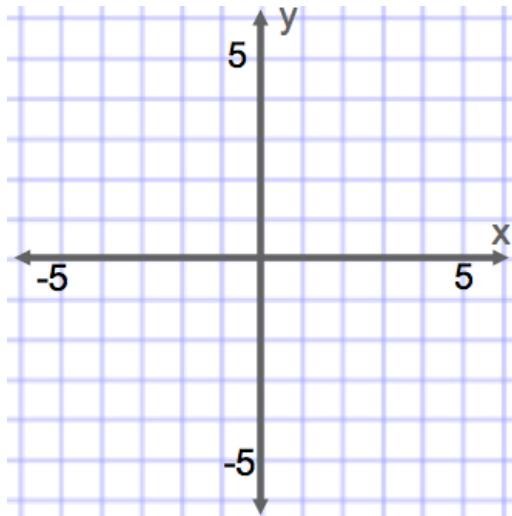


5.4 – Introduction To The Equation $y = mx + b$

Set 1 - Below is a table for the equation $y = 2x$. Use the table and graph the line in the coordinate plane.

x	$y = 2x$	y	(x,y)
-2	$y = 2(-2) = -4$	-4	(-2,-4)
-1	$y = 2(-1) = -2$	-2	(-1,-2)
0	$y = 2(0) = 0$	0	(0,0)
1	$y = 2(1) = 2$	2	(1,2)
2	$y = 2(2) = 4$	4	(2,4)



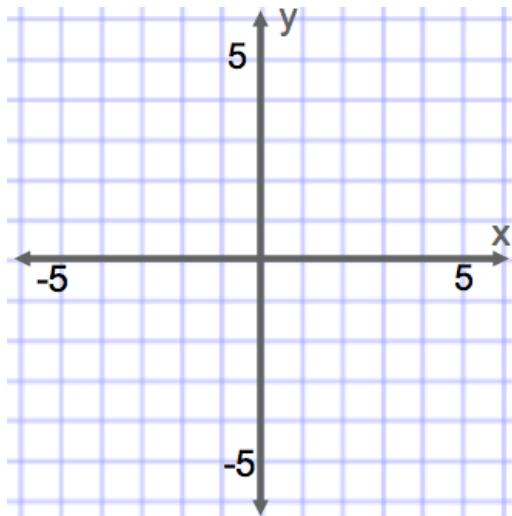
State the coordinate where the line intercepts the y -axis. _____

What is the y value of this coordinate? _____ This value is called the y -intercept.

Use two points on the graph to illustrate what the slope is equal to. _____

Set 2 - Complete the table and graph the equation.

x	$y = 2x + 3$	y	(x,y)
-2			
-1			
0			
1			
2			



State the coordinate where the line intercepts the y -axis. _____

What is the y value of this coordinate? _____ This value is called the y -intercept.

Use two points on the graph to illustrate what the slope is equal to. _____

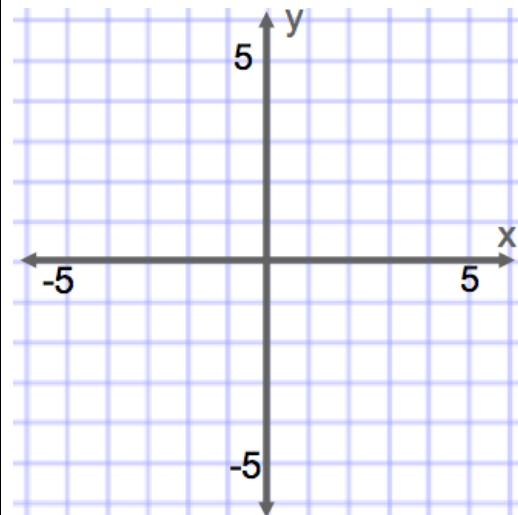
Compare the equation $y = 2x + 3$ with the equation $y = 2x$.

