

## CHAPTER 3- COORDINATE GEOMETRY

### MODULE 2

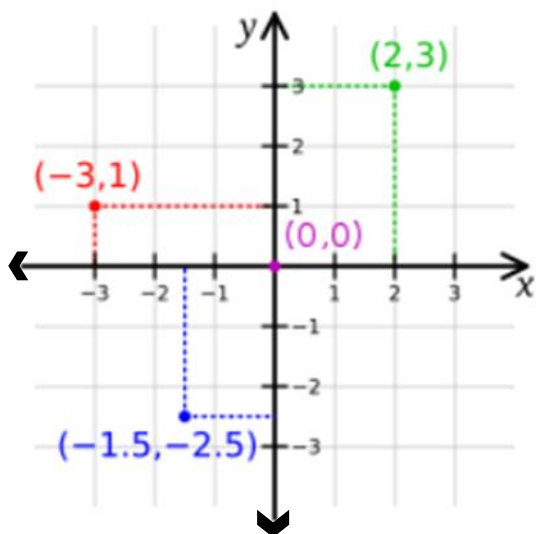
#### PLOTTING A POINT IN THE CARTESIAN PLANE IF ITS COORDINATES ARE GIVEN

Steps to plot the point (2, 3) on the Cartesian plane -

1. First of all, we need to draw the Cartesian plane by drawing the coordinate axes with 1 unit = 1 cm.
2. To mark the x coordinates, starting from 0 move towards the positive x-axis and count to 2.
3. To mark the y coordinate, starting from 2 move upwards in the positive direction and count to 3.

Now this point is the coordinate (2, 3)

Likewise, we can plot all the other points, like (-3, 1) and (-1.5,-2.5) in the below figure.



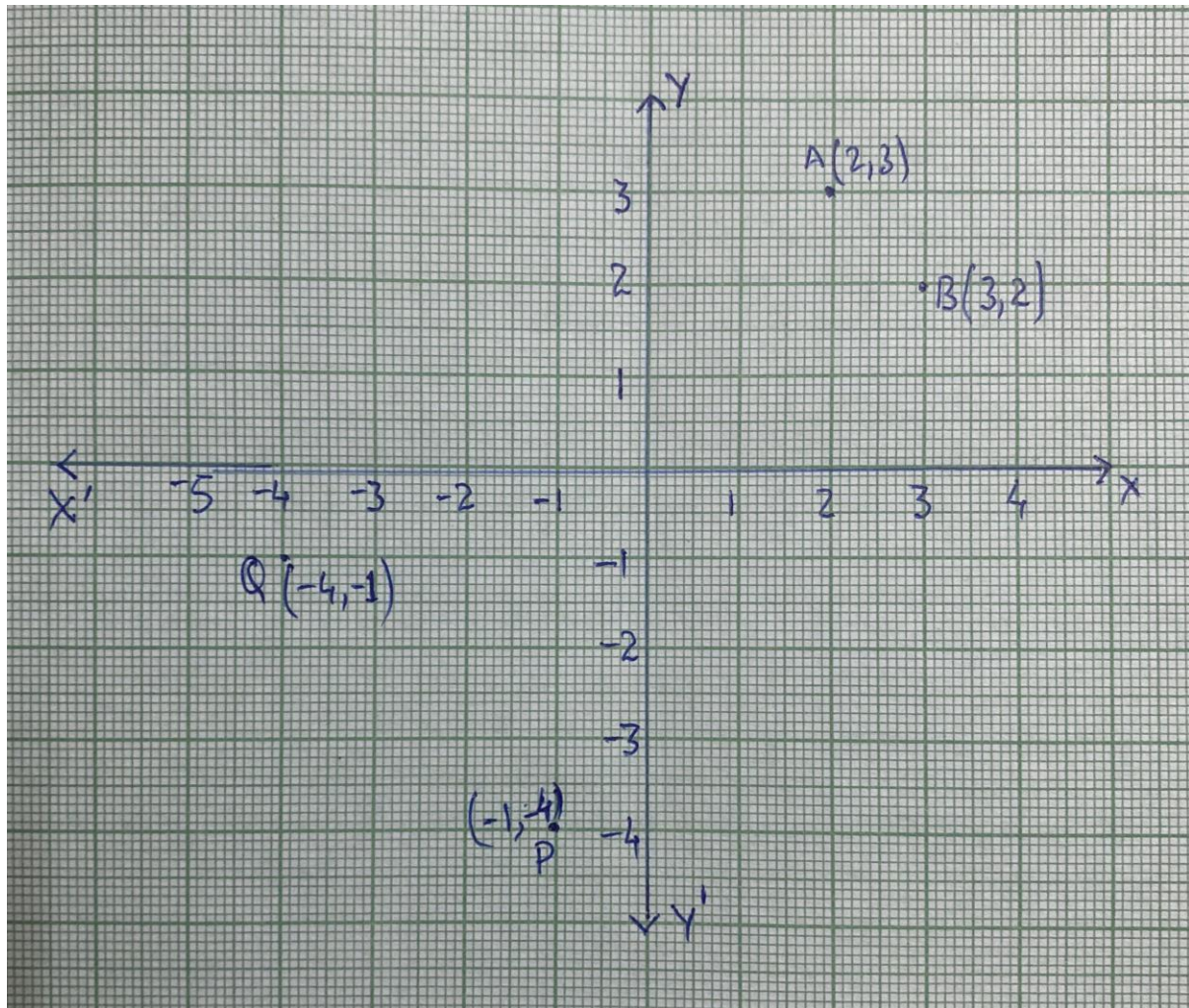
Is the coordinates (x, y) = (y, x)?

