

Get out your homework and check our answers. Test on Tuesday!

## Classwork - Test Review #2

4. Find the slope between the 2 given points. SHOW WORK

A) (0, -2) and (2, 4)

$$m = \frac{6}{2} = 3$$

B) (2, -1) and (-2, 3)

$$m = \frac{3 - (-1)}{-2 - 2} = \frac{4}{-4} = -1$$

C) (-1, 5) and (3, 3)

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

5) Use the slope and point given to find the y-intercept. Use the slope and y-intercept to write an equation in slope intercept form.

A) passes through (3, 4), slope = 3

$$4 = 3(3) + b$$

$$4 = 9 + b$$

$$\begin{array}{r} -9 \\ -9 \end{array}$$

$$-5 = b$$

Equation:  $y = 3x - 5$

B) passes through (-2, 6), slope = -2

$$6 = -2(-2) + b$$

$$6 = 4 + b$$

$$\begin{array}{r} -4 \\ -4 \end{array}$$

$$2 = b$$

Equation:  $y = -2x + 2$

C) passes through (2, -7), slope =  $\frac{1}{2}$

$$-7 = \frac{1}{2}(2) + b$$

$$-7 = 1 + b$$

$$\begin{array}{r} -1 \\ -1 \end{array}$$

$$-8 = b$$

Equation:  $y = \frac{1}{2}x - 8$

3 Find the slope between the 2 given points, then use it to find the y-intercept. Use your slope and y-intercept to write an equation in slope intercept form.

A) (-1, 2) and (2, 5) <sup>+3</sup>

$$m = \frac{3}{3} = 1 \quad 5 = 1(2) + b$$

$$\begin{array}{r} 5 = 2 + b \\ -2 \quad -2 \\ \hline 3 = b \end{array}$$

Y-intercept: (0, 3)

Equation:  $y = 1x + 3$

B) (-1, 7) and (2, -5)

$$m = \frac{-5 - 7}{2 - (-1)} = \frac{-12}{3} = -4$$

$$7 = 4(-1) + b$$

$$7 = -4 + b$$

$$\begin{array}{r} 7 = -4 + b \\ -4 \quad -4 \quad b = 3 \end{array}$$

Y-intercept: (0, 3)

Equation:  $y = -4x + 3$

B) (-3, 5) and (6, 2) <sup>-3</sup>

$$m = \frac{-3}{9} = -\frac{1}{3} \quad 2 = -\frac{1}{3}(6) + b$$

$$\begin{array}{r} 2 = -2 + b \\ +2 \quad +2 \\ \hline 4 = b \end{array}$$

Y-intercept: (0, 4)

Equation:  $y = -\frac{1}{3}x + 4$

B)

	+2	+2	+2	+2	
x	-6	-4	-2	0	2
y	7	3	-1	-5	-9
	-4	-4	-4	-4	

Slope:  $\frac{-4}{2} = -2$

Y-int: (0, -5)

Equation:  $y = -2x - 5$

C)

	+4	+2	+4	+4	+4
x	-6	-2	2	6	10
y	2	4	6	8	10
	+2	+2	+2	+2	

Slope:  $\frac{2}{4} = \frac{1}{2}$

Y-int: (0, 5)

Equation:  $y = \frac{1}{2}x + 5$

D)

	+2	+2	+2	+2	
x	-5	-3	-1	1	3
y	6	4	2	0	-2
	-2	-2	-2	-2	

Slope:  $\frac{-2}{2} = -1$

Y-int: (0, 1)

Equation:  $y = -1x + 1$

(2, 6)  $m = \frac{1}{2}$

$6 = \frac{1}{2}(2) + b$

$6 = 1 + b$

$\begin{array}{r} 6 = 1 + b \\ -1 \quad -1 \\ \hline 5 = b \end{array}$

$m = -1 \quad x = -1 \quad y = 2$

$2 = -1(-1) + b$

$2 = 1 + b$

$\begin{array}{r} 2 = 1 + b \\ -1 \quad -1 \\ \hline 1 = b \end{array}$

E)

x	-4	-1	2	5	8
y	-7	-1	5	11	17

Handwritten annotations:  $+3$  above the x-values,  $+6$  below the y-values, and arrows indicating a slope of  $\frac{+3}{+6} = \frac{1}{2}$ .

