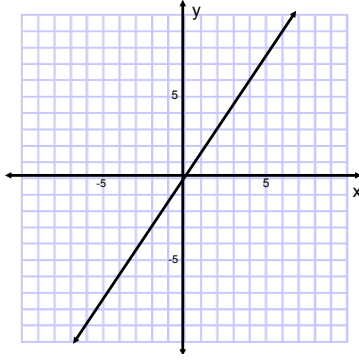
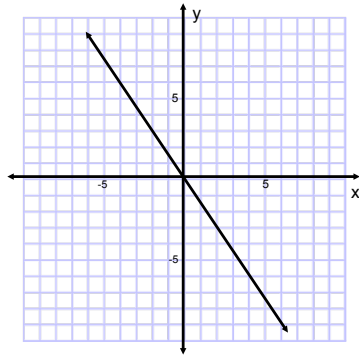


## 5.3 – Exploring $m$ (a.k.a. slope)

### Determining slope by looking at the equation

In the equation  $y = mx$ ,  $m$  refers to the **slope** of the line. In the world around us a slope is created when a surface rises or falls. In mathematics, slope represents the rise or fall of a line. We can interpret a slope of a line before we graph it by looking at the  $m$  value.

**Class Notes** – Complete the rules below by observing what occurs with the graph as a result of the equation representing it.

$y = \frac{3}{2}x$ 	<p>Word Bank</p> <p>rises</p> <p>falls</p>	$y = -\frac{3}{2}x$ 
--	--	---

Use the word bank above to fill in the blanks below.

#### **Rule #1**

When the slope ( $m$  value) is negative the graph \_\_\_\_\_ from left to right.

#### **Rule #2**

When the slope ( $m$  value) is positive the graph \_\_\_\_\_ from left to right.

**Class Notes** – Look at the equations below. State whether the graphs of the equations contain a slope that falls from left to right or rises from left to right.

<b>LP#1</b> $y = 3x$	$y = -8x$	$y = \frac{3}{4}x$	$y = -\frac{1}{3}x$	$y = 7x$
<b>LP#2</b> $y - 2x = 0$	$y + 5x = 0$	$y - \frac{2}{5}x = 0$	$y - \frac{7}{2}x = 0$	$y + x = 0$

### Determining slope by looking at the graph

To give us a little more insight on slope we need to first look at the equation  $y = mx$ . Solve the equation for slope ( $m$ ) in the space provided to the right.

You can observe by looking at the result

$$y = mx$$

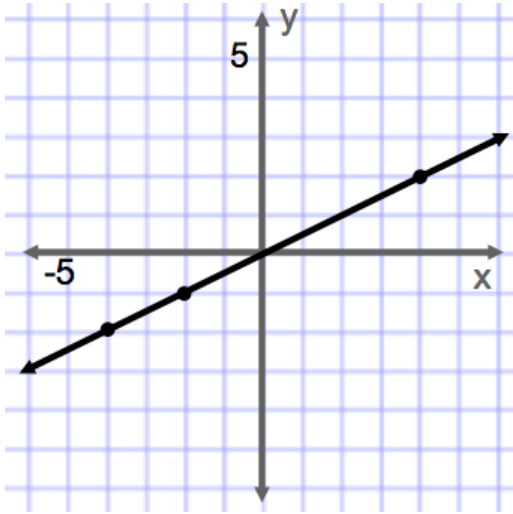
that “y is over x”. Slope in the equation  $y = mx$  is the ratio of y coordinate to x coordinate.

This is a convenient method for determining slope for equations in the form of  $y = mx$ , but as equations become more complex a more reliable method is needed.

It is a fact that we only need two points to create a line. We can also find slope by just using two points. Complete the practice below.

