

NAME: _____

Math _____, Period _____

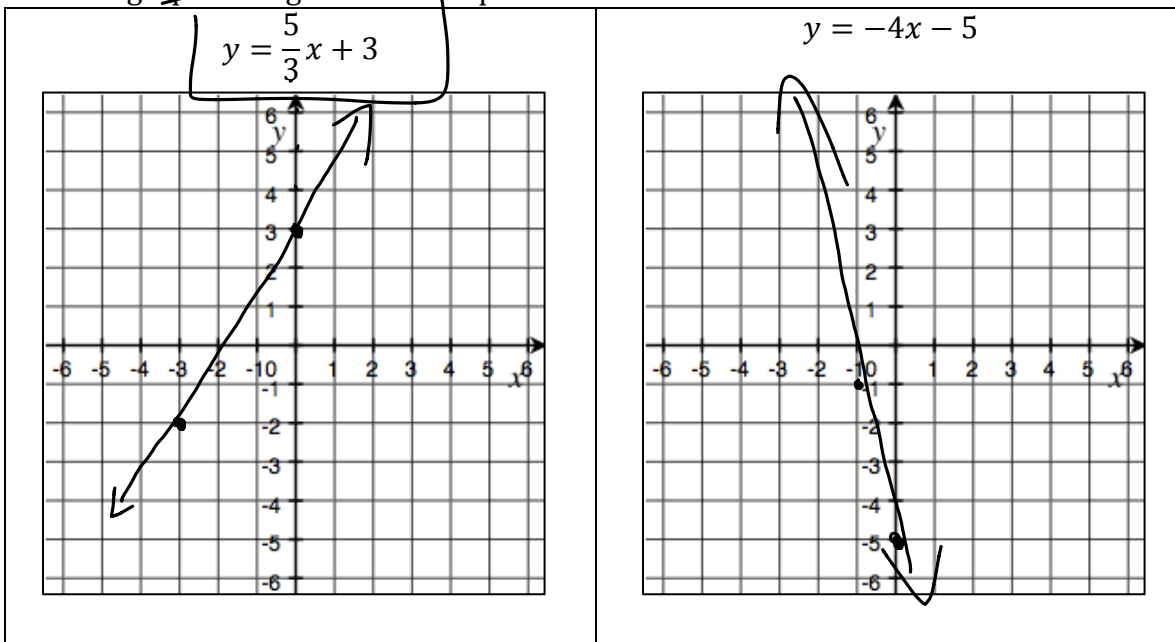
Mr. Rogove

Date: _____

LEARNING OBJECTIVE: We will write a linear equation when we are given a graph of a line. (G8M4L18)

ACTIVATING PRIOR KNOWLEDGE:

We can graph lines given linear equations



CONCEPT DEVELOPMENT:

We can work backwards to write equations based on the graphs if we can identify the y-intercept and another point with integer coordinates.

Why do we need to identify a second point with integer coordinates?

Slope !!

Rewriting from Slope-Intercept ($y = mx + b$) to Standard Form ($ax + by = c$)

- a, b, and c must be integers!
- a cannot be negative.

Examples:

$$y = \frac{4}{5}x - 40 \quad \text{SLOPE-INTERCEPT FORM}$$

$$-\frac{4}{5}x - \frac{4}{5}y$$

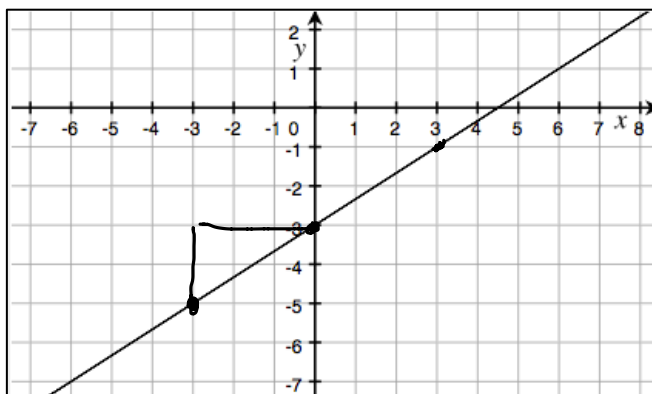
$$-5 \left(-\frac{4}{5}x + y = -40 \right)$$

$$4x - 5y = 200 \quad \text{STANDARD FORM}$$

GUIDED PRACTICE:**Steps for Writing Equations in Slope-Intercept AND Standard Form**

1. Analyze the graph carefully. Identify the y-intercept and another point in order to determine the slope.
2. Write the equation in slope-intercept form.
3. Convert from slope-intercept form to standard form.

