Name: _____ **Class:** _____ **Date:** _____ **ID: A**

MSA Quiz

Short Answer

1. **a.** Does the table below represent a linear relationship? If so, write an equation for that relationship. If not, explain.

Time (s)	Distance (m)
0	11
3	17
7	25
9	29
10	31

b. Is the relationship proportional? Why or why not?

2. Each table in i-v below represents a linear relationship. Do parts (a)-(c) for each table.
   a. Find the slope of the line that represents the relationship.
   b. Find the y-intercept for the graph of the relationship.
   c. Determine which of the following equations represents the relationship.
   $y = 3 - 4x$, $y = x + 6$, $y = 4x - 3$, $y = 3x - 1.5$, $y = 2.5x$

i.

x	y
0	0
1	2.5
2	5
3	7.5
4	10

ii.

x	y
0	6
1	7
2	8
3	9
4	10

iii.

x	y
0	-1.5
1	1.5
2	4.5
3	7.5
4	10.5

iv.

x	y
0	3
1	-1
2	-5
3	-9
4	-13

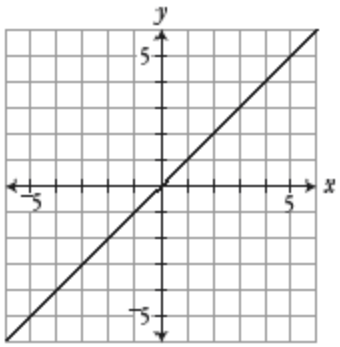
v.

x	y
1	1
2	5
3	9
4	13
5	17

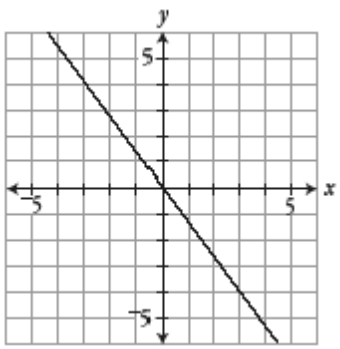
3. Jabal and Michael are walking to school and agree to leave their homes at the same time. Jabal leaves his house walking 2 meters per second. Michael leaves his house walking at 2.5 meters per second. Jabal's house is 100 meters closer to school than Michael's house. After how long are the boys walking together? Show all your work.

4. For each of the lines below, find the slope, and write an equation that represents the line.

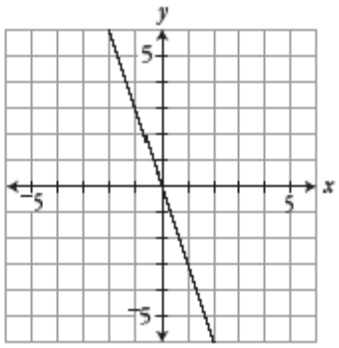
a.



b.



c.



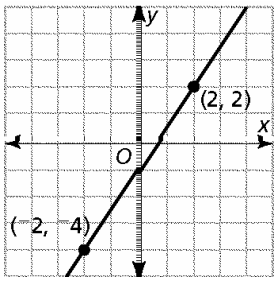
Write an equation for the line that meets the given conditions.

5. A line with slope 3.5 and y-intercept (0, 4)

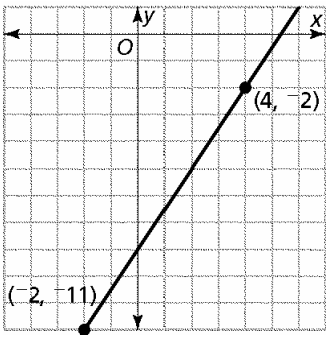
6. A line that passes through the points (2, –9) and (–2, 3)

Write an equation for the line shown. Identify the slope and the y-intercept.

7.



8.



Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. What is the equation of the line that passes through the points (1, –1) and (3, –7)?

A. $y = 3x + 2$ B. $y = -2x + 1$ C. $y = -3x + 1$ D. $y = -3x + 2$

The y-Intercept and the Slope

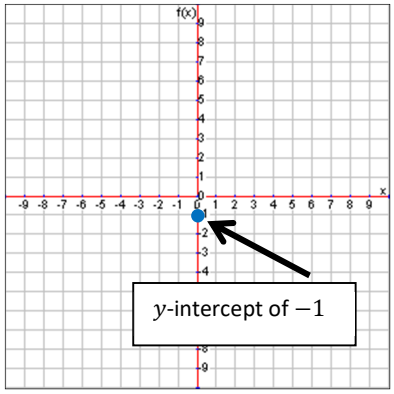
Once you have an equation in slope-intercept form, start by graphing the y-intercept on the coordinate plane. From the y-intercept, move the rise and run of the slope to plot another point. Finally, draw the line that connects the two points. Let's use our previous equations to graph step-by-step.

Example 1

$$y = 2x - 1$$

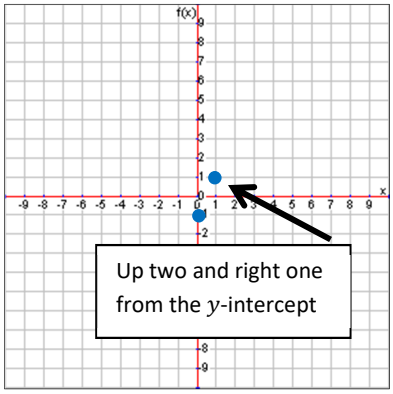
Step 1

The y-intercept is -1, so we plot a point at -1 on the y-axis to begin.



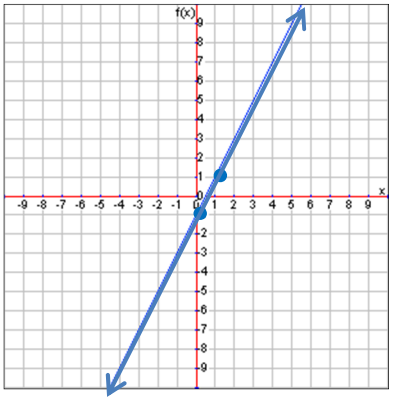
Step 2

Next, the slope is 2 which means a rise of 2 and a run of 1. So we'll move up two and right one to plot the next point.



