

## 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.

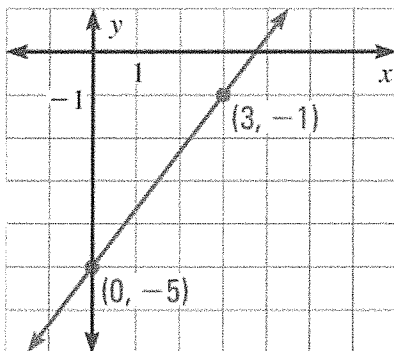
Write the equation of the line with the given slope and y-intercept.

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.

3)

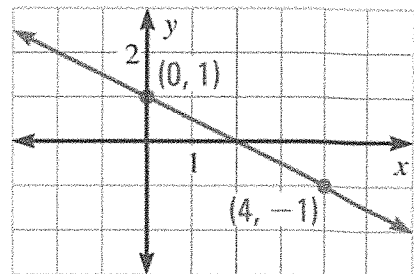


Slope: \_\_\_\_\_

Y-Intercept: \_\_\_\_\_

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

4)



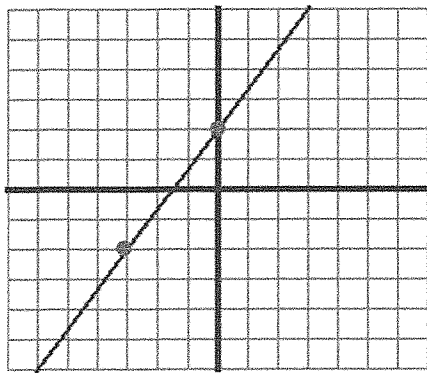
Slope: \_\_\_\_\_

Y-Intercept: \_\_\_\_\_

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

Examples: Write the linear equation for the graph shown.

5)

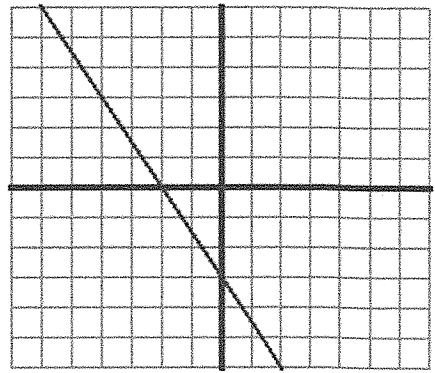


Slope: \_\_\_\_\_

Y-Intercept: \_\_\_\_\_

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

6)



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

Y-Intercept: \_\_\_\_\_

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

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

1<sup>st</sup>: 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 = \_\_\_\_\_

2<sup>nd</sup>: 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**  $m =$  \_\_\_\_\_
2. Fill in the  $m$  (slope) into  $y = m x + b$       $y =$  \_\_\_\_  $x + b$
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.

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

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

3<sup>rd</sup>: put it all together

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

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  $b$       $y =$  \_\_\_\_\_  $x +$  \_\_\_\_\_

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

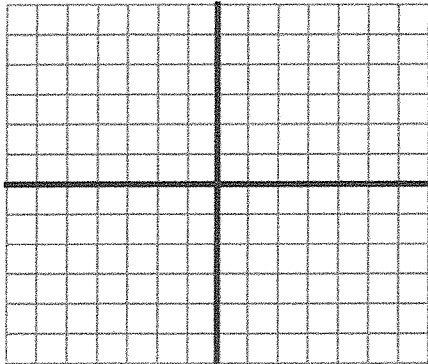
### Graph a linear equation given an equation

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

**GRAPH THE Y-INTERCEPT FIRST!!**

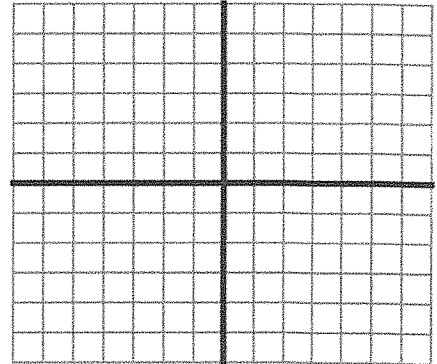
$$y = 2x + 1$$

Slope:      Y-Int:

