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COORDINATE GEOMETRY

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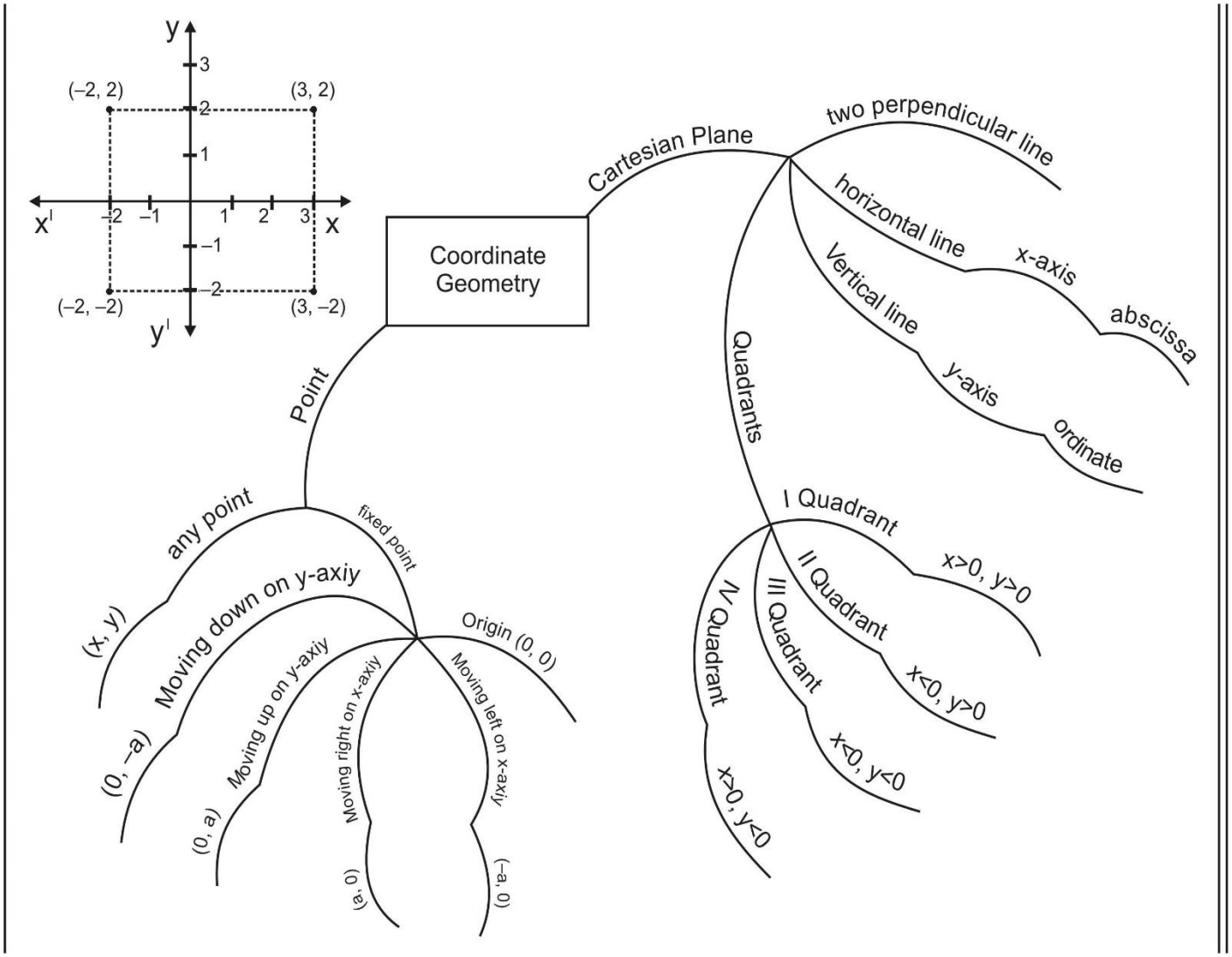
COORDINATE GEOMETRY

