

# NCERT Solutions

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## Class -IX Mathematics (Ex. 3.1)

### Questions

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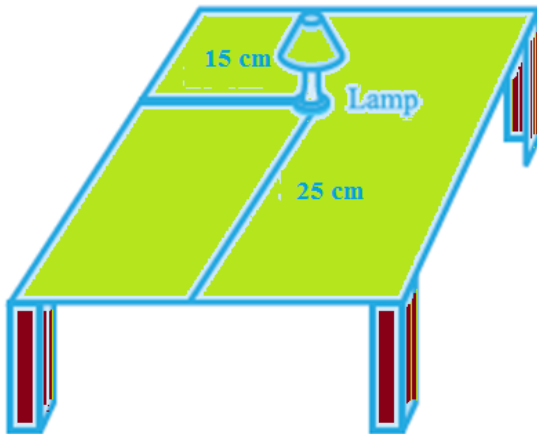
1. How will you describe the position of a table lamp on your study table to another person?
  2. **(Street Plan):** A city has two main roads which cross each other at the centre of the city. These two roads are along the North-South direction and East-West direction. All the other streets of the city run parallel to these roads and are 200 m apart. There are 5 streets in each direction. Using  $1\text{cm} = 200\text{ m}$ , draw a model of the city on 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).
    - (ii) how many cross - streets can be referred to as (3, 4).
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## Class -IX Mathematics (Ex. 3.1)

### Answers

1. Let us consider the given below figure of a study stable, on which a study lamp is placed.



Let us consider the lamp on the table as a point and the table as a plane. From the figure, we can conclude that the table is rectangular in shape, when observed from the top. The table has a short edge and a long edge.

Let us measure the distance of the lamp from the shorter edge and the longer edge. Let us assume that the distance of the lamp from the shorter edge is 15 cm and from the longer edge, its 25 cm.

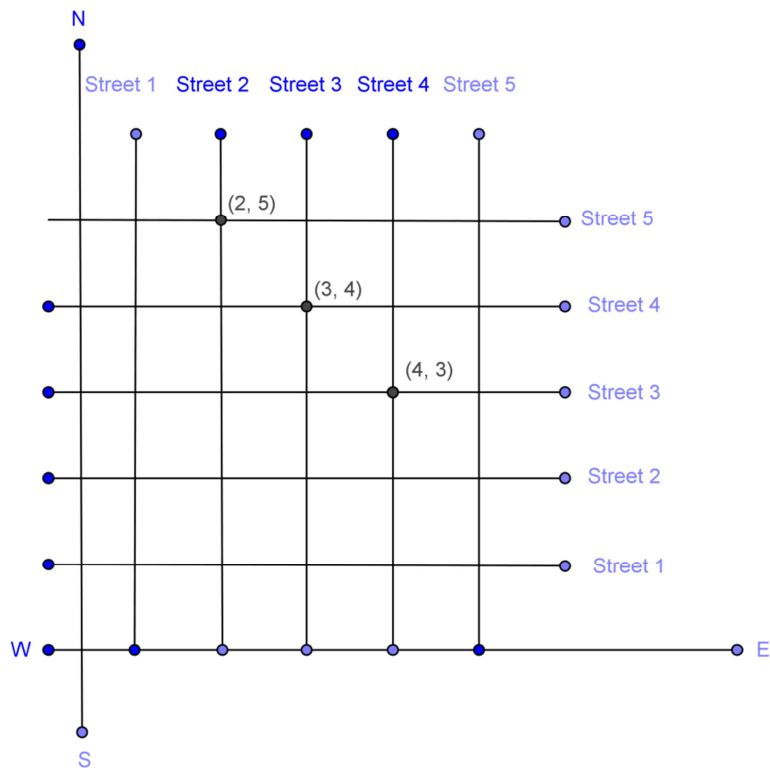
Therefore, we can conclude that the position of the lamp on the table can be described in two ways depending on the order of the axes as  $(15, 25)$  or  $(25, 15)$ .

2. We need to draw two perpendicular lines as the two main roads of the city that cross each other at the center and let us mark it as N-S and E-W.

Let us take the scale as  $1 \text{ cm} = 200\text{m}$ .