Slope:  $\frac{6}{3} = 2$

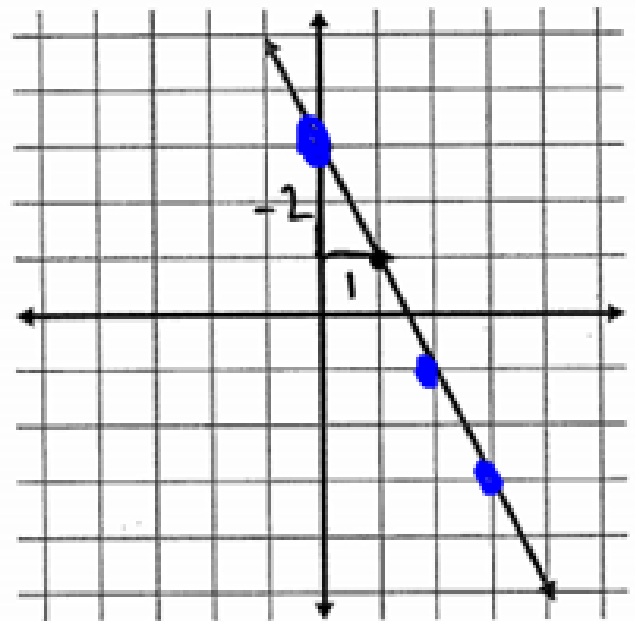
Y-int:  $(0, 1)$

Equation:  $y = 2x + 1$

8) Find the slope and y-intercept of the following graph and write an equation in slope intercept form that represents the graph.

