

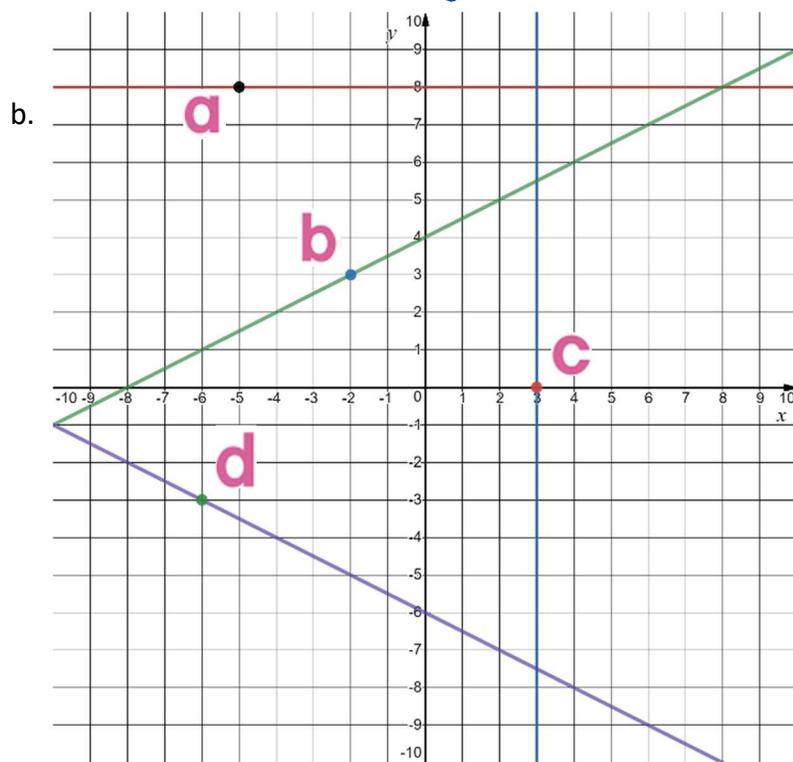
Name: _____

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Learning Goal 6.2	Constructing and using the following forms of a linear equation: <ul style="list-style-type: none"> • Slope – Intercept Form $y = mx + b$, • Slope – Point Form $y - y_1 = m(x - x_1)$, and • General Form $Ax + By + C = 0$.
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Warmup State the slope and y-intercept of each line represented below.

a. $(y = \frac{4}{5}x + 3) \times -1 \quad y = -\frac{4}{5}x - 3 \quad \text{so } m = -\frac{4}{5}, b = -3$



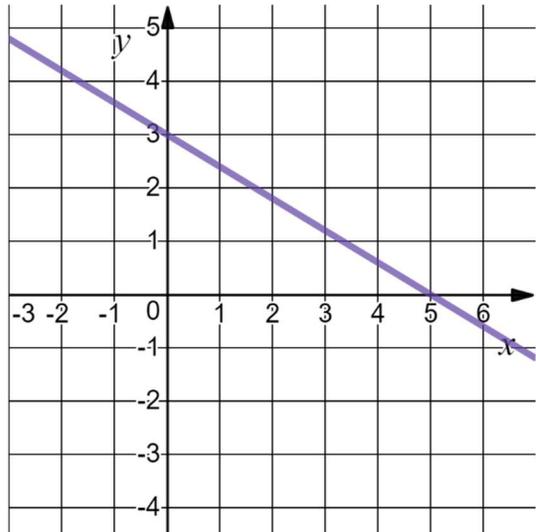
Line	Slope	y-intercept
a	0	8
b	$\frac{1}{2}$	4
c	N/S	—
d	$-\frac{1}{2}$	-6

Equation of a Line	
Slope-Intercept Form $y = mx + b$	Slope-Point Form $y - y_1 = m(x - x_1)$
General Form $ax + by + c = 0$ $a \in \mathbb{N}, b, c \in \mathbb{Z}$	Standard Form $ax + by = c$ $a \in \mathbb{N}, b, c \in \mathbb{Z}$

Example Each of the following equations represent a line. How do we know? Which of these lines is properly written in general form?

