✡ Angle between two lines :-

$(L_1) \rightarrow$ slope m_1 & $(L_2) \rightarrow$ slope m_2

$$\tan(\theta) = \left| \frac{m_2 - m_1}{1 + m_1 m_2} \right|$$

where, + → acute angle between l_1 & l_2

− → obtuse angle between l_1 & l_2

✡. Equation of a line Point-slope form :-

slope $= m$ & (x_1, y_1)

$$(y - y_1) = m(x - x_1)$$

✡. Equation of line slope-Intercept form :-

slope $= m$ & y-intercept (c)

$$(y - c) = m(x - 0) \rightarrow y = mx + c$$

✡. Equation of a line passing through two points :-

$A(x_1, y_1)$ & $B(x_2, y_2)$

$$\text{slope} = m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\rightarrow (y - y_1) = m(x - x_1)$$

$$(y - y_1) = \frac{(y_2 - y_1)}{(x_2 - x_1)} \times (x - x_1)$$

✯ Equation of line – Intercept form :-

$A(a,0)$ & $B(0,b)$

$\rightarrow (y-0) = \frac{b}{-a}(x-a)$

$\rightarrow ay + bx - ab = 0$

$\rightarrow \boxed{\frac{y}{b} + \frac{x}{a} = 1.}$

✯ Equation of line – Perpendicular or Normal form :-

$A(P\cos\alpha, P\sin\alpha)$

$\rightarrow \boxed{x\cos\alpha + y\sin\alpha = P}$