

9.6 Notes – Writing Linear Equations in Slope-Intercept Form

- Identify** the initial value (y-intercept) from a table, graph, equation, or verbal description.
- Use** the slope and y-intercepts to write a linear function in the form $y = mx + b$ from any representation (table, graph, or verbal description).
- Graph** a linear equation given an equation.

SLOPE-INTERCEPT FORM $y = m x + b$

m is the _____

b is the _____

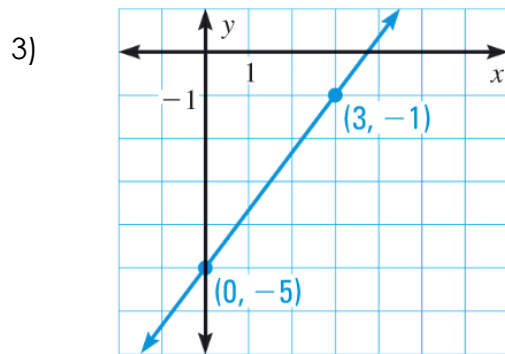
Write the equation of a line given the slope and y-intercept.

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

1) Slope is -2 and a y-intercept of 5

2) Slope is $\frac{3}{4}$ and y-intercept is -3

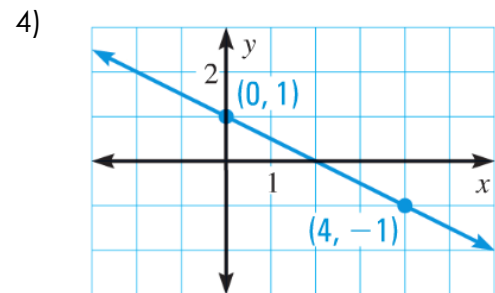
Write the equation of a line in slope intercept form given a graph.



Slope: _____

Y-Intercept: _____

Equation: _____



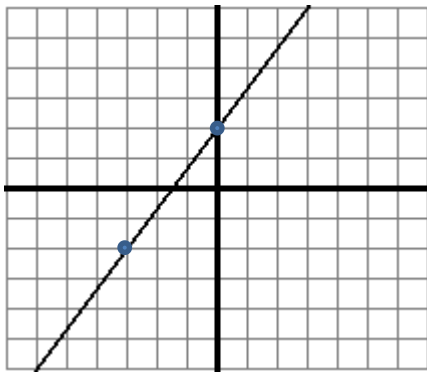
Slope: _____

Y-Intercept: _____

Equation: _____

Examples: Write the linear equation for the graph shown.

5)

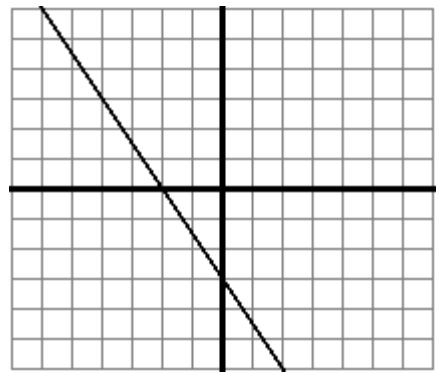


Slope: _____

Y-Intercept: _____

Equation: _____

6)



Slope: _____

Y-Intercept: _____

Equation: _____

Write the equation of a line in slope intercept form **given a table.**

1st: find
the
slope

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

m = _____

Find the slope by: $\frac{\text{Change in } y}{\text{Change in } x}$

Example:

x	y
-2	4
-1	3.5
0	3
1	2.5
2	2

Slope = _____

Example:

x	y
-5	-16
-2	-7
0	-1
3	8
5	14

Slope = _____

2nd: find the y-intercept

The y-intercept is when x = _____

Example:

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

y- intercept

b = _____

Example:

x	y
-2	4
-1	3.5
0	3
1	2.5
2	2

y- intercept

b = _____

Example:

x	y
-5	-16
-2	-7
0	-1
3	8
5	14

y- intercept

b = _____

What should you do if 0 is not in the table?

x	y
1	11
2	15
3	19
4	23
5	27

Use the substitution method

1. Find the **slope** $m = \underline{\hspace{2cm}}$
2. Fill in the m (slope) into $y = m x + b$ $y = \underline{\hspace{1cm}} x + b$
3. Choose an ordered pair, then substitute in the x and y ... now you have to **solve for b** (y- intercept), so get your b alone.

