EXERCISE 3.1

1. How will you describe the position of a table lamp on your study table to another person?
2. **(Street Plan) :** A city has two main roads which cross each other at the centre of the city. These two roads are along the North-South direction and East-West direction.

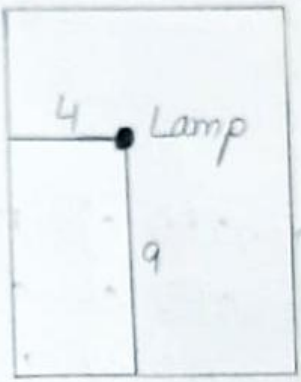
CHAPTER - 3 (co-ordinate Geometry)

Exercise - 3.1

Question 1.

Answer :—

The table lamp is 9 units away from the sitting place and 4 units away from the left side. Hence, its co-ordinates are (4,9)

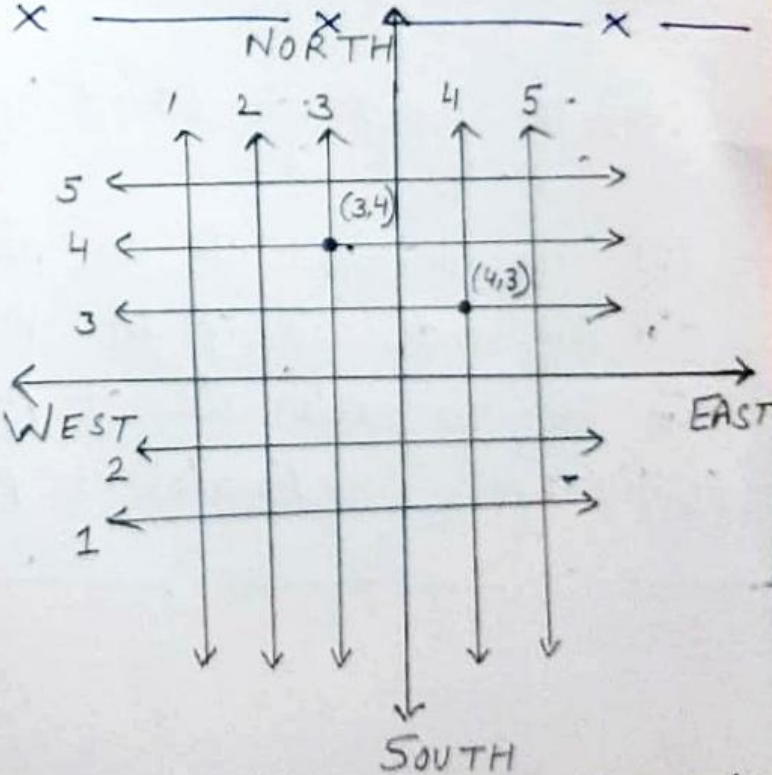


Question - 2.

Answer :—

(i) One one cross-street referred to as (4,3)

(iii) Only one cross street referred to as (3,4)



