

Algebra 1: Unit 4 Problem Set B

Mr. Chamberlain

Name _____

Date _____ Period _____

FYI

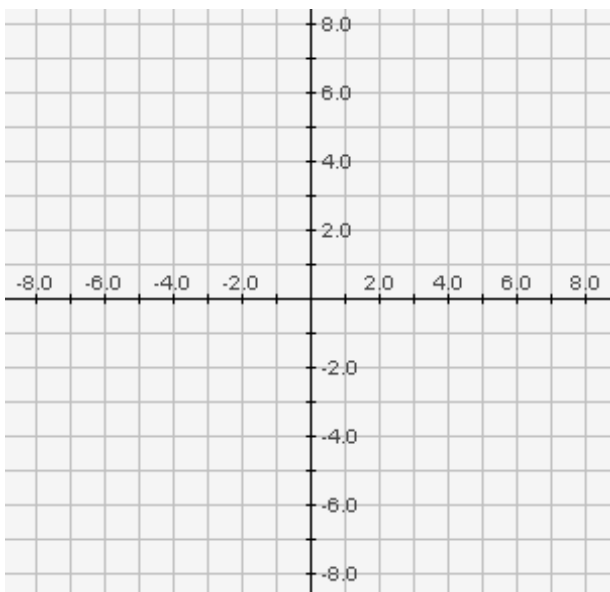
We should now feel comfortable converting equations from *standard form* into “y=” form. Notice the first re-write step in the example problems below, where both terms on the right side are split apart in the division step. This creates a *specific coefficient* for the x term. This coefficient can be negative or fractional. Use this same technique whenever you convert to “y=”, which we will call *slope-intercept form*, which is **written as:** $y = mx + b$ where m is the slope and b is the y-intercept.

Example 1: Solve for slope-intercept form:

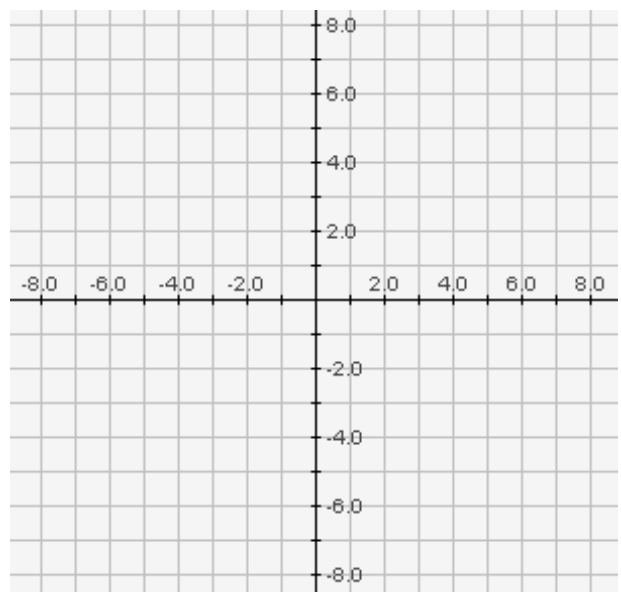
$$\begin{array}{ll} 4x + 2y = -10 & \ll \text{this is standard form} \gg \\ \underline{-4x} & \ll \text{subtract } 4x \text{ from both sides} \gg \\ \frac{2y}{2} = \frac{-4x - 10}{2} & \ll \text{divide both sides by } 2 \gg \\ y = \frac{-4x}{2} - \frac{10}{2} & \ll \text{re-write ("pull apart") the fraction} \gg \\ y = -2x - 5 & \ll \text{final re-write to get "mx + b"} \gg \end{array}$$

1. Graph $4x + 2y = -10$ using intercepts form (aka the “thumb cover-up” method)

x	y
0	0



- Graph $y = -2x - 5$ using your knowledge of slope-intercept form ($y = mx + b$) to start at the y-intercept and move “up-and-over” in either direction using the slope.



