

Graphing in Different Forms of Linear Equations

Name: _____

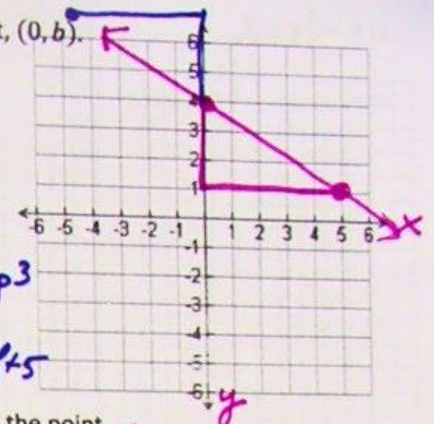
Slope Intercept Form: $y = mx + b$, where m is the slope and b is the y-intercept, $(0, b)$.

- 1st: Plot the y-intercept on the y-axis.
- 2nd: Use the ratio of the rise over run from the slope to make at least one stair step from the y-intercept.

Example:

$y = -\frac{3}{5}x + 4$
 $m = -\frac{3}{5}$; $b = 4$

$-\frac{3}{5} \leftarrow \begin{matrix} \text{down } 3 \\ \text{right } 5 \end{matrix} = \frac{3}{-5} \leftarrow \begin{matrix} \text{up } 3 \\ \text{left } 5 \end{matrix}$



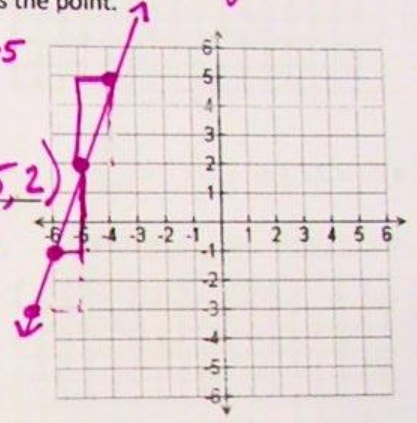
Point-Slope Form: $y - y_1 = m(x - x_1)$, where m is the slope and (x_1, y_1) is the point.

- 1st: Plot the point.
- 2nd: Use the ratio of the rise over run from the slope to make at least one stair step from the plotted point.

Example:

$y - 2 = 3(x + 5)$
 $m = 3$; point = $(-5, 2)$

$\frac{3}{1} \leftarrow \begin{matrix} \text{up } 3 \\ \text{right } 1 \end{matrix} = \frac{-3}{-1} \leftarrow \begin{matrix} \text{down } 3 \\ \text{left } 1 \end{matrix}$



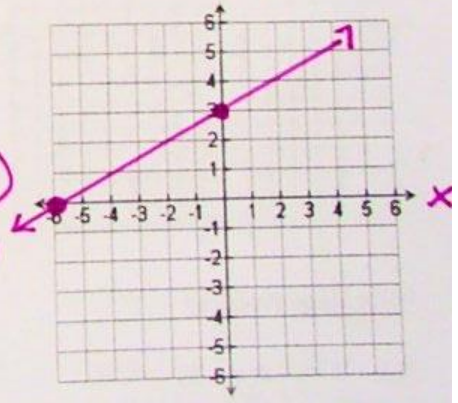
(x, y)

Standard Form: $Ax + By = C$

- 1st: Substitute $y = 0$. This will give you the x-intercept, $(x, 0)$.
- 2nd: Substitute $x = 0$. This will give you the y-intercept, $(0, y)$.
- 3rd: Plot these two points.

Example:

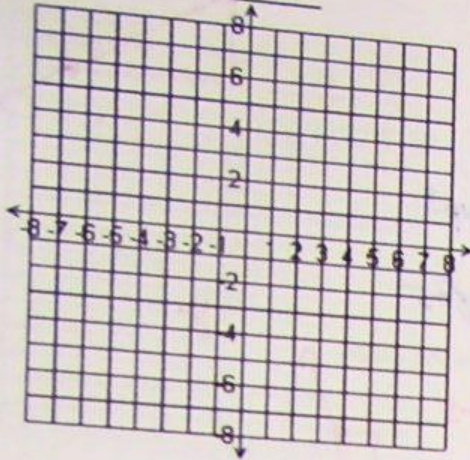
$2x + 4y = -12$
 x-intercept = $(-6, 0)$
 y-intercept = $(0, 3)$



For the following, fill in each blank. The equations are easiest to graph in the form that they are in. Do NOT transform them into a different form. Graph each from the information requested.