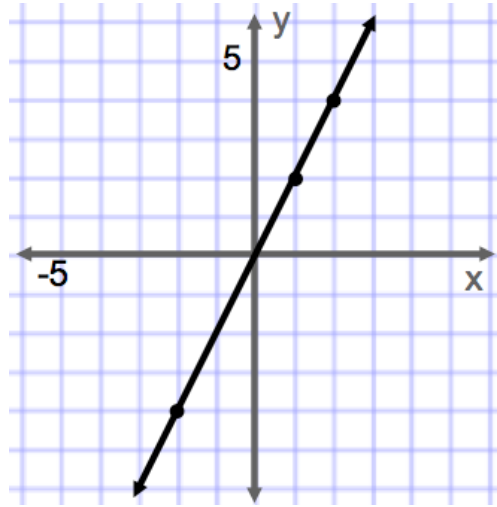
**Class Notes** – Use the graph of each line to determine the line’s slope. Write the equation for the line.

**LP#3**



Slope ( $m$ )

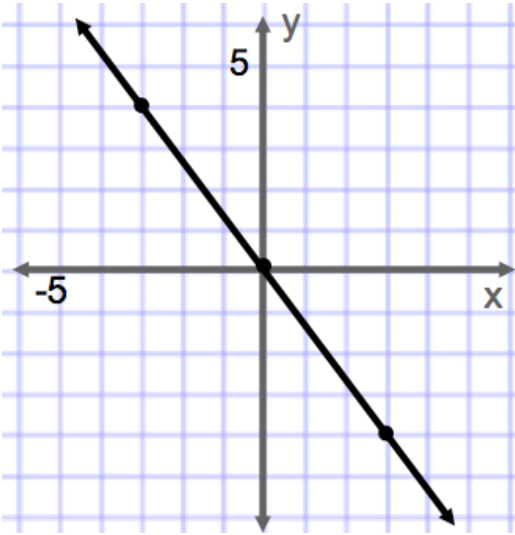
Equation ( $y = mx$ )



Slope ( $m$ )

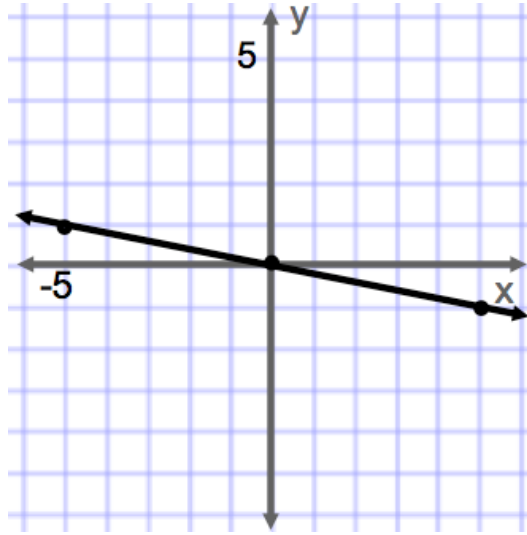
Equation ( $y = mx$ )

LP#4



Slope ( $m$ )

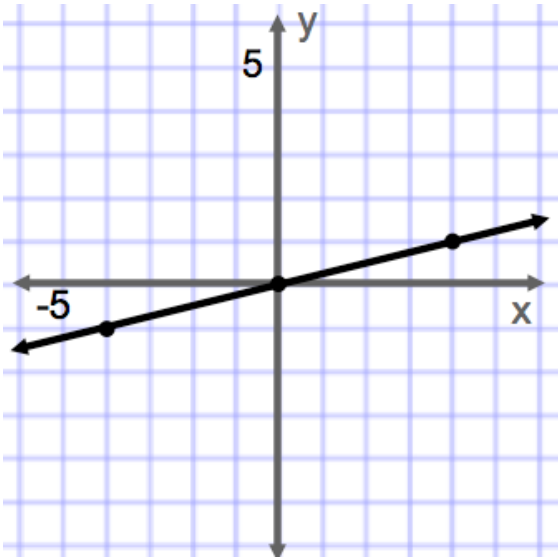
Equation ( $y = mx$ )



Slope ( $m$ )

