

CO-ORDINATE GEOMETRY

Two perpendicular lines XOX' and YOY' intersecting at a point O are called coordinate axes.

These lines XOX' and YOY' divide the region into four quadrants. XOY , YOX' , $X'OY'$, $Y'OX$ are 1st, 2nd, 3rd and 4th quadrants respectively.

The perpendicular distances of a point from coordinate axis are called coordinate of that point $P(x, y)$.

The perpendicular distance of a point from y -axis is called abscissa (x).

The perpendicular distance of a point from x -axis is called ordinate (y).

For $y = mx + c$.

If we change c to c_1, c_2, c_3, \dots

If c is increased the graph moves up.

If c is decreased the graph moves down.

The graph of the form $y = c$ is a line parallel to x -axis.

The graph of the form $x = c$ is a line parallel to y -axis.

The sign of x and y in 1st coordinate are $(+, +)$,
 in 2nd coordinate are $(-, +)$
 in 3rd coordinate are $(-, -)$
 and in 4th coordinate are $(+, -)$.

The coordinates of origin are $(0, 0)$. The abscissa of every point on y -axis is zero.
 The ordinate of every point on x -axis is zero.

The linear equation $ax + by + c_1 = 0$ can also be written as $y = mx + c$.

$$\Rightarrow y = -\frac{a}{b}x - \frac{c_1}{b}$$

where $m = -\frac{a}{b} = -\frac{\text{coefficient of } x}{\text{coefficient of } y}$

On increasing the value of m for $m > 0$ in $y = mx$. The graph, rotates anticlockwise but remain in 1st and 3rd quadrant on decreasing the value of m for $m < 0$ in $y = mx$, the graph rotates clockwise and remain in II and IV quadrants.