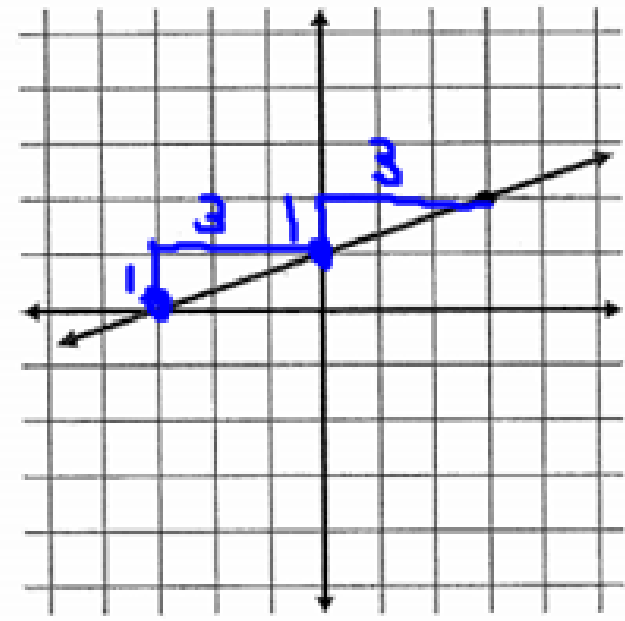
A)  $m = -2$        $b = 3$

Equation:  $y = -2x + 3$



B)  $m = \frac{1}{3}$        $b = 1$

Equation:  $y = \frac{1}{3}x + 1$

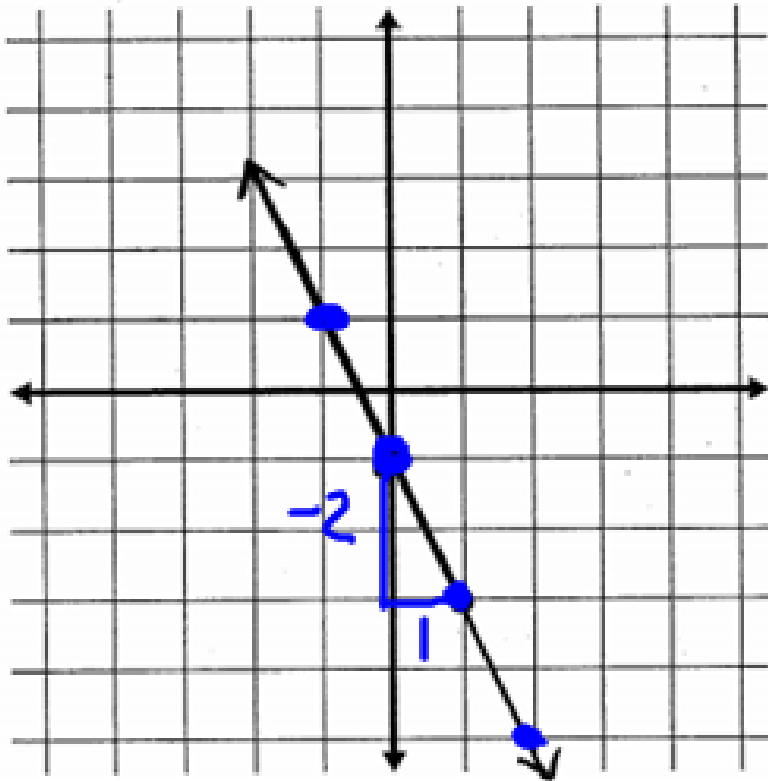


9) Graph the following equations.

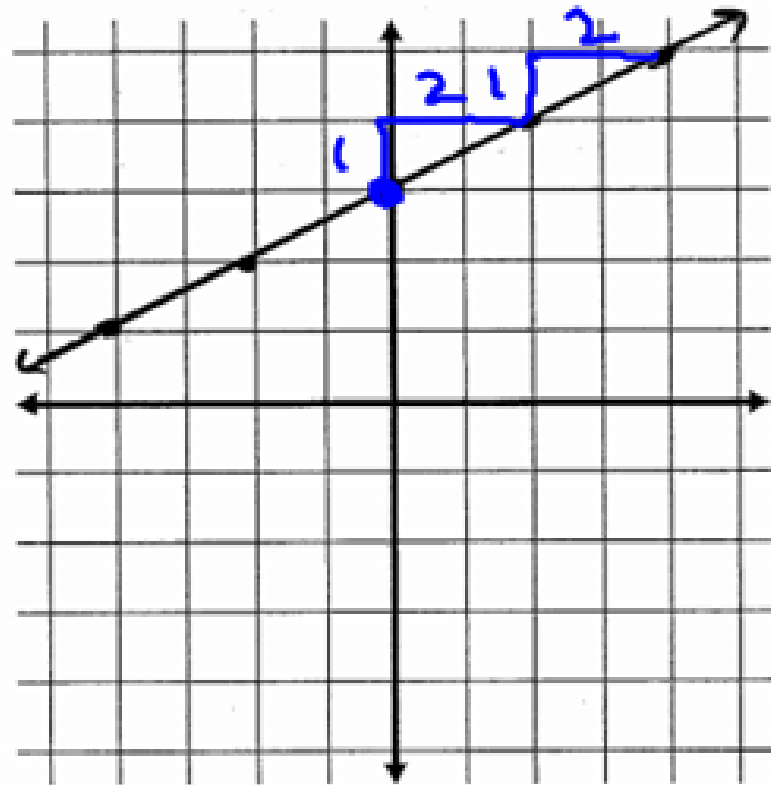
$$m = -2 = \frac{-2}{1}$$

A)  $y = -2x - 1$

$$b = -1$$



B)  $y = \frac{1}{2}x + 3$



Every linear equation can be written in you know the slope and the y-intercept.

