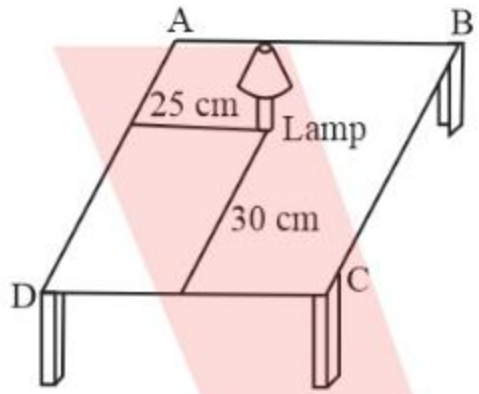
CBSE NCERT Solutions for Class 9 Mathematics Chapter 3

Back of Chapter Questions

Exercise: 3.1

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

Solution:



Since, there are two dimensions of the surface of a table (length and breadth), so two references will be required to accurately describe position of the object on the table.

As a reference we can take DC and DA as a pair of perpendicular edges with common point D.

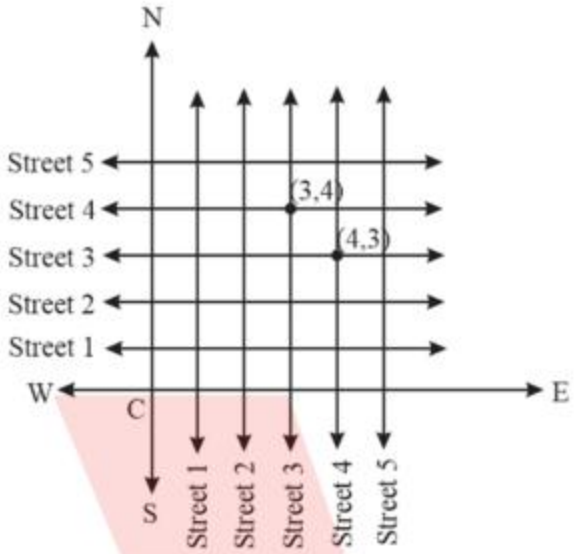
Now, any point on the table can be uniquely determined by its distances from both the edges DC and DA. In the shown figure, the lamp is at a distance of 25 cm from AD and 30 cm from DC.

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 cm = 200 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 2^{nd} street running in the North-South direction and 5^{th} 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 $(3, 4)$.

Solution:



(i) The given cross street is marked in the figure and it can be observed that there is only one street referred as $(4, 3)$.

(ii) The given cross street is marked in the figure and it can be observed that there is only one street referred 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?

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

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

Solution:

(i) The Horizontal and vertical lines are called X axis and Y axis respectively.

(ii) The part of plane formed by the two lines are called quadrants.

(iii) The point where the two lines intersect is called origin.

2. See the given figure, and write the following:

(i) The coordinates of B.

(ii) The coordinates of C.

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

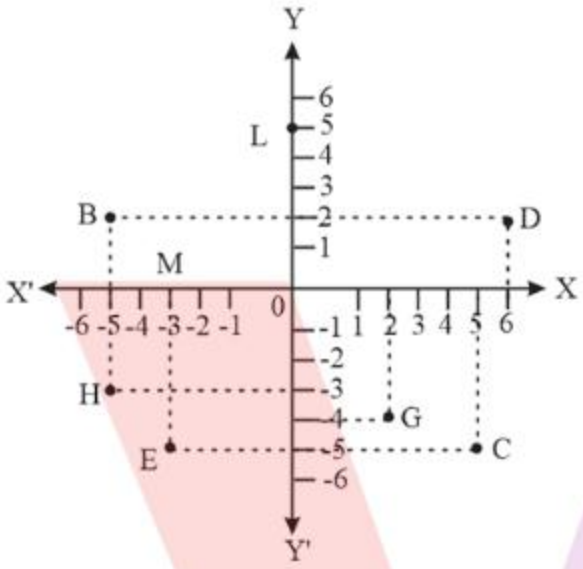
(iv) The point identified by the coordinates $(2, -4)$.

