

# Slope Intercept form

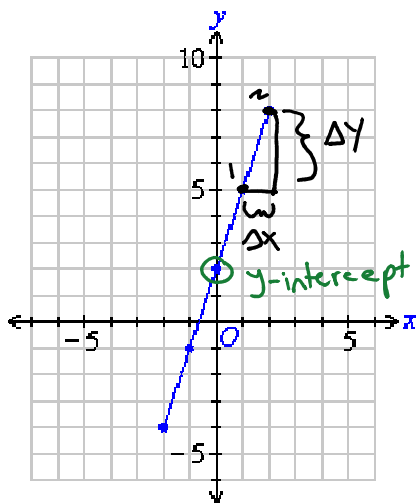
May 12, 2017 11:18 AM

Slope: measures how steep a line is.

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} \quad // \Delta : \text{change in}$$

Intercepts: where two lines cross

- x-intercept: where your graph crosses the x-axis
- y-intercept: where your graph crosses the y-axis



$$\text{Slope} = \frac{\Delta y}{\Delta x} = \frac{3}{1} = 3$$

$$\text{y-intercept} = 2$$

Slope Intercept Form

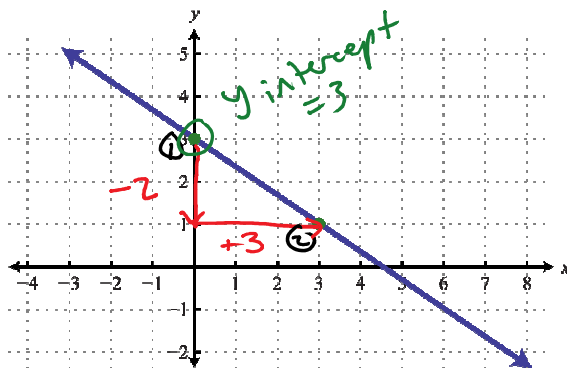
$$y = mx + b$$

m: Slope

b: y-intercept

The equation for the line above is:  
 $y = 3x + 2$

$$m = 3$$
$$b = 2$$



up +      right +  
down -      left -

$$\text{Slope} = \frac{\Delta y}{\Delta x} = \frac{-2}{3}$$

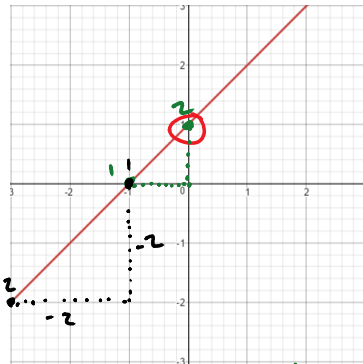
$$\text{y-intercept} = 3$$

$$m = -\frac{2}{3} \quad b = 3$$

$$y = mx + b$$

$$\boxed{y = -\frac{2}{3}x + 3}$$

you try



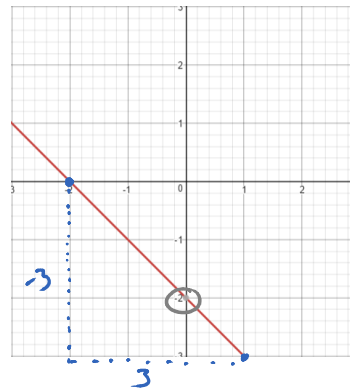
$$\text{Slope} = \frac{2}{2} = 1 \quad \text{Slope} = \frac{1}{1} = 1$$