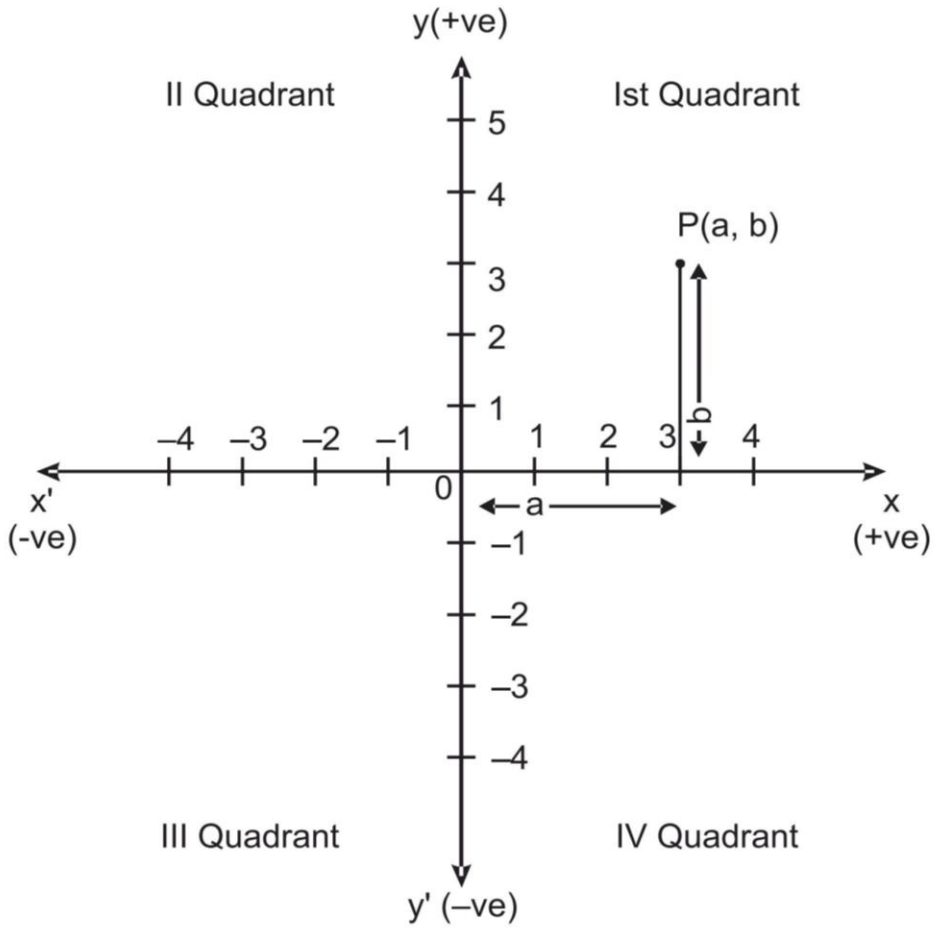
Practice Set



COORDINATE GEOMETRY

KEY POINTS

- **Coordinate Axes** : The position of a point in a plane is determined with reference to two fixed mutually perpendicular lines, called coordinate axes.



The horizontal line xox' is called x-axis.

The vertical line yoy' is called y-axis.

The intersection point of these two lines is called origin. It is represented by O.

- **Coordinates** : Location of a point P in cartesian system, written in the form of ordered pair say P(a, b) as shown in figure above.

a is the length of perpendicular of P (a, b) from y-axis and is called abscissa of P.

COORDINATE GEOMETRY

- b is the length of perpendicular of P (a, b) from x-axis and is called ordinate of P.
- Location of a point P(a, b) on graph with sign convention –

  where a and b are such that –

	Value of Point	Sign of Point	Location of Point
i)	$a = 0, b = 0$	–	origin
ii)	$a > 0, b > 0$	(+, +)	Ist Quadrant
iii)	$a < 0, b > 0$	(–, +)	IInd Quadrant
iv)	$a < 0, b < 0$	(–, –)	IIIrd Quadrant
v)	$a > 0, b < 0$	(+, –)	IVth Quadrant

  Note: If a point lie on x-axis or y-axis it does not lie in any quadrant.
- Coordinates of a point on x-axis are of the form (x, 0)
- Coordinates of a point on y-axis are of the form (0, y)

PART (A)