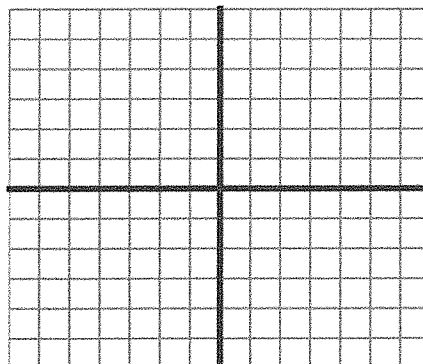


$$y = -\frac{2}{3}x - 2$$

Slope:      Y-Int:



$$4y - 8 = 2x$$



Name \_\_\_\_\_ Period \_\_\_\_\_

**SCORE:**

### 9.6 HW

\_\_\_\_ / \_\_\_\_  
\_\_\_\_ %

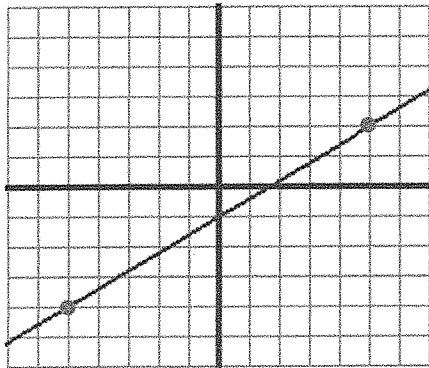
Write the equation of the line with the given slope and y-intercept.

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

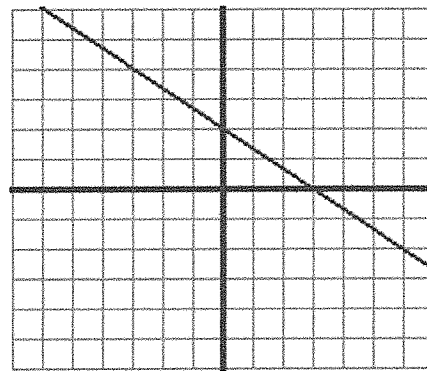
2. Slope is  $\frac{1}{4}$  and y-intercept is -5

Write an equation based on the graph.

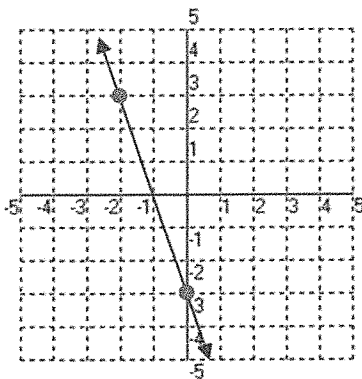
3.



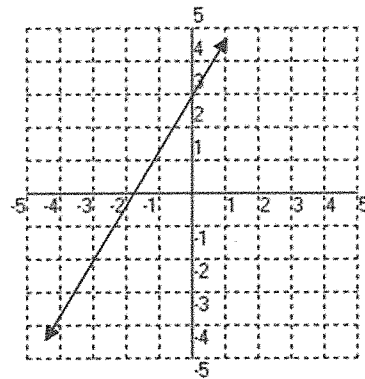
4.



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.

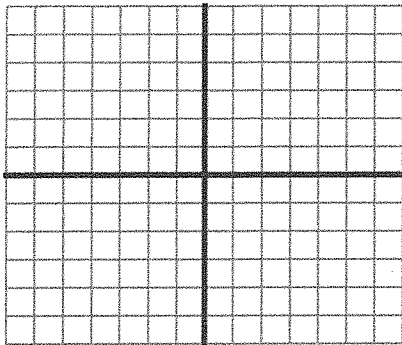
x	y
2	16
5	10
7	6
11	-2
13	-6

16.

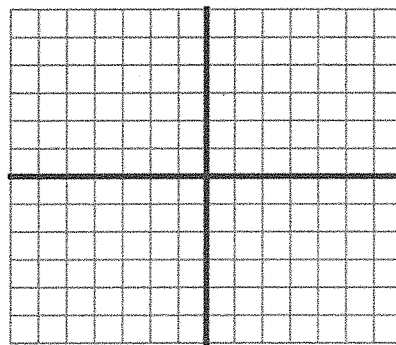
x	y
3	2
6	4
9	6
12	8
15	10

Graph the equations in Slope-Intercept form.