Let  $x = (2)$  and  $y = (3)$

So,  $A(x, y) = (2, 3)$

$$B(y, x) = (3, 2)$$

Let's mark these coordinates on the Cartesian plane.



You can see that the positions of both the points are different in the Cartesian plane. So,

If  $x \neq y$ , then  $(x, y) \neq (y, x)$ , and  $(x, y) = (y, x)$ , if  $x = y$ .

So every point has a unique position in the Cartesian plane .

### Example:

Plot the points  $(6, 4)$ ,  $(-6, -4)$ ,  $(-6, 4)$  and  $(6, -4)$  on the Cartesian plane.

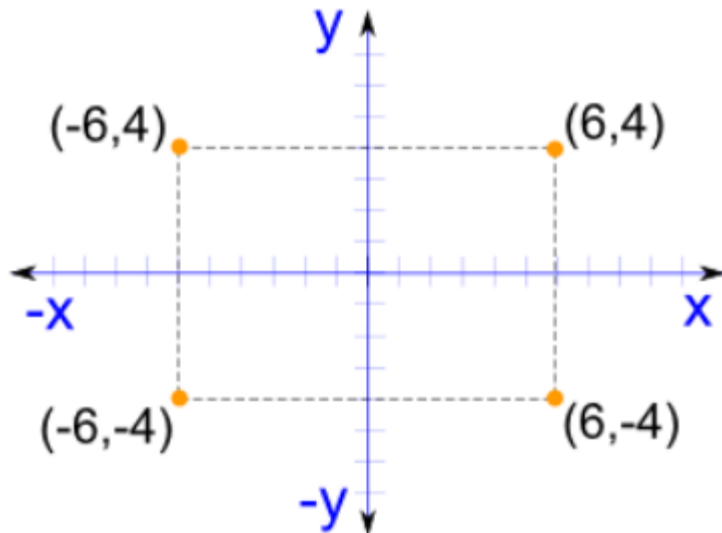
Solution:

As you can see in  $(6, 4)$  both the numbers are positive so it will come in the first quadrant.

For x coordinate, we will move towards the right and count to 6.

Then from that point go upward and count to 4.

Mark that point as the coordinate (6, 4).



Similarly, we can plot all the other three points.