Step 3

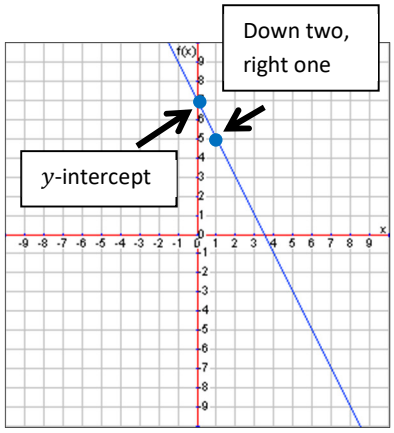
Finally, connect the dots with a line. This completes the graph of our linear function.



Here are the rest of the examples graphed.

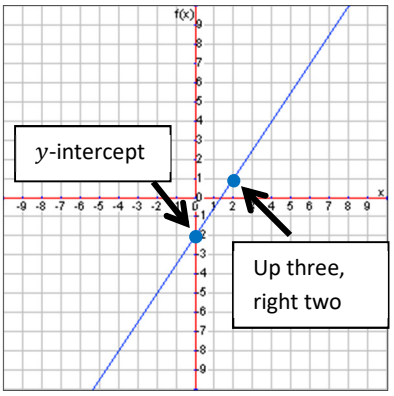
Example 2

$y = -2x + 7$



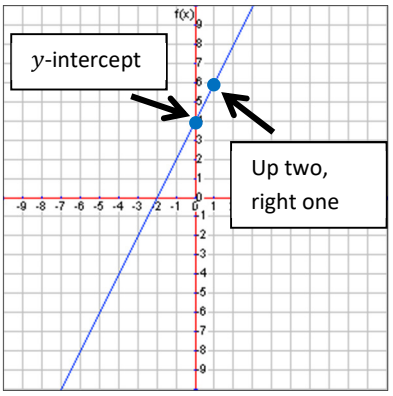
Example 3

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



Example 4

$y = 2x + 4$



Algebra I **Name:** _____ **Block:** _____ **Date:**_____

SOL A.6 LESSON 4.5

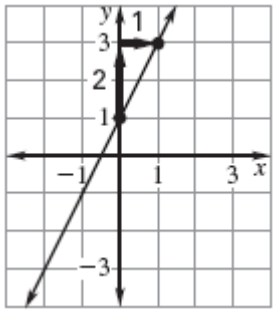
Practice A

For use with pages 243–250

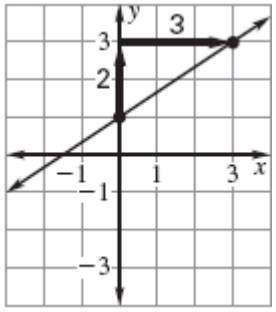
y =mx + b Worksheet

Identify the slope and y-intercept of the line whose graph is shown.

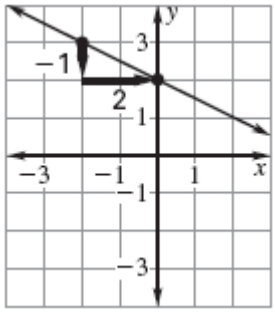
1.



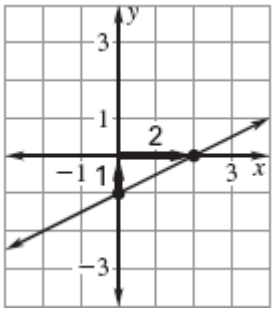
2.



3.



4.

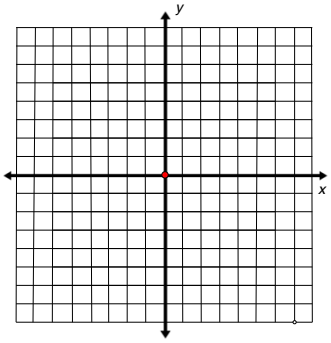


Identify the slope and y-intercept of the line with the given equation.

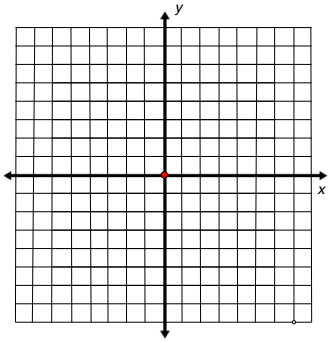
		SLOPE	y-intercept
5	y = 3x + 4		
6	y = -2x + 8		
7	$y = \frac{1}{2}x$		
8	$y = -\frac{3}{4}x - 1$		

Graph the equation.

