Linear Functions

Tuesday, May 13, 2014
6:56 AM

Linear Functions can be represented in several ways

$$y = m \cdot x + b$$

$$y = 3x - 4$$
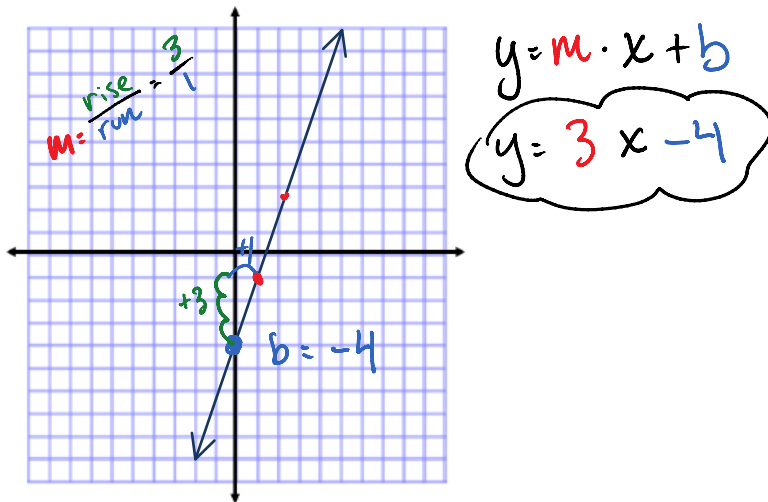
There are several ways to write the equation of a line, and *slope-intercept* **form** is just one of those.
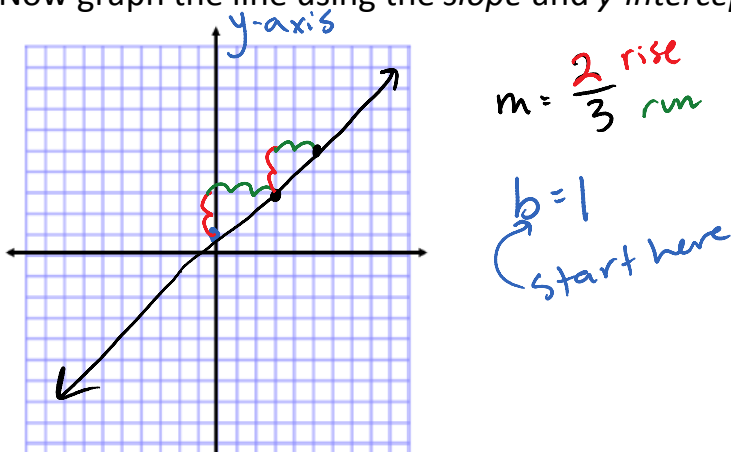
$$y = m \cdot x + b$$

Where m is the line's **slope**
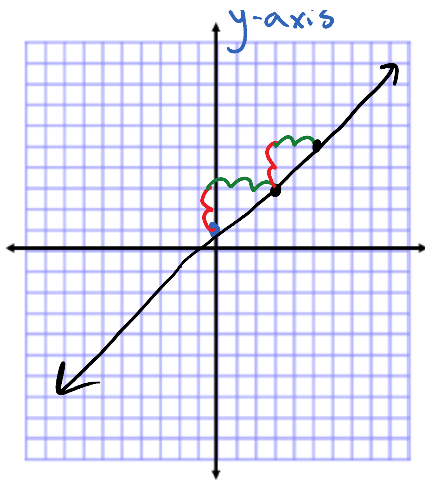And b is the line's **y-intercept**

Example: Identify the slope and y-intercept of the function below

$$y = \frac{2}{3} \cdot x + 1$$

$$m = \frac{2}{3}$$
$$b = 1$$

Now graph the line using the *slope* and *y-intercept*

$$m = \frac{2}{3} \quad \text{rise} \atop \text{run}$$
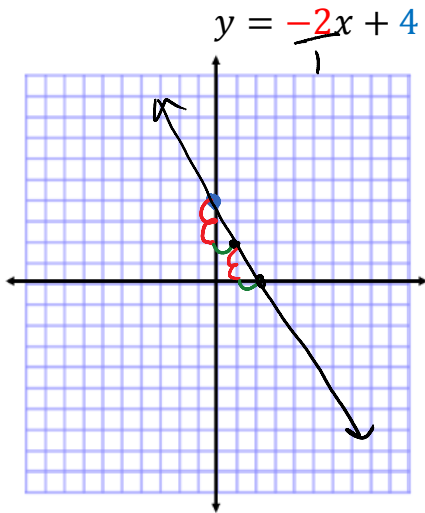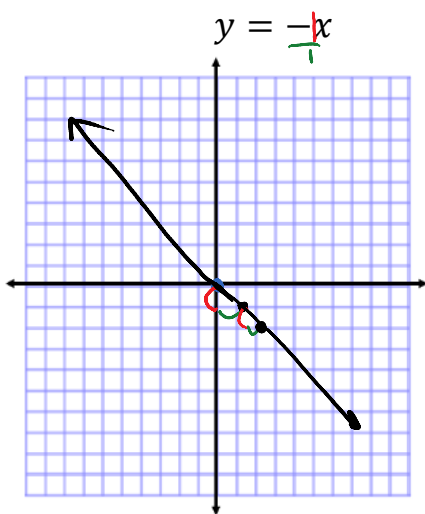
$$b = 1$$
start here

y-axis

$m = \dfrac{2}{3} \quad \dfrac{\text{rise}}{\text{run}}$

$b = 1$

(start here

Example: Identify the *slope* and *y-intercept*, then graph

$$y = \dfrac{-2x}{1} + 4$$

$m = \dfrac{-2}{1} \quad \dfrac{\text{rise}}{\text{run}}$

$b = 4$

Example: Identify the *slope* and *y-intercept*, then graph

$$y = \dfrac{-x}{1}$$

$m = \dfrac{-1}{1} \quad \dfrac{\text{rise}}{\text{run}}$ (always to the right)

$b = 0$

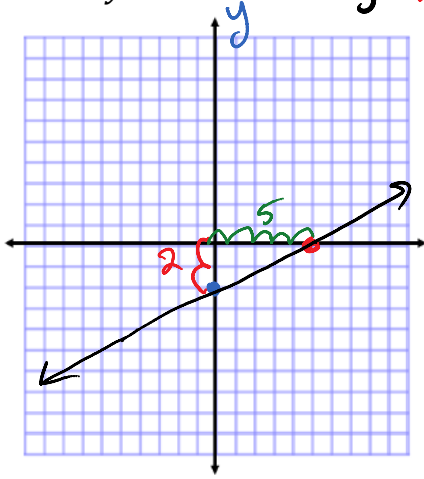Example: Identify the slope and y-intercept
$2x - 5y = 10$

$y = mx + b$

get y by itself

Example: Identify the slope and y-intercept

$2x - 5y = 10$

$y = mx + b$ by itself

$$2x - 5y = 10$$
$$-2x \qquad\qquad -2x$$

$$\frac{-5 \cdot y}{-5} = \frac{-2x}{-5} + \frac{10}{-5}$$

$$y = \frac{2}{5}x - 2$$

$$m = \frac{2}{5} \qquad \frac{rise}{run}$$

$$b = -2$$