Graph:



Slope Intercept Form

 $(y = mx + b):$

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

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

Standard Form $(ax + by = c):$

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

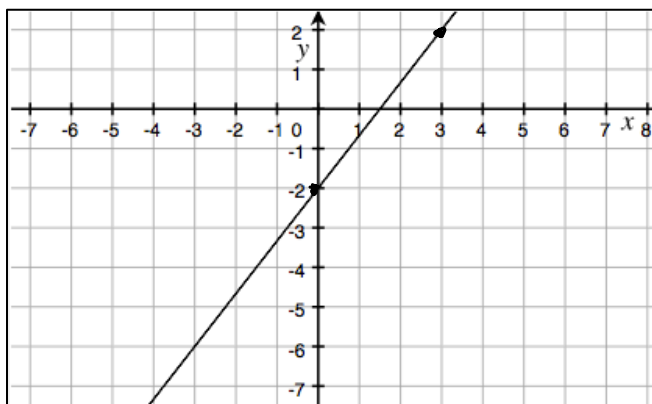
$$-\frac{2}{3}x - \frac{2}{3}x$$

$$2x - 3y = 9$$

$$-3 \left(-\frac{2}{3}x + y = -3 \right)$$

$$2x - 3y = 9$$

Graph: *



Slope Intercept Form

 $(y = mx + b):$

$$b = -2 \quad m = \frac{4}{3}$$

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

$$-\frac{4}{3}x - \frac{4}{3}x$$

Standard Form $(ax + by = c):$

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

$$4x - 3y = 6$$

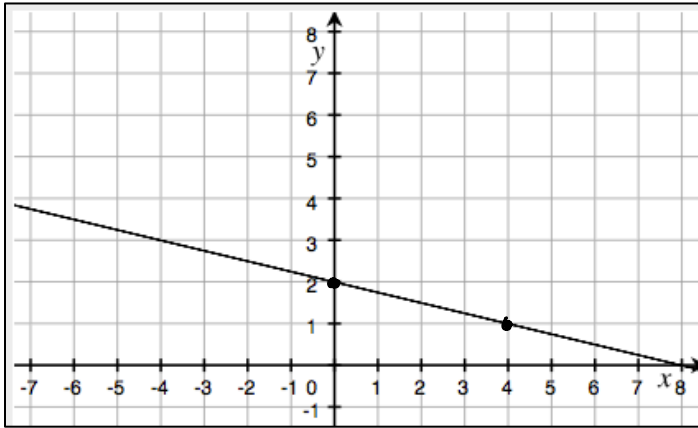
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Graph:



Slope Intercept Form
($y = mx + b$):

$$b=2 \quad m=-\frac{1}{4}$$

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

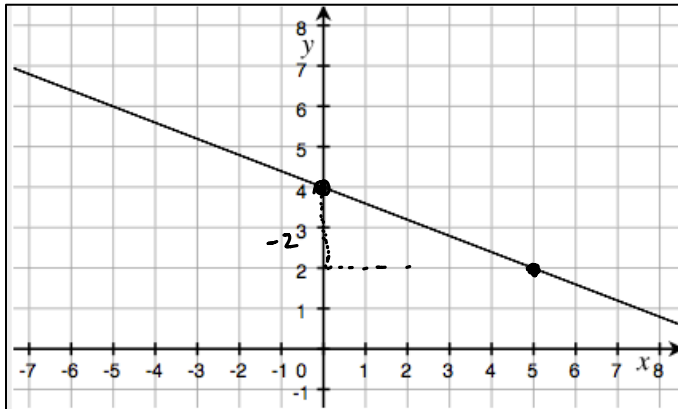
$$+\frac{1}{4}x \quad +\frac{1}{4}x$$

Standard Form ($ax + by = c$):

$$4\left(\frac{1}{4}x + y = 2\right)$$

$$x + 4y = 8$$

Graph:



Slope Intercept Form
($y = mx + b$):

$$b=4 \quad m=-\frac{2}{5}$$

$$y = -\frac{2}{5}x + 4$$

$$+\frac{2}{5}x \quad +\frac{2}{5}x$$

Standard Form ($ax + by = c$):

$$5\left(\frac{2}{5}x + y = 4\right)$$

$$2x + 5y = 20$$

$$x\text{-int.} \rightarrow 10$$

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INDEPENDENT PRACTICE:

Practice exercises from lesson 20 Page s114-116

CLOSURE:

Exit Ticket from lesson 20

TEACHER NOTES:

Lesson 20 from ENY.

Khan Assignments (could be basis for study guide)

*Finding Intercepts of Linear Functions (more for Lesson 46)

*Slope Triangle Similarity (more for Lesson 45)

*Graphing Linear Equations (Lesson 47)

*Slope-Intercept Form (Lesson 45) (will be difficult)

* Converting Between Slope-Intercept and Standard Form (Lesson 47)