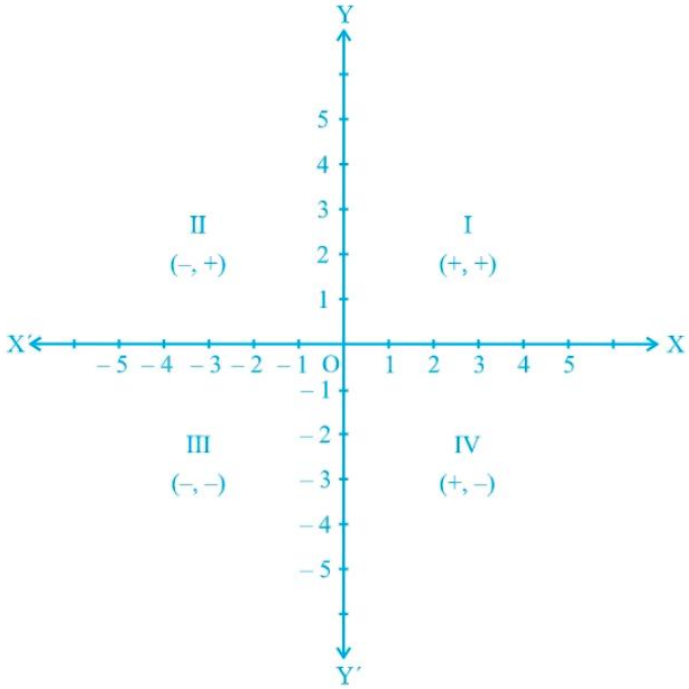


Fig. 3.13

Remark : The system we have discussed above for describing a point in a plane is only a convention, which is accepted all over the world. The system could also have been, for example, the ordinate first, and the abscissa second. However, the whole world sticks to the system we have described to avoid any confusion.

EXERCISE 3.2

1. Write the answer of each of the following questions:

(i) What is the name of horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane?

(ii) What is the name of each part of the plane formed by these two lines?

(iii) Write the name of the point where these two lines intersect.

2. See Fig.3.14, and write the following:

(i) The coordinates of B.

(ii) The coordinates of C.

(iii) The point identified by the coordinates (–3, –5).

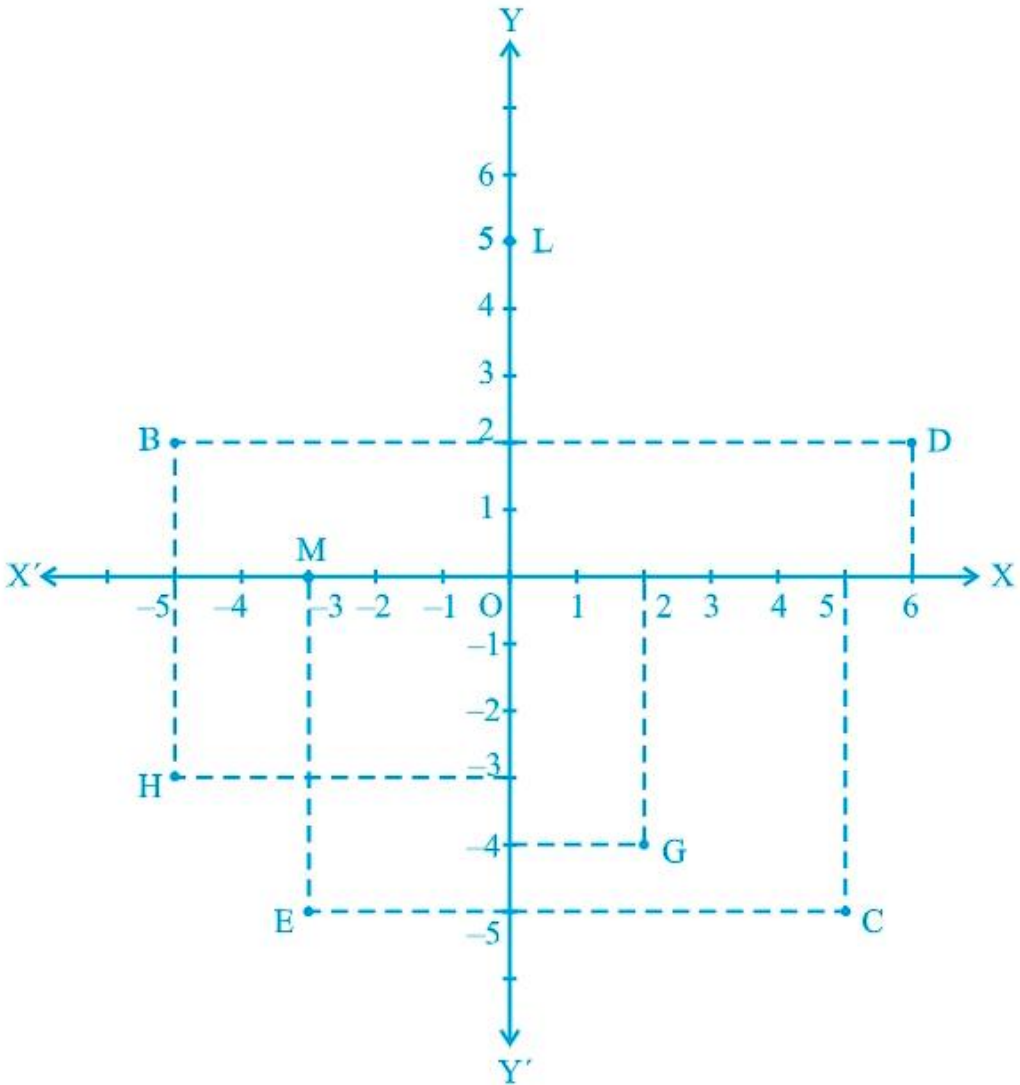
(iv) The point identified by the coordinates (2, – 4).

