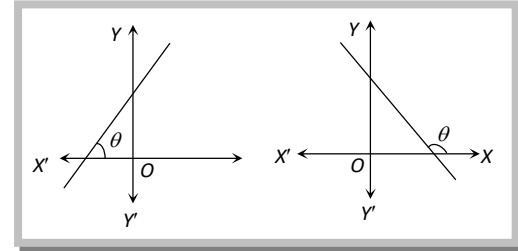


## Slope (Gradient) of a Line.

The trigonometrical tangent of the angle that a line makes with the positive direction of the  $x$ -axis in anticlockwise sense is called the slope or gradient of the line.

The slope of a line is generally denoted by  $m$ . Thus,  $m = \tan \theta$



(1) Slope of line parallel to  $x$ -axis is  $m = \tan 0^\circ = 0$ .

(2) Slope of line parallel to  $y$ -axis is  $m = \tan 90^\circ = \infty$ .

(3) Slope of the line equally inclined with the axes is 1 or  $-1$ .

(4) Slope of the line through the points  $A(x_1, y_1)$  and  $B(x_2, y_2)$  is  $\frac{y_2 - y_1}{x_2 - x_1}$  taken in the same order.

(5) Slope of the line  $ax + by + c = 0, b \neq 0$  is  $-\frac{a}{b}$ .

(6) Slope of two parallel lines are equal.

(7) If  $m_1$  and  $m_2$  be the slopes of two perpendicular lines, Then  $m_1 \cdot m_2 = -1$ .

Note:  $m$  can be defined as  $\tan \theta$  for  $0 < \theta \leq \pi$  and  $\theta \neq \frac{\pi}{2}$

□ If three points A, B, C are collinear, then

Slope of AB = Slope of BC = Slope of AC