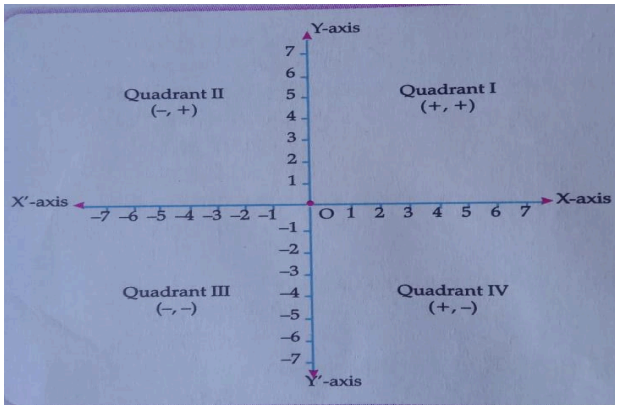
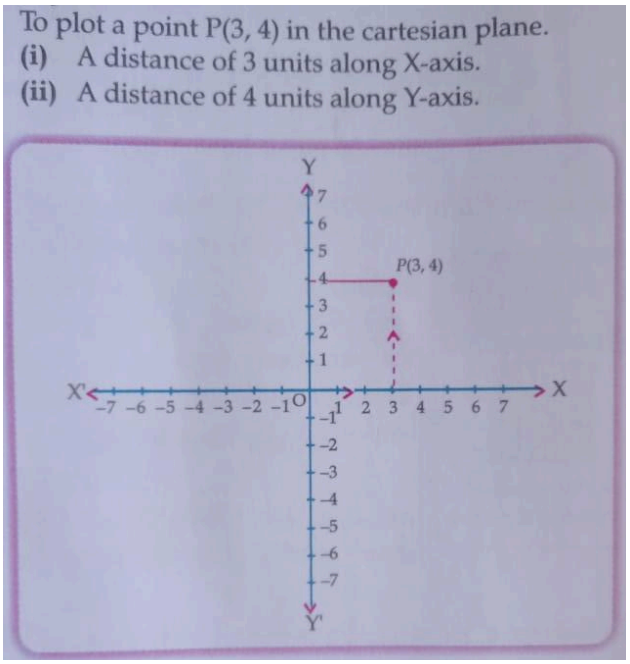
COORDINATE GEOMETRY - CLASS X

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



- **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 = x coordinate and y = y coordinate**
- **The coordinates of a point on the X axis= (x,0)**
  Y axis= (0,y)



Distance Formula:

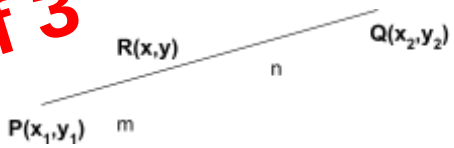
- The distance between two points $P(x_1,y_1)$ and $Q(x_2,y_2)$ is:

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

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

Section Formula:

- The coordinates of a point **R(x,y)** which divides the line segment **P(x_1,y_1)** and **Q(x_2,y_2) internally** in the ratio **m:n** is:



$$R\left[\frac{mx_2 + nx_1}{m+n}, \frac{my_2 + ny_1}{m+n}\right]$$

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_1,y_1)** and **Q(x_2,y_2) externally** in the ratio **m:n** is :