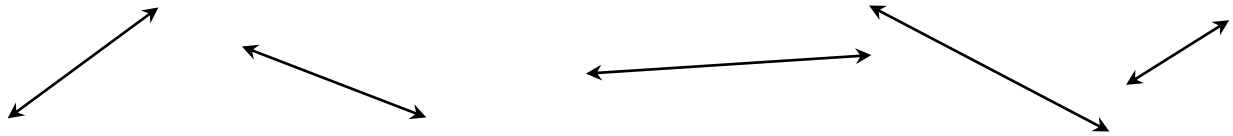
Name: _____ Period: _____

6.3 – Getting to Know the Slope of a Line

To many, the slope of a line is how much "slanted" a line can be. The following are some example of lines that have some sort of slope.



The SLOPE of a line is determined by two things: the RISE and the RUN.

The RISE of a line is how much UP or DOWN it is going. The RUN is how much LEFT or RIGHT a line is going.

To determine the RISE and RUN of line, you need to look at a line on a coordinate plane.

Step 1: Look at two points on a line

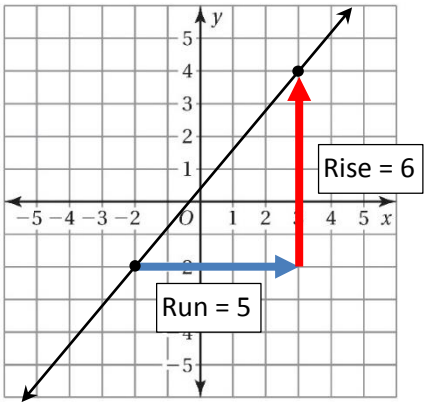
Step 2: Start at one point. Using the gridlines of the coordinate plane, move left or right. While doing this, draw an arrow. (Mentally count the spaces that you move.)

Step 3: Once you are below or above the second point, move up or down until you reach that point. (Mentally count the spaces that you move.)

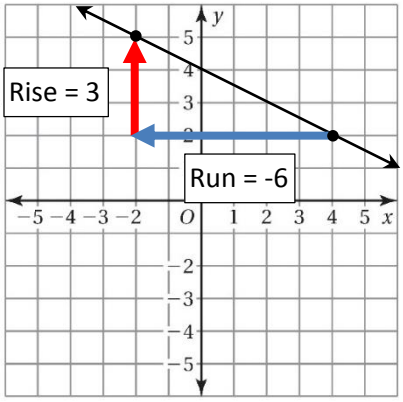
Step 4: Use the following RULES to determine if the RISE and the RUN is POSITIVE or NEGATIVE.

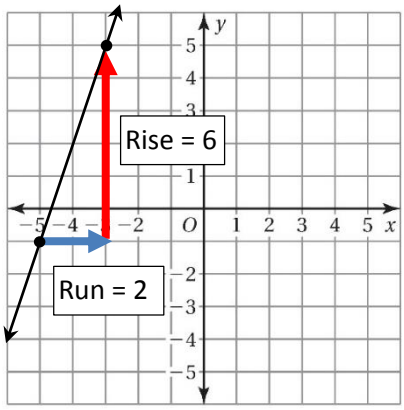
RISE	**RUN**
Positive - If you move up	Positive - If you move right
Negative - If you move down	Negative - If you move left

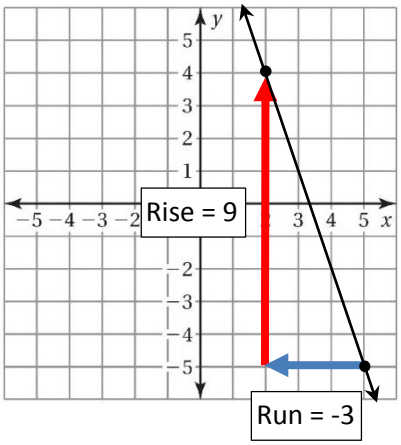
Example:



More Examples:







Concept Check:

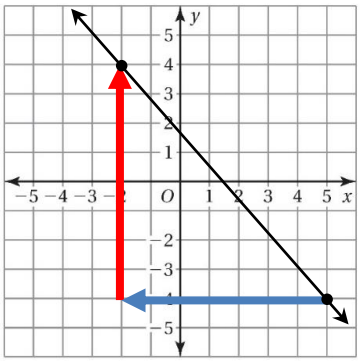
1) According to what was mentioned earlier, what is the slope of a line?

2) In your own words, what determines the slope of a line?

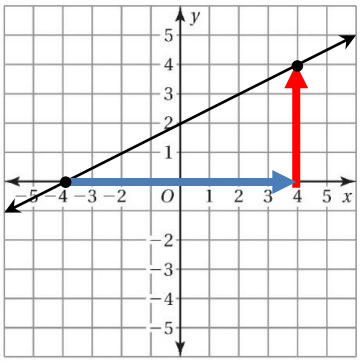
3) What is the "rise" of a line?