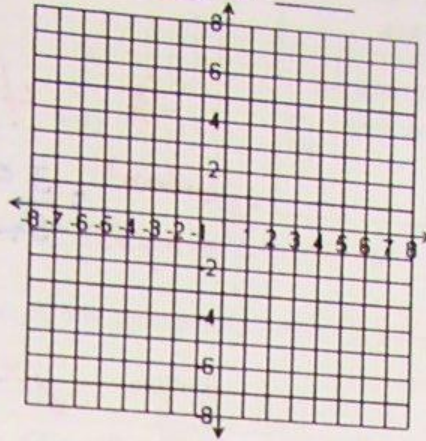
$$1) y = \frac{1}{2}x - 5$$

$m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$



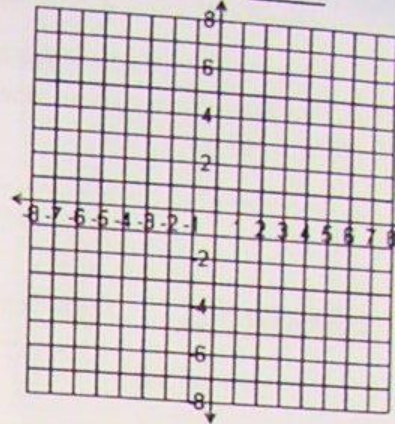
$$2) y = -3x + 4$$

$m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$



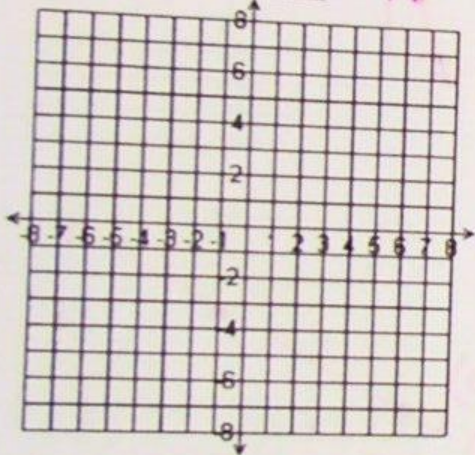
$$3) y = -\frac{2}{3}x - 4$$

$m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$



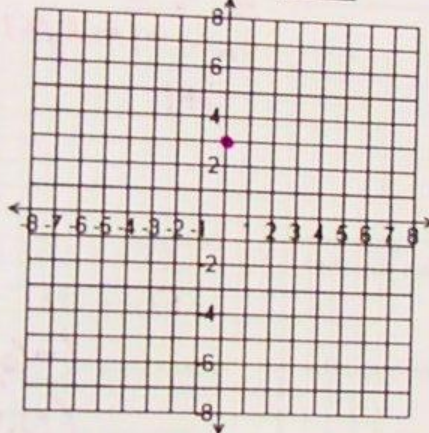
$$4) y = 2x + 6$$

$m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$



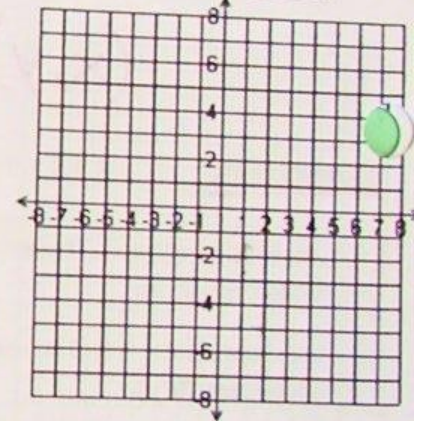
$$5) y = 3 \quad y = 0 \cdot x + 3$$

$m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$



$$6) y = \frac{5}{2}x - 3$$

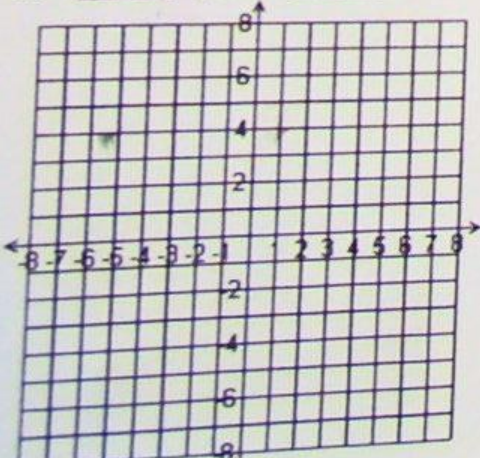
$m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$