Did the line's interception with the y -axis change? _____

Did the slope of the line change? _____

Set 3 - Complete the table and graph the equation.

x	$y = 2x - 4$	y	(x, y)
-2			
-1			
0			
1			
2			



State the coordinate where the line intercepts the y -axis. _____

What is the y value of this coordinate? _____ This value is called the y -intercept.

Use two points on the graph to illustrate what the slope is equal to. _____

Compare the equation $y = 2x + 3$ with the equation $y = 2x$.

Did the line's interception with the y -axis change? _____

Did the slope of the line change? _____

The value where the line crosses the y – axis is called the y – intercept. Complete Set 4 using the information you found from Set 1 through Set 3.

Set 4 - State the y – intercept for the lines represented by the equations.

$$y = 2x$$

$$y = 2x + 3$$

$$y = 2x - 4$$

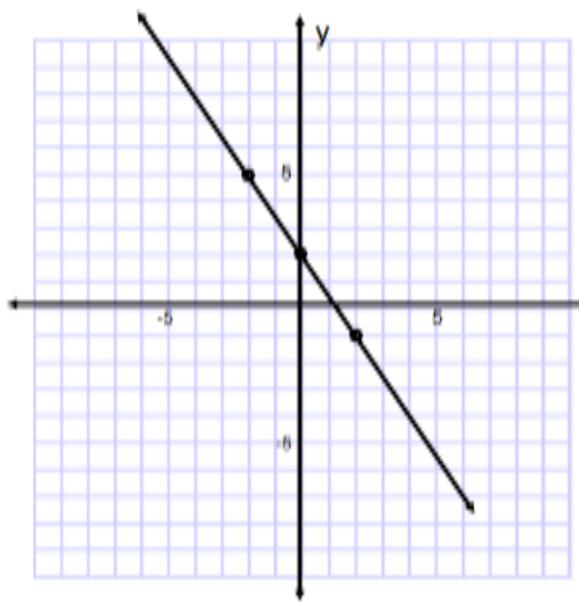
Set 5 - Based on all the information from this lesson and previous ones, label each variable in the equation $y = mx + b$ using items from the word bank.

WORD BANK	$y = mx + b$
Slope	
y – intercept	
variable used to input values	
variable that is dependent on the equation	

State the slope and y – intercept for each equation.

LP#1 $y = 3x - 7$	$y = -4x + 10$	$y = \frac{3}{5}x + 2$	$y = -\frac{1}{4}x - 8$
LP#2 $y - 9 = 6x$	$y - 5 = \frac{1}{2}x$	$y + 6 = x$	$y - 7x = -1$

Review – State the slope and y – intercept for each equation or graph.

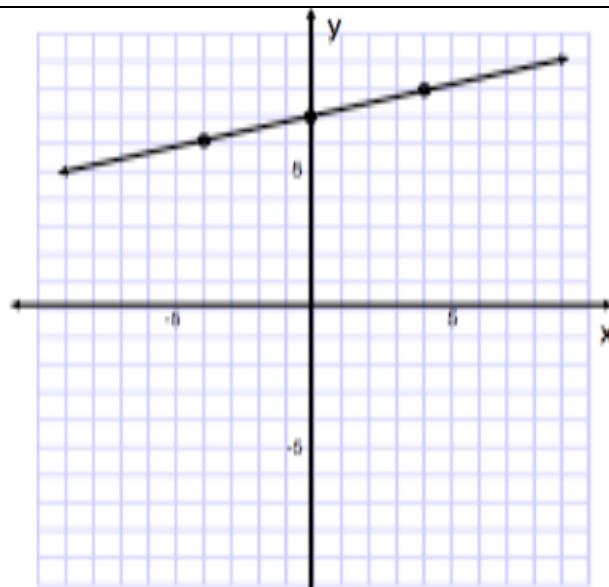
R#1	<ul style="list-style-type: none"> $y = \frac{1}{2}x + 3$ $y = -2x - 5$ $y - 4 = 3x$
	