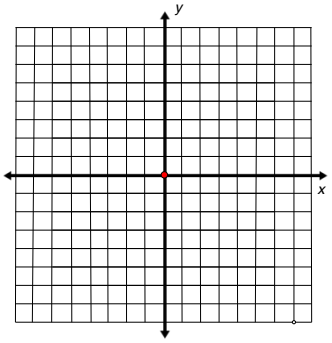
9. $y = x + 5$



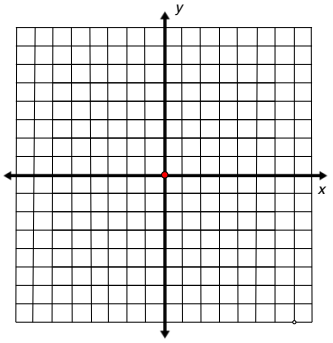
10. $y = x - 7$



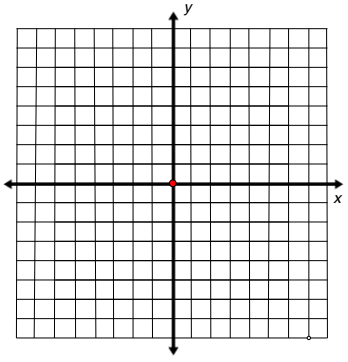
11. $y = -4x + 1$



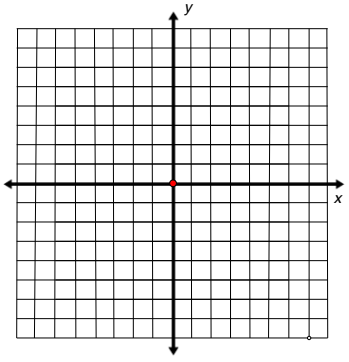
12. $y = 2x$



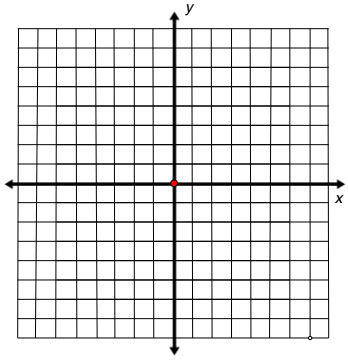
13. $y = \frac{1}{3}x + 2$



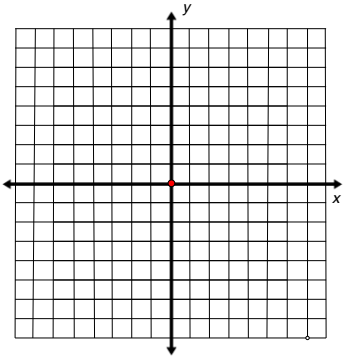
14. $y = -\frac{1}{4}x + 3$



15. $y = \frac{2}{3}x - 1$



16. $y = -\frac{3}{4}x - 3$



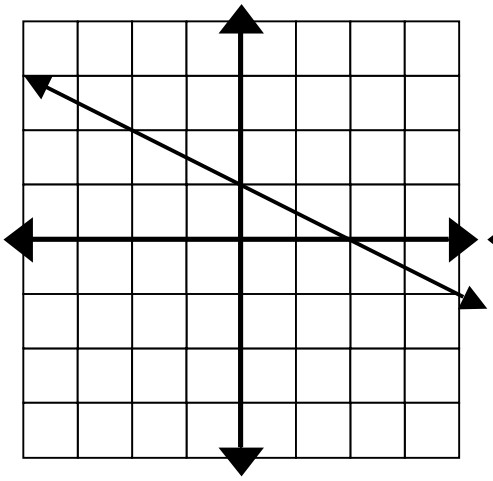
Slope-Intercept Form Worksheet-_ Name: _____
Review - Unit 3 lessons 5 & 6

1) ***Find the slope of the line through each pair of points.***

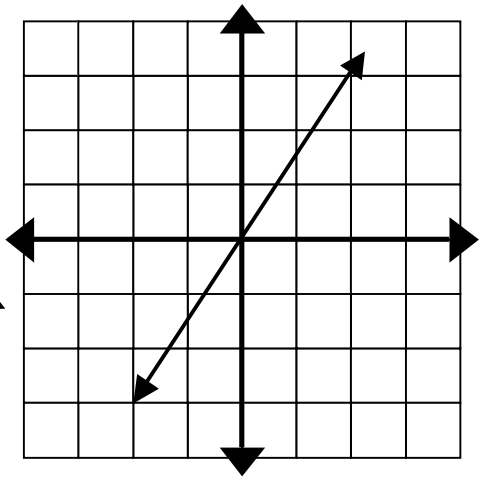
$$Slope = \frac{y_2 - y_1}{x_2 - x_1}$$

a. (8, -7) and (5, -3). **b. (-5, 9) and (5, 11).** **c. (-8, -4) and (-4, -9).**

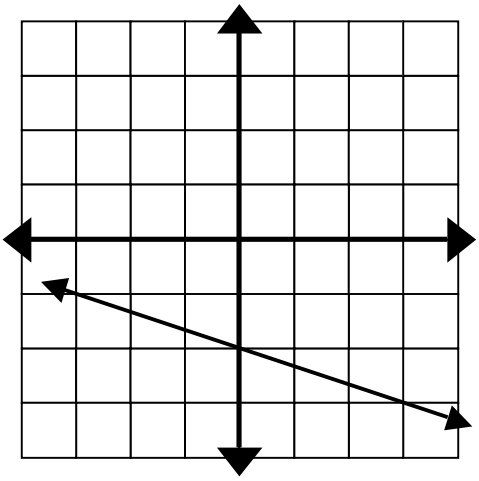
2) For each graph: Write the equation of the line in SLOPE-INTERCEPT FORM