1. The abscissa of a point is the distance of the point from

   a) x-axis b) y-axis

   c) origin d) None of these

2. The y-coordinate of a point is the distance of that point from

   a) x-axis b) y-axis

   c) origin d) None of these

3. If both the coordinates of a point are negative then that point will lie in

   a) First quadrant b) Second quadrant

   c) Third quadrant d) Fourth quadrant

4. If abscissa of a point is zero then that point will lie

   a) on x-axis b) on y-axis

   c) at origin d) in Ist quadrant

5. If $x>0$ and $y<0$, then the point $(x, -y)$ lies in _____.

   a) I quadrant b) II quadrant

   c) III quadrant d) IV quadrant

6. Point (a, o) lies

   a) on x-axis b) on y-axis

   c) in third quadrant d) in fourth quadrant

7. Signs of abscissa and ordinate of a point in the fourth quadrant are respectively.

   a) +, + b) –, –

   c) –, + d) +, –

8. Ordinate of a point is positive is

   a) I and IV quadrants b) I quadrant only

   b) I and II quadrants d) I and III quadrants

9. The point which lies on y-axis at a distance of 10 units in the negative direction of y–axis is

   a) (10, 0) b) (0, 10)

   c) (–10, 0) d) (0, –10)

10. The point whose abscissa and ordinate have different signs will lie in

a) I and II quadrants b) I and III quadrants

b) II and III quadrants d) II and IV quadrant

11. Which of the point P(0, 3), Q(1, 0), R(0, –1), S(–5, 0), T(1, 2) do not lie one x-axis ?

a) P and R only b) Q and S only

c) P, R and T d) Q, S and T

12. If the coordinates of the 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

13. Point (1, 1), (1, –1), (–1, 1), (– 1, –1)

a) lie in I quadrant b) lie in III quadrant

c) lie in I and III quadrants d) do not lie in the same quadrant

14. The point of intersection of the coordinate axes is

a) Abscissa b) Ordinate

c) Quadrant d) Origin

15. The abscissa and ordinate of the origin are

a) 1, 0 b) 1, 1

c) 0, 1 d) 0, 0

16. The measure of the angle between the coordinate axes is

a) 0° d) 90°

c) 180° d) 270°

17. The perpendicular distance of the point p(– 4, –3) from *x-axis* is

a) – 4 b) – 3

c) 4 d) 3

18. The perpendicular distance of the point p(–7, 2) from *y-axis* is

a) – 7 b) 7

c) 2 d) None of these

19. The distance of the point p(3, 4) from the origin is

a) 3 b) 4

c) 7 d) 5

20. Which of the points A(–5, 0), B(0, –3), C(3, 0), D(0, 4) are closer to the origin ?

a) A b) B

c) D d) Points B and C both

Fill in the blanks:–

21. The coordinate axes divide the plane info four parts which are called _____ .

22. If the coordinates of a point are (–2, 5), then its ordinate is _____ and its abscissa is _____ .

23. The point (200, –111) lies in the _____ quadrant.

24. The abscissa of any point on the y-axis is _____ .

25. The ordinate of any point on the x-axis is _____ .

26. The points (0,0), (0,4), and (4,0) form a/an _____ triangle.

27. If (x, y) represents a point and $xy>0$, then the point may lie in _____ or _____ quadrant.

28. The points with coordinates (3, –1) and (–1, 3) are at _____ (same/different) positions of the coordinate plane.

29. If the ordinate of point is 7 and abscissa is –5, then its coordinates are _____ .

30. The point whose abscissa is 5 and which lie on *x-axis* is _____.

State which of the statements are true & which are false.

31. x-coordinate of a point is its distance from the *x*-axis.

32. The co-ordinates of a point describe the point in the place uniquely.

33. The points with coordinates (3,4) and (4,3) are at same position of the plane.

34. Y-coordinate of a point is also called abscissa.

35. The coordinates of a points, which lies on negative x-axis at a distance of 6 units from y-axis, are (–6, 0).

36. In which quadrant do the given points lie.

i) (3, –2) ii) (17, –30) iii) (–2, 5)

iv) (–50, –20) v) (10, 100) iv) (–81, 80)

37. On which axis do the given points lie :

i) (11, 0) ii) (–11, 0) ii) (0, 14)

iv) (0, –100)

38. The abscissa and ordinate of a point A are –3 and –5 respectively then write down the coordinate of A.

39. Is P(7, 0) and Q (0, 7) represent the same point ?

40. In which quadrant x coordinate is negative ?

41. Name the figure formed when we plot the points (0, 0), (4, 4) and (0, 4) on a graph paper.

42. In which quadrant, does the point A (x, y) with values $x>0$ and $y>0$ exists.

43. Write the coordinates os the fourth vertex of a square when three of its vertices are given by (1, 2) (5, 2) (5, –2).