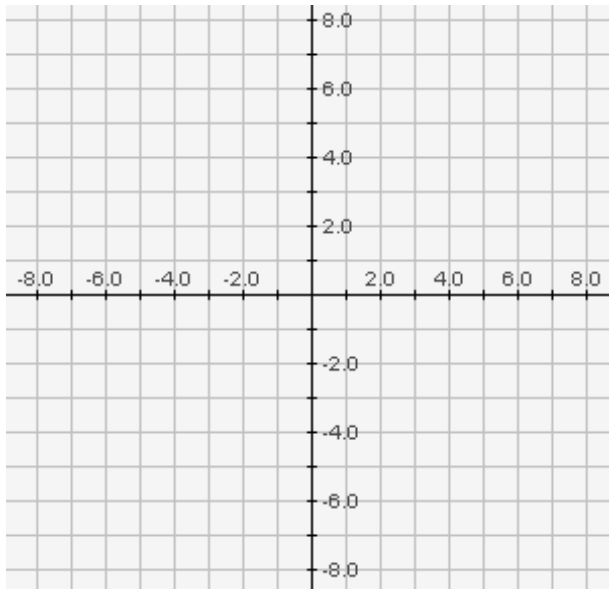
Hmmm... notice any similarities between these graphs, Einstein??

Example 2: Solve for slope-intercept form

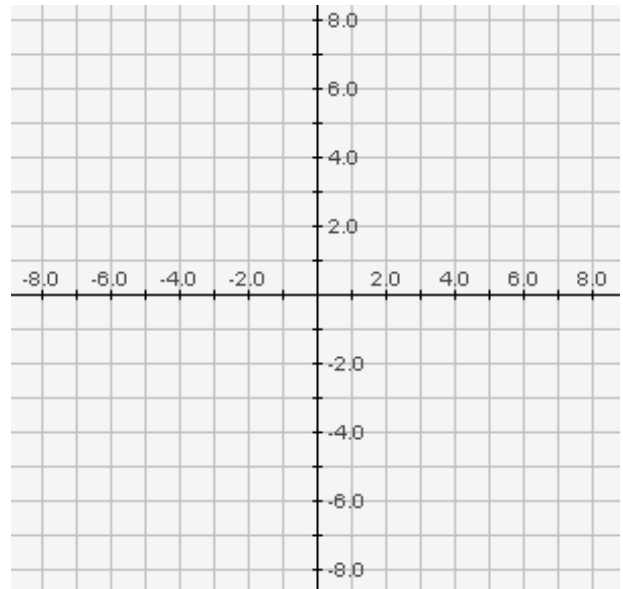
$$\begin{aligned} 2x - 3y &= 12 \\ \underline{-2x} \quad \underline{-2x} & \quad \ll \text{subtract } 2x \text{ from both sides} \gg \\ \frac{-3y}{-3} &= \frac{-2x+12}{-3} & \ll \text{divide both sides by } -3 \gg \\ \frac{-3y}{-3} &= \frac{-2x}{-3} + \frac{12}{-3} & \ll \text{re-write ("pull apart") the fraction} \gg \\ y &= \frac{2}{3}x - 4 & \ll \text{final re-write (to get the "mx + b")} \gg \end{aligned}$$

2. Graph $2x - 3y = 12$ using intercepts form (aka the "thumb cover-up" method)

x	y
0	0



Graph $y = \frac{2}{3}x - 4$ using your knowledge of slope-intercept form ($y = mx + b$) to start at the y-intercept and move "up-and-over" in either direction using the slope.