We need to draw five streets that are parallel to both the main roads, to get the given below figure.

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- (i) From the figure, we can conclude that only one point have the coordinates as  $(4, 3)$ .

Therefore, we can conclude that only one cross - street can be referred to as  $(4, 3)$ .

- (ii) From the figure, we can conclude that only one point have the coordinates as  $(3, 4)$ .

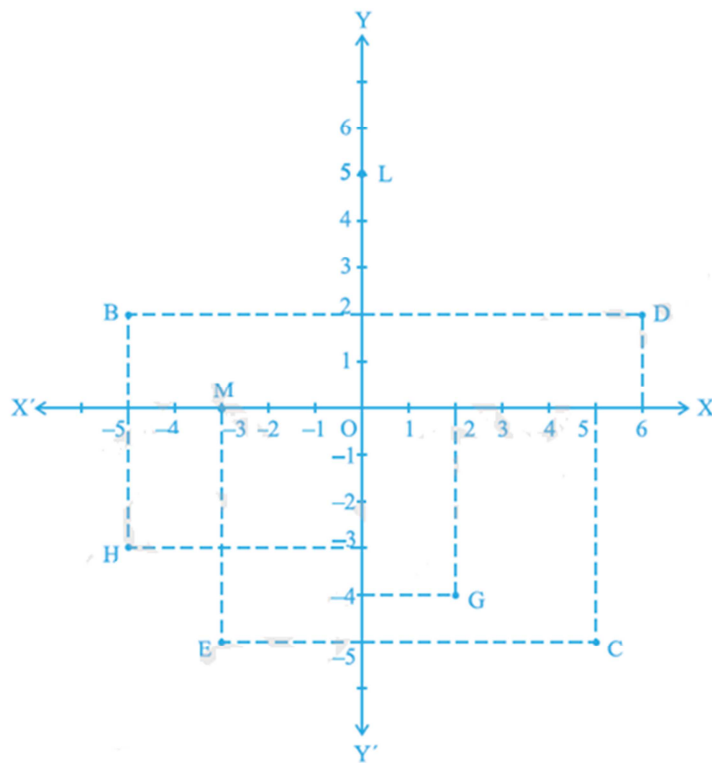
Therefore, we can conclude that only one cross - street can be referred to as  $(3, 4)$ .

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## Class -IX Mathematics (Ex. 3.2)

### Questions

- 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.



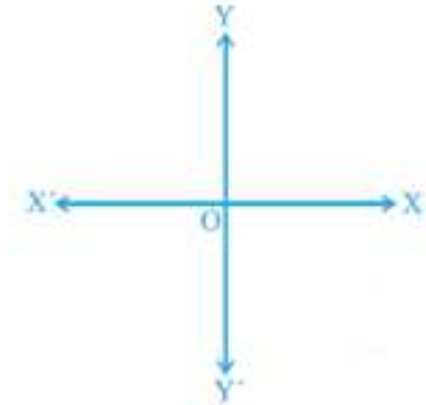
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## Class -IX Mathematics (Ex. 3.2)

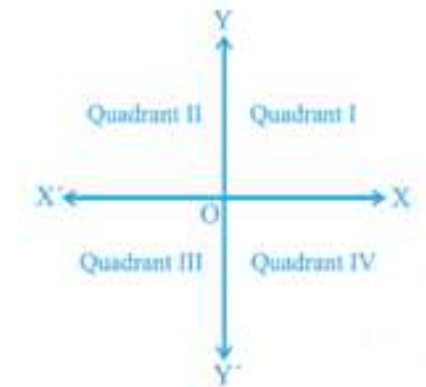
### Answers

1.

- (i) The horizontal line that is drawn to determine the position of any point in the Cartesian plane is called as **x-axis**.  
The vertical line that is drawn to determine the position of any point in the Cartesian plane is called as **y-axis**.



- (ii) The name of each part of the plane that is formed by x-axis and y-axis is called as **quadrant**.



- (iii) The point, where the x-axis and the y-axis intersect is called as **origin**.

2. We need to consider the given below figure to answer the following questions.

- (i) The coordinates of point B in the above figure is the distance of point B from x-axis and y-axis. Therefore, we can conclude that the coordinates of point B are  $(-5, 2)$ .