m = _____b =_____

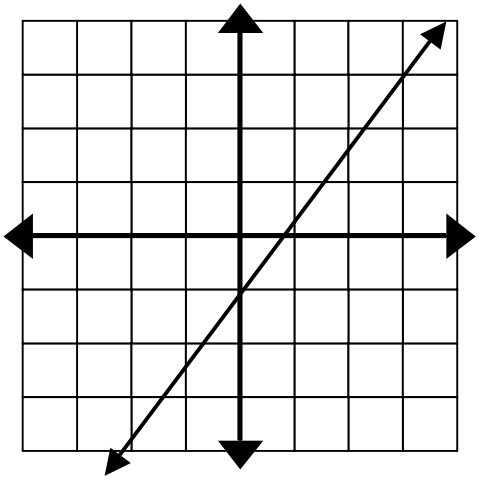


m = _____b = _____

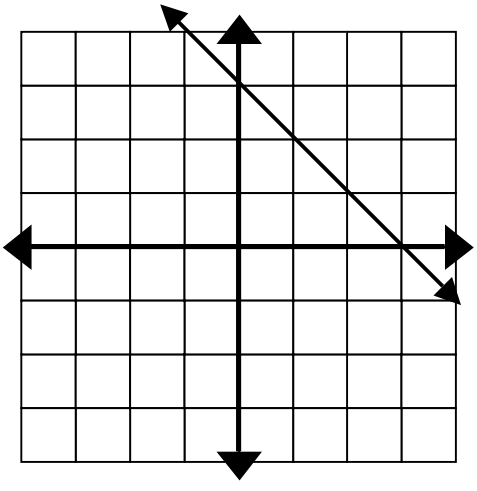


m = _____b =_____

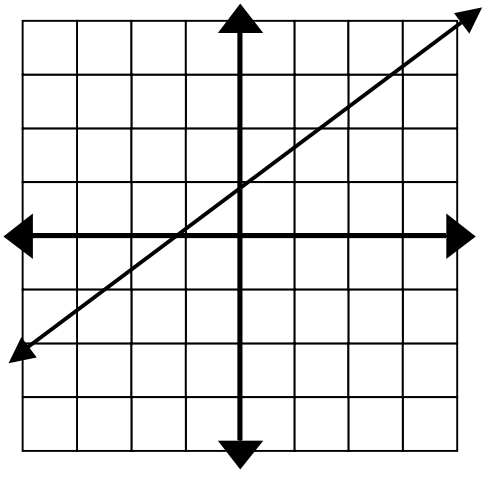
_____ _____ _____



m= _____ b =_____



m = _____b=_____



m = _____b =_____

_____ _____ _____

3) In each linear equation, identify the slope (m) and the y-intercept (b)

a. $y = 4x - 5$

m = _____b =_____

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

m= _____b =_____

c. $y = \frac{5}{2}x - \frac{19}{8}$

m=_____b=_____

d. $y = 11 + \frac{2}{3}x$

m = _____b = _____

e. $2x + y = 8$

m=_____b = _____

f. $y - 4x = -2$

m = _____b =_____

4) Find the equation of the line in slope-intercept form (y = mx + b)

a. m = 2 and b = - 7

b. b = 4 and m = -5

c. m = -5 and b = 0

d. m = 4/5 and b = -2

5) <u>Graph the line for each equation</u>:

5a) $y = \frac{3}{4}x - 3$

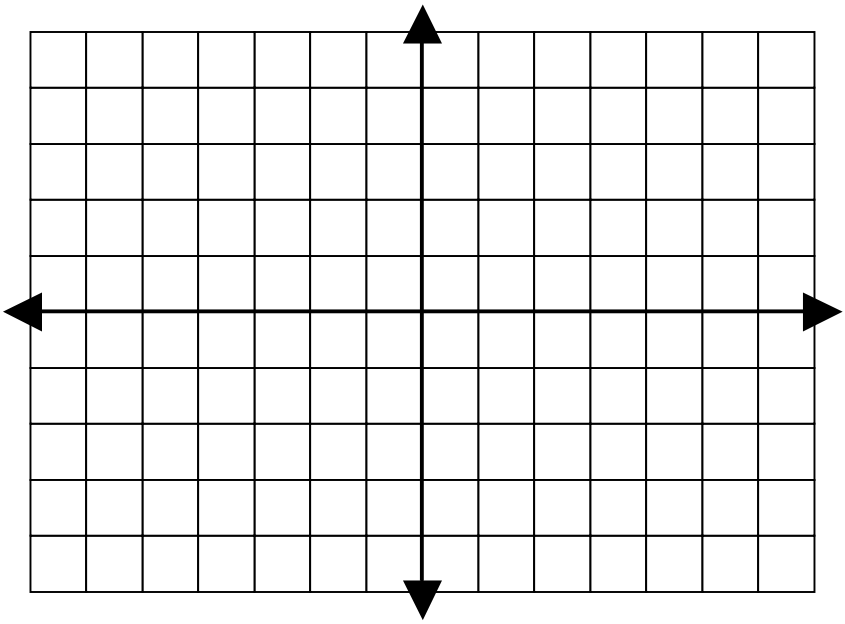
Slope = **Y-Intercept =**

5b) $y = 4 - \frac{5}{3}x$

Slope = **Y-Intercept =**

5c) $2x + y = -2$

Slope = **Y-Intercept =**



6. Sara rented a car for x amount of days. The linear equation below represents y, the total cost of Sara renting a car.

$$y = 17x + 130$$

a. **What is the slope of the line represented by this equation?**

b. **Explain what the slope tells you about renting a car.**

c. **What is the y-intercept of the line represented by this equation?**

d. **Explain what the y-intercept tells us about Sara's rental.**

e. **If Sara rents a car for 9 days, how much will it cost her? Show how you got your answer.**

17. The slope of a line is $\frac{3}{2}$ and the line contains the points (5, 9) and (3, a). What is the value of a?

18. The slope of a line is -2 and the line contains the points (7 ,4) and (x, 12). What is the value of x?

KEY:

Slope-Intercept Form Worksheet- Review - Unit 3 lessons 5 & 6

Name: KEY

1) *Find the slope of the line through each pair of points.*

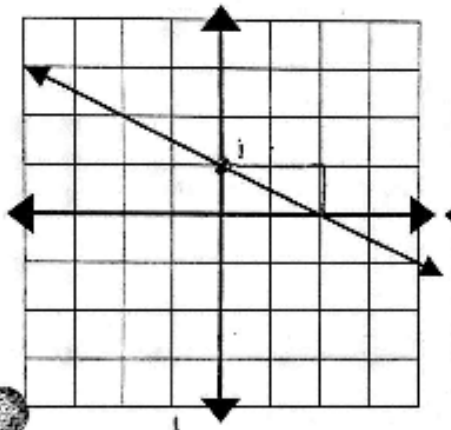
$$Slope = \frac{y_2 - y_1}{x_2 - x_1}$$

a. (8, -7) and (5, -3). $\frac{-3+7}{5-8} = \frac{4}{-3} = \frac{-4}{3}$

b. (-5, 9) and (5, 11). $\frac{11-9}{5+5} = \frac{2}{10} = \frac{1}{5}$

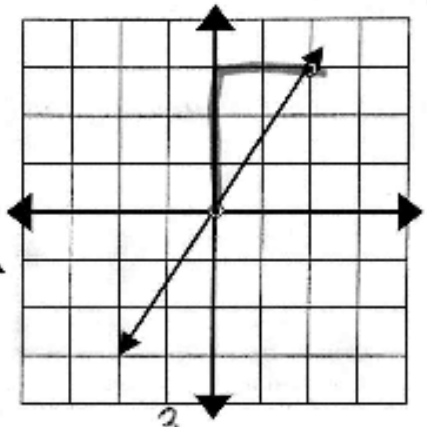
c. (-8, -4) and (-4, -9). $\frac{-9+4}{-4+8} = \frac{-5}{4}$