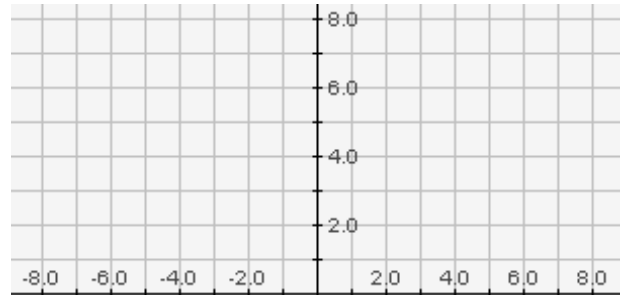


Based on the graphs above, what observation can you make about the equations

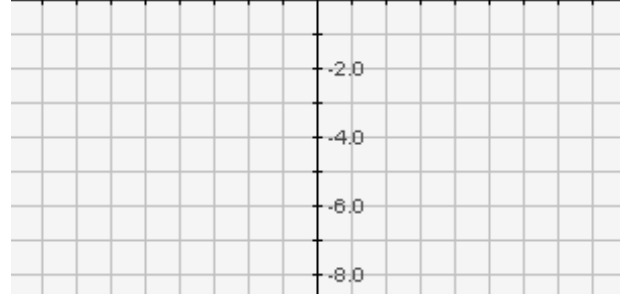
$$2x - 3y = 12 \quad \text{and} \quad y = \frac{2}{3}x - 4 \quad ??$$

3. Convert both of the standard form equations below into slope-intercept form. Graph both equations on the coordinate plane provided.

a) $6x + 2y = 18$

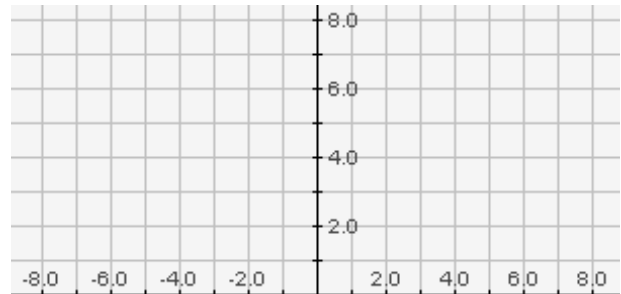


b) $4x - 3y = 12$

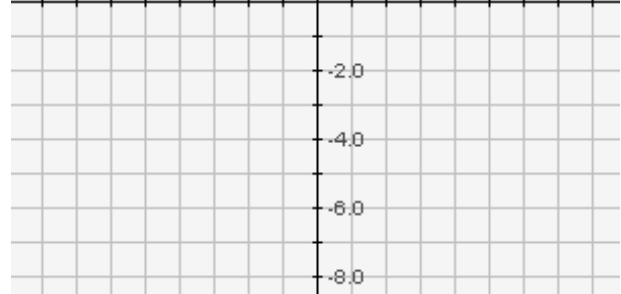


4. Convert each of the standard form equations below into slope-intercept form. Graph both equations on the coordinate plane provided.

a) $3x + 2y = 8$



b) $5x - 3y = 15$



5. Find the slope of the lines through the following pairs of points using the slope formula. Graph and label the lines below.

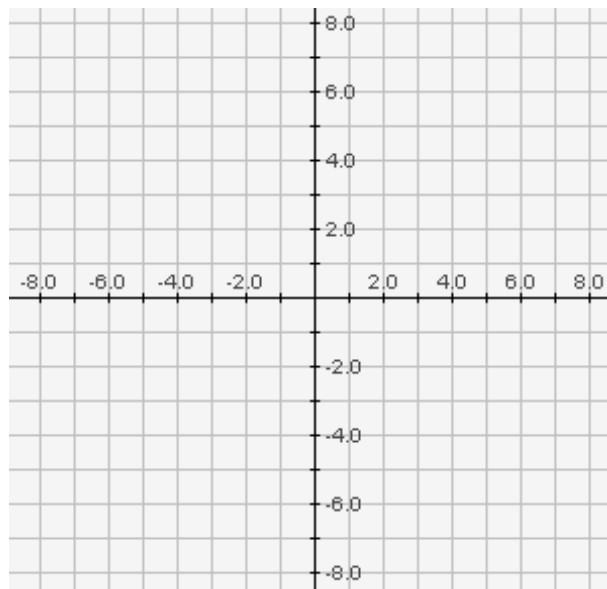
$$\text{slope} = m = \frac{y_2 - y_1}{x_2 - x_1}$$

a) $(-3, 8)$ $(5, -4)$

b) $(-8, -7)$ $(-2, -3)$

c) $(6, 0)$ $(0, -4)$

d) $(4, 5)$ $(4, -7)$



6. Find the slope of the lines through the following pairs of points using the slope formula. Graph and label the lines below.

