



## MATHEMATICS CLASS IX

### CHAPTER – 6 COORDINATE GEOMETRY

Q.1. In which quadrant or on which axis do each of the points  $(-2,4)$ ,  $(3,-1)$ ,  $(-1,0)$ ,  $(1,2)$  and  $(-3,-5)$  lie? Verify your answer by locating them on the Cartesian plane.

Q.2. 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	-125	3	-1

Q.3. Plot the points  $P(1,0)$ ,  $Q(4,0)$  and  $S(1,3)$ , Find the coordinates of the points R such that PQRS is a square

Q.4. Plot the points  $(3,2)$ ,  $(-2,2)$ ,  $(-2,-2)$  and  $(3,-4)$  in the Cartesian plane. Join these points in order and name the figure so formed.

Q.5 In which quadrants do the given points lie?

(i)  $(4,-2)$  (ii)  $(-3,7)$

(iii)  $(-1,-2)$  (iv)  $(3,6)$

Q.5. Two points with coordinates  $(3,4)$  and  $(-5,4)$  lie on a line, parallel to which axis? Justify your answer.

Q.6. Two points with coordinates  $(4,3)$  and  $(4,-2)$  lie on a line, parallel to which axis?



Q.7. In which quadrant will the points lie, if

(i) the ordinate is 8 and the abscissa is -4?

(ii) the abscissa is -6 and the ordinate is -3?

(iii) the ordinate is 4 and the abscissa is 5?

(iv) the ordinate is 4 and the abscissa is -4?

Q.8. Name the quadrant in which the graph of point P(x,y) lies when

(i)  $x > 0$  and  $y > 0$ ,           (ii)  $x < 0$  and  $y < 0$ .

Q.9. Write the coordinates of the vertices of rectangle whose length and breadth are 7 and 4 units respectively, one vertex at the origin, the longer side lies on the X-axis and one of the vertices lies in the X-axis and one of the vertices lies in the III quadrant.

Q.10. In which quadrant or on which axis does each of the following points lie?

(-4,2), (3,-2), (4,0), (3,3) and (-4,-5)

Q.11. Draw the quadrilateral with vertices (-4,4), (-6,0), (-4,-4) and (-2,0). Name the type of quadrilateral and find its area.

Q.12. Find the coordinates of the vertices of a rectangle placed in III quadrant, in the Cartesian plane with length p units on X-axis and breadth q units on Y-axis.

Q.13. Plot the points (i) (-6,-2) (ii) (-4,0) (iii)  $\left(-\frac{5}{2}, \frac{1}{2}\right)$  in a rectangular coordinate system and write the quadrant of each point.

Q.14. Find the coordinates of the point,

(i) which lies on X and Y-axis both?

(ii) whose ordinate is -4 and which lies on Y-axis?



(iii) whose abscissa is 5 and which lies on X-axis?

Q.15. 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.

Q.16. A city has two main roads meeting at the centre of the city. These two roads are along the North-South direction and East-west direction. All other streets of the city run parallel to main road and are 200 m apart. There are about four streets in each direction.

There are many cross-street in your model. A particular cross-street is made by two streets. One running in the North-South and another in the East-West direction. Each cross-street is referred in the following manner. If the 2<sup>nd</sup> street running in the North-South direction and 3<sup>rd</sup> in the East-West direction meet at some crossing.

Answer the following questions.

- (i) Frame the above problem on a graph paper.
- (ii) Which mathematical concept is used to solve the above problem?
- (iii) How many cross-streets can be referred to as (3,4)?
- (iv) How many cross-streets can be referred to as (4,2)?



**Q.17.** To raise the fund for cancer patient, a charity race was organised on rectangular shaped school ground ABCD, lines have been drawn with chalk powder at a distance of 1 m each.

100 flower pots have been placed at a distance of 1m from each other along AD.

Niharika runs  $\frac{1}{4}$  of the distance AD on the second line and posts a green flag.

Preeti runs  $\frac{1}{5}$  of the distance AD on the 8<sup>th</sup> line and posts a red flag.

- (i) Draw above problem on graph paper.
- (ii) Write the coordinates of both the flags.
- (iii) What values are exhibited by organising such events?

**Q.16.** Three students were made to stand on the points P,Q and S with coordinates (1,1), (6,1) and (1,6) respectively, in a playground to play a game.

- (i) Find the coordinates of the fourth point R so that PQRS forms a square.
- (ii) Which type of value is indicated from the questions?

**Q.17.** Four friends A,B,C and D are standing in reference to a well situated at the origin (0,0) with the following respective coordinates (2,4), (-2,4), (-2,-4) and (2,-4).

