## **COORDINATE GEOMETRY - CLASS X**

• Two perpendicular lines intersecting at origin are called **Coordinate** 

	Quadrant II (-, +)	Y-axis 7 - 6 - 5 - 4 - 3 - 2 - 1 -	Quadrant I (+, +)	
X'-axis	-6 -5 -4 -3 -2	-1 012	34567	X-axis
	Quadrant III	-1 - -2 - -3 - -4 -	Quadrant IV	
	(-, -)	-5 - -6 - -7 - ¥'-axis	(+,-)	

## Distance Formula:

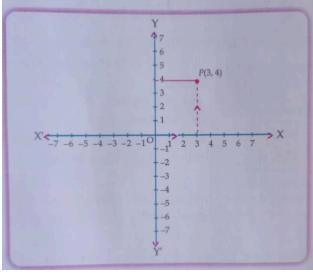
 The distance between two points P(x<sub>1</sub>,y<sub>1</sub>) and Q(x<sub>2</sub>,y<sub>2</sub>) is:



$$PQ = |\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}|$$

• The distance of a point from the origin =  $|\sqrt{(x)^2 + (y)}|^2$ 

- O- Origin
- The perpendicular distance of a point from the y axis is called the x coordinate or abscissa
- The perpendicular distance of a point from the x axis is called the y coordinate or ordinate.
- A point P in the cartesian plane is represented as P(x,y) where x = O coordinate and y = y coordinate
- The coordinates of a point on the X axis= (x,0) Y axis= (0,y)
- To plot a point P(3, 4) in the cartesian plane.
- (i) A distance of 3 units along X-axis.
- (ii) A distance of 4 units along Y-axis.



## Section Formula:

C

 The coordinates of a point R(ky) which divides the line segment P(x<sub>1</sub>,y<sub>1</sub>) and C(x<sub>2</sub>,y<sub>2</sub>) internally in the ratio non is:

$$\mathsf{R}\left[\frac{\mathsf{m}\mathsf{x}_2 + \mathsf{n}\mathsf{x}_1}{\mathsf{m}+\mathsf{n}}, \frac{\mathsf{m}\mathsf{y}_2 + \mathsf{n}\mathsf{y}_1}{\mathsf{m}+\mathsf{n}}\right]$$

where x = 
$$\frac{mx_2 + nx_1}{m+n}$$
 and y =  $\frac{my_2 + ny_1}{m+n}$ 

The coordinates of a point R(x,y) which divides the line segment
P(x<sub>1</sub>,y<sub>1</sub>) and Q(x<sub>2</sub>,y<sub>2</sub>) externally in the ratio m:n is :