

Aug. 26, 2013

Sects. 1-1 & 2

Linear Equations

1-1 { x- and y-intercepts  
Setting Graphing Window

1-2 { Slope-Intercept Form  
Slope

## Standard Form

$$Ax + By = C$$

$$2x - 3y = 6$$

Find the x- & y- intercepts

x- (y=0)

$$2x - 3(0) = 6$$

$$2x = 6$$

$$x = 3$$

$$(3, 0)$$

y- (x=0)

$$2(0) - 3y = 6$$

$$-3y = 6$$

$$y = -2$$

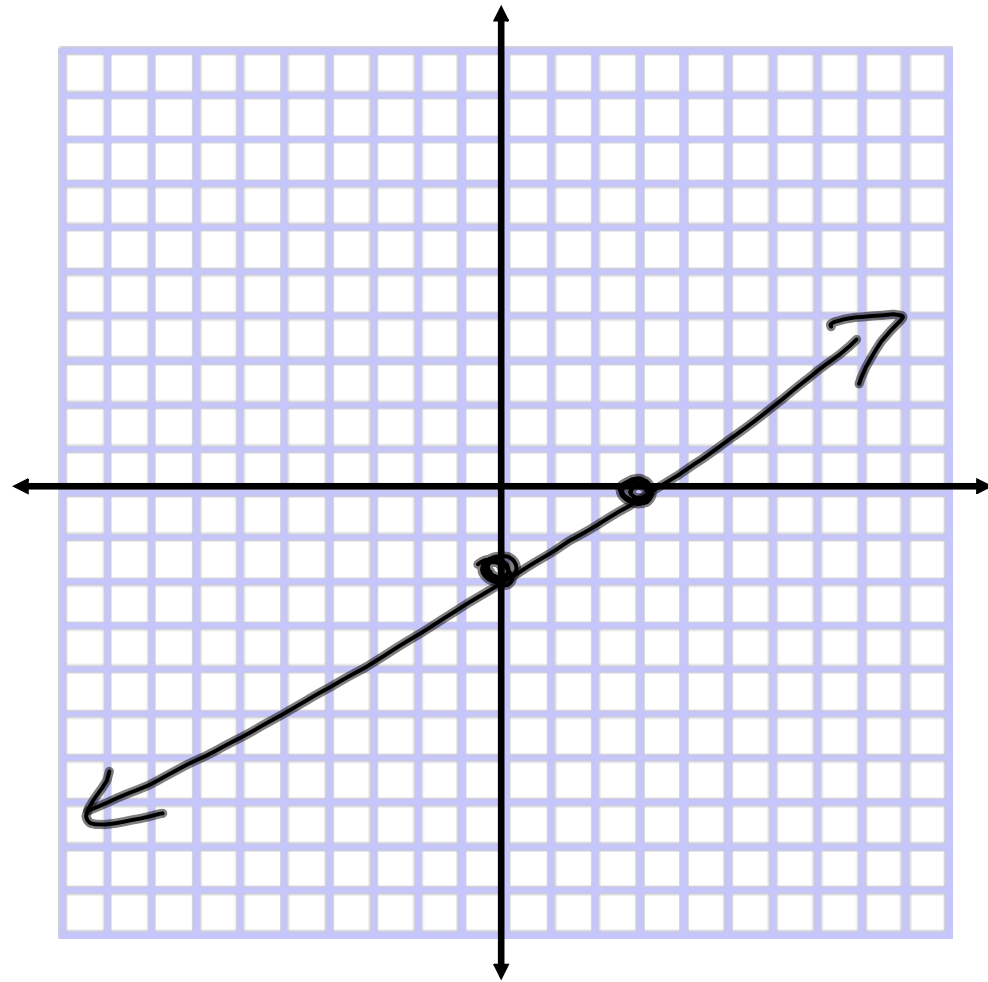
$$(0, -2)$$

$$2x - 3y = 6$$

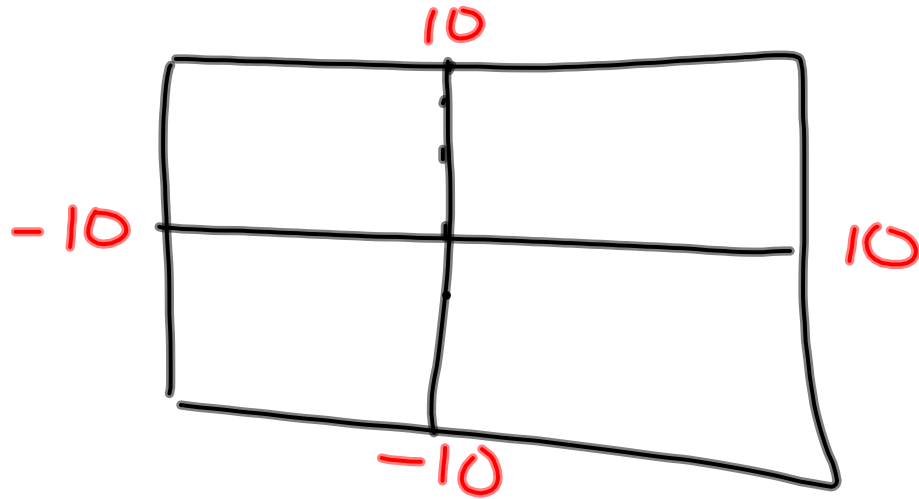
Graph

$$x\text{-int. } (3, 0)$$

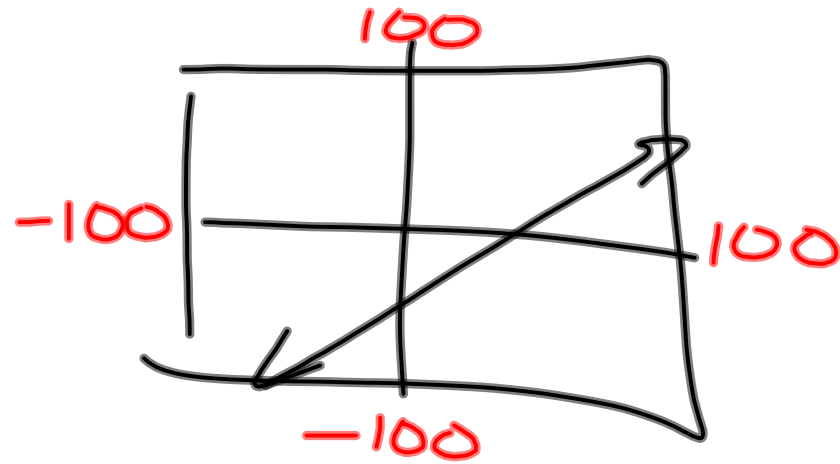
$$y\text{-int. } (0, -2)$$



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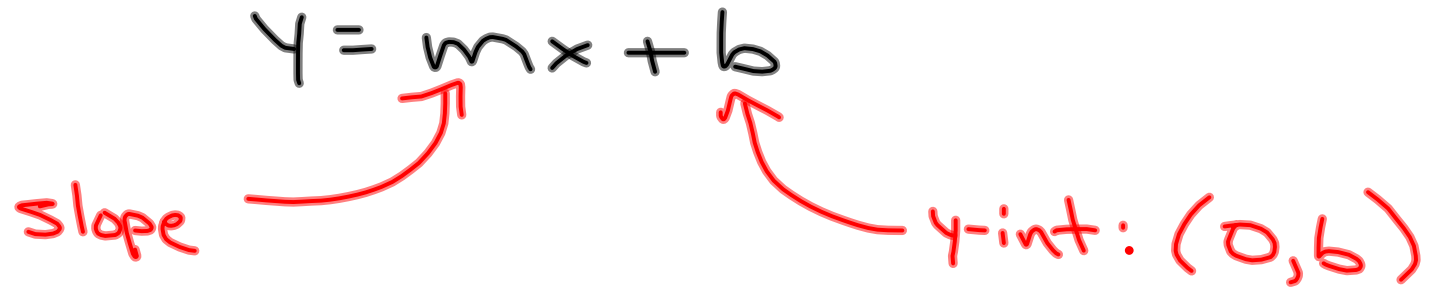
$$y = \frac{2}{3}x - 20$$



## Slope-Intercept Form (SIF)

$$y = mx + b$$

slope



y-int: (0, b)

$$\begin{array}{r} 2x - 3y = 6 \\ -2x \qquad \qquad -2x \\ \hline \end{array}$$

$$\frac{-3y}{-3} = \frac{-2x + 6}{-3}$$

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

$$m = \frac{2}{3}$$

$$y\text{-int}: (0, -2)$$

Slope ( $m$ )

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{\Delta y}{\Delta x}$$

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

Rate of Change = Slope



$$(5, -3) \quad (2, 4)$$

Find the slope of the line.

$$m = \frac{4 - (-3)}{2 - 5}$$

$$= \frac{7}{-3}$$

$$= -\frac{7}{3}$$

$$m = \frac{-3 - 4}{5 - 2}$$

$$= \frac{-7}{3}$$

$$= -\frac{7}{3}$$

Graph  $y = \frac{2}{3}x - 2$

$$m = \frac{2}{3}$$

$$y\text{-int: } (0, -2)$$

$$b = -2$$