4) What is the "run" of a line?

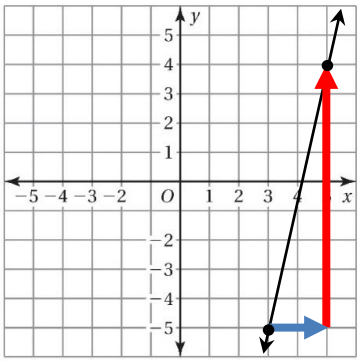
Determine the rise and run of the following lines.

5) 

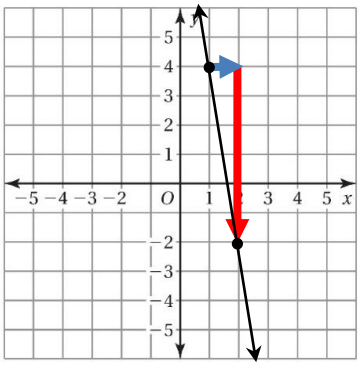
Rise = _____ Run = _____

6) 

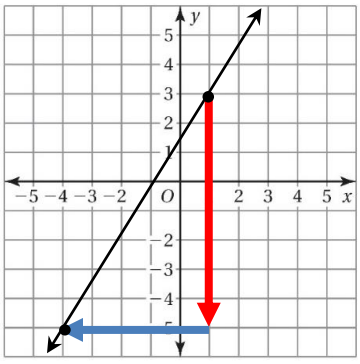
Rise = _____ Run = _____

7) 

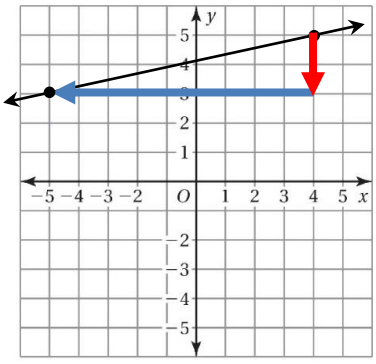
Rise = _____ Run = _____

8) 

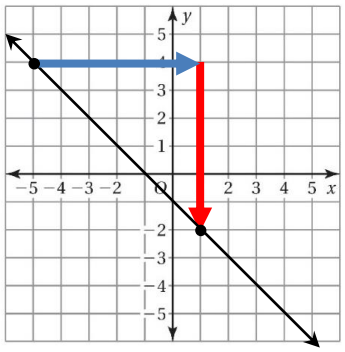
Rise = _____ Run = _____

9) 

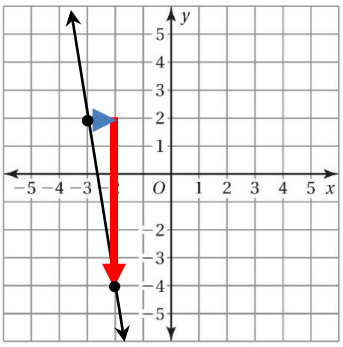
Rise = _____ Run = _____

10) 

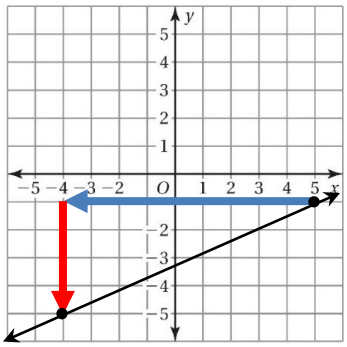
Rise = _____ Run = _____

11) 

Rise = _____ Run = _____

12) 

Rise = _____ Run = _____

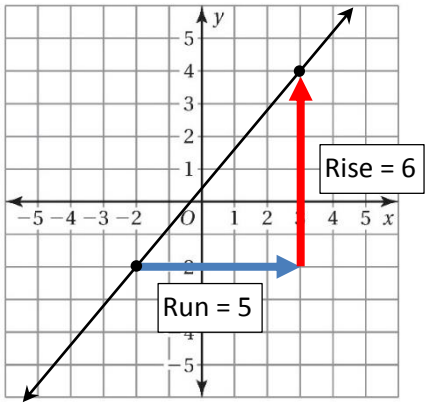
13) 

Rise = _____ Run = _____

From what has been mentioned, slope has to do with rise and run. However, to be more accurate, slope is the RATIO OF THE RISE OVER RUN.

Slope is most commonly written in the following ratio: $slope = \frac{rise}{run}$

Example:



From the example to the left, we find the slope of a line by "plugging in" the rise and run into the following:

$$slope = \frac{rise}{run}$$

$$= \frac{6}{5}$$

As you can see, the slope comes out as a ratio (or fraction) of the rise and run. If possible, we try to simply the fraction.

