

Key Notes
COORDINATE GEOMETRY

1. The position of the point is located on a plane by drawing two lines perpendicular to each other.
2. The horizontal line is called x-axis and the vertical line is called y-axis
3. The plane is called the cartesian or coordinate plane and the mutually perpendicular lines are called axes.
4. The x- coordinate of a point is called abscissa.
5. The y-coordinate of a point is called the ordinate.
6. The abscissa of every point is 0 on the y-axis and the ordinate is every point is 0 on the xaxis.
7. The coordinates of the origin are (0,0).
8. The axis divides the plane in four quadrants.
9. The points of the type lies in:
 - (+,+) - Quadrant I, (-, +) - quadrant II
 - (-,-) - Quadrant III, (+,-) - quadrant IV
10. The position of a point in a plane is determined with reference to two fixed mutually perpendicular lines, called the coordinate axes. The horizontal line called the x-axis and y-axis is called the y-axis.

(Chapter - 3) (Coordinate Geometry)
(Class - 9)
Exercise 3.1

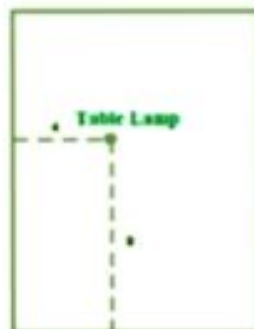


Question 1:

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

Answer 1:

Table lamp is 9 unit away from the sitting place and 4 units away from the left side. Hence, its coordinates are $(4, 9)$.



Question 2:

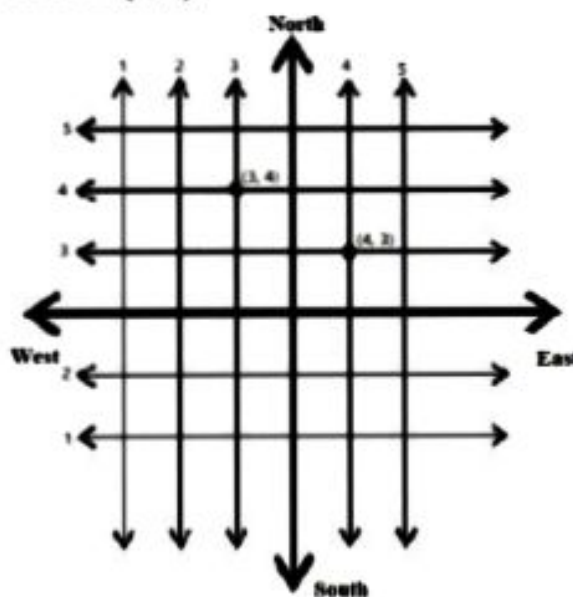
(Street Plan): A city has two main roads which cross each other at the centre of the city. These two roads are along the North-South direction and East-West direction. All the other streets of the city run parallel to these roads and are 200 m apart. There are about 5 streets in each direction. Using $1\text{ cm} = 200\text{ m}$, 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 $(3, 4)$.

Answer 2:

- (i) Only one cross-street referred to as $(4, 3)$.
- (ii) Only one cross-street referred to as $(3, 4)$.





Question 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.

Answer 1:

- (i) x -axis and y -axis
- (ii) Quadrant
- (iii) Origin

Question 2:

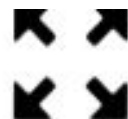
See Figure and write the following:

- (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.

Answer 2:

- (i) The coordinates of B = $(-5, 2)$
- (ii) The coordinates of C = $(5, -5)$
- (iii) The point identified by the coordinates $(-3, -5)$ = E
- (iv) The point identified by the coordinates $(2, -4)$ = G
- (v) The abscissa of the point D = 6
- (vi) The ordinate of the point H = -3
- (vii) The coordinates of the point L = $(0, 5)$
- (viii) The coordinates of the point M = $(-3, 0)$





Exercise 3.3

Question 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.

Answer 1:

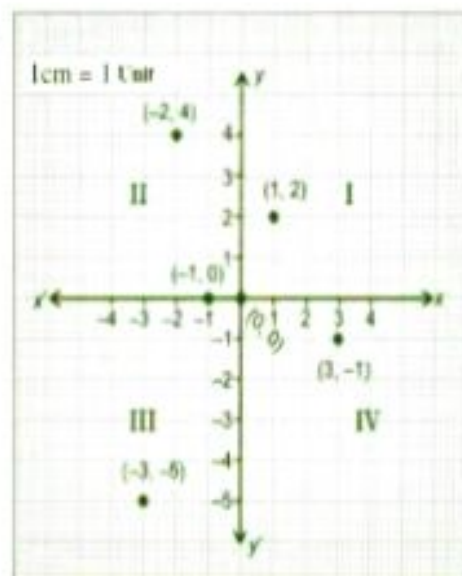
$(-2, 4)$: Second Quadrant

$(3, -1)$: Fourth Quadrant

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

$(1, 2)$: First Quadrant

$(-3, -5)$: Third Quadrant



Question 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

Answer 2:

Plotting of points on Cartesian plane:

Point	A	B	C	D	E
x	-2	-1	0	1	3
y	8	7	-1.25	3	-1
Co-ordinates	A(-2, 8)	B(-1, 7)	C(0, -1.25)	D(1, 3)	E(3, -1)