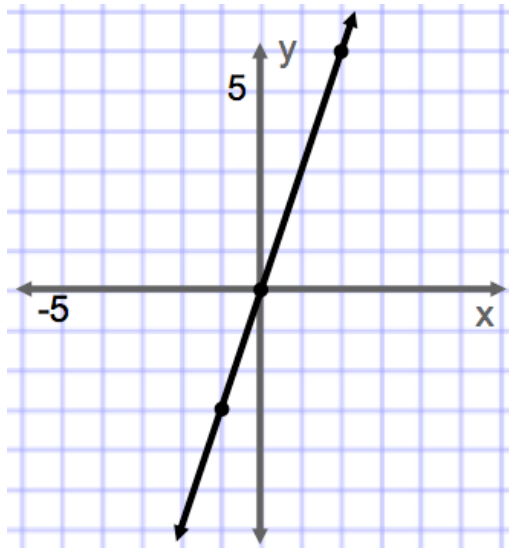
Equation ( $y = mx$ )

LP#5



Slope ( $m$ )

Equation ( $y = mx$ )



Slope ( $m$ )

Equation ( $y = mx$ )

## Determining slope by looking at a table

**Class Notes** – Use each table to determine the slope of the line that it represents. Write the equation for the line.

**LP#6**

$x$	$y$
0	0
1	0.5
2	1
3	1.5
4	2
5	2.5

Slope ( $m$ )

Equation ( $y = mx$ )

$x$	$y$
0	0
1	2
2	4
3	6
4	8
5	10

Slope ( $m$ )

Equation ( $y = mx$ )

**LP#7**

$x$	$y$
-4	-1
0	0
4	1
8	2
12	3

Slope ( $m$ )

Equation ( $y = mx$ )

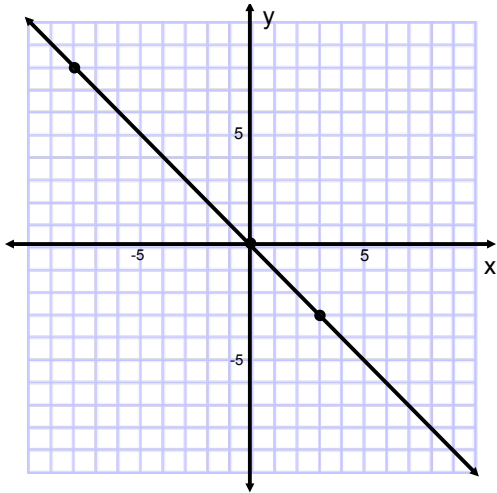
$x$	$y$
-10	-2
-5	-1
0	0
5	1
10	2

Slope ( $m$ )

Equation ( $y = mx$ )

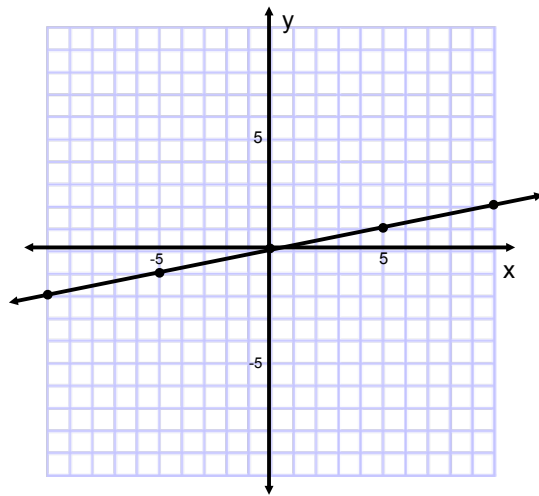
**Review** – Use the graph/table to determine the slope of the line it represents. Write the equation for the line.

