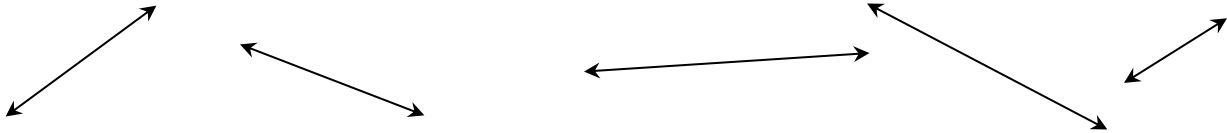


Name: _____

Period: _____

Introduction to Slope and y -Intercept

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

Positive - If you move up

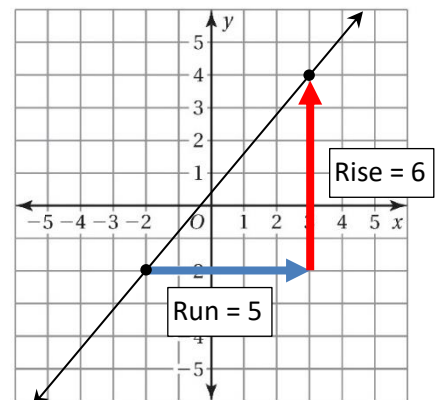
Negative - If you move down

RUN

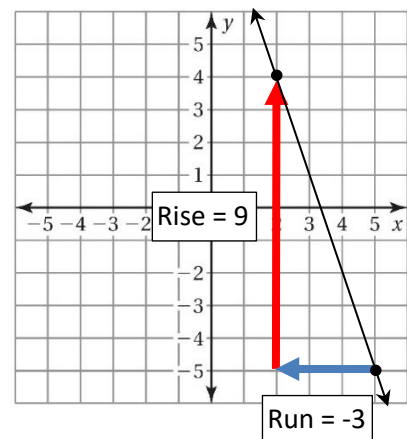
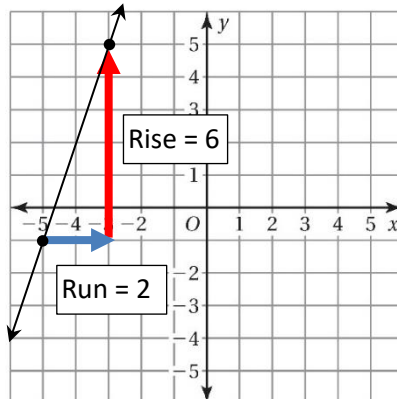
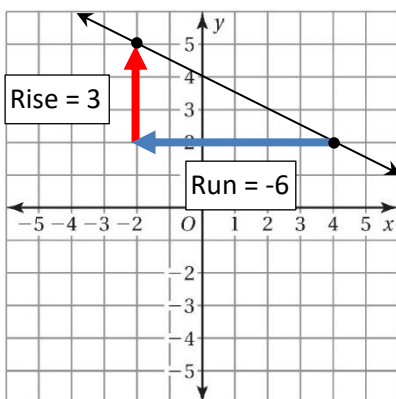
Positive - If you move right

Negative - If you move left

Example:



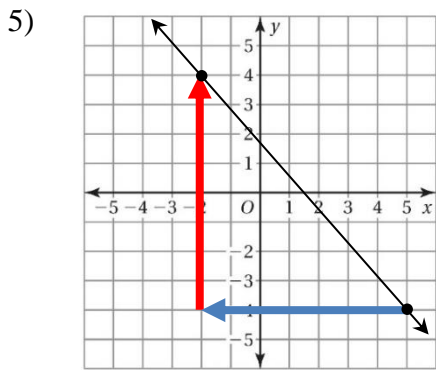
More Examples:



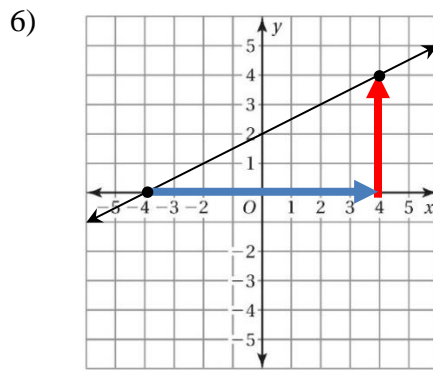
Concept Check:

- 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?

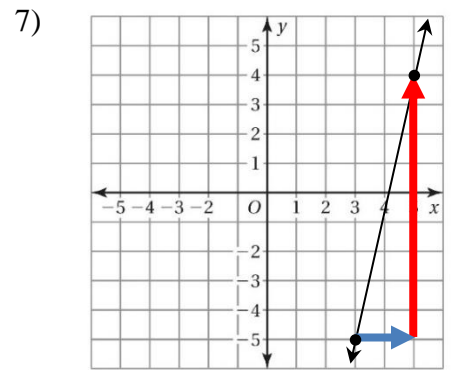
Determine the rise and run of the following lines.



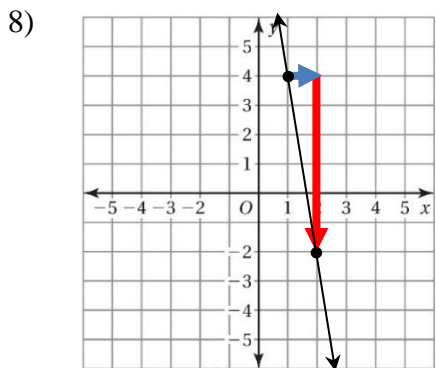
