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

Classwork - Test Review #3

Slope y-intercept

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

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

-6

+2

$m = \frac{-6}{2} = -3$ $x = 1$ $y = -1$

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

$-1 = -3 + b$

$+3 \quad +3$

$2 = b$

$y = -3x + 2$

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

-5

+2

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

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

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

+4

+8

$m = \frac{4}{8} = \frac{1}{2}$

$x = 2$

$y = 5$

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

$5 = 1 + b$

$-1 \quad -1$

$4 = b$

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

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:	Group 2:	Group 3:	Group 4:
Table: A	Table: B	Table: C	Table: D
Graph: F	Graph: H	Graph: G	Graph: E
Equation: K	Equation: M	Equation: J	Equation: L

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.

$m = 40h + 55$

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

+8 +8 +8 +8

Slope: $\frac{8}{4} = 2$

Y-int: (0, -1)

Equation: $y = 2x - 1$

B)

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

+5 +5 +5 +5

-15 -15 -15 -15

Slope: $\frac{-15}{5} = -3$

Y-int: (0, 14)

$m = -3$, $x = 1$, $y = 11$

$11 = -3(1) + b$

$11 = -3 + b$

$+3 \quad +3$

$14 = b$

Equation: $y = -3x + 14$

C)

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

+4 +4 +4 +4

+8 +8 +8 +8

Slope: $\frac{8}{4} = 2$

Y-int: (0, 8)

$m = 2$, $x = -1$, $y = 6$

$6 = 2(-1) + b$

$6 = -2 + b$

$+2 \quad +2$

$8 = b$

Equation: $y = 2x + 8$

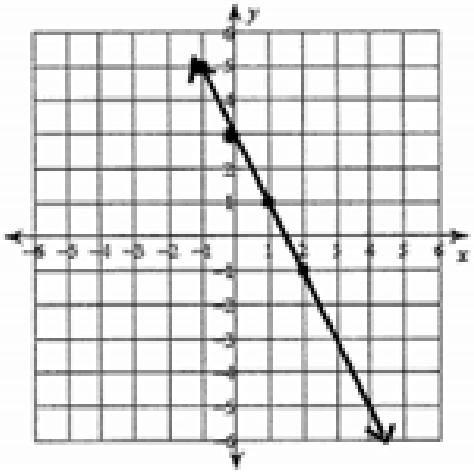
5) Create a graph for the following equations. On your graph, SHOW how the numbers in the equation show up in the graph. Below your equation, state what the numbers represent in the graph.

