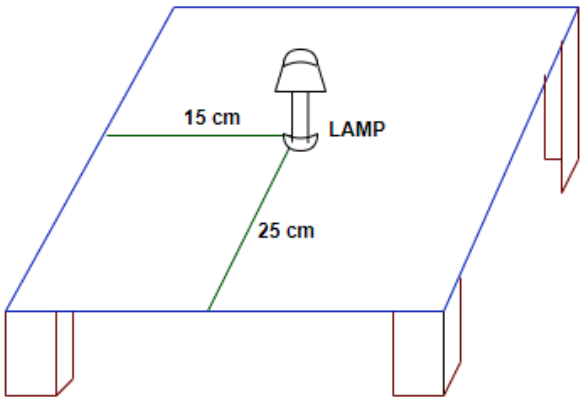
coordinate geometry

3 Chapter

Exercise 3.1

1. How will you describe the position of a table lamp on your study table to another person?

Ans: Consider the figure of a study stable given below, on which a study lamp is placed.



Consider the table as the rectangular plane and the lamp as a point. This table has a short edge and a long edge.

We can see that the distance of the lamp from the shorter edge is $15\,\text{cm}$ and from the longer edge, its $25\,\text{cm}$.

Therefore, depending on the order of the axes, we can conclude that the position of the lamp on the table can be described as $(15,25)$ or $(25,15)$.

2. (Street Plan): A city has two main roads which cross each other at the center of the city. These two roads are along the North-South direction and East –

West direction.

All the other streets of the city run parallel to these roads and are 200 m apart. There are 5 streets in each direction. Using 1 cm $=$ 200 m , draw a model of the city in your notebook. Represent the roads/streets by single lines. There are many cross- streets in your model. A particular cross- street is made by two streets, one running in the North–South direction and another in the East–West direction. Each cross street is referred to in the following manner: If the 2nd street running in the North–South direction and 5th in the East–West direction meet at some crossing, then we will call this cross-street $(2, 5)$. Using this convention, find:

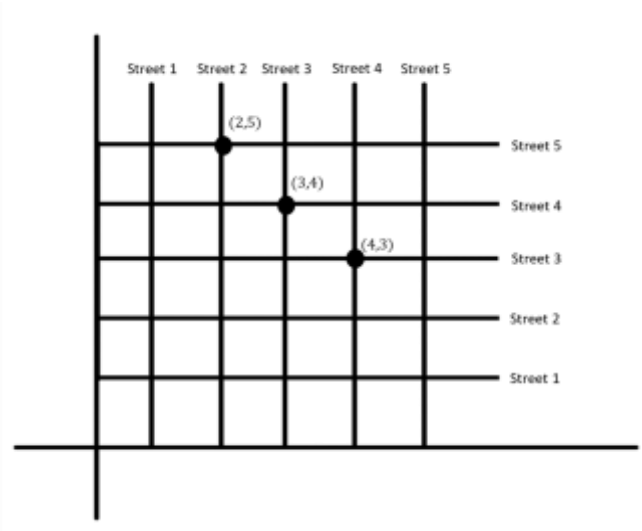
(i) How many cross - streets can be referred to as $(4, 3)$.

Ans: Draw two perpendicular lines depicting the two main roads of the city that cross each other at the center.

Mark it as $N-S$ and $E-W$.

Consider the scale as 1 cm $=$ 200 m .

Get the Figure given below by drawing five streets that are parallel to both the main roads,



From the Figure, we can see that there is only one cross street, which can be referred as $(4, 3)$.

(ii) How many cross - streets can be referred to as $(3, 4)$.

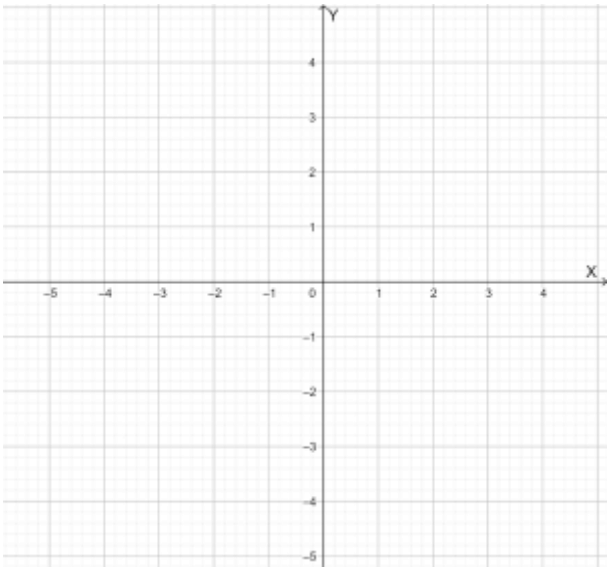
Ans: From the Figure, we can see that there is only one cross street, which can be referred to as $(3, 4)$.