44. If abscissa of point A is positive & ordinate is negative then in which quadrant do A lie ?

45. Write the coordinates of a point whose perpendicular distance from x-axis is 5 units & perpendicular distance from y-axis is 3 & it lies in II quadrant.

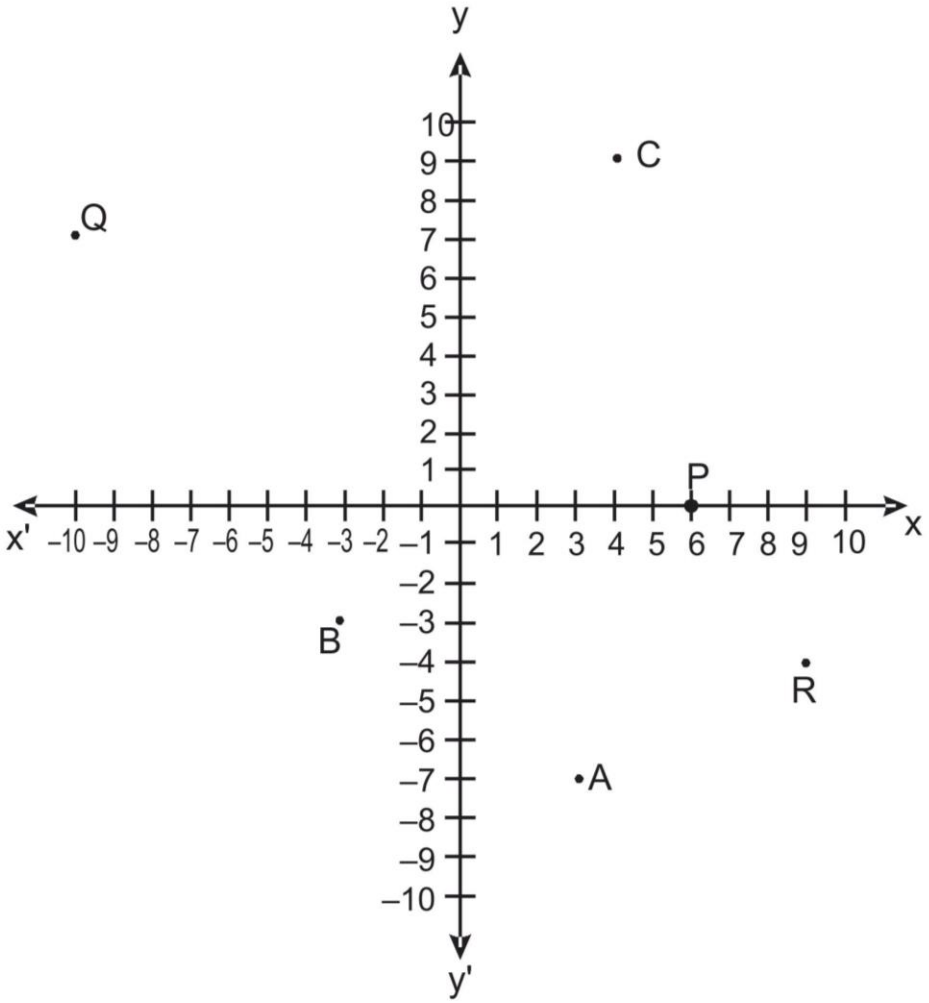
46. Draw the Cartesian plane on a graph paper and plot the given points.

i) A (3, 5) ii) B(–7/2, 0) ii) C(2,–6)

iii) D(–6, –4) v) E(0, –5/2) vi) F(8, 0)

47. Write the coordinates of each of points in the given figure.

A, B, C, P, Q, R



48. Point P (4, 3) is in the first quadrant. Find the coordinate of the point Q, opposite to P in fourth quadrant.

49. Find the distance of point (8, 3) from x axis & y axis.

50. Write the name of the figure formed by joining the points A (–3, 0), B (0, 3) and C (3, 0) in the cartesian plane.

51. Write the coordinates of the point that lies on y-axis and is at a distance of 2 units in upward direction.

52. If the mirror image of a point (x, y) about x-axis is (x, –y) then write the mirror image of the point S (–5, 7) about x-axis is _____.