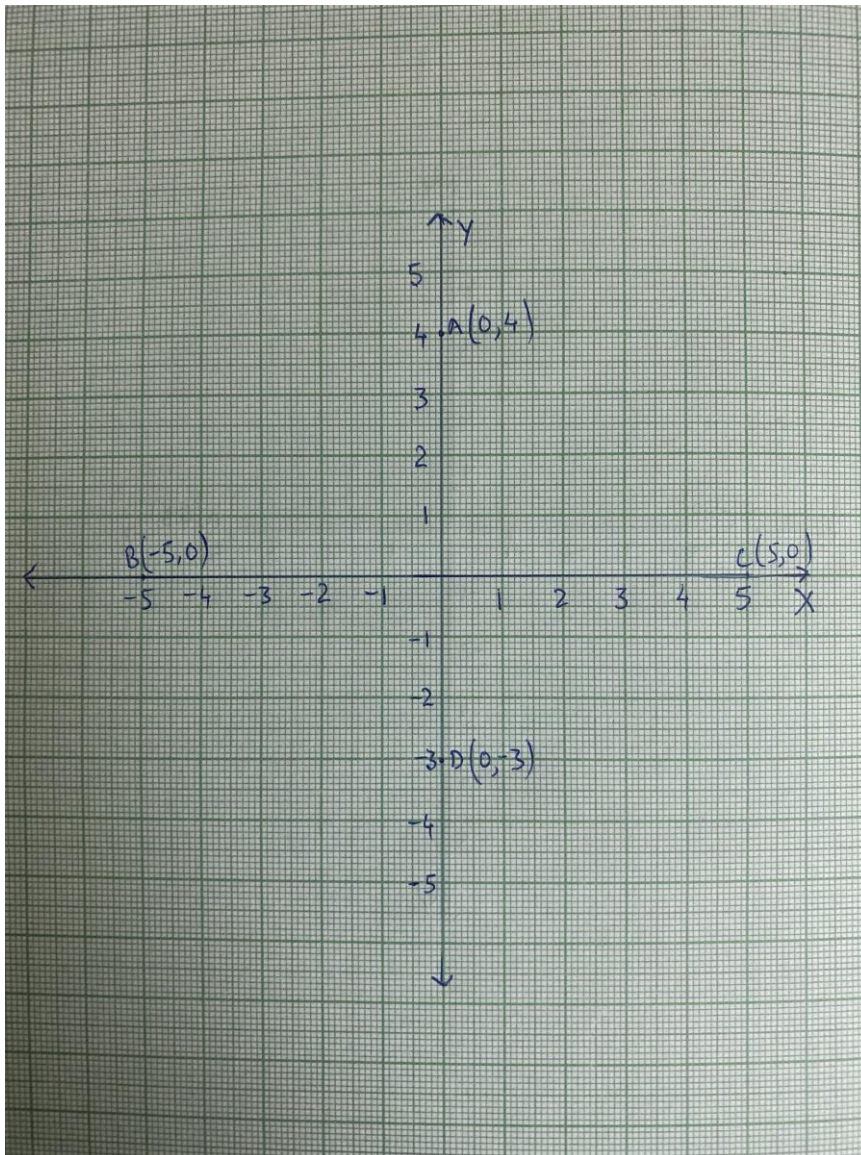
### Plotting the points of the type $(x, 0)$ or $(0, y)$

A point on the x-axis has zero distance from the y-axis so coordinates of any points on the x-axis will be  $(x, 0)$

A point on the y-axis has zero distance from the x-axis so coordinates of any points on the y-axis will be  $(0, y)$

Example: Plot the following points  $A(0, 4)$ ;  $B(-5, 0)$ ;  $C(5, 0)$  &  $D(0, -3)$ . Write on which axes do they lie?

Solution:



The point  $A(0,4)$  lies on the y-axis.

The point  $B(-5,0)$  lies on the x-axis.

The point  $C(5,0)$  lies on the x-axis.