(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



Solution:

(i) The coordinates of point B is $(-5, 2)$

(ii) The coordinates of point C is $(5, -5)$

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

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

(v) Abscissa of point D is 6

(vi) Ordinate of point H is -3

(vii) The coordinates of point L is $(0, 5)$

(viii) The coordinates of point M is $(-3, 0)$

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.

Solution:

(i) $(-2, 4)$ lies on 2^{nd} quadrant.

X coordinate is negative and Y is positive

(ii) $(3, -1)$ lies on 4^{th} quadrant

X coordinate is positive and Y coordinate is negative.

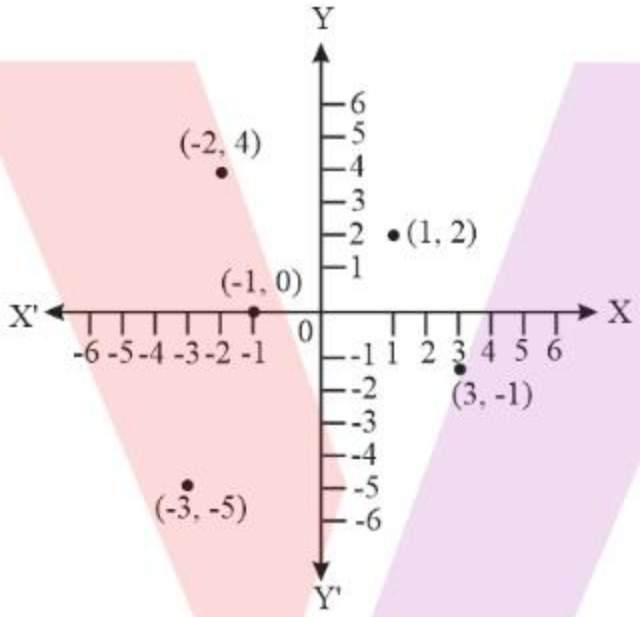
(iii) The point $(-1, 0)$ lies on the negative of X axis because Y is zero and X is negative.

(iv) $(1, 2)$ lies on 1^{st} quadrant

X and Y both coordinates are positive.

(v) $(-3, -5)$ lies on 3^{rd} quadrant.

X and Y both are negative.



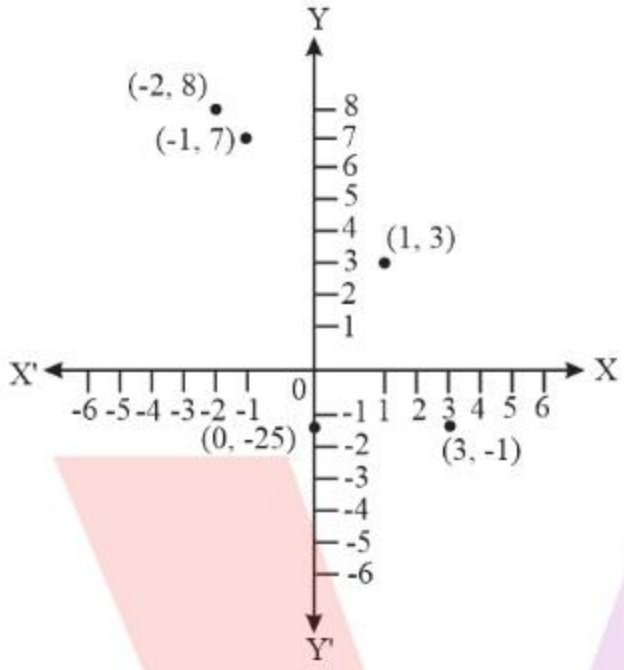
2. Plot the point (x, y) given in the following table on the plane, choosing suitable units of distance on the axis.

x	-2	-1	0	1	3
y	8	7	-1.25	3	-1

Solution:

Given points are $(-2, 8), (-1, 7), (0, -1.25), (1, 3), (3, -1)$

The given points are plotted in the Cartesian plane below


Y
(-2, 8)
(-1, 7)
(1, 3)
X'
X
0
(0, -25)
(3, -1)
Y'