R#2

- $y = -0.25x + 5.5$

- $y = 6x - 1$

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

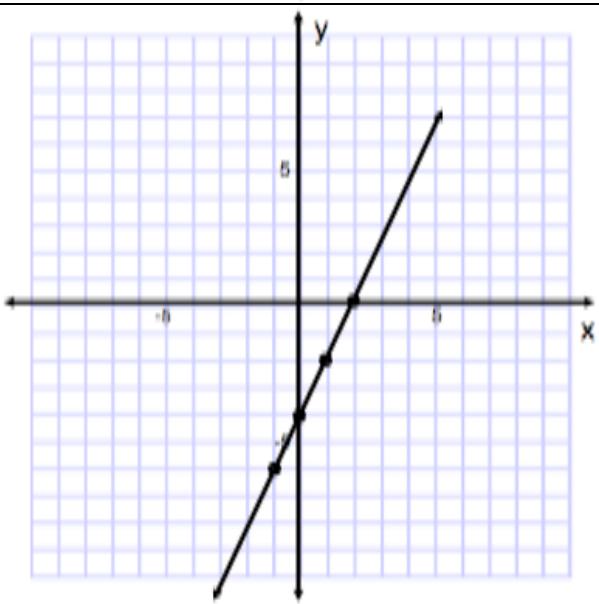


R#3

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

- $y = x + 8$

- $y - 1 = -6x$



Homework

State the slope and y - intercept for each equation.

1) $y = 5x - 9$ 2) $y = 3x + 6$ 3) $y = \frac{4}{7}x + 3$ 4) $y = -7x - 11$ 5) $y = x + 4$

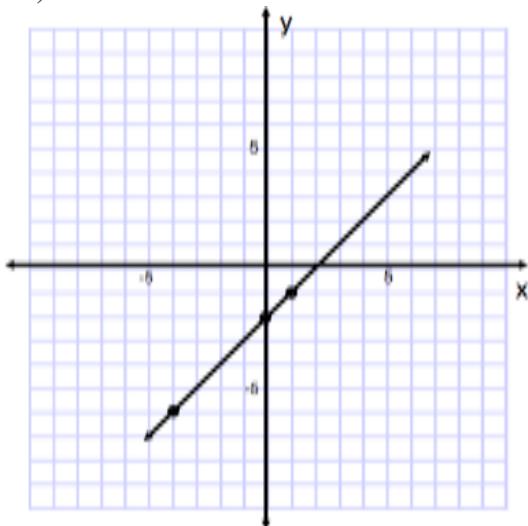
6) $y = -\frac{1}{3}x - 6$ 7) $y = -x + 9$ 8) $y = 8x - 1$ 9) $y = \frac{6}{5}x - 7$ 10) $y = 0.5x - 10$

11) $y - 7 = 4x$ 12) $y + 1 = -2x$ 13) $y - 3 = \frac{5}{2}x$ 14) $y - 10 = 7x$ 15) $y + 4 = -3x$

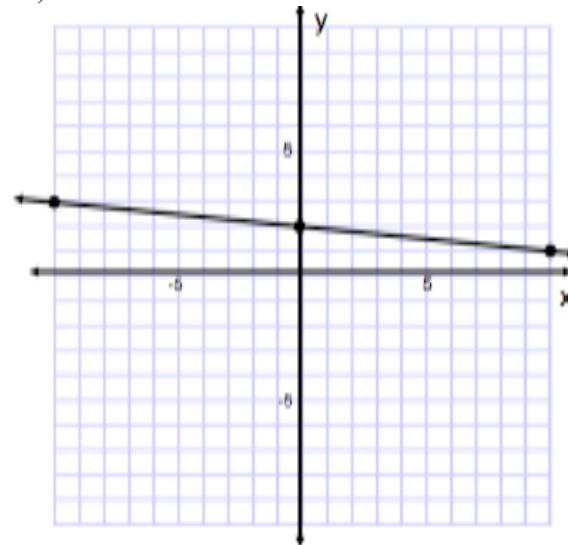
16) $y + 2 = \frac{6}{7}x$ 17) $y - 3x = 4$ 18) $y + x = 5$ 19) $y + \frac{1}{4}x = 7$ 20) $y - 7x = -11$

Instructions - A) State the slope and y – intercept for each graph. **B)** State the equation for the line.