Point Slope Practice:

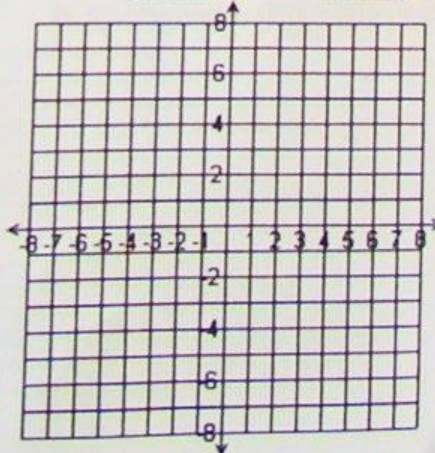
$$1) y - 1 = -2(x - 5)$$

$m = \underline{\hspace{2cm}}$ $\text{point} = \underline{\hspace{2cm}}$



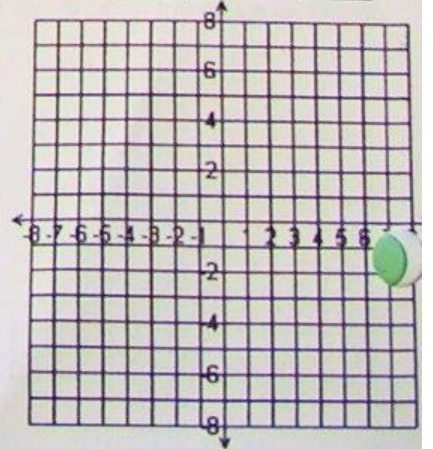
$$2) y + 3 = \frac{2}{3}(x + 4)$$

$m = \underline{\hspace{2cm}}$ $\text{point} = \underline{\hspace{2cm}}$

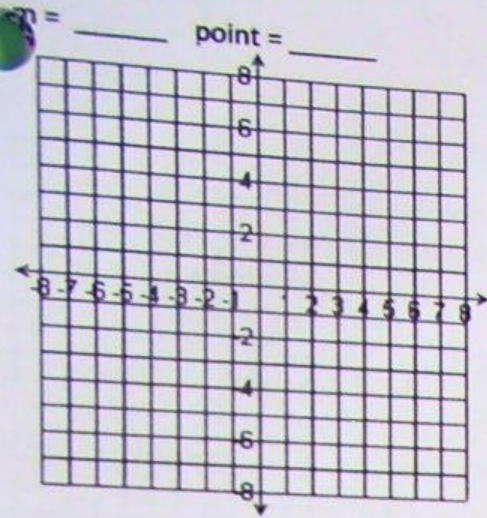


$$3) y + 4 = -\frac{1}{3}(x - 1)$$

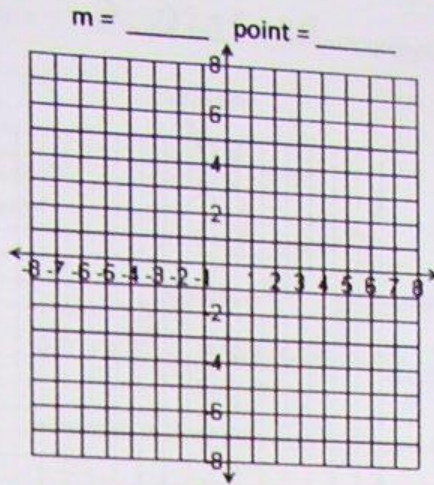
$m = \underline{\hspace{2cm}}$ $\text{point} = \underline{\hspace{2cm}}$