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x}$$

Equations  $\rightarrow y = mx + b$   
 $\swarrow$   $\searrow$   
 Slope Y-intercept

1) Create an equation that travels through the following two points (SHOW ALL WORK)

A) (-1, 5) and (1, -1)

$$m = \frac{-1 - 5}{1 - (-1)} = \frac{-6}{2} = -3$$

$(-1, 5)$   $m = -3$

$$5 = -3(-1) + b$$

$$5 = 3 + b$$

$$\begin{array}{r} 5 \\ -3 \\ \hline 2 = b \end{array}$$

$$y = -3x + 2$$

B) (-2, 10) and (0, 5)

$$m = \frac{5 - 10}{0 - (-2)} = \frac{-5}{2}$$

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

C) (-6, 1) and (2, 5)

$$m = \frac{5 - 1}{2 - (-6)} = \frac{4}{8} = \frac{1}{2}$$

$(2, 5)$   $m = \frac{1}{2}$

$$5 = \frac{1}{2}(2) + b$$

$$5 = 1 + b$$

$$\begin{array}{r} 5 \\ -1 \\ \hline 4 = b \end{array}$$

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

2) Match a table (A–D) with a graph (E–H) and an equation (J–M). List your results below in four groups, where each group contains one table, one graph, and one equation that all represent the same linear relationship. It may be helpful to find the slope and y-intercept for the tables graphs and equations.

Group 1:

Table: A

Graph: \_\_\_\_\_

Equation: \_\_\_\_\_

Group 2:

Table: B

Graph: \_\_\_\_\_

Equation: \_\_\_\_\_

Group 3:

Table: C

Graph: \_\_\_\_\_

Equation: \_\_\_\_\_

Group 4:

Table: D

Graph: \_\_\_\_\_

Equation: \_\_\_\_\_

$E = -1$   
 $J - M$

A.

x	y
-2	-5
-1	-3
0	-1
1	1
2	3

+2  
+2  
+2

B.

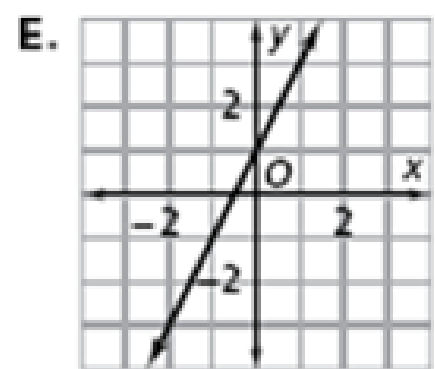
x	y
-2	3
-1	2
0	1
1	0
2	-1

C.

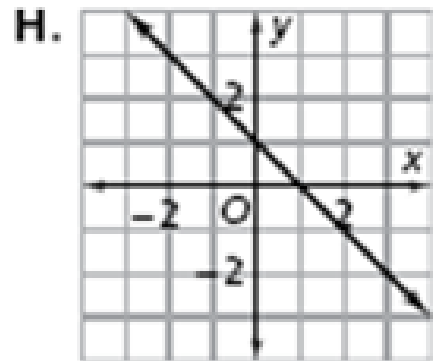
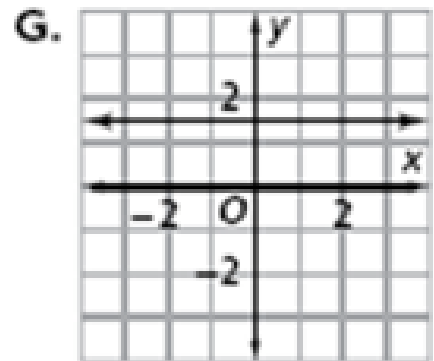
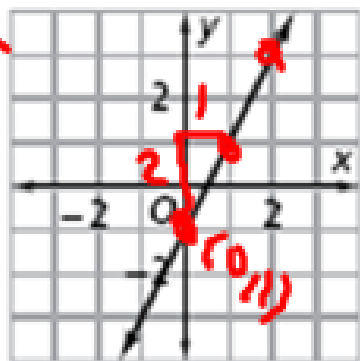
x	y
-2	1.5
-1	1.5
0	1.5
1	1.5
2	1.5

D.

x	y
-2	-3
-1	-1
0	1
1	3
2	5



X



J.  $y = 1.5$

~~X~~.  $y = 2x - 1$

L.  $y = 2x + 1$

M.  $y = -1x + 1$

3) Write an equation to show the total money,  $m$ , a plumber makes for working  $h$  hours if he charges a flat fee of \$55 to come to your house to investigate a problem and also \$40 for each hours of work.

$$(2, 3) \quad m = 2$$

$$3 = 2(2) + b$$

$$3 = 4 + b$$

$$\begin{array}{r} -4 \quad -4 \\ \hline -1 = b \end{array}$$

4) Create an equation to model the tables below.