For problems #14-22, find the slope from problem #5-13

14) Problem 5

slope =

15) Problem 6

slope =

16) Problem 7

slope =

17) Problem 8

slope =

18) Problem 9

slope =

19) Problem 10

slope =

20) Problem 11

slope =

21) Problem 12

slope =

22) Problem 13

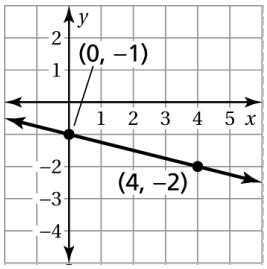
slope =

Concept Check:

22) The slope of a line can be written in what ratio?

Besides the slope, another important part is the *Y*-INTERCEPT. The *y*-intercept is the point where the line crosses the *y*-axis.

Example:



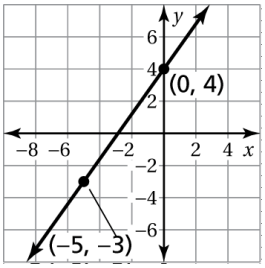
If you notice on the left, the line crosses the -axis at point *y* (0,-1).

Thus, the

y-intercept = (0, -1)

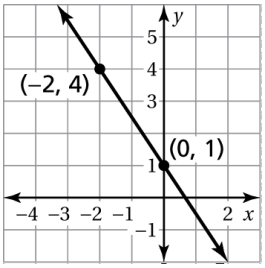
For the following, find the *y*-intercept of each graph.

23)



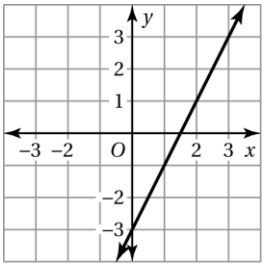
y-intercept =_____

24)



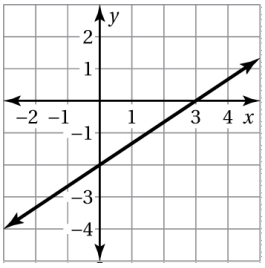
y-intercept =_____

25)



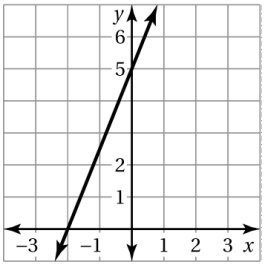
y-intercept =_____

26)



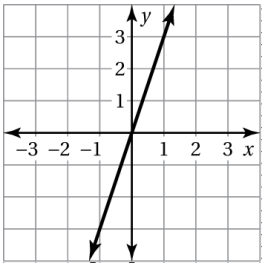
y-intercept =_____

27)



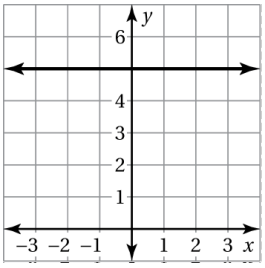
y-intercept =_____

28)



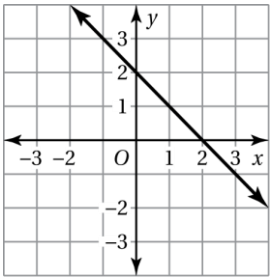
y-intercept =_____

29)



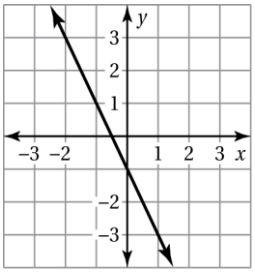
y-intercept =_____

30)



y-intercept =_____

31)



y-intercept =_____

6.2 Puzzle Time REVIEW!!!!

Did You Hear The Story About The Smog?

A	B	C	D	E	F
G	H	I	J	K	

Complete each exercise. Find the answer in the answer column. Write the word under the answer in the box containing the exercise letter.

44 IS
$y = x - 5$ HAVE
$y = 3x$ YOU
$y = 10x$ TOWN
$y = 8x$ TO
–1 ALL

Write an equation that describes the function.

A.

Input, x	Output, y
–2	6
–1	–3
0	0
1	3
2	6

B.

Input, x	Output, y
–55	–65
–45	–55
15	5
25	15
35	25

Write a function rule for the statement.

C. The output is five less than the input.

D. The output is eight times the input.

E. The output is one-third the input.

F. The output is thirteen more than four times the input.

Find the value of y for the given value of x.

G. $y = x + 7;\ x = -5$ **H.** $y = 6x - 4;\ x = 8$

I. $y = 2x + 4;\ x = -2.5$ **J.** $y = 9x - 3;\ x = 3$

K. The number of multiple-choice questions on a test y is 10 times the number of open-ended questions x. Write a function that describes the relationship.

21 AIR
$y = \frac{1}{3}x$ TELL
24 OVER
2 IT
$y = x - 10$ DON'T
$y = 4x + 13$ ME