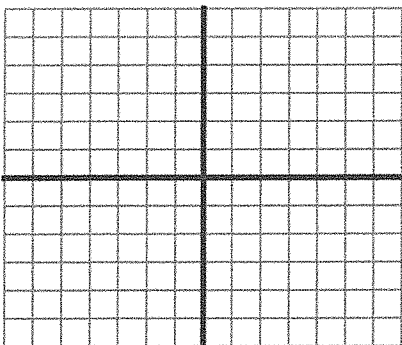
17.  $y = \frac{1}{2}x - 4$



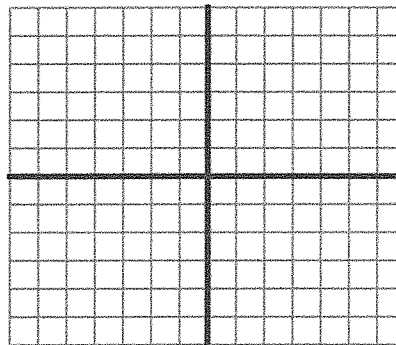
18.  $y = \frac{3}{2}x - 3$



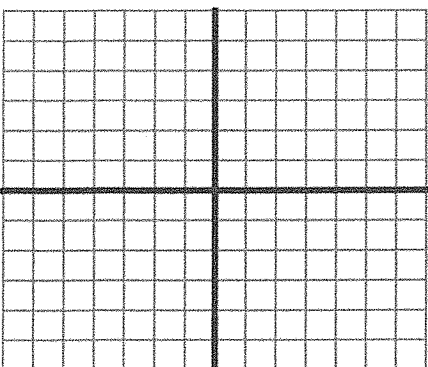
19.  $y = -\frac{3}{4}x - 2$



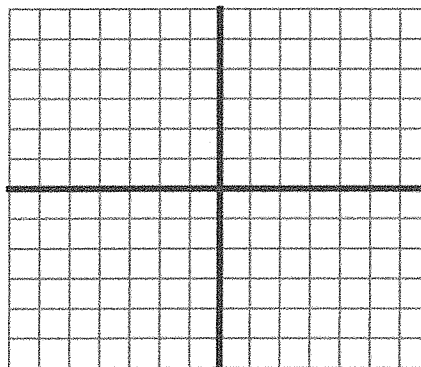
20.  $y = -2x + 1$



21.  $y = 3x + 1$



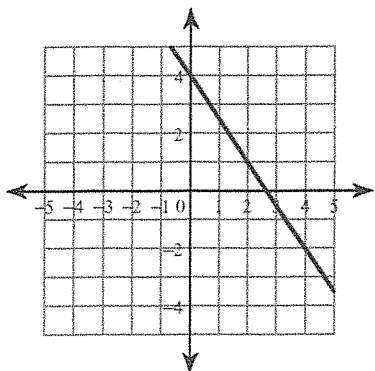
22.  $10 - 5y = 3x$



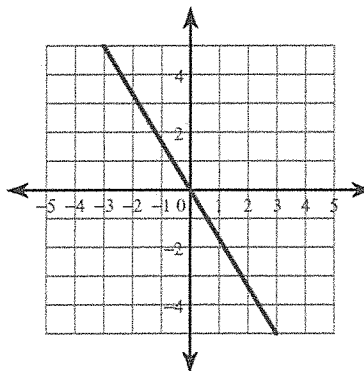
## Writing Linear Equations

Write the slope-intercept form of the equation of each line.

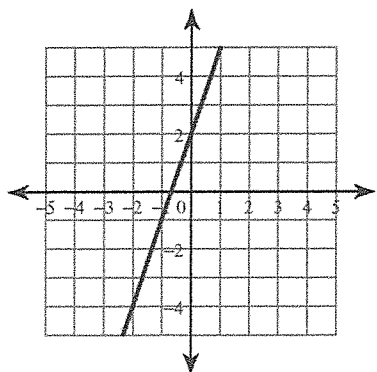
1)



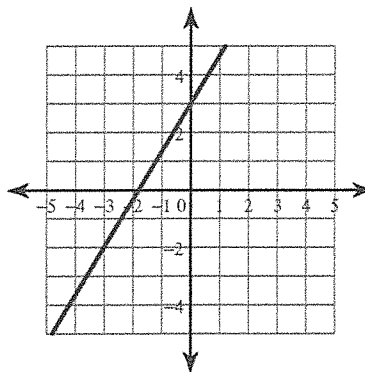
2)



3)

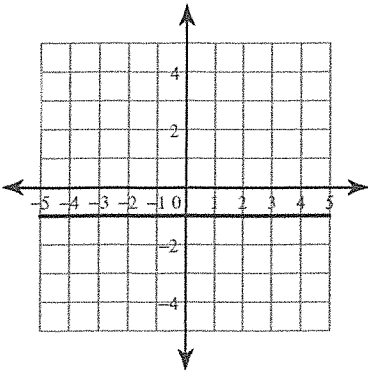


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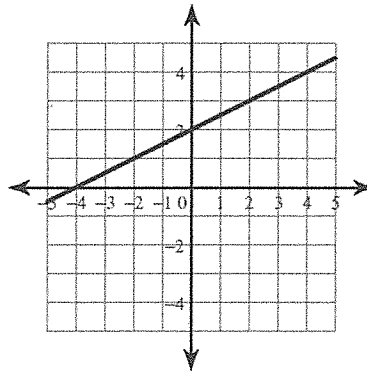




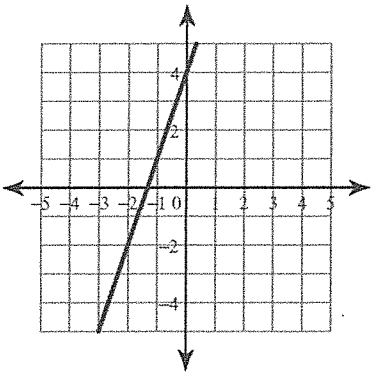
5)



6)



7)



8)