A)

x	-6	-2	2	6	10
y	-13	-5	3	11	19

+4   +4   +4   +4   +4

+8   +8   +8   +8

$\frac{\Delta y}{\Delta x}$

Slope:  $\frac{\Delta y}{\Delta x} = 2$

Y-int:  $(0, -1)$

Equation:  $y = 2x - 1$

B)

x	-9	-4	1	6	11
y	41	26	11	-4	-19

Slope: \_\_\_\_\_

Y-int: ( , )

Equation: \_\_\_\_\_

C)

x	-9	-5	-1	3	7
y	-10	-2	6	14	22

Slope: \_\_\_\_\_

Y-int: ( , )

Equation: \_\_\_\_\_

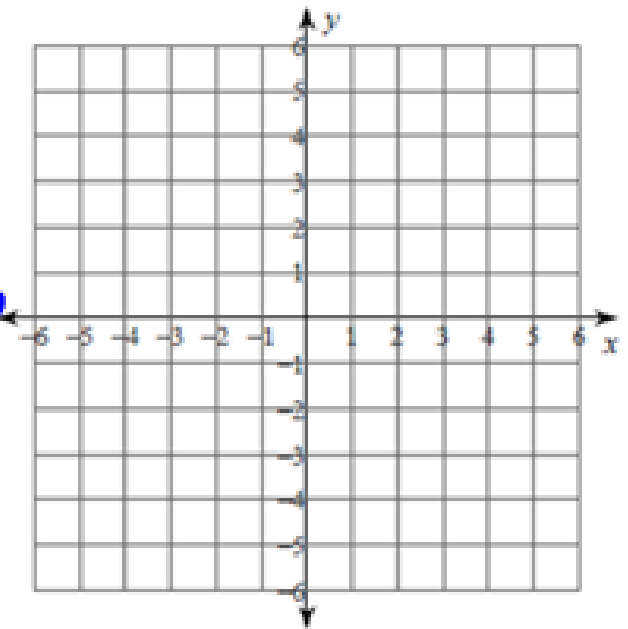
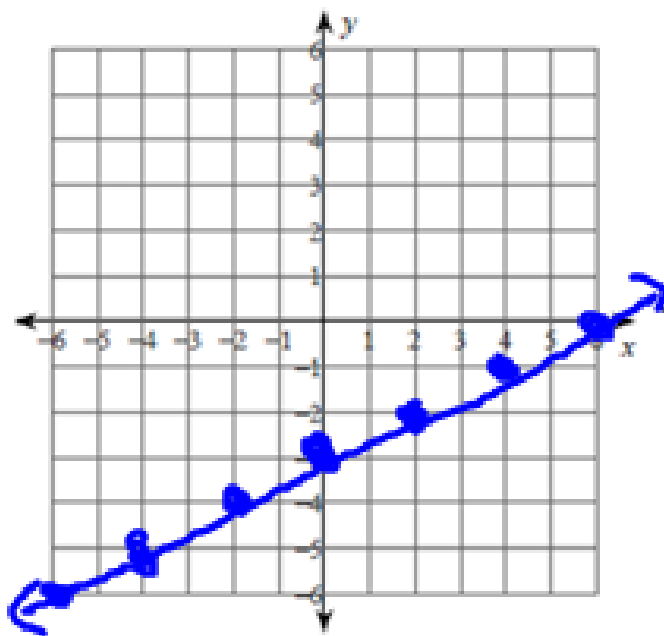
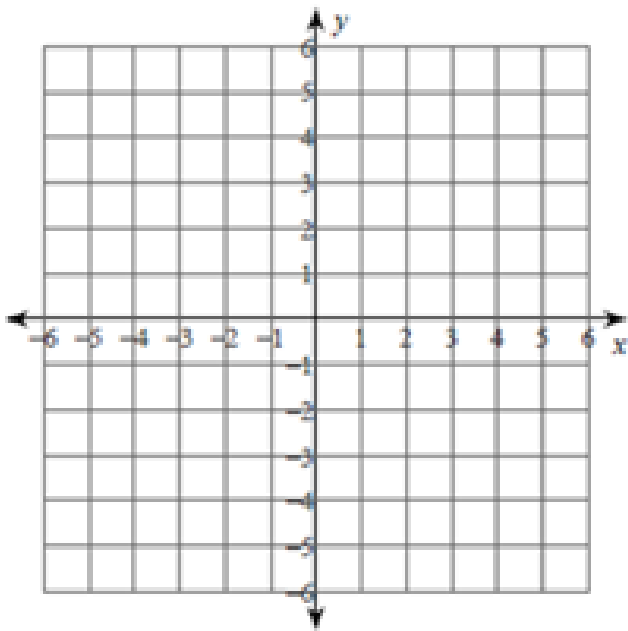
5) Create a graph for the following equations. On your graph, SHOW how the numbers in the equation show up in the graph. Below your equation, state what the numbers represent in the graph.