2) *For each graph: Write the equation of the line in SLOPE-INTERCEPT FORM*



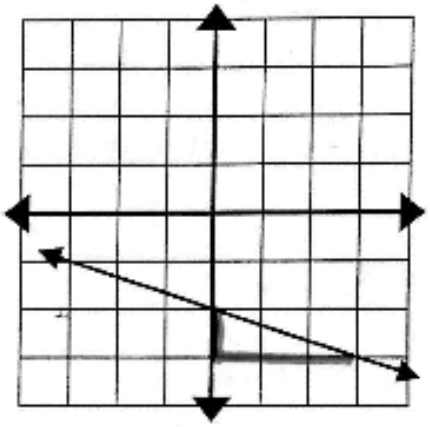
m = $-\frac{1}{2}$ b = 1

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



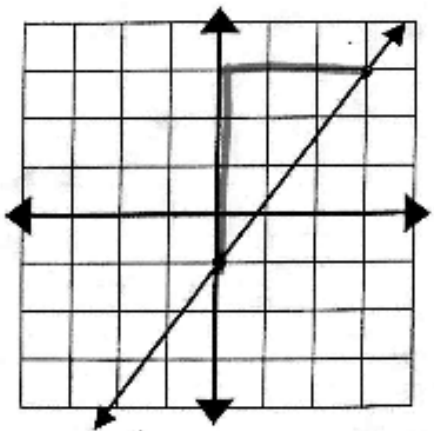
m = $\frac{3}{2}$ b = 0

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



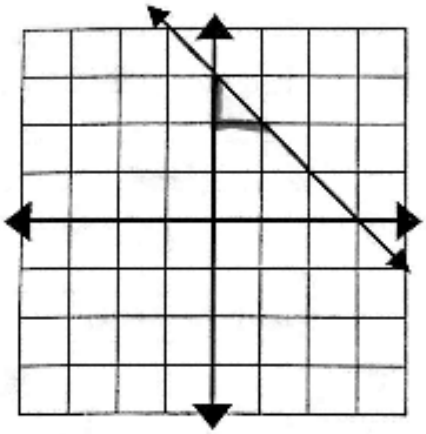
m = $\frac{-1}{3}$ b = -2

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



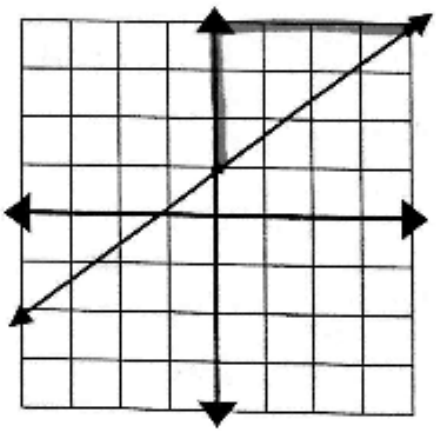
m = $\frac{4}{3}$ b = -1

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



m = -1 b = 3

$y = -1x + 3$



m = $\frac{3}{4}$ b = 1

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

3) In each linear equation, identify the slope (m) and the y-intercept (b)

a. $y = 4x - 5$

m = 4 b = -5

b. $y = \frac{2}{3} - x$ $y = -1x + \frac{2}{3}$

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

c. $y = \frac{5}{2}x - \frac{19}{8}$

m = $\frac{5}{2}$ b = $-\frac{19}{8}$

d. $y = 11 + \frac{2}{3}x$ $y = \frac{2}{3}x + 11$

m = $\frac{2}{3}$ b = 11

e. $2x + y = 8$ $y = -2x + 8$

$-2x$ $-2x$

m = -2 b = 8

f. $y - 4x = -2$ $y = 4x - 2$

$+4x$ $+4x$

m = 4 b = -2

4) Find the equation of the line in slope-intercept form (y = mx + b)

a. m = 2 and b = - 7

$y = 2x - 7$

b. b = 4 and m = -5

$y = -5x + 4$

c. m = -5 and b = 0

$y = -5x$

d. m = 4/5 and b = -2

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

5) Graph the line for each equation:

5a) $y = \frac{3}{4}x - 3$

Slope = $\frac{3}{4}$ Y-Intercept = -3

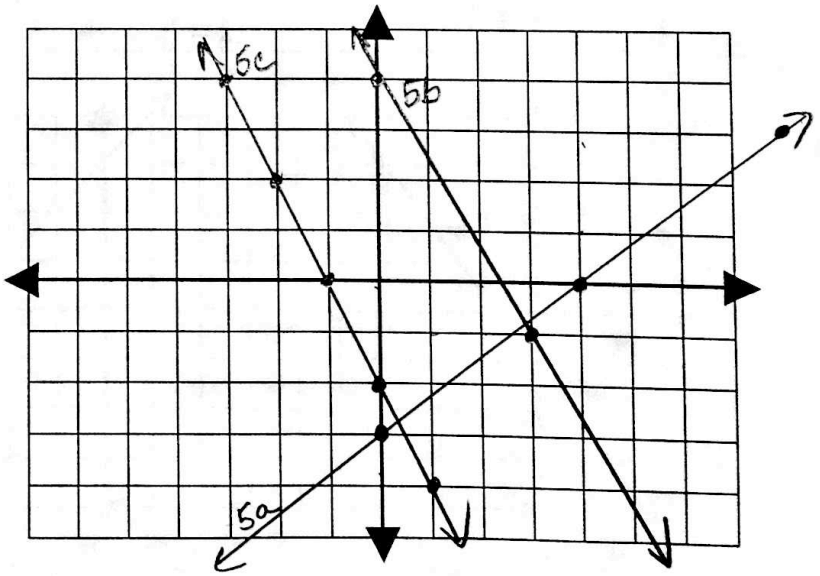
5b) $y = 4 - \frac{5}{3}x$

Slope = $-\frac{5}{3}$ $\frac{\downarrow 5}{\rightarrow 3}$ Y-Intercept = 4

5c) $2x + y = -2 \Rightarrow y = -2x - 2$

$-2x$ $-2x$

Slope = $\frac{-2}{1}$ $\frac{\downarrow 2}{\rightarrow 1}$ Y-Intercept = -2



ara rented a car for x amount of days. The linear equation below represents y, the total cost of Sara nting a car.