53. Find the distance of the point P (4, 2) from origin.

54. Write the mirror image of (4, –3) about y-axis.

PART – C

55. Draw a line segment on a graph paper whose end points lies in first quadrant and third quadrant. Write the coordinates of its end points and mid point of line segment.

56. Plot the points A (2, 4) & B (2, –5) whose x-coordinates are same. Is this line AB parallel to any of the axes. If yes, to which axis is it parallel?

57. Plot the points P (2, –3) & Q (–5, –3) whose ordinates are same. To which axis the line P Q is parallel?

58. Plot the points A (7, 6) & B (7, –6) on graph paper. Join them & answer the following :

(i) Write the coordinate of the point where line AB cuts the x-axis?

(ii) To which axis, line AB is parallel ?

59. Draw a triangle ABC on graph paper having the coordinates of its vertices as A (–2, 0), B (4, 0) and C (1, 5). Also find the area of triangle.

60. If we plot the points P(5, 0), Q (5, 5), R(–5, 5) and S (–5, 0), which figure will we get? Name the axis of symmetry of this figure?

61. Find the coordinates of a point which is equidistant from the two points (–4, 0) and (4, 0). How many of such points are possible satisfying the condition?

62. Draw a quadrilateral with vertices A (4, 3), B(–4, 3), C(–4, –3) and D(4, –3). Draw its diagonals and write the coordinates of the point where the diagonals cut each other?

63 A rectangular field is of length 10 units & breadth 8 units. One of its vertex lie on the origin. The longer side is along x-axis and one of its vertices lie in first quadrant. Find all the vertices.

64. Plot the point B (5, 3), E(5, 1), S(0, 1) and T(0, 3) and answer the following :

i) Join the points and name the figure obtained.

ii) Find the area of figure.

ANSWERS

1. b) y-axis
2. a) x-axis
3. c) third quadrant
4. b) on y-axis
5. a) I quadrant
6. a) on x-axis
7. d) +, –
8. c) I and II quadrants
9. d) (0, –10)
10. d) II and IV quadrants
11. c) P, R and T
12. b) 1
13. d) do not lie in the same quadrant
14. d) Origin
15. d) (0, 0)
16. b) 90°
17. d) 3
18. b) 7
19. d) 5
20. d) Points B and C both
21. quadrants
22. 5, –2
23. IV
24. 0
25. 0
26. right angled isosceles
27. I, III
28. different
29. (–5, 7)
30. (5, 0)
31. False
32. True
33. False
34. False
35. True
36. i) IV quadrant
    ii) IV quadrant
    iii) II quadrant
    vi) III quadrant
    v) I quadrant
    vi) II quadrant
37. i) x-axis
    ii) x-axis
    iii) y-axis
    ii) y-axis
38. (–3, –5)
39. No
40. II and III quadrant
41. Right angled Triangle

42. Ist Quadrant

43. (1, –2)

44. IV

45. (–3, 5)

47. A(3, –7), B(–3, –3)
C(4, 9), P(6, 0)
Q(–10, 7), R(9, –4)

48. (4, –3)

49. 3 units, 8 units

50. Triangle or isosceles Triangles

51. (0, 2)

52. (–5, –7)

53. $\sqrt{20}$ units

54. (–4, –3)

56. Yes, y-axis

57. x-axis

58. i) (7, 0)
ii) Parallel to y-axis

59. 15 square units

60. Rectangle, y-axis

61. Any point on y-axis, infinite

62. At origin (0, 0)

63. (0, 0), (10, 0), (10, 8), (0, 8)

64. i) Rectangle
ii) 10 sq. units