A)  $y = -2x + 3$

B)  $y = \frac{1}{2}x - 3$

C)  $y = -1x + 4$

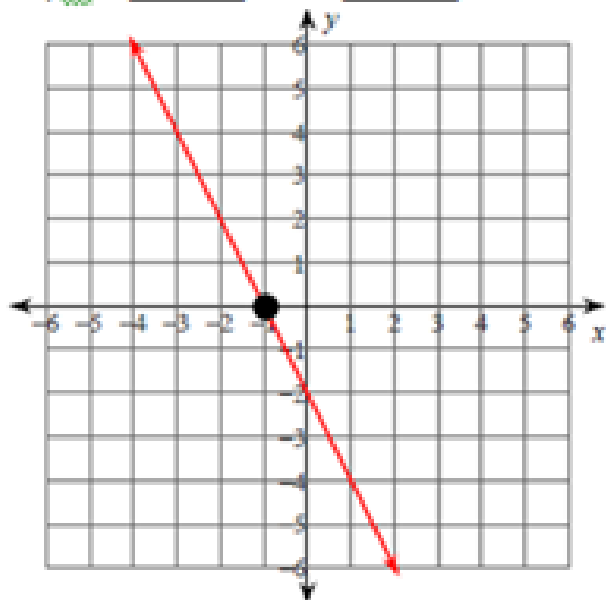
$m = \frac{1}{2}$   
 $b = -3$





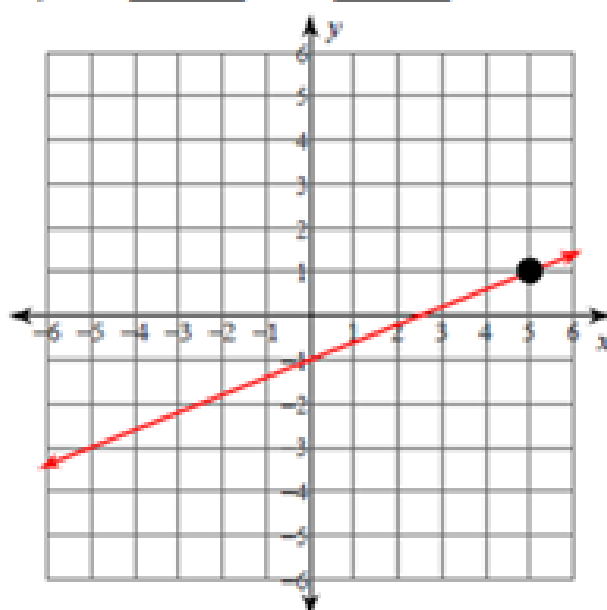
6) Find the equation of the line below. Show how the parts of your equation show up in the graph. SHOW ALL WORK.