$$\text{Slope} = \frac{\Delta y}{\Delta x} = 1$$

$$y\text{-int} = 1$$

$$y = mx + b$$

$$\underline{\underline{y = x + 1}}$$



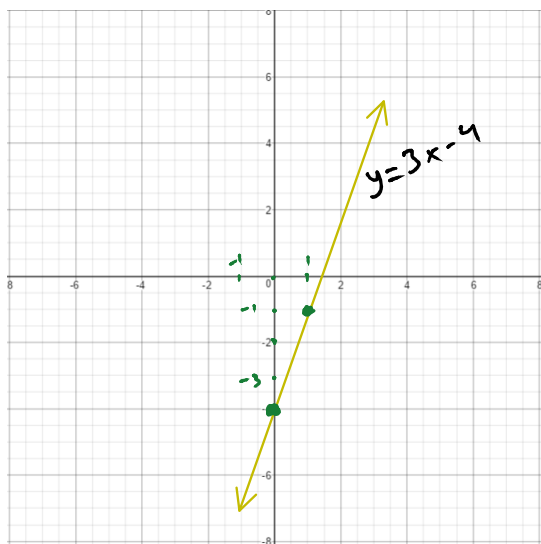
$$\text{Slope} = \frac{-2}{2} = -1$$

$$y\text{-int} = -2$$

$$y = mx + b$$

$$y = -1x + (-2)$$

$$\underline{\underline{y = -x - 2}}$$



$$y = 3x - 4$$

$$\text{Slope} = 3$$

How to move

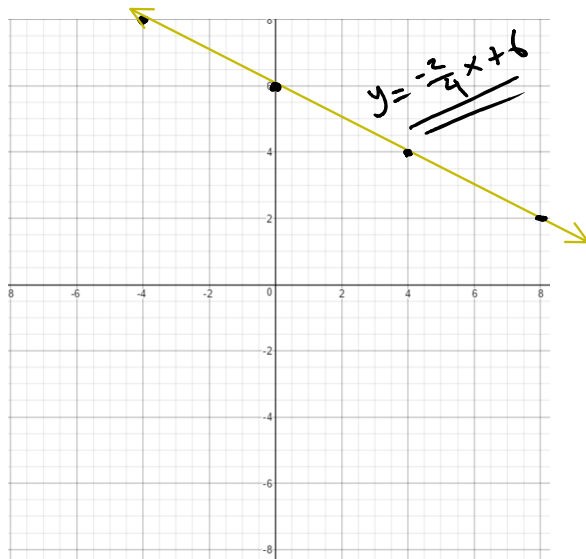
$$y\text{-int} = -4$$

Start

$$\text{Slope} = \frac{\Delta y}{\Delta x} = \frac{3}{1} \quad \begin{matrix} \uparrow \\ \text{Right} \end{matrix}$$

$$y = mx + b$$

$\uparrow$  Slope       $\uparrow$  y-int



$$y = -\frac{2}{4}x + 6$$

$$y = mx + b$$

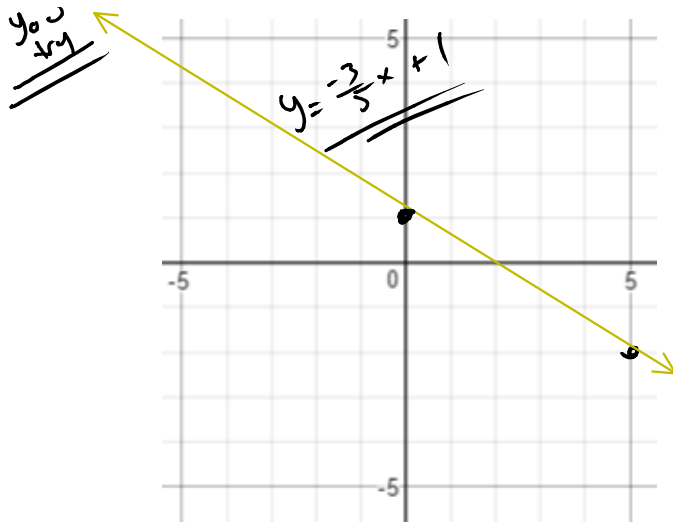
$\uparrow$  slope       $\uparrow$  y-int

$$\text{slope} = -\frac{2}{4}$$

$$y\text{-int} = 6 \leftarrow \text{start}$$

$$\text{slope} = \frac{\Delta y}{\Delta x} = -\frac{2}{4} \rightarrow \begin{array}{|l} 2 \text{ down} \\ 4 \text{ right} \end{array}$$

$$-\frac{2}{4} = \frac{2}{-4} \rightarrow \begin{array}{|l} 2 \text{ up} \\ 4 \text{ left} \end{array}$$



$$y = -\frac{3}{5}x + 1$$

$$y\text{-int} = 1$$

$$\text{slope} = \frac{\Delta y}{\Delta x} = -\frac{3}{5}$$