$m = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

3rd: put it all together

Write a linear equation for the tables shown. **$y = m x + b$**

1. Find the m **slope**
2. Find the b **y- intercept**
3. Plug the m and b into your slope intercept form.... $y = m x + b$
 Plug in the m and b $y = \underline{\hspace{1cm}} x + \underline{\hspace{1cm}}$

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

Equation _____

x	y
2	5
4	13
7	25
9	33
12	45

x	y
-2	10
0	4
3	-5
6	-14
8	-20

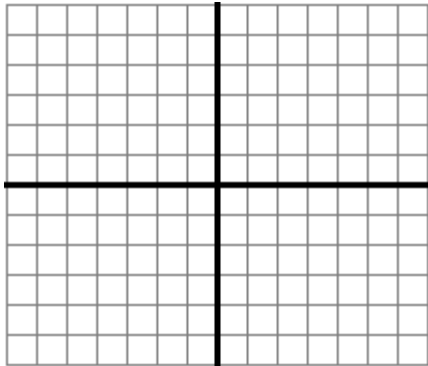
Graph a linear equation **given an equation**

Examples: Graph the equations in **Slope-Intercept Form**.... _____

GRAPH THE Y-INTERCEPT FIRST!!

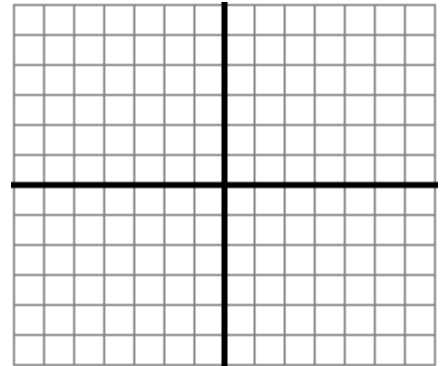
$$y = 2x + 1$$

Slope: Y-Int:

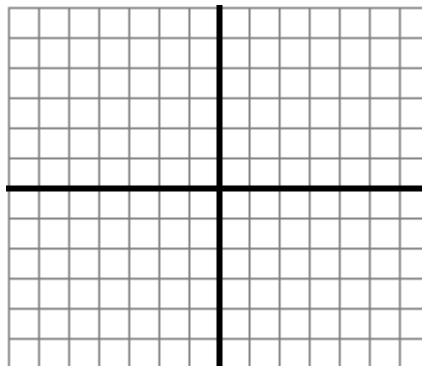


$$y = -\frac{2}{3}x - 2$$

Slope: Y-Int:



$$4y - 8 = 2x$$



Name _____ Period _____

9.6 HW

SCORE:

____ / ____
____ %

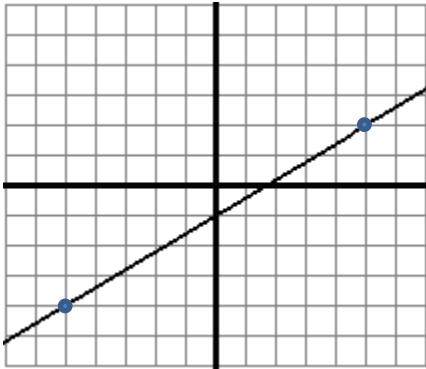
Write the equation of the line with the given slope and y-intercept.

1. Slope is -3 and a y-intercept of 7

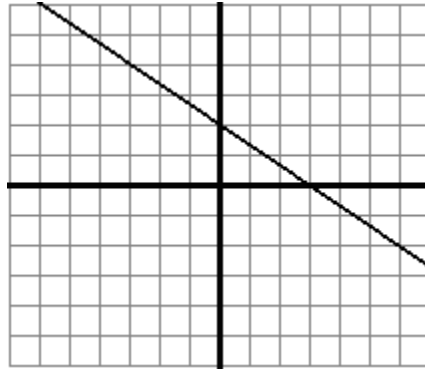
2. Slope is $\frac{1}{4}$ and y-intercept is -5

Write an equation based on the graph.

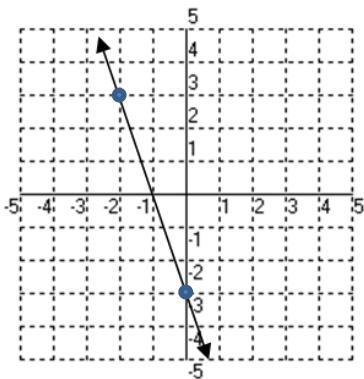
3.