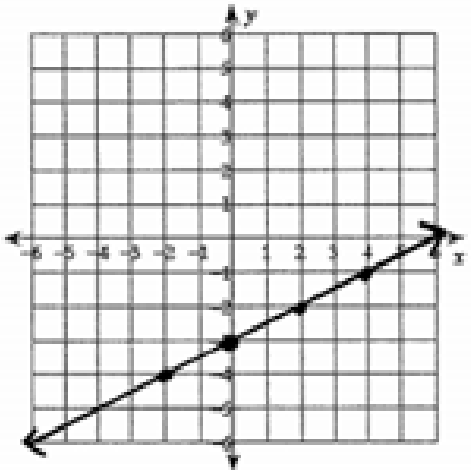
A) $y = -2x + 3$

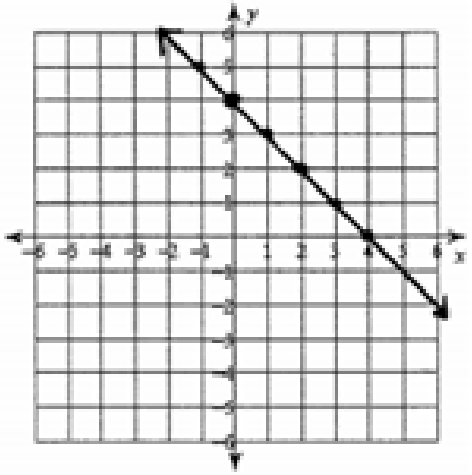
B) $y = \frac{1}{2}x - 3$

C) $y = -1x + 4$

$y = -x + 4$

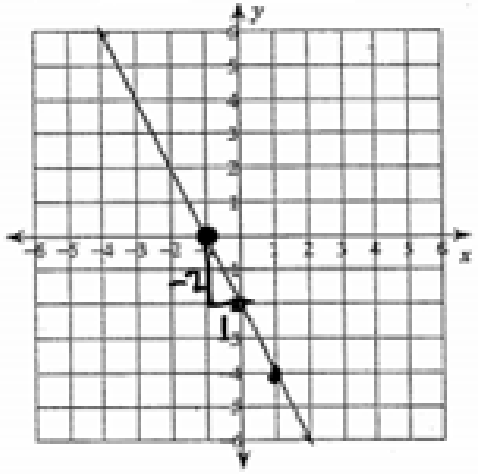






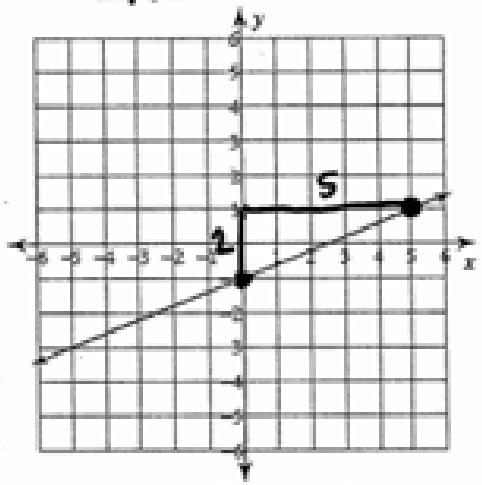
6) Find the equation of the line below. Show how the parts of your equation show up in the graph. SHOW ALL WORK.

A) m = -2 b = -2



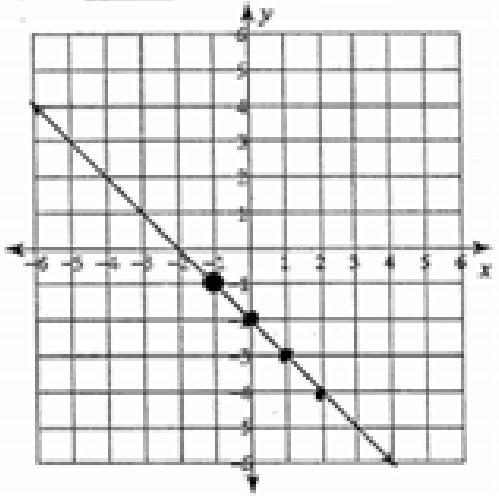
Equation: $y = -2x - 2$

B) m = $\frac{2}{5}$ b = -1



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

C) m = -1 b = -2



Equation: $y = -x - 2$

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 $755 dollars. Write an equation that models the amount of dollars, *y*, Jim has saved in his account as each month, *x*, passes. *Hint: You are given two points the equation passes through.* y=$ x=months

(6, 425) & (11, 755)

$\frac{755-425}{11-6} = \frac{330}{5} = 66$

m=66 x=6 y=425

$425 = 66(6) + b$

$425 = 396 + b$

$-396 \quad -396$

$29 = b$

m = 66

b = 29

Equation: $y = 66x + 29$

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

x=? y=920

$920 = 66x + 29$

$-29 \quad -29$

$891 = 66x$

$\frac{891}{66} = \frac{66x}{66}$

x = 13.5 months

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

x=8 y=?

$y = 66(8) + 29$

$y = 528 + 29$

y = $557

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 (∞).

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

$6x - 4 = 6x - 3 - 1$

$6x - 4 = 6x - 4$

$-6x \quad -6x$

$-4 = -4$

0 1 (∞)

Circle one of these

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

$-5x + 7 = -5x + 10$

$+5x \quad +5x$

$7 \neq 10$

(0) 1 ∞

Circle one of these

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

$-2x \quad -2x$

$3x - 8 = 10$

$+8 \quad +8$

$\frac{3x}{3} = \frac{18}{3}$

x = 6

0 (1) ∞

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 students y = number of adults

$3x + 6(0) = 240$

$\frac{3x}{3} = \frac{240}{3}$

$x = 80$

$3(0) + 6y = 240$

$\frac{6y}{6} = \frac{240}{6}$

$y = 40$

x y

x-intercept → (80, 0)
What does this point represent?
The are 80 students and 0 adults.

y-intercept → (0, 40)
What does this point represent?
The are 0 students and 40 adults.

1) Write the following equations in slope intercept form. ($y = mx + b$)

A) $2x + y = 8$

$-2x \quad -2x$

$y = -2x + 8$

$m = -2 \quad b = 8$

B) $-4x + y = 7$

$+4x \quad +4x$

$y = 4x + 7$

C) $8x - 2y = 4$

$-8x \quad -8x$

$-2y = -8x + 4$

$\frac{-2y}{-2} = \frac{-8x + 4}{-2}$

$y = 4x - 2$

Match the graph with the correction equation below. Then state the slope and y-intercept.