A)  $m =$  \_\_\_\_\_  $b =$  \_\_\_\_\_



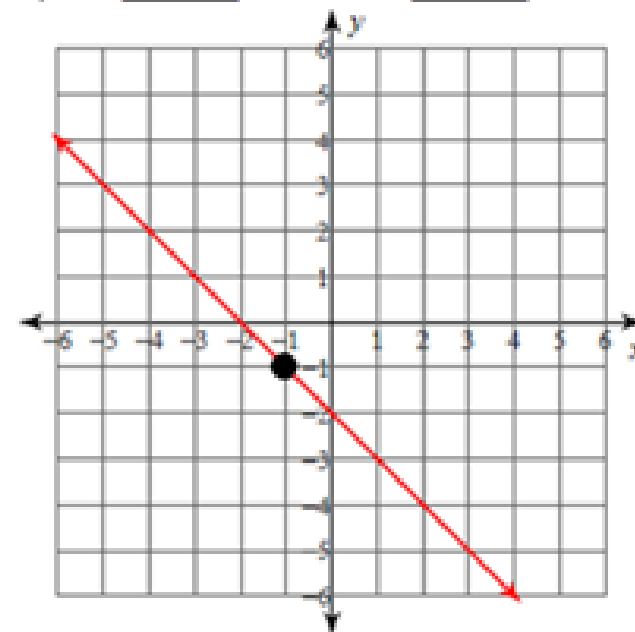
Equation: \_\_\_\_\_

B)  $m =$  \_\_\_\_\_  $b =$  \_\_\_\_\_



Equation: \_\_\_\_\_

C)  $m =$  \_\_\_\_\_  $b =$  \_\_\_\_\_



Equation: \_\_\_\_\_

7) A) Jim has a savings account, but now plans to save and deposit the same amount of money every month. After 6 months, he has saved up \$425. After 11 months, he has saved a total of \$755 dollars. Write an equation that models the amount of dollars,  $y$ , Jim has saved in his account as each month,  $x$ , passes. *Hint: You are given two points the equation passes through.*

(months, \$ saved)  
 $(6, 425)$  and  $(11, 755)$   $m = \frac{755 - 425}{11 - 6}$

$m =$  \_\_\_\_\_

$b =$  \_\_\_\_\_

Equation: \_\_\_\_\_

B) Using your equation, determine how many months,  $x$ , it will take for Jim to \$920.

C) Using your equation, determine the amount of dollars,  $y$ , Jim will have in his account after 8 months.

8) Decide if the following equations have no solutions, one solutions, or infinite solutions.

Simplify the following equations and circle whether there is no solution (0), one solution (1), or infinitely many solutions ( $\infty$ ).

A)  $6x - 4 = 3(2x - 1) - 1$

B)  $-5x + 7 = -2x - 3x + 10$

C)  $5x - 8 = 2x + 10$

0      1       $\infty$

*Circle one of these*

0      1       $\infty$

*Circle one of these*

0      1       $\infty$

*Circle one of these*

9) At a volleyball game it costs students \$3 and adults \$6 to watch the game. In all, \$240 was made at the last game. This can be represented by the function  $3x + 6y = 240$ . Find the  $x$ - and  $y$ -intercepts. What do they represent? SHOW WORK

**Reminder**

To find the  $x$ -intercept, solve for  $x$  when  $y$  is equal to 0.

To find the  $y$ -intercept, solve for  $y$  when  $x$  is equal to 0.

**Define Variables:**     $x$  = number of \_\_\_\_\_                       $y$  = number of \_\_\_\_\_

$x$ -intercept  $\rightarrow$  ( \_\_\_\_\_ , \_\_\_\_\_ )

What does this point represent?

$y$ -intercept  $\rightarrow$  ( \_\_\_\_\_ , \_\_\_\_\_ )

What does this point represent?