iv) (0, 5)   **[2]**

2.   Write down the coordinates of the points A, B, C, D and E as shown in the following figure.   **[2]**

3.   Match the columns   **[2]**

S. No.	Column I	Column II
(i) (ii) (iii) (iv)	(–2, –5) lies in Any horizontal line which is parallel to X-axis is given by The point (4, 0) lies on XOY' represents	(a) y = b (a constant) (b) X-axis (c) III quadrant (d) IV quadrant

4.   In which quadrant do the given points lie?

(i) (4,–2)   (ii) (–3, 7)   (iii) (–1.–2)   (iv) (3, 6)   **[2]**

5.   Four friends, Rajiv, Tarun, Ankur and Deepak and standing at the points A, B, C and D reference to a well

situated at the origin (0, 0) with the following respective coordinates (1, 2), (–1, 2),

(–1, –2) and (1, –2).

(ii) Plot these points on a single sheet of graph paper.

(ii) Are they at equal distance from the well?   **[3]**

6. If three vertices of a rectangle ABCD are A(2,2), B(– 3,2) and C(– 3,5). Plot these points on a graph paper and find the coordinates of D. Also, find the area of rectangle ABCD. Choose the correct value

(i) Honesty   (ii) Equality   (iii) Truthfulness   (iv) Sincerity   **[3]**

7. From a corner of a wheat growing field, Archith moves 6 steps towards North and 8 steps towards East and reaches diagonally heading corner of the plot. From the same point, Ujjwal moves 8 steps towards East and 6 steps towards North and reaches the same point. A third person, Gaurav moves straight way towards the point, where the two persons meet together, (i) Has the third person travelled less distance? (ii) Can you find the distance covered by the third person? (iii) Write the value depicted by the question.

[3]

8. Find some ordered pairs (x, y) such that x + 2y = 5 and plot them. How many such ordered pairs can be found and plotted? **[3]**

Answers

1. (i) x-axis   (ii) negative y-axis   (iii) negative x-axis   (iv) y-axis

2. A(2, 5), B(6, –5), C(-2, –8), D(–4, 3).   **3.** (i) (c) (ii) (a) (iii) (b) (iv) (d)

4. (i) IV quadrant (ii) II quadrant (iii) III quadrant (iv) I quadrant

5. (ii) yes   **6.** D (2, 5), Truthfulness

7. (i) yes (ii) yes (iii) Highlighting need of higher agricultural production

8. Infinite number of ordered pairs.

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