

Straight Lines 2

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

Slope y-intercept form: $y = mx + b$

Y-intercept: $(0, b)$

$$\text{Slope Point form: } m = \frac{y - y_1}{x - x_1}$$

General Form: $Ax + By + C = 0$

$$\text{Slope: } m = \frac{-A}{B}$$

Parallel Lines: $m_2 = m_1$

Perpendicular Lines: $m_2 = \frac{-1}{m_1}$

Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Location of a point on a line:

$$r = \frac{a}{b}$$

$$P\left(\frac{bx_1 + ax_2}{b + a}, \frac{by_1 + ay_2}{b + a}\right)$$

Mid-Point formula:

$$M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$