

Slope-Intercept Form of a Line

$$y = mx + b$$

slope m y-intercept b

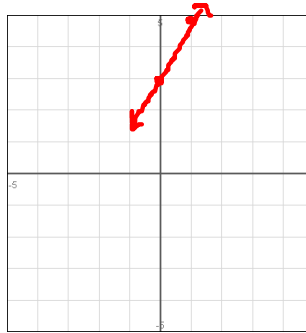
Directions: Graph each equation using the slope-intercept method.

1. $y = 2x + 3$

$$y = mx + b$$

$$m = \frac{2}{1} \quad \begin{matrix} \uparrow 2 \\ \rightarrow 1 \end{matrix}$$

$$b = 3 \quad (0, 3)$$

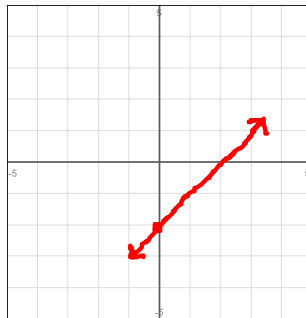


2. $y = x - 2$

$$y = mx + b$$

$$m = \frac{1}{1} \quad \begin{matrix} \uparrow 1 \\ \rightarrow 1 \end{matrix}$$

$$b = -2 \quad (0, -2)$$

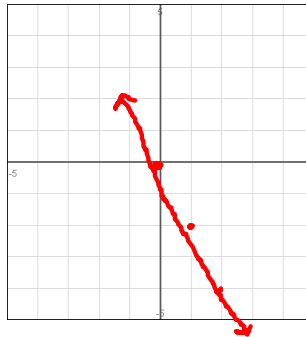


3. $y = -2x$

$$y = mx + b$$

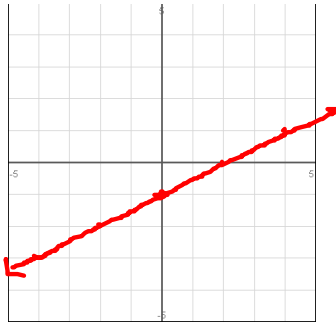
$$m = \frac{-2}{1} \quad \begin{matrix} \downarrow 2 \\ \rightarrow 1 \end{matrix}$$

$$b = 0 \quad (0, 0)$$



4. $y = \frac{1}{2}x - 1$
 $y = mx + b$

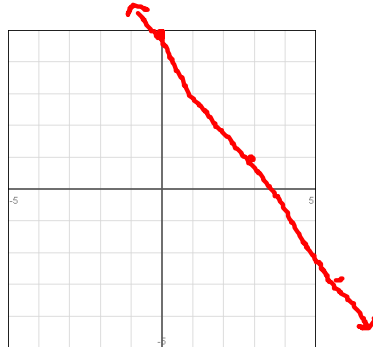
$m = \frac{1}{2}$ $\uparrow 1$ $\downarrow 2$
 $b = -1$ $(0, -1)$



5. $y = -\frac{4}{3}x + 5$
 $y = mx + b$

$m = -\frac{4}{3}$ $\downarrow 4$ $\rightarrow 3$

$b = 5$ $(0, 5)$

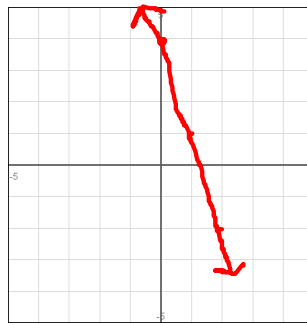


6. $3x + y = 4$ $y = mx + b$
 ~~$-3x$~~ $-3x$

$y = -3x + 4$
 $y = mx + b$

$m = \frac{-3}{1}$ $\downarrow 3$ $\rightarrow 1$

$b = 4$ $(0, 4)$



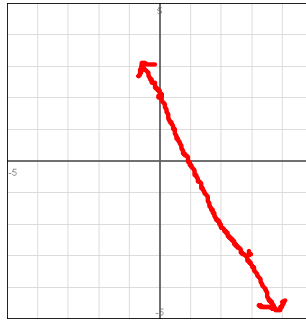
$$7. \frac{3y}{3} = \frac{5x-6}{3} \quad y = mx + b$$

$$y = \frac{-5}{3}x + 2$$

$$y = mx + b$$

$$m = \frac{-5}{3} \quad \begin{matrix} \downarrow 5 \\ \rightarrow 3 \end{matrix}$$