Exercise 3.2

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

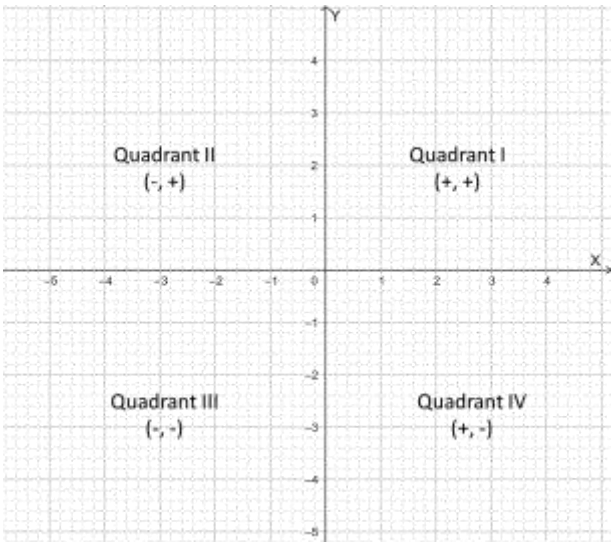
(i) What is the name of horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane?

Ans: X-axis is referred to as the horizontal line that is drawn to determine the position of any point in the Cartesian plane. Y-axis is the vertical line that is 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?

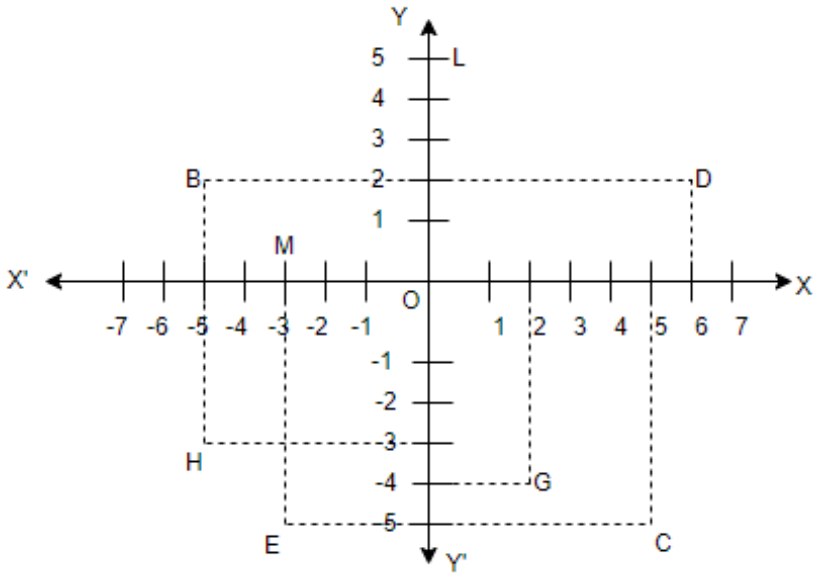
Ans: Quadrant is the name of each part of the plane that is formed by x-axis and y-axis.



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

Ans: Origin O is the point of intersection of x - axis and the y - axis**.**

2. See the Figure, and write the following:



(i) The coordinates of B.

Ans: Coordinates of point B is the distance of B from x - axis and y - axis.

Therefore, the coordinates of point B are $(-5, 2)$.

(ii) The coordinates of C.

Ans: Coordinates of point C is the distance of point C from x - axis and y -axis.

Therefore, the coordinates of point C are $(5, -5)$.

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

Ans: The point that represents the coordinates $(-3, -5)$ is E.

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

Ans: The point that represents the coordinates $(2, -4)$ is G.

(v) The abscissa of the point D.

Ans: The abscissa of point D is the distance of point D from the y - axis. Therefore, the abscissa of point D is 6.

(vi) The ordinate of the point H.

Ans: The ordinate of point H is the distance of point H from the x -axis. Therefore, the ordinate of point H is -3.

(vii) The coordinates of the point L.

Ans: In the Figure, the coordinates of point L is the distance of point L from x - axis and y -axis. Therefore, the coordinates of point L are $(0, 5)$.

(viii) The coordinates of the point M.

Ans: In the Figure, the coordinates of point M is the distance of point M from x - axis and y -axis. Therefore, the coordinates of point M are $(-3, 0)$.