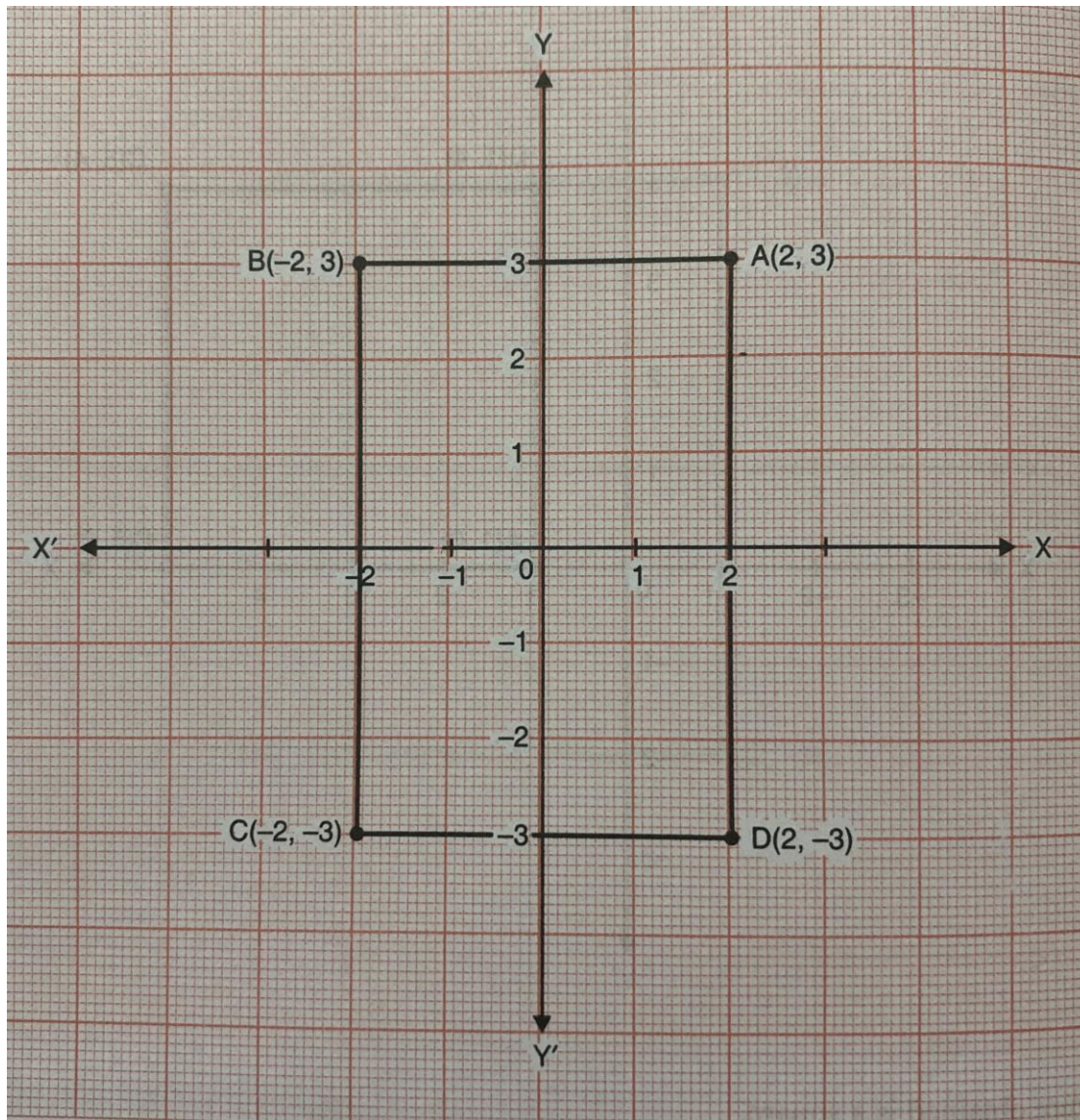
The point  $D(0,-3)$  lies on the y-axis.

Example 2:

Plot the points  $A(2,3)$ ;  $B(-2,3)$ ;  $C(-2,-3)$  &  $D(2,-3)$ . Name the figure obtained by joining the points A, B, C & D



Solution:



The figure formed is a rectangle.

**ASSIGNMENT:**

**Exercise 3.3**

Q. Plot the point A(1,0);B(5,0);C(5,4)&D(1,4). Name the figure formed by joining the points A,B,C&D.

Q. Plot the points A(-1,1);B(-3,3);C(-4,4). Check whether the given points are collinear or not.