$$y = 17x + 130$$

a. What is the slope of the line represented by this equation?

17

b. Explain what the slope tells you about renting a car.

The cost per day to rent the car

c. What is the y-intercept of the line represented by this equation?

130

d. Explain what the y-intercept tells us about Sara's rental.

The initial cost of the car rental before you have it for any time.

e. If Sara rents a car for 9 days, how much will it cost her? Show how you got your answer.

$y = 17(9) + 130$
$y = 153 + 130 = 283$

IT WILL COST SARA $283 TO RENT THE CAR FOR 9 DAYS

7. The slope of a line is $\frac{3}{2}$ and the line contains the points (5, 9) and (3, a). What is the value of a?

Use $\frac{y_2 - y_1}{x_2 - x_1}$ $\quad \frac{a-9}{3-5} = \frac{a-9}{-2}$ so $\frac{a-9}{-2} = \frac{3}{2}$

$\frac{a-9}{-2} = \frac{-3}{-3}$

so
$a - 9 = -3$
$+9 \quad +9$
$a = 6$

8. The slope of a line is -2 and the line contains the points (7 ,4) and (x, 12). What is the value of x?

Use $\frac{y_2 - y_1}{x_2 - x_1}$ $\quad \frac{12-4}{x-7} = \frac{8}{x-7}$ so $\frac{8}{x-7} = \frac{-2}{1}$

so $x - 7$ has to $= -4$
because $\frac{8}{-4} = -2$

$x - 7 = -4$
$+7 \quad +7$
$x = 3$

17) Find the slope of the line that passes through each pair of points.

a) (3, 5) and (-3, -5)

b) (-5, 3) and (-4, 9)

c) (2, 4) and (2, 3)

d) (10, -7) and (5, -7)

18) Find the value of *y* so that the line passing through the points (2, 5) and (7, y) has a slope of $\frac{2}{3}$

Name: _____ Period: _____

Moving Straight Ahead Quiz 1

Paco, Taco and Socko are participating in a walkathon in Dr. K's class. The following are how much each student will get from each of their sponsors:

Paco will get $6 plus $1 per kilometer

Taco will get $4 per kilometer

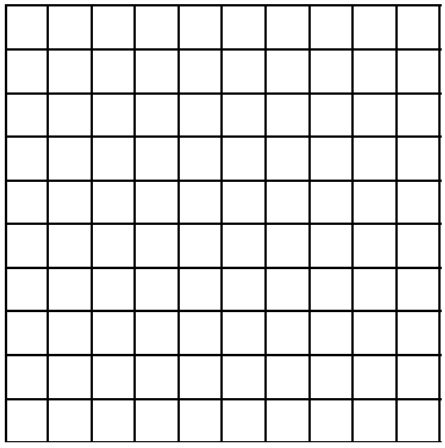
Socko will get $20 for walking

Please answer the following:

1. Write an equation for each student. Label each one clearly.

2. Make a table for each student from kilometers 0 to 6.

3. Make a graph for each student on the same axes. Make sure to label your graph. You can go by any interval you want (ones, twos, fives, tens. Whatever works.)



4. Who has the following point on their graph: (5, 20)?

5. Which, if any, of these relationships is proportional?

Use the following table to answer questions 6 and 7.

Weeks	Money
0	225
7	120
9	90
13	30

6. What is the equation for this table?

7. When will the amount of money reach $0?

8. Use the table **below** to answer the following questions:

   a. Is this relationship linear? Why?

   b. Is this relationship proportional?

X	Y
-3	7
4	-14
7	-23
9	-29

Name_____

Practice for slope, y-intertcept, and writing equations

Date_____ Period____

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

1) Slope = −1, y-intercept = −5

2) Slope = −1, y-intercept = −1

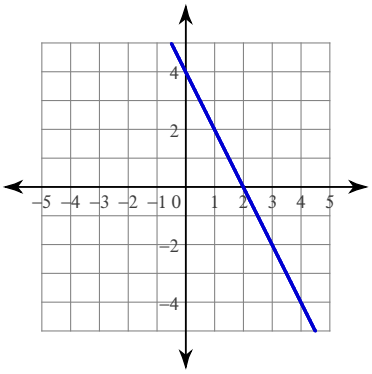
3) Slope = $\frac{3}{2}$, y-intercept = 0

4) Slope = $-\frac{3}{4}$, y-intercept = −4

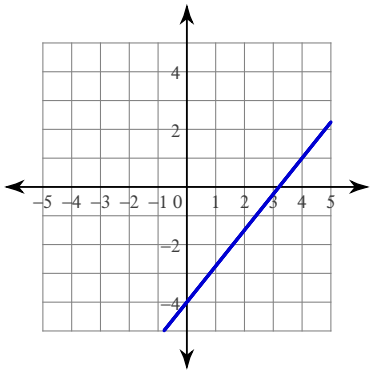
5) Slope = $-\frac{3}{5}$, y-intercept = 2

Find the slope and y-intercept of each line. Write the equation of the line.

