Lesson 4.4 Graphing Linear Equations Using Slope-Intercept form

Learning Targets:

- Recognize Slope-Intercept Form
- Identify the slope
- Identify the y-intercept
- Use those 2 values to graph the line

Slope-Intecept Form

$$y = mx + b$$

Important Concept: writing slope

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

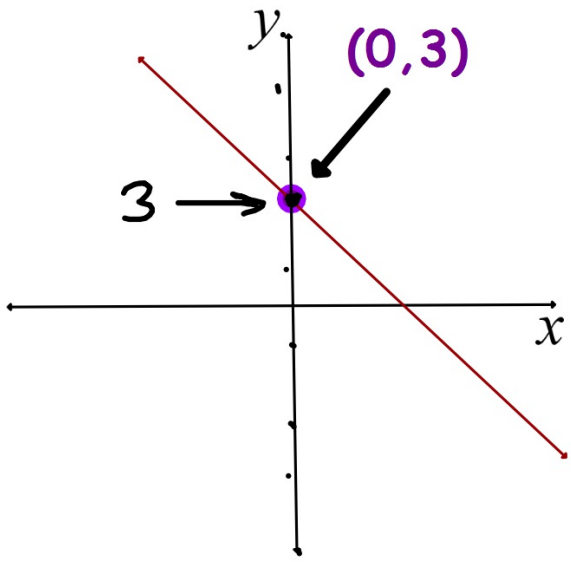
$$m = \frac{\text{rise}}{\text{run}}$$

$m = \frac{2}{3}$ $m = \frac{-3}{}$

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

You want to write your slope as a ratio!

Important Vocabulary: y-intercept



The **y-intercept** of a line is the point where the line crosses the y-axis.

It occurs when x=0

Slope-Intecept Form

YES !

$y = mx + b$

NOT !

1) $y = 2x - 5$

2) $y = -3x + 4$

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

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

5) $6y = 3x + 18$

6) $4y + 12x = -4$

7) $9 - 3y = x$

8) $-5x + 2y = -8$

Writing an equation in Slope-Intercept Form

$3x + 2y = 6$

$y = mx + b$

$-3x \qquad -3x$

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

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

Identify the slope and y-intercept

1) $y = 2x - 5$ m= 2 b= −5

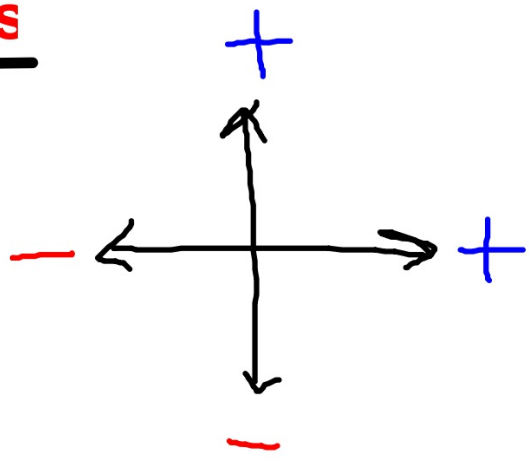
2) $y = -3x + 4$ m= −3 b= 4

3) $y = \frac{2}{3}x - 2$ m= $\frac{2}{3}$ b= −2

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

Writing Slope "Both"Ways

$$-\frac{3}{2}$$

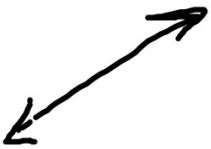


$\frac{\Delta y}{\Delta x}$ $\frac{-3}{2}$ ↓3 →2

$\frac{3}{-2}$ ↑3 ←2

slope is the set of directions telling you how to move from one point to another on a line

$\frac{4}{5}$ positive



$\frac{4}{5}$ 4 up

5 right

$\frac{-4}{-5}$ down 4

left 5

Graphing a Linear Equation in Slope-Intercept Form

$$y = -4x + 3$$

1st: Identify the slope (m) and the y-intercept (b)

2nd: Graph the y-intercept

3rd: Use the slope to make at least 2 more points.