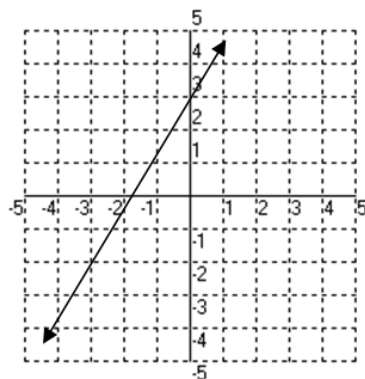
4.



5.



6.



Find the slope. Show your work!

7. $y = 4x + 5$

8. $(-3, -8)(-12, -20)$

9. $(17, 11)(5, 0)$

$m =$ _____

$m =$ _____

$m =$ _____

Given the table, find m . Show your work!

10.

x	y
-6	12
-5	14
-4	16
-3	18
-2	20

11.

x	y
-14	3
-12	6
-10	9
-8	12
-6	15

12.

x	y
-2	3
-1	6
0	9
1	12
2	15

$m =$ _____

$m =$ _____

$m =$ _____

Write a linear equation for the tables shown. $y = mx + b \rightarrow y = \underline{\hspace{1cm}}x + \underline{\hspace{1cm}}$

SHOW YOUR WORK!

13.

x	y
-6	12
-5	14
-4	16
-3	18
-2	20

14.

x	y
-14	3
-12	6
-10	9
-8	12
-6	15

15.

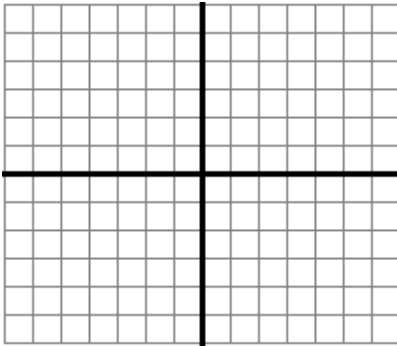
x	y
2	16
5	10
7	6
11	-2
13	-6

16.

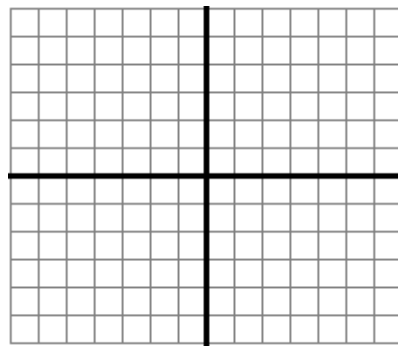
x	y
3	2
6	4
9	6
12	8
15	10

Graph the equations in Slope-Intercept form.

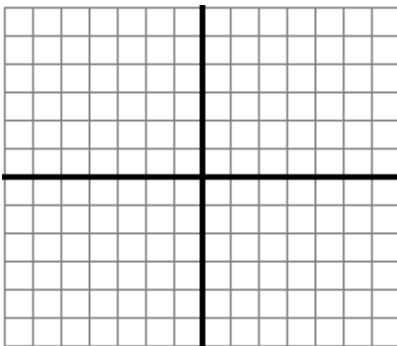
17. $y = \frac{1}{2}x - 4$



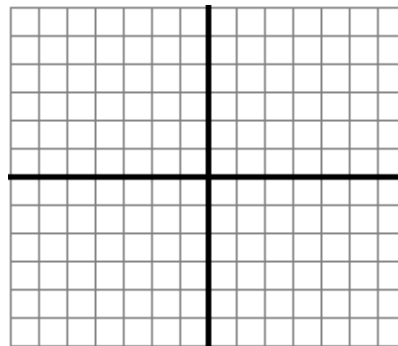
18. $y = \frac{3}{2}x - 3$



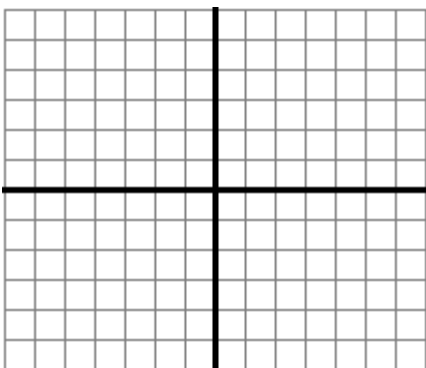
19. $y = -\frac{3}{4}x - 2$



20. $y = -2x + 1$



21. $y = 3x + 1$



22. $10 - 5y = 3x$