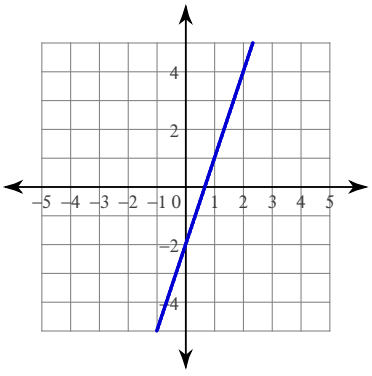
6)



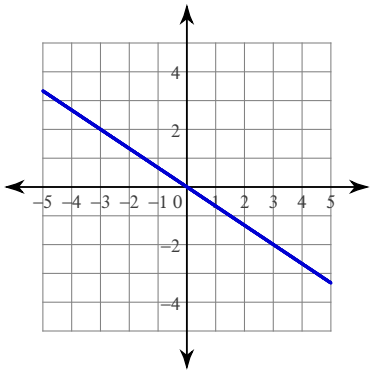
7)



8)



9)

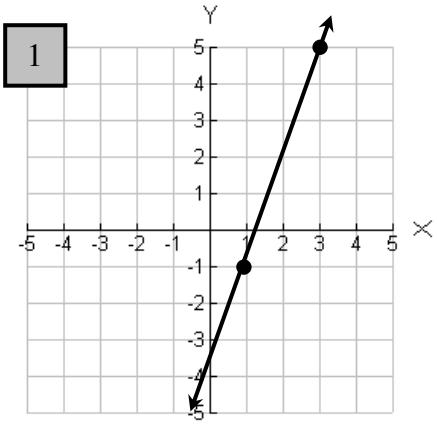


Name _____ Date_____

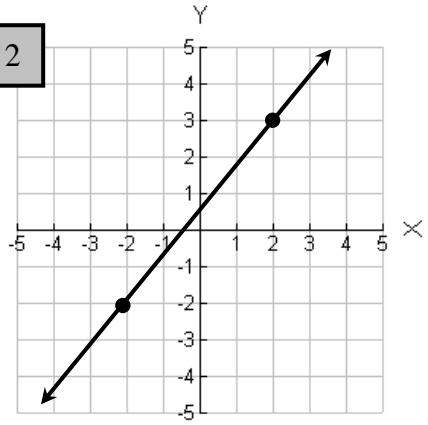
Worksheet A5: Slope Intercept Form

Find the Slope of each line below

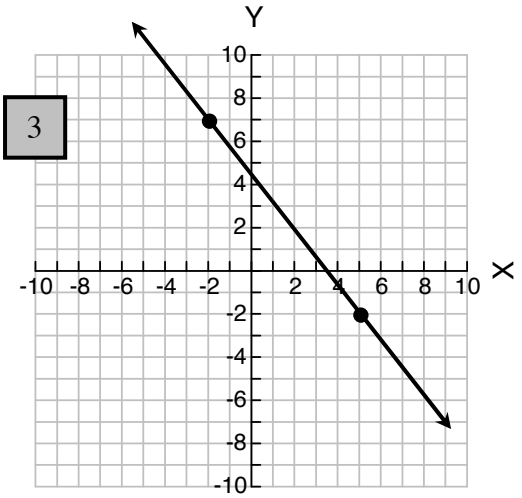
1



2

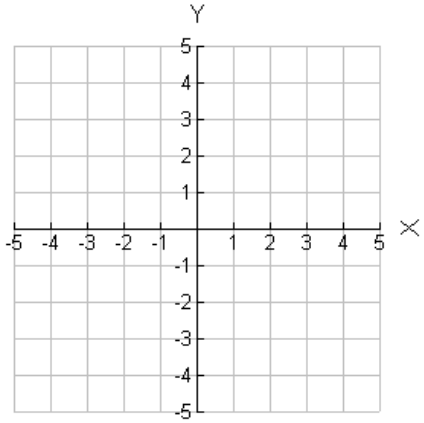


3



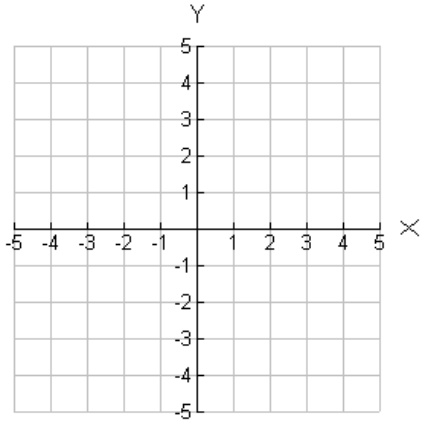
Graph the lines containing the point below, then <u>find their slopes</u> from counting on the graph!

4. $(-4,2)$ and $(2,-3)$



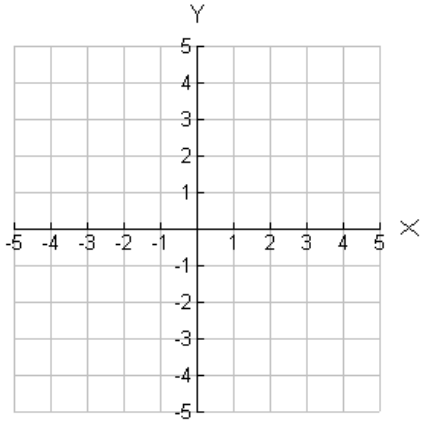
m = _____

5. $(-2,4)$ and $(3,0)$



m = _____

6. $(0,5)$ and $(-4,-3)$



m = _____

(continued on back)

Find the slopes of the lines containing the points given:

Hint: Use the Slope Formula

$m =$

7. $(4,0)$ and $(5,7)$

8. $(0,8)$ and $(-3,10)$

9. $(3,-2)$ and $(5,-6)$

10. $(0,0)$ and $(2,-3)$

11. $\left(\frac{3}{4},\frac{1}{2}\right)$ and $(2,-3)$

Find the slope of each line below. Use "undefined slope" or "zero slope" where appropriate

