

Name \_\_\_\_\_

# Solving for y

Date \_\_\_\_\_ Period \_\_\_\_\_

SLOPE

Y-INTERCEPT

$$y = mx + b$$

This is called the *Slope-Intercept* form of a linear equation.

**QUESTION:**  $Ax + By = C$  Standard Form

What is wrong with these equations?

$$y + 2x = 3$$

$$6x - 2y = 4$$

$$y - 7 + 5x = 9$$

**ANSWER:**

We need *Slope-Intercept* form.

$$y =$$

We need "y" by itself on the left and everything else on the right.  
SOLVE FOR Y means "get y by itself."

$$\begin{array}{r} y + 2x = 3 \\ \underline{-2x} \phantom{=} \\ y = 3 - 2x \end{array}$$

Step 1: Move the "mx" term to the right using inverse operations

and then

$$y = -2x + 3$$

Step 2: Rearrange

(make it look  $y = mx + b$ )

Ahw Snap! You're done when it looks like:

$$y = mx + b$$

$m = -2$  or  $-\frac{2}{1}$  and  $b = 3$  (start pt)

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# Solving for y

Your goal is  $y = mx + b$

Step 1: **MOVE** the mx term to the right side of the "=" by adding or subtracting it.

Step 2: **REARRANGE** terms on the right side. Put the linear term first plus or minus the constant

Step 3: **DIVIDE** by the coefficient of y.

Step 4: **SIMPLIFY** and reduce fractions *leave numbers as fractions or improper fractions*  
Write in Slope-intercept form. *fractions*

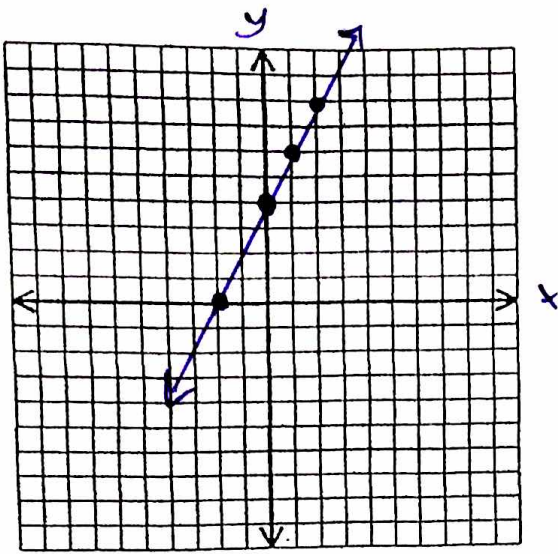
Example 1

$$-4x + 2y = 8$$

Example 2

$$6y + 18x = 6$$

Example 3 Write  $33x - 11y = 99$  in Slope-intercept form.



Example 1:

$$\begin{array}{r} \ominus 4x + 2y = 8 \\ +4x \qquad +4x \\ \hline \end{array}$$

Step 1:

$$2y = 8 + 4x$$

Step 2:

$$\frac{2y}{2} = \frac{4x}{2} + \frac{8}{2}$$

Step 3:

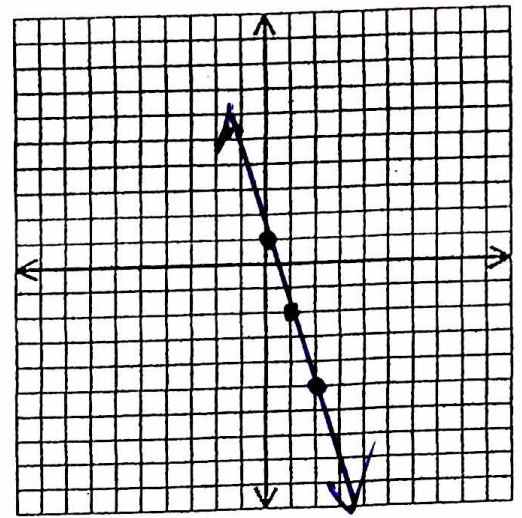
$$y = \frac{4}{2}x + \frac{8}{2}$$

Step 4:

$$\boxed{y = 2x + 4}$$

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

$$b = 4$$



Example 2:

$$\begin{array}{r} 6y + 18x = 6 \\ -18x \quad -18x \\ \hline 6y = 6 - 18x \end{array}$$

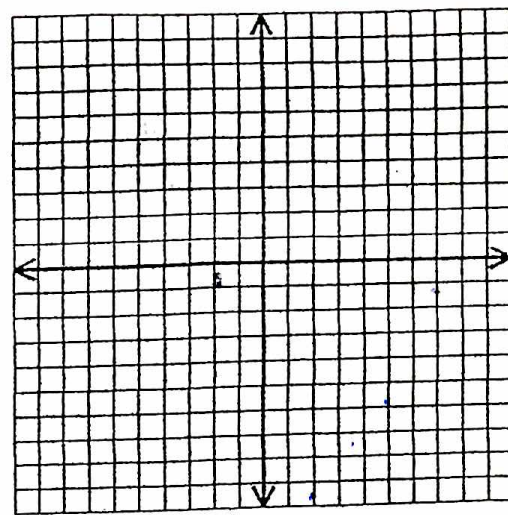
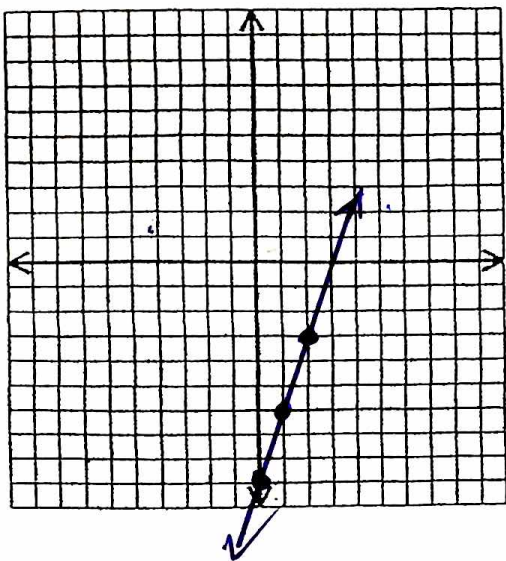
$$\frac{6y}{6} = \frac{-18x}{6} + \frac{6}{6}$$

$$y = -\frac{18}{6}x + \frac{6}{6}$$

$$\boxed{y = -3x + 1}$$

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

$$b = 1$$



Example 3:

$$\begin{array}{r}
 33x - 11y = 99 \\
 -33x \qquad \qquad -33x \\
 \hline
 \end{array}$$

Step 1:

$$-11y = 99 - 33x$$

Step 2:

$$\begin{array}{r}
 \cancel{-11}y = \cancel{-33}x + 99 \\
 \cancel{-11} \quad \quad \cancel{-11} \quad \quad \cancel{-11}
 \end{array}$$

$$y = \frac{-33}{-11}x + \frac{99}{-11}$$

$$y = 3x - 9$$

$$m = 3 \text{ or } \frac{3}{1}$$

$$b = -9 \text{ (start pt)}$$