(v) The abscissa of the point D.

(vi) The ordinate of the point H.

(vii) The coordinates of the point L.

(viii) The coordinates of the point M.



Exercise - 3.2

Question 1 :—

Answer :—

(i) x-axis and y-axis

(ii) Quadrant

(iii) Origin

Question 2 :—

Answer :—

(i) The co-ordinates of B = (-5, 2)

(ii) The co-ordinates of C = (5, -5)

(iii) The point identified by the co-ordinates (-3, -5) = E

(iv) The point identified by the co-ordinates (2, -4) = G

(v) The abscissa of the point D = 6

(vi) The ordinate of the point H = -3

(vii) The co-ordinate of point L = (0, 5)

(viii) The co-ordinates of point M = (-3, 0)

EXERCISE 3.3

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.
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	-1.25	3	-1

3.4 Summary

In this chapter, you have studied the following points :

1. To locate the position of an object or a point in a plane, we require two perpendicular lines. One of them is horizontal, and the other is vertical.
2. The plane is called the Cartesian, or coordinate plane and the lines are called the coordinate axes.
3. The horizontal line is called the x -axis, and the vertical line is called the y - axis.
4. The coordinate axes divide the plane into four parts called quadrants.
5. The point of intersection of the axes is called the origin.
6. The distance of a point from the y - axis is called its x-coordinate, or abscissa, and the distance of the point from the x-axis is called its y-coordinate, or ordinate.
7. If the abscissa of a point is x and the ordinate is y, then (x, y) are called the coordinates of the point.
8. The coordinates of a point on the x-axis are of the form $(x, 0)$ and that of the point on the y-axis are $(0, y)$.
9. The coordinates of the origin are $(0, 0)$.
10. The coordinates of a point are of the form $(+, +)$ in the first quadrant, $(-, +)$ in the second quadrant, $(-, -)$ in the third quadrant and $(+, -)$ in the fourth quadrant, where + denotes a positive real number and – denotes a negative real number.
11. If $x \neq y$, then $(x, y) \neq (y, x)$, and $(x, y) = (y, x)$, if $x = y$.