$$b = 2 \quad (0, 2)$$



$$8. \frac{3x}{4} + 4y = 12 \quad y = mx + b$$

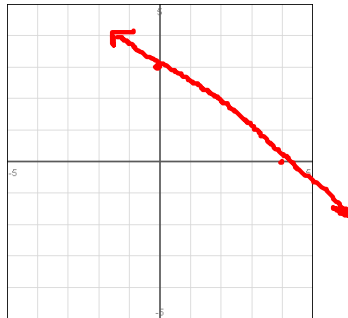
$$\frac{3x}{4} + 4y = 12$$

$$y = \frac{-3}{4}x + 3$$

$$y = mx + b$$

$$m = \frac{-3}{4} \quad \begin{matrix} \downarrow 3 \\ \rightarrow 4 \end{matrix}$$

$$b = 3 \quad (0, 3)$$



$$9. 4x - y = 3 \quad y = mx + b$$

$$4x - y = 3$$

$$-4x - y = -4x + 3$$

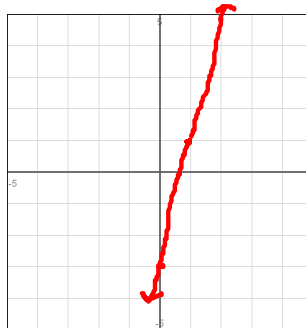
$$-y = -4x + 3$$

$$y = 4x - 3$$

$$y = mx + b$$

$$m = \frac{4}{1} \quad \begin{matrix} \uparrow 4 \\ \rightarrow 1 \end{matrix}$$

$$b = -3 \quad (0, -3)$$



10. $2x - 3y - 6 = 0$ $y = mx + b$

$+3y + 3y$

$2x - 6 = 3y$

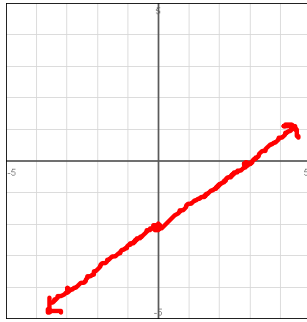
$\frac{3y}{3} = \frac{2x - 6}{3}$

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

$y = mx + b$

$m = \frac{2}{3}$ $\begin{array}{l} \uparrow 2 \\ \rightarrow 3 \end{array} \quad \left| \quad \begin{array}{l} \downarrow 2 \\ \leftarrow 3 \end{array} \right.$

$b = -2$ $(0, -2)$



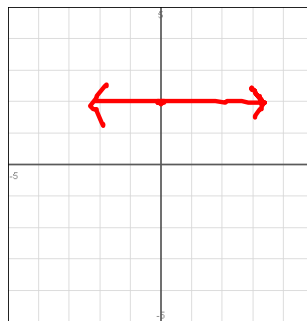
11. $y = 2$

$y = mx + b$

Horizontal line

$m = 0$

y -int. $(0, 2)$

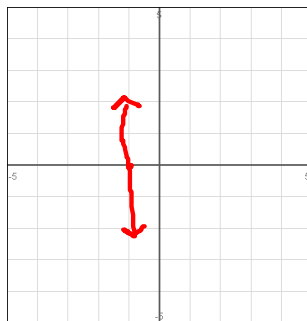


12. $x = -1$

vertical line

$m = \text{undefined}$

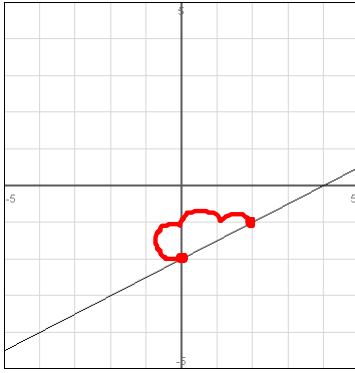
x -int $(-1, 0)$



Directions: For each line, write an equation in slope-intercept form.

$$y = \underline{m}x + \underline{b}$$

13.



m = positive

↑ 1

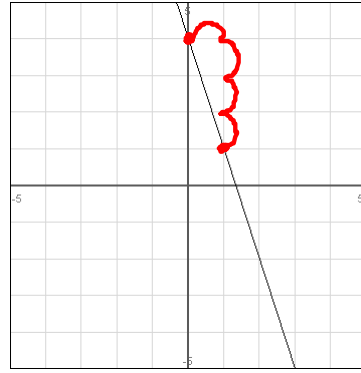
→ 2

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

b = -2

$$y = mx + b$$
$$y = \frac{1}{2}x - 2$$

14.



m = negative b = 4

$$m = -\frac{3}{1} = -3$$

$$y = mx + b$$
$$y = -3x + 4$$