2) $x = 2$ **Graph:** B

m = undefined b = N/A

3) $y = 2x$ **Graph:** C

m = 2 b = 0

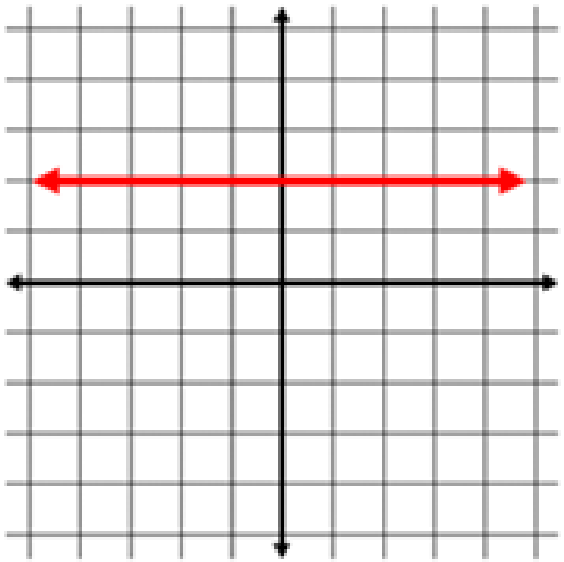
4) $y = 1x + 2$ **Graph:** D

m = 1 b = 2

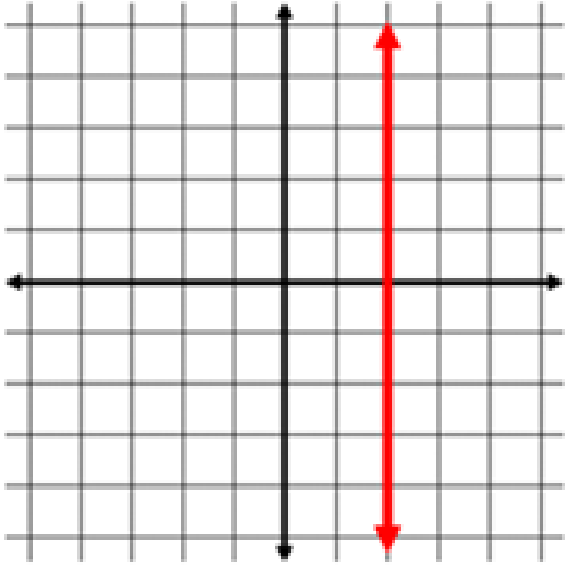
5) $y = 2$ **Graph:** A

m = 0 b = 2

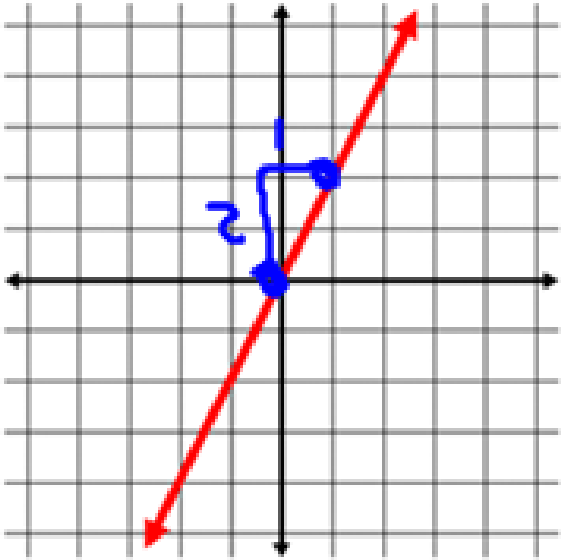
Graph A



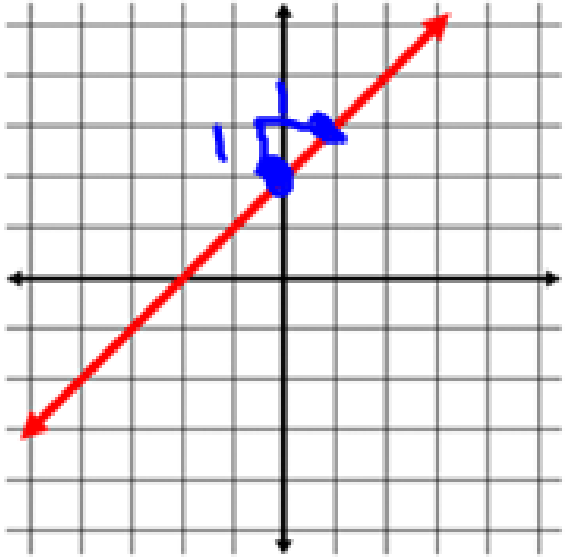
Graph B



Graph C



Graph D



6) Find the x- and y- intercepts of the following equations. Write the intercept as an ordered pair.

