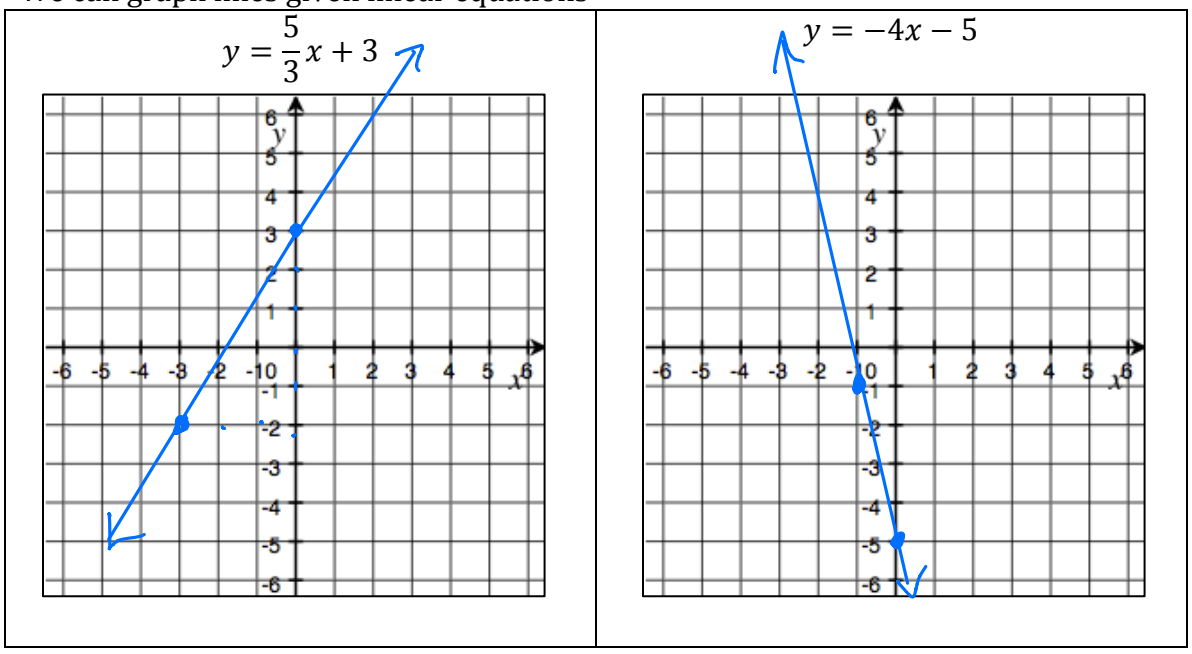
NAME:_____ Math _____ , Period _____

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?

To find out 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:

$$y = \frac{4}{5}x - 40$$

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

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

$4x - 5y = 200$

positive!!

4, -5, 200

Integers!

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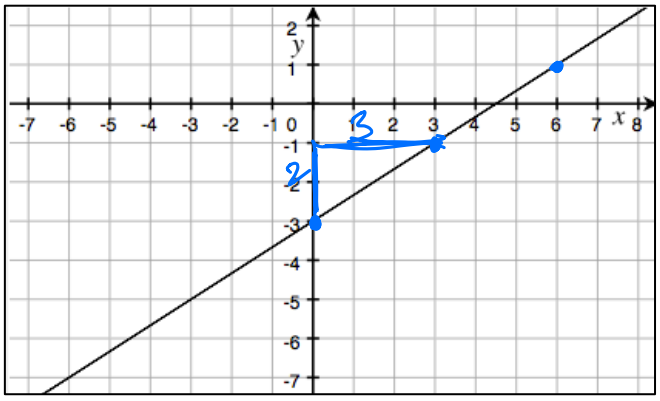
Guided Practice:

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 ($y = mx + b$):

$b = -3$

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

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

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

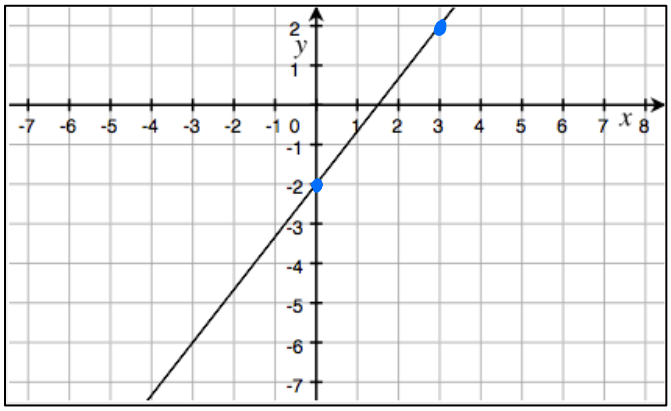
$y = \frac{2}{3}x - 3$

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

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

$2x - 3y = 9$

Graph:



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

$b = -2$

$m = \frac{4}{3}$

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

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

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

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

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

$4x - 3y = 6$

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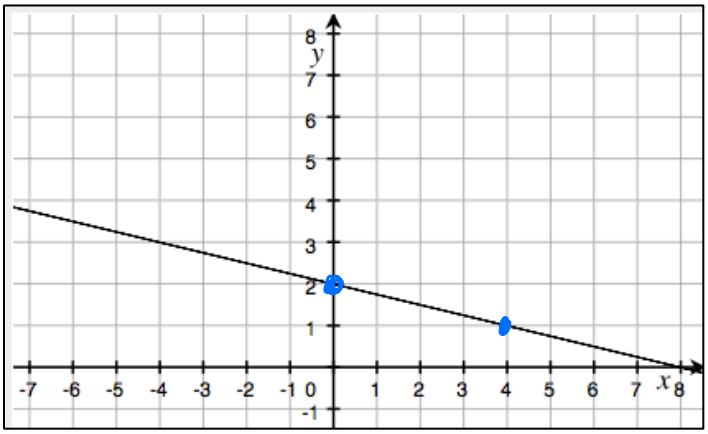
Graph:



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

$b = 2$

$m = -\frac{1}{4}$

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

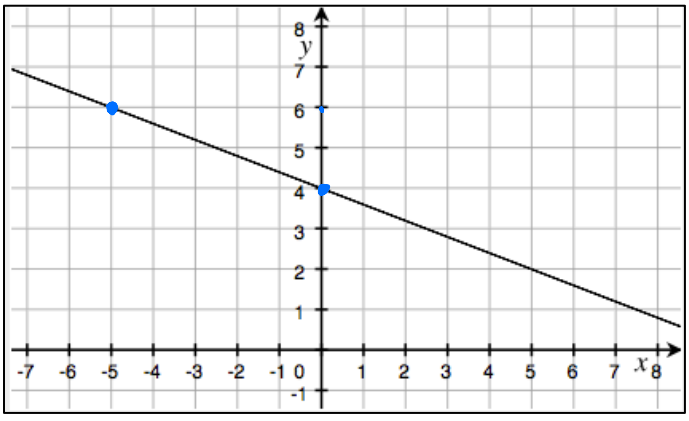
Standard Form ($ax + by = c$):

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

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

$x + 4y = 8$

Graph:



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

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

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

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

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

$2x + 5y = 20$

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

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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)