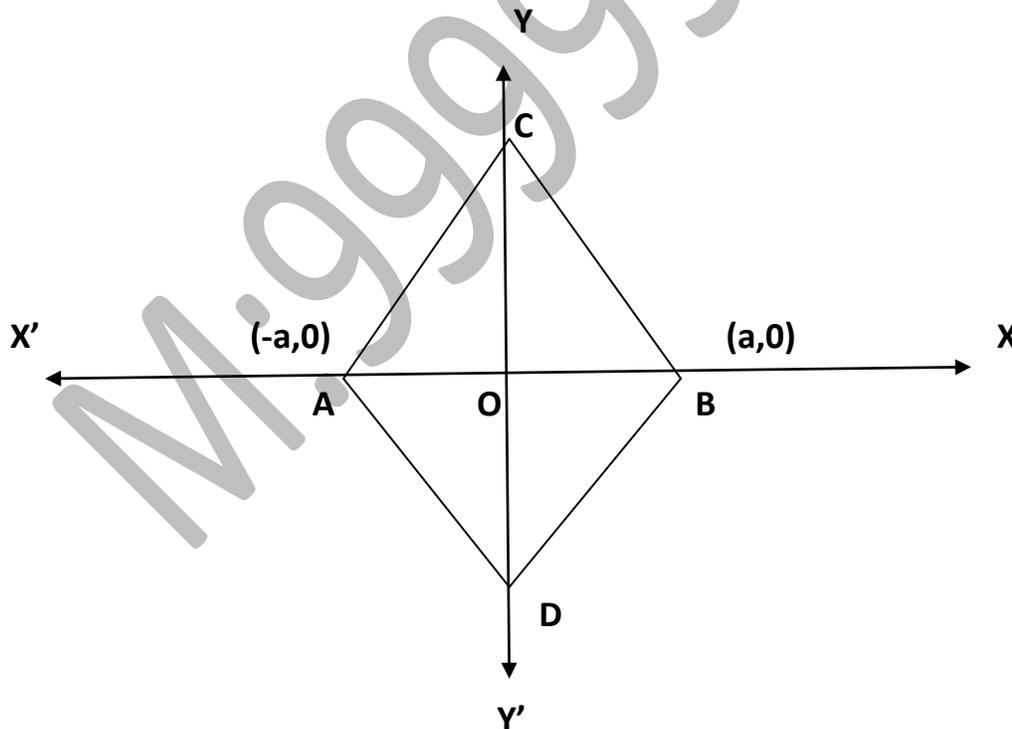
- (i) Plot these points on a single sheet of graph paper.
- (ii) Are they at equal distances from the well?
- (iii) What value is indicated from this question?



Q.18. From a corner of a wheat growing field, Archit 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.

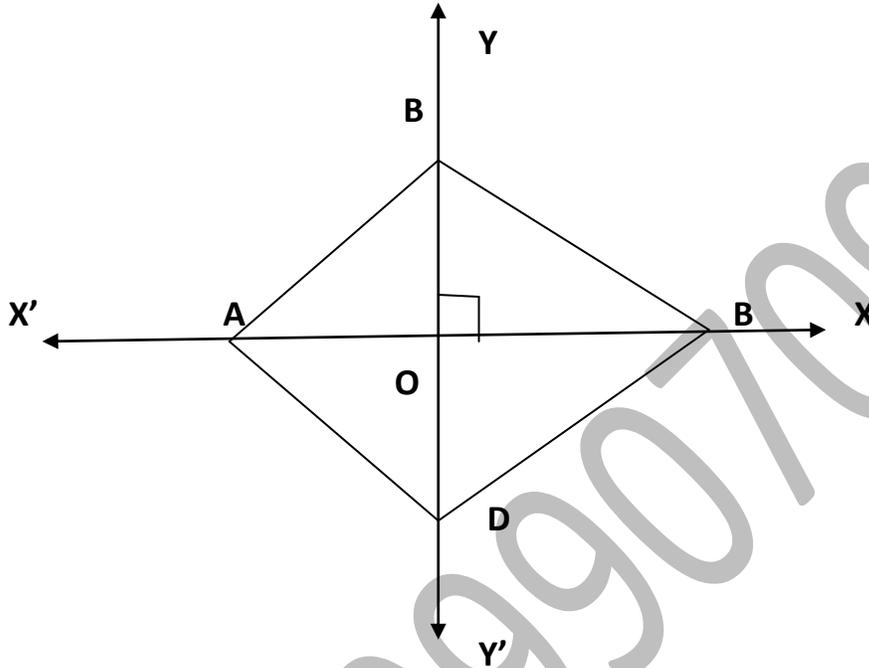
- (i) Has the third person travelled less distance?
- (ii) Can you find the distance covered by the third person?
- (iii) Write the value depicted by the question.

Q.19. In the given figure,  $\triangle ABC$  and  $\triangle ABD$  are equilateral triangles. Find the coordinates of point C and D.





Q.20. In the given figure, ABCD is a rhombus with diagonal AC = 16 cm and BD = 8 cm. Find the coordinates of A, B, C and D.