Exercise 3.3

Question 1 :—

Answer :—

(i) $(-2,4)$: Second Quadrant

(ii) $(3,-1)$: Fourth Quadrant

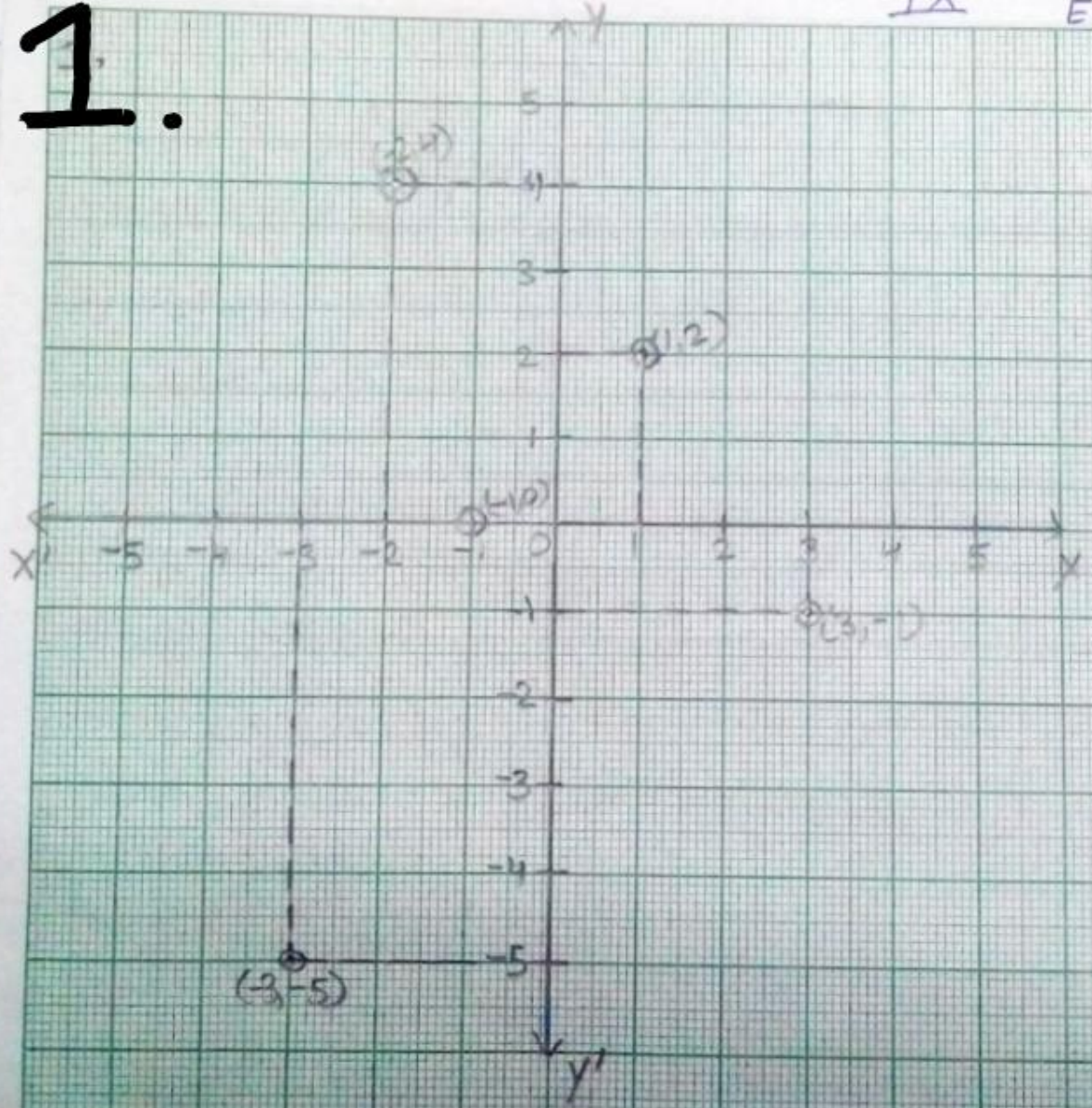
(iii) $(-1,0)$: x-axis

(iv) $(1,2)$: First quadrant

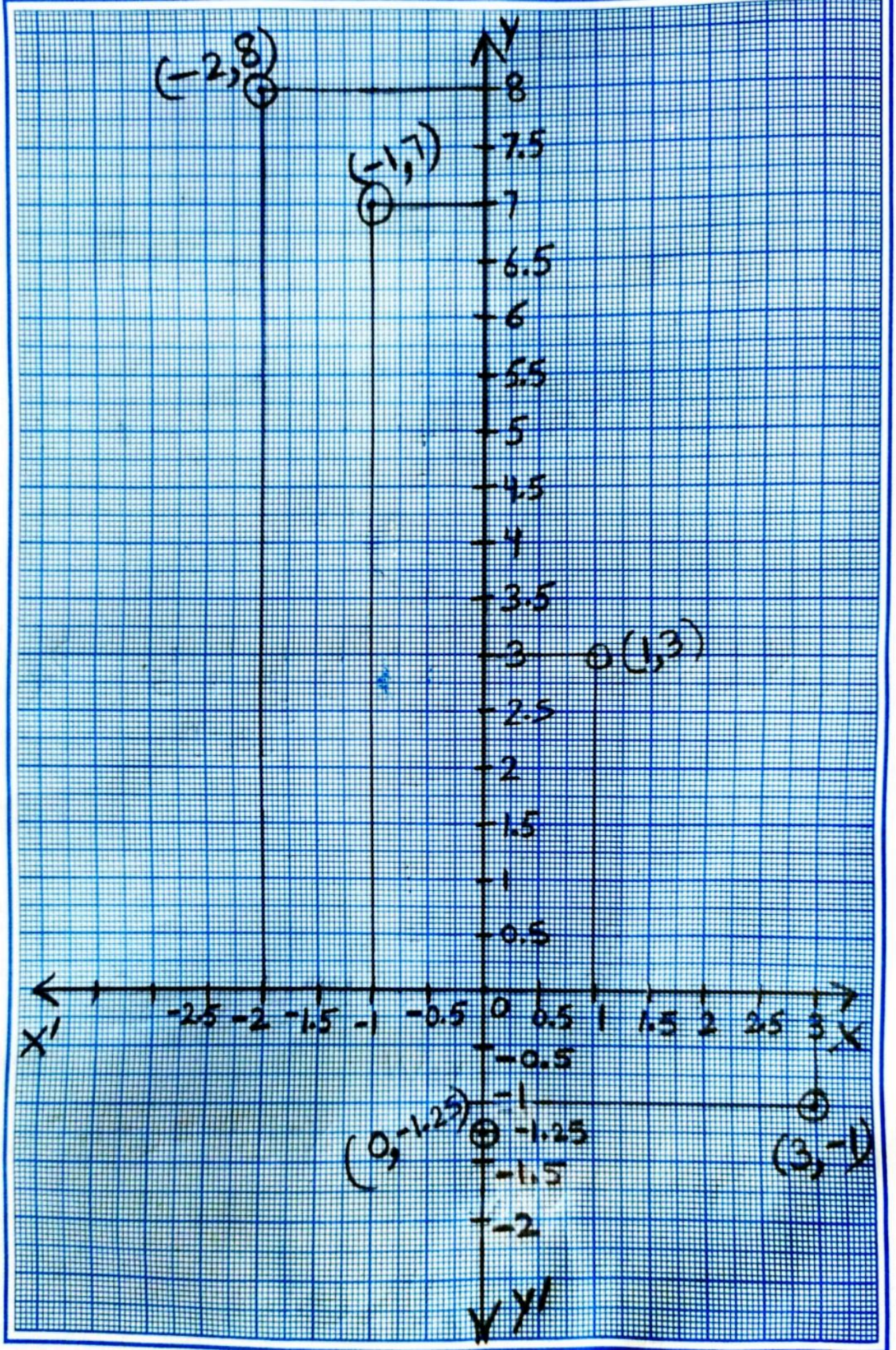
(v) $(-3,-5)$: Third quadrant

IX Ex - 3.3

1.



(2.)


Y
X
X'
Y'
(-2, 8)
(-1, 7)
(1, 3)
(3, -1)
(0, -1.25)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
-0.5
-1
-1.25
-1.5
-2
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
3