1st: m= -4 b= 3

2nd: Graph (0 , 3)

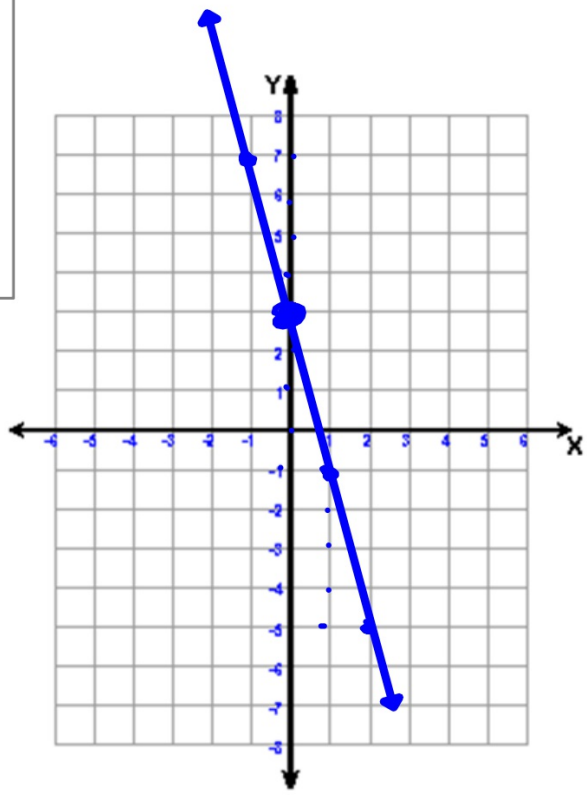
3rd: $-\frac{4}{1}$

$\frac{-4}{1}$ ↓4 →1

$\frac{4}{-1}$ ↑4 ←1

The slope is a set of directions telling you how to move from the y-intercept to another point on the line.

$y = -4x + 3$



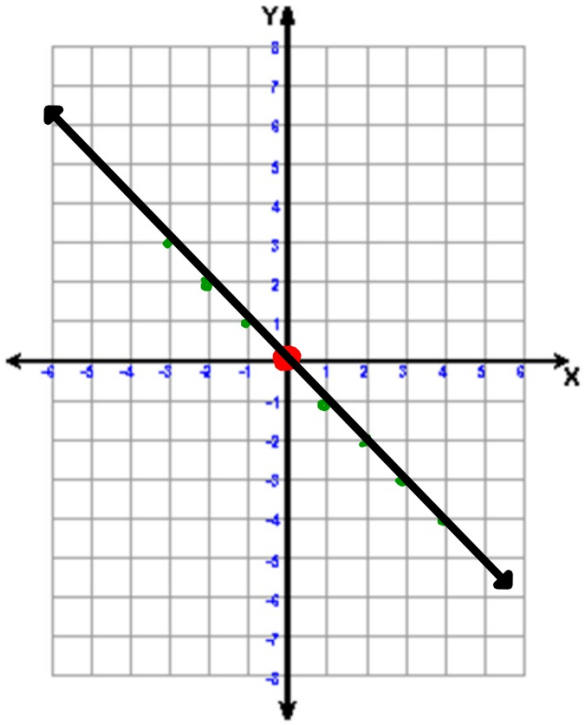
$y = mx + b$

$y = -x$

$y = -1x + 0$

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

$b = 0$

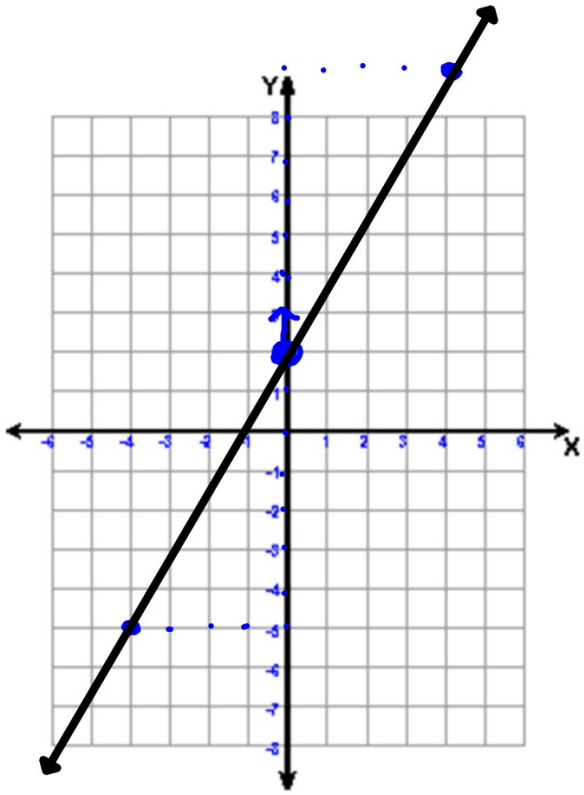


$$y = \frac{7}{4}x + 2$$

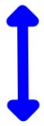
$m = \frac{7}{4}$

or $\frac{-7}{-4}$

$b = 2$



4.4



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