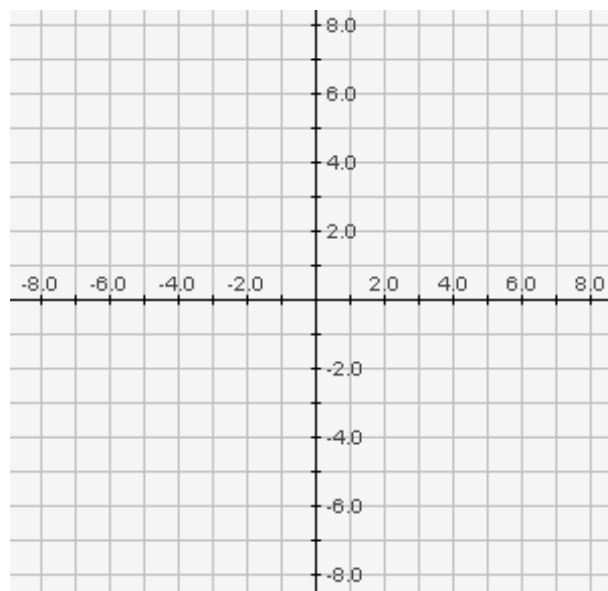
$$\text{slope} = m = \frac{y_2 - y_1}{x_2 - x_1}$$

e) $(4, -3)$ $(-5, -3)$

f) $(3, \frac{1}{2})$ $(5, \frac{5}{3})$

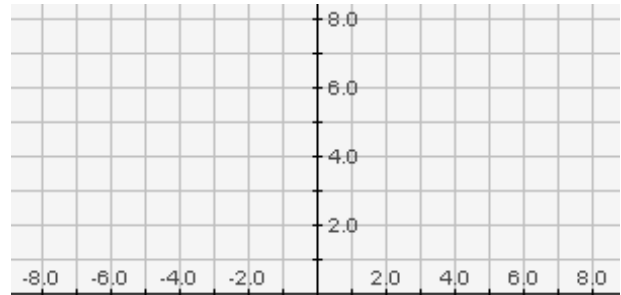
g) $(-8, 8)$ $(8, -8)$

h) $(-8, -8)$ $(8, 8)$

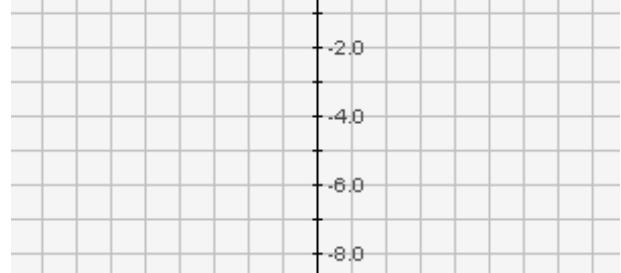


7. Convert both of the standard form equations below into slope-intercept form. Graph both equations on the coordinate plane provided.

a) $7x + 2y = 10$

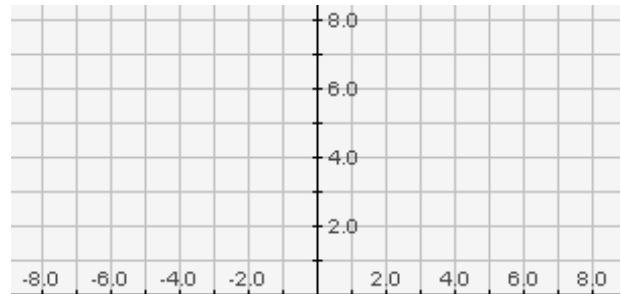


b) $4x - 3y = 12$



8. Convert both of the standard form equations below into slope-intercept form. Graph both equations on the coordinate plane provided.

a) $3x + 2y = 18$



b) $5x - 3y = 15$