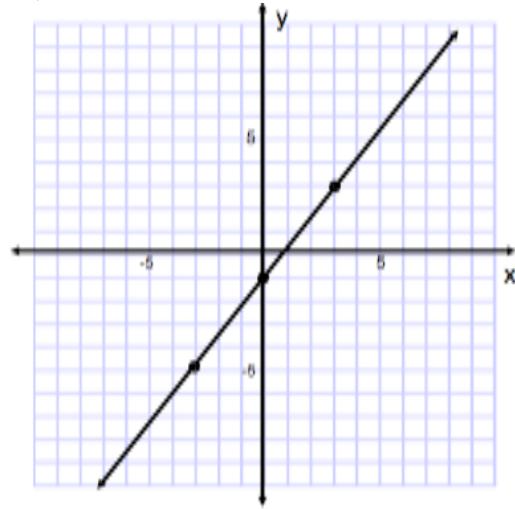
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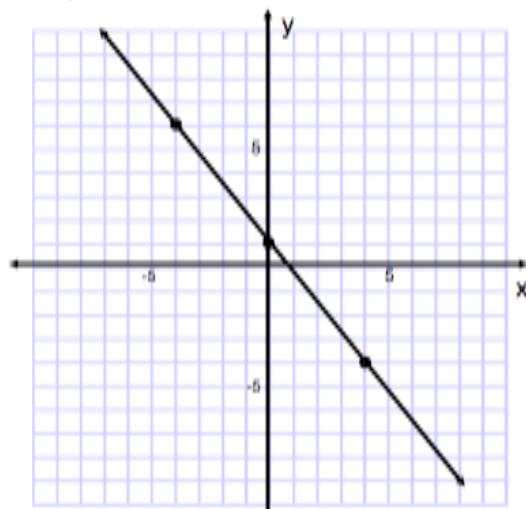
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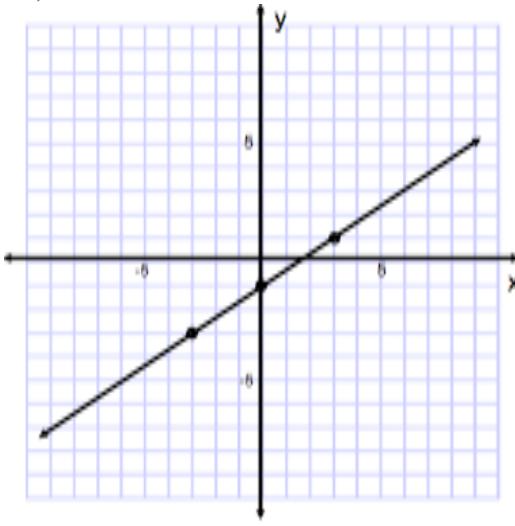
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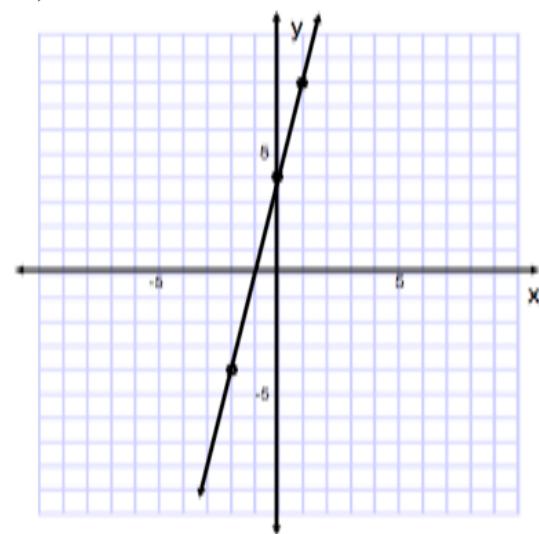
24)



25)



26)



Synthesis

Lesson 5.4