A) ~~$y = 4x + 10$~~

$y = -4x + 8$

$0 = -4x + 8$

$+4x \quad +4x$

$4x = 8$

$\frac{4x}{4} = \frac{8}{4}$

$x = 2$

x- int: (2 , 0) y- int: (0 , 8)

B) $3x + 5y = 15$

$3x + 5(0) = 15$

$\frac{3x}{3} = \frac{15}{3}$

$x = 5$

$3(0) + 5y = 15$

$\frac{5y}{5} = \frac{15}{5}$

$y = 3$

x- int: (5 , 0) y- int: (0 , 3)

C) $-2x + 6y = 12$

$-2x + 6(0) = 12$

$\frac{-2x}{-2} = \frac{12}{-2}$

$x = -6$

$-2(0) + 6y = 12$

$\frac{6y}{6} = \frac{12}{6}$

$y = 2$

x- int: (-6 , 0) y- int: (0 , 2)

x-int: $x = ?$ $y = 0$ y-int: $x = 0$ $y = ?$

7) Tom and Hank both subscribe to the same magazine. There is a cost per magazine and a membership fee to subscribe to the magazine. Tom has bought 12 magazines and paid a total of $30. Hank has spent a total $37.50 and ordered 17 magazines. Write an equation in slope-intercept form that models the cost, *y*, for the number of magazines, *x*, each person has purchased.

x = # of magazines

y = cost

(12, 30)

m = _____

b = _____

Equation: _____

8) Match the following solutions with the systems of equations and graphs below. Write the correct number or symbol in the space provided next to each system or graph. The letters and symbols can be found below.

One Solution → 1 **No Solution → 0** **Infinite Solutions → ∞**

A) $y = 2x + 3$
$y = 2x + 3$ _____

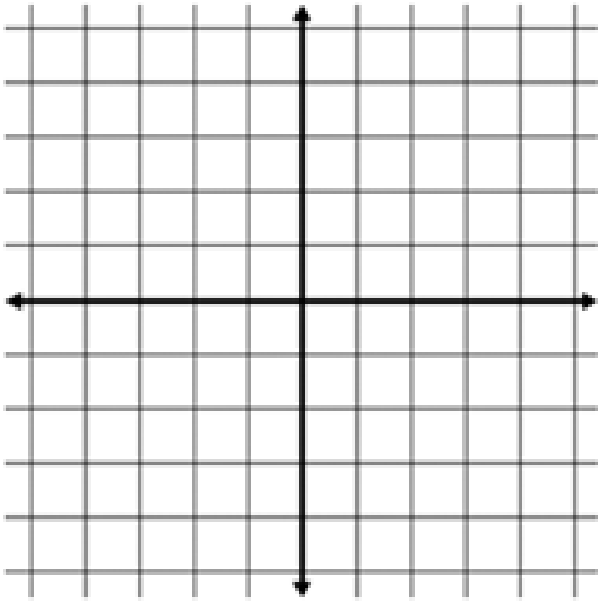
B) $y = 4x - 5$
$y = 5x - 4$ _____

C) $y = x + 8$
$y = x - 2$ _____

9) Solve the following systems of equations by graphing. Write the solution as a ordered pair.

A) $y = -2x + 4$

$y = \frac{1}{3}x - 3$

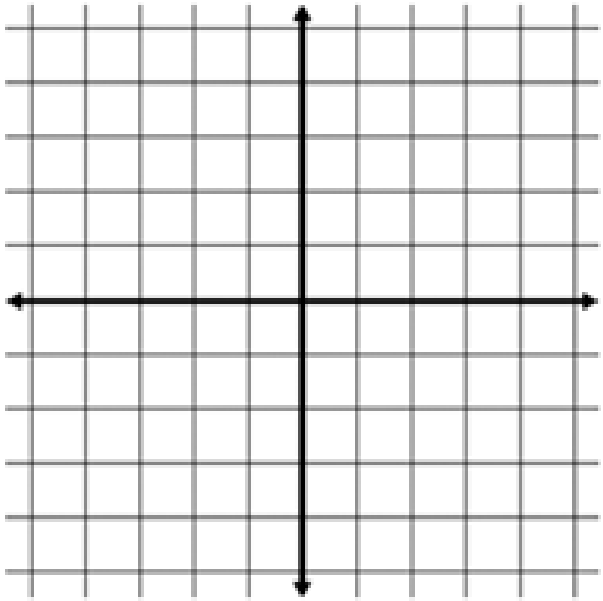


Solution

(___, ___)

B) $y = x + 2$

$y = -3x - 2$



Solution

(___, ___)

10) Solve the following systems of equations algebraically. If there is one solution, write the solution as an ordered pair.

A) $y = 3x - 12$
$y = 5x$

Solution

(___, ___)

B) $y = 7x + 8$
$y = 4x - 7$

Solution

(___, ___)

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

Solution

(___, ___)