Q.21. Plot the following points. Join them in order and identify the figure PQRS, thus obtained P(1,1), Q(4,2), R(4,8) and S(1,10). Write mirror images of point P in X-axis and Y-axis.

Q.22. Mark the points (2,2), (2,-2), (-2,-2) and (-2,2) on a graph paper and join these points. Name the figure that you obtain. Also, find the area of the figure so obtained.

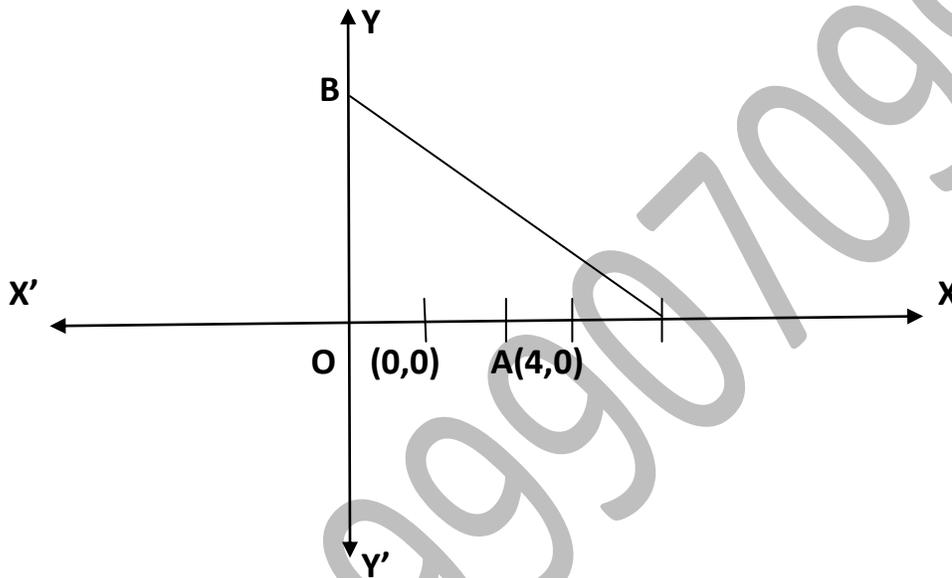
Q.23. Mark the points (0,2), (3,0), (-3,0) and (0,-2) on a graph. Join these points. Name the figure obtained and find the area of the figure so obtained.

Q.24. Plot and write the coordinates of the vertices of a rectangle, whose length and breadth are 6 and 5 units respectively, one vertex is at the origin, the longer



side lies on the X-axis and one of the vertices lies in the first quadrant. Also, find its area.

Q.25. In the figure given below,  $\triangle AOB$  with coordinate of A and O as  $(4,0)$  and  $(0,0)$ . If  $AB = 5$  units, then find the coordinates of B.



Q.26. The following table gives the number of pairs of shoes and their corresponding price. Plot these as ordered pairs and join them. What type of graph do you get?

Number of pairs of shoes	1	2	3	4	5	6
Corresponding price (in hundred of rupees)	5	10	15	20	25	30



Q.27. Plot the points A (1,3), B(1,-1), C(7, -1) and D(7, 3) in cartesian plane. Join them in order and name the figure so formed.

Q.28. (i) Plot the points M(5,-3) and N(-3,-3).

(ii) what is the length of MN?

(iii) Find the coordinates of point A,B and C lying on MN, such that MA = AB = BC= CN.

Q.29. Plot the points A (-3,-3), B(3,-3), C(3,3) and D(-3,3) in the Cartesian plane. Also, find the length of line segment AB.

Q.30. Plot the points P(-1,-1), Q(2,3) and R(8,11). Show that they are collinear.

Q.31.(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 quadrants in which sides AB and AD lie.

Q.32. A point lie on X-axis at a distance of 9 units from Y-axis. What are its coordinates? What will be its coordinates, if it lies on Y – axis at a distance of -9 units from X-axis?

Q.33. The perpendicular distance of a point from the X-axis is 2 units and the perpendicular distance from the Y-axis is 3 units. Write the coordinates of the point, in which these quadrant lies.

Q.34. Draw a quadrilateral whose vertices are (3,2), (2,3), (-4,5) and (5, -3).

Q.35. If P(0,-5), Q(3,0), R(0,7) and S(5,-2) are plotted on the graph paper, then find the point(s) on the Y-axis.



Q.36. Find the coordinates of four points lying on the coordinate axes at a distance of 5 units from the origin.

Q.37. Find the abscissa and ordinate at the origin.

Q.38. Find the measure of angle between the coordinate axes.

Q.39. Are there any points which do not lie in any of the quadrants? If yes, where do they lie?

Q.40. In which quadrant or on which axis do each of the points  $(-2,4)$ ,  $(3,-1)$ ,  $(-1,0)$ ,  $(1,2)$  and  $(-3,-5)$  lie? Verify your answer by locating them on the Cartesian plane.

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