

Intercepts:

X-int plug in zero for y and solve for x

y-int plug in zero for x and solve for y

$$\begin{aligned} \text{y-int:} \\ y &= (0)^2 - 4(0) + 3 \\ y &= 3 \\ (0, 3) \end{aligned}$$

$$\text{ex } y = x^2 - 4x + 3$$

$$\begin{aligned} \text{X-int:} \\ 0 &= x^2 - 4x + 3 \\ 0 &= (x-3)(x-1) \\ \downarrow \quad \downarrow \\ x-3=0 \quad x-1=0 \\ x=3 \quad x=1 \\ (3,0) \text{ and } (1,0) \end{aligned}$$

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

$$\text{ex } (-5, 2) \text{ and } (7, -4)$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - 2}{7 - (-5)} = \frac{-6}{12} = -\frac{1}{2}$$

parallel lines have the same slope

perpendicular lines have opposite reciprocal slopes

$m = 2$ (perp. line)

Equation of a Line:

$$y = mx + b$$

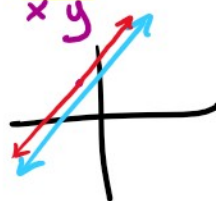
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slope y-int

Steps:

- ① Calculate m-value (slope)
- ② Calculate b-value (y-int)

ex Parallel to $2y - 6x = 10$
Goes through the point $(-1, 4)$

$$\begin{aligned} \text{① } 2y - 6x &= 10 \\ +6x \quad +6x \\ \hline 2y &= 6x + 10 \\ \frac{2y}{2} &= \frac{6x}{2} + \frac{10}{2} \\ y &= 3x + 5 \\ \uparrow \\ m &= 3 \end{aligned}$$



$$\begin{aligned} \text{② } y &= mx + b \\ 4 &= 3(-1) + b \\ 4 &= -3 + b \\ +3 \quad +3 \\ \hline 7 &= b \end{aligned}$$

$$y = 3x + 7$$

$$7 = b$$