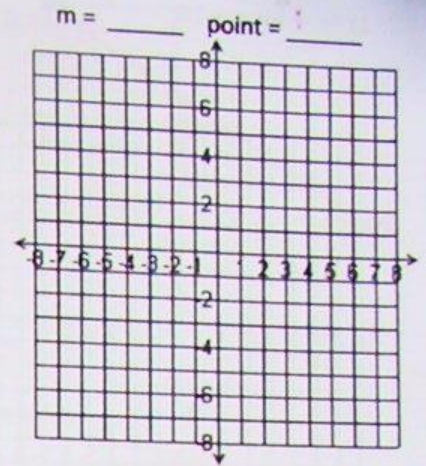
4) $y - 3 = 4(x + 6)$



5) $y + 7 = \frac{5}{2}(x - 2)$



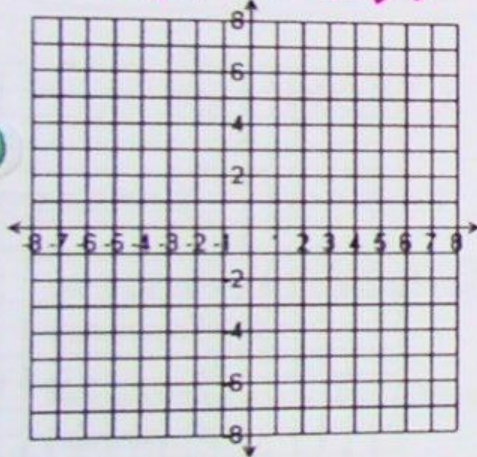
6) $y + 5 = -\frac{1}{2}(x + 7)$



Standard Form Practice:

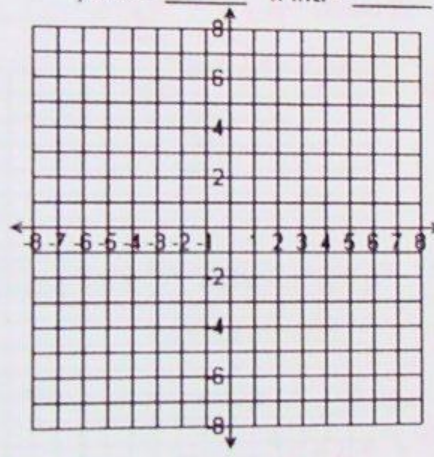
1) $3x - 6y = 12$

y -int. = $(0, \underline{\quad})$ x -int. = $(\underline{\quad}, 0)$



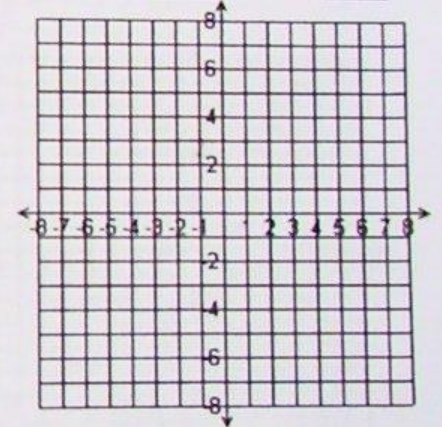
2) $5x + 2y = -10$

y -int. = _____ x -int. = _____



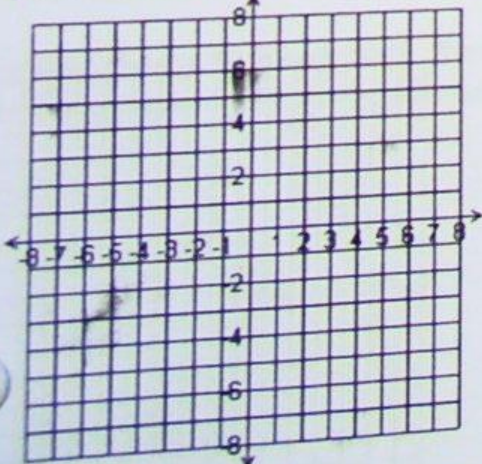
3) $x + 2y = 8$

y -int. = _____ x -int. = _____



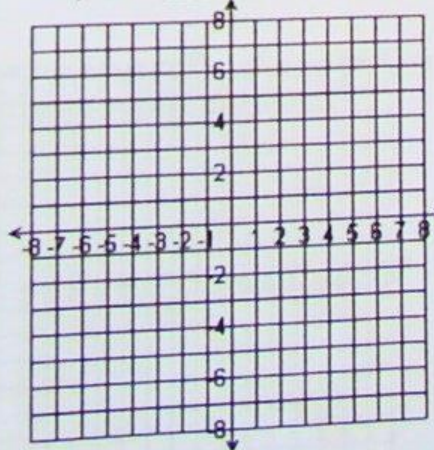
4) $3x - 5y = -15$

y -int. = _____ x -int. = _____



5) $4x - 2y = 16$

y -int. = _____ x -int. = _____



6) $3x + 9y = -9$

y -int. = _____ x -int. = _____