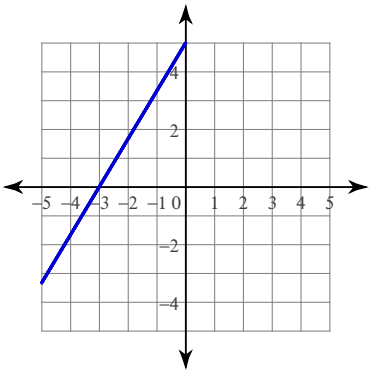
12. $x = -8$ _____

13. $y = 2$ _____

14. $x = 9$ _____

15. $y = -9$ _____

10)



Answers to Practice for slope, y-intertcept, and writing equations

1) $y = -x - 5$

2) $y = -x - 1$

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

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

5) $y = -\frac{3}{5}x + 2$

6) $y = -2x + 4$

7) $y = \frac{5}{4}x - 4$

8) $y = 3x - 2$

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

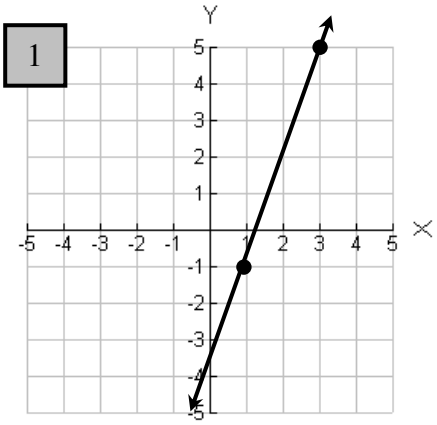
10) $y = \frac{5}{3}x + 5$

Name _____ Date_____

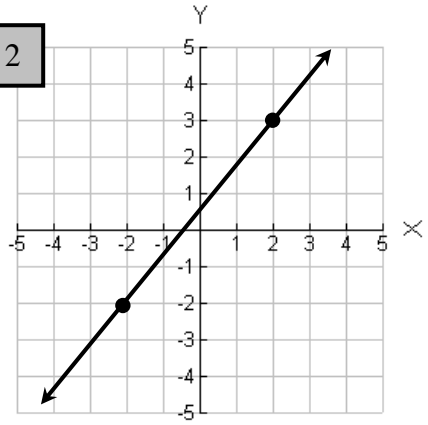
Worksheet A5: Slope Intercept Form

Find the Slope of each line below

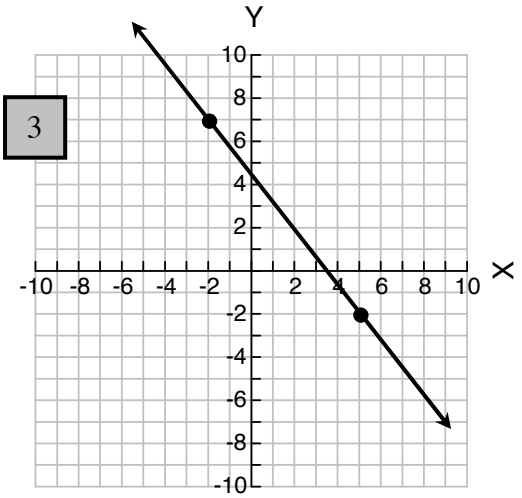
1



2

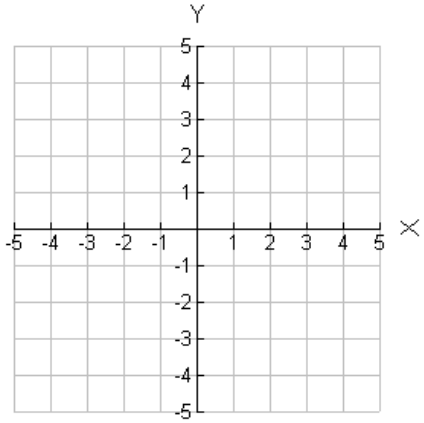


3



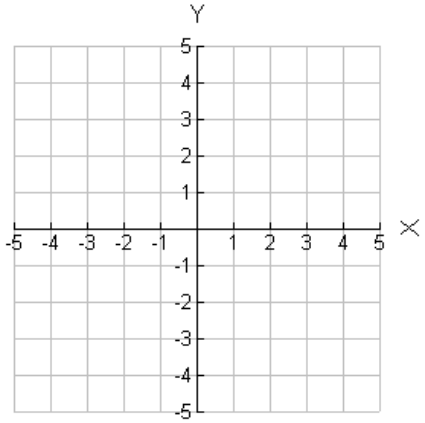
Graph the lines containing the point below, then <u>find their slopes</u> from counting on the graph!

4. $(-4,2)$ and $(2,-3)$



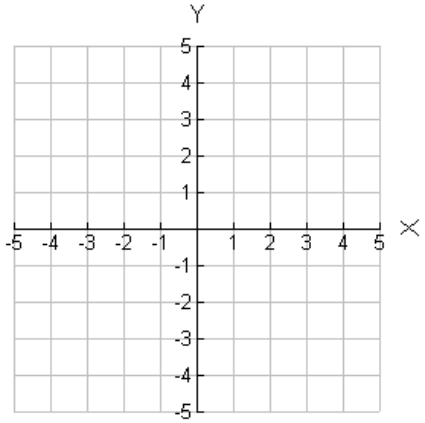
m = _____

5. $(-2,4)$ and $(3,0)$



m = _____

6. $(0,5)$ and $(-4,-3)$



m = _____

(continued on back)

Find the slopes of the lines containing the points given:

Hint: Use the Slope Formula

$m =$

7. $(4,0)$ and $(5,7)$

8. $(0,8)$ and $(-3,10)$

9. $(3,-2)$ and $(5,-6)$

10. $(0,0)$ and $(2,-3)$

11. $\left(\frac{3}{4},\frac{1}{2}\right)$ and $(2,-3)$

Find the slope of each line below. Use "undefined slope" or "zero slope" where appropriate

12. $x = -8$ _____

13. $y = 2$ _____

14. $x = 9$ _____

15. $y = -9$ _____