- a. $213x - 3y - 336 = 0$ b. $-2x + 3y + 6 = 0$ c. $\frac{2}{5}x + \frac{2}{6}y + 6 = 0$ d. $2x + y = 15$
- Handwritten notes:*
 a. - general form
 b. not a whole #, - not general form
 c. not a whole number, not an integer, - not general form
 d. not zero, - not general form

Example Find the x-intercept, y-intercept and slope for the line:

- a. $2x - 5y + 10 = 0$
- Handwritten work for x-int (y=0):*
 $2x - 5(0) + 10 = 0$
 $2x + 10 = 0$
 $-10 \quad -10$
 $\frac{2x}{2} = \frac{-10}{2}$
 $x = -5$
- Handwritten work for y-int (x=0):*
 $2(0) - 5y + 10 = 0$
 $-5y + 10 = 0$
 $-10 \quad -10$
 $\frac{-5y}{-5} = \frac{-10}{-5}$
 $y = 2$
- b. 

Example Find the x and y intercepts then convert to slope-intercept form.

a. $4x - 16y + 24 = 0$

b. $3x - 10y + 30 = 0$

Example Write each of the following equations in general form:

a. $y = 2x + 3$

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

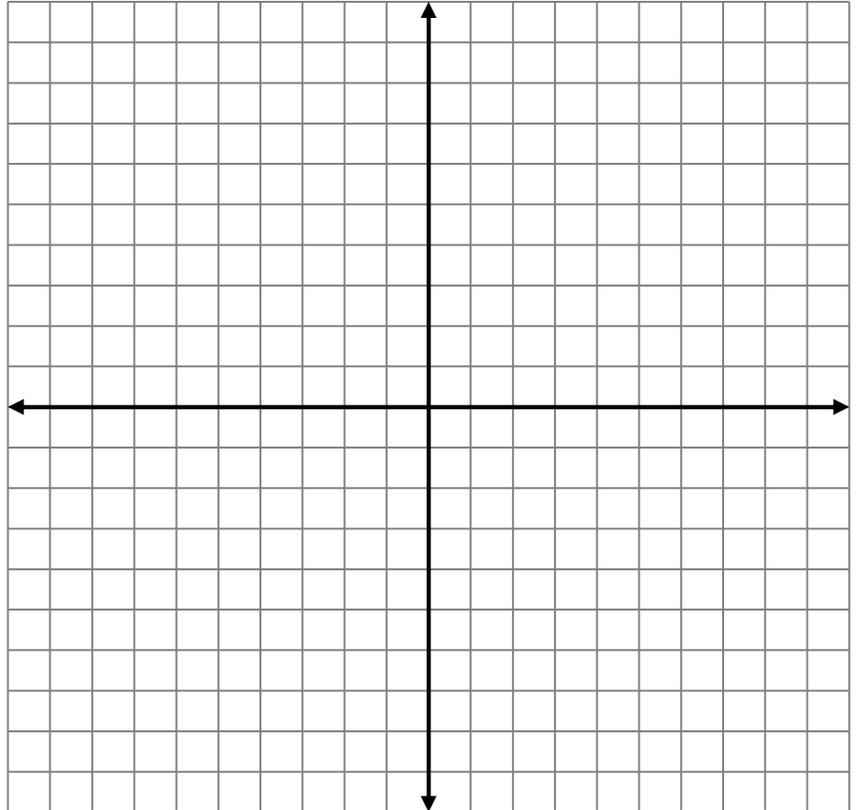
c. $y - 3 = -\frac{2}{5}(x + 7)$

Example Graph each of the following lines using their x and y intercepts.

a. $2x - 3y + 6 = 0$

b. $5x + 3y - 9 = 0$

c. $7x - 5y = 14$



Example The equation of a line is $2x - 3y - k = 0$. Point C(3,-5) is on the line. What is the value of k ?