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- (ii) The coordinates of point  $C$  in the above figure is the distance of point  $C$  from  $x$ -axis and  $y$ -axis. Therefore, we can conclude that the coordinates of point  $C$  are  $(5, -5)$ .
  - (iii) The point that represents the coordinates  $(-3, -5)$  is  $E$ .
  - (iv) The point that represents the coordinates  $(2, -4)$  is  $G$ .
  - (v) The abscissa of point  $D$  in the above figure is the distance of point  $D$  from the  $y$ -axis. Therefore, we can conclude that the abscissa of point  $D$  is 6.
  - (vi) The ordinate of point  $H$  in the above figure is the distance of point  $H$  from the  $x$ -axis. Therefore, we can conclude that the abscissa of point  $H$  is  $-3$ .
  - (vii) The coordinates of point  $L$  in the above figure is the distance of point  $L$  from  $x$ -axis and  $y$ -axis. Therefore, we can conclude that the coordinates of point  $L$  are  $(0, 5)$ .
  - (viii) The coordinates of point  $M$  in the above figure is the distance of point  $M$  from  $x$ -axis and  $y$ -axis. Therefore, we can conclude that the coordinates of point  $M$  are  $(-3, 0)$ .
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## Class -IX Mathematics (Ex. 3.3)

### Questions

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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

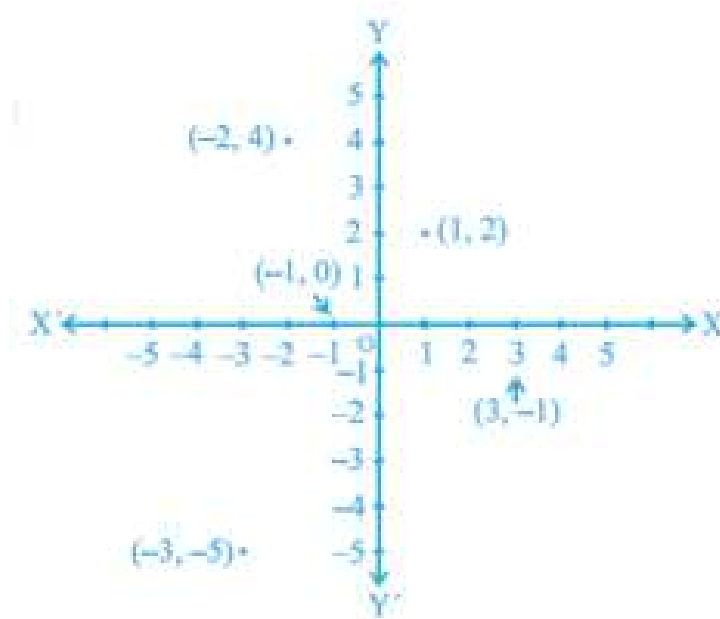
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## Class -IX Mathematics (Ex. 3.3)

### Answers

1. We need to determine the quadrant or axis of the points  $(-2, 4)$ ,  $(3, -1)$ ,  $(-1, 0)$ ,  $(1, 2)$  and  $(-3, -5)$ .

First, we need to plot the points  $(-2, 4)$ ,  $(3, -1)$ ,  $(-1, 0)$ ,  $(1, 2)$  and  $(-3, -5)$  on the graph, to get



We need to determine the quadrant, in which the points  $(-2, 4)$ ,  $(3, -1)$ ,  $(-1, 0)$ ,  $(1, 2)$  and  $(-3, -5)$  lie.

From the figure, we can conclude that the point  $(-2, 4)$  lie in II<sup>nd</sup> quadrant.

From the figure, we can conclude that the point  $(3, -1)$  lie in IV<sup>th</sup> quadrant.

From the figure, we can conclude that the point  $(-1, 0)$  lie on  $x$ -axis.

From the figure, we can conclude that the point  $(1, 2)$  lie in I<sup>st</sup> quadrant.

From the figure, we can conclude that the point  $(-3, -5)$  lie in III<sup>rd</sup> quadrant.

2. We need to plot the given below points on the graph by using a suitable scale.

$X$	-2	-1	0	1	3
$y$	8	7	-1.25	3	-1



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