

Algebra RH

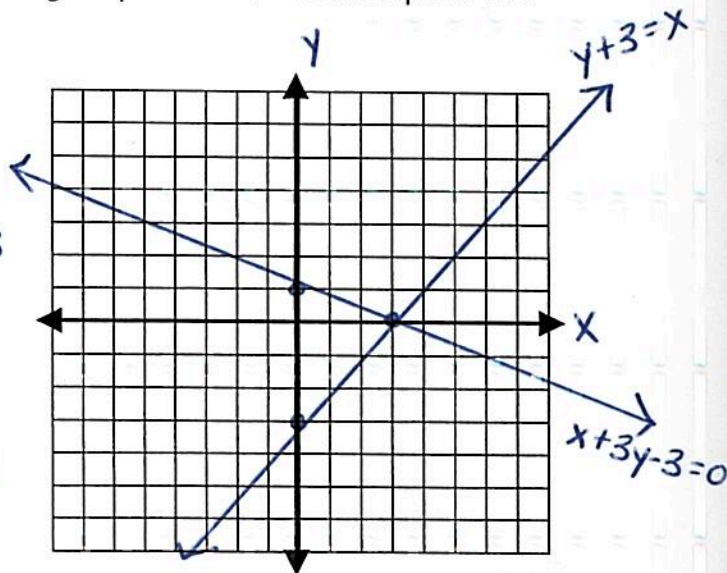
Essential Questions: What is slope-intercept form? How is it used to graph a line?

Do Now: Using the intercept method, graph the following 2 equations and then complete the table below.

isolate constant

1. $y + 3 = x$
 $-x + y + 3 = 0$
 $-x + y = -3$
 $x \text{ int: } \frac{C}{A} = \frac{-3}{-1} = 3$
 $(3, 0)$
 $y \text{ int: } \frac{C}{B} = \frac{-3}{1} = -3$
 $(0, -3)$

2. $x + 3y - 3 = 0$
 $x + 3y = 3$
 $x \text{ int: } \frac{C}{A} = \frac{3}{1} = 3$
 $(3, 0)$
 $y \text{ int: } \frac{C}{B} = \frac{3}{3} = 1$
 $(0, 1)$



Original Equation	Slope	y-intercept	Equation in $y = mx + b$ form
$y + 3 = x$	$\frac{1}{1} = 1$	-3	$y = x - 3$
$x + 3y - 3 = 0$	$-\frac{1}{3}$	1	$y = -\frac{1}{3}x + 1$

$x + 3y - 3 = 0$
 $x + 3y = 3$
 $\frac{3y}{3} = \frac{-x + 3}{3}$
 $y = -\frac{1}{3}x + 1$

SLOPE-INTERCEPT FORM OF AN EQUATION

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

$\frac{\text{slope}}{\text{co-efficient of } x}$ $\frac{\text{y intercept}}{\text{constant}}$

Graphing Equations using the Slope-Intercept Method

1. Put the equation in " $y = mx + b$ " form if it is not already.
2. Start by plotting the y-intercept $(0, b)$ as your first point.
3. Use the slope $\frac{\text{rise}}{\text{run}}$ (m) to plot your next point.
4. Draw a line through the two points.

Example: Graph $3x + y = 2$ using the slope-intercept method.

isolate y

$$3x + y = 2$$

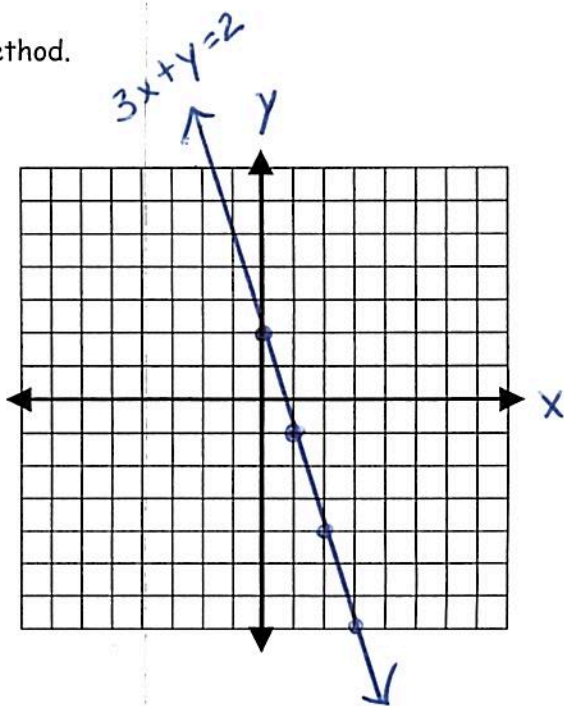
$$y = -3x + 2$$

$$\text{slope} = \frac{-3}{1} \downarrow$$

(m) \rightarrow

$$y\text{-intercept} = 2$$

(b)



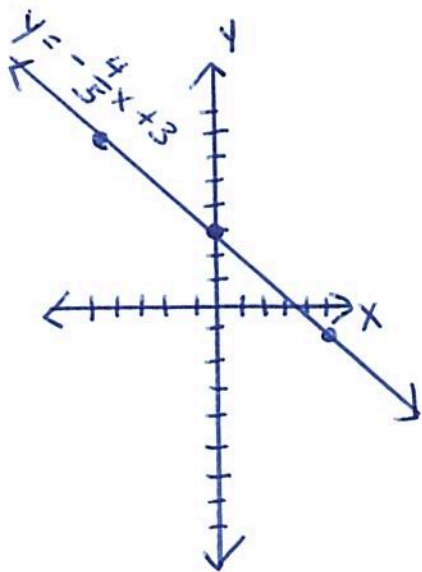
On a piece of graph paper, graph the following equations using the slope-intercept method.

isolate y

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

$$\text{slope} = -\frac{4}{5}$$

$$y\text{int} = 3$$

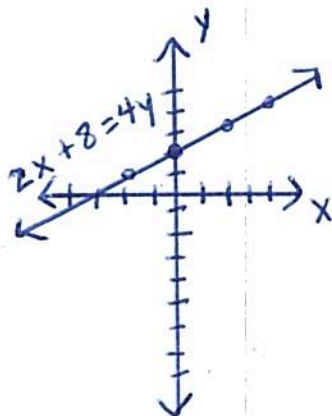


2. $\frac{2x+8}{4} = \frac{4y}{4}$

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

$$\text{slope} = \frac{1}{2}$$

$$y\text{int} = 2$$

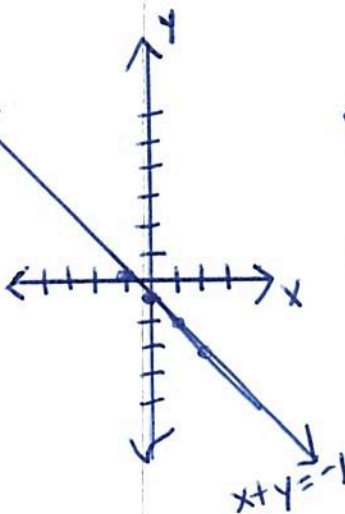


3. $x + y = -1$

$$y = -x - 1$$

$$\text{slope} = \frac{-1}{1}$$

$$y\text{int} = -1$$



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

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

$$\text{slope} = \frac{-1}{2}$$

$$y\text{int} = 2$$