**R#1**



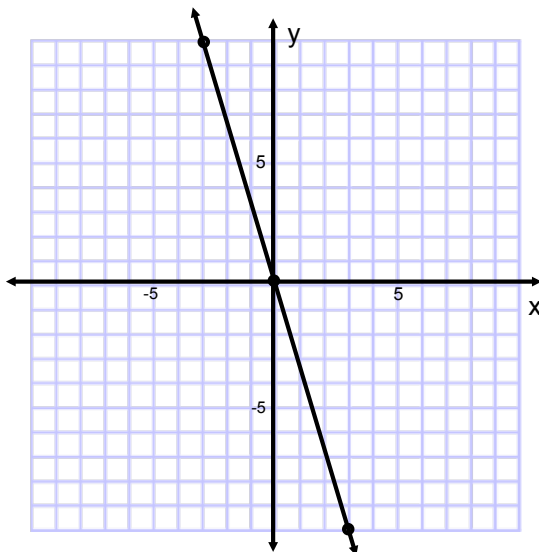
$x$	$y$
-2	4
-1	2
0	0
1	-2
2	-4

**R#2**



$x$	$y$
-2	10
-1	5
0	0
1	-5
2	-10

**R#3**

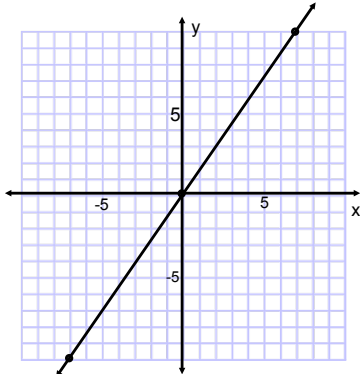


$x$	$y$
0	0
1	7
2	14
3	21
4	28

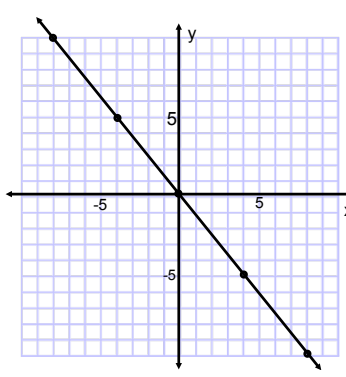
## Homework

Use the graph of each line to determine the line's slope. Write the equation for the line.

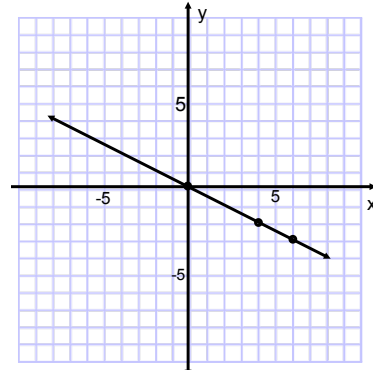
1)



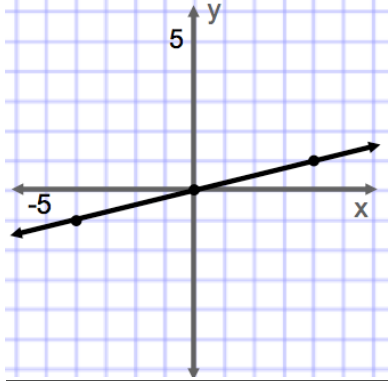
2)



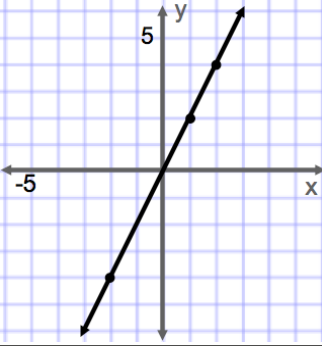
3)



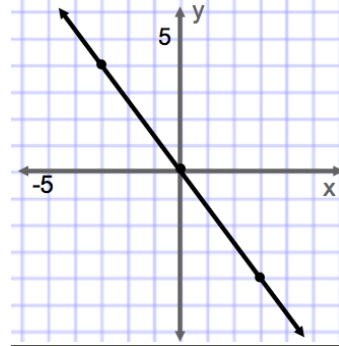
4)



5)



6)



Use each table to determine the slope of the line that it represents. Write the equation for the line.

7)

$x$	$y$
-2	10
-1	5
0	0
1	-5
2	-10

8)

$x$	$y$
0	0
1	0.25
2	0.5
3	0.75
4	1

9)

$x$	$y$
-2	-20
-1	-10
0	0
1	10
2	20

10)

$x$	$y$
-2	-2
-1	-1
0	0
1	1
2	2

11)

$x$	$y$
0	0
1	-4
2	-8
3	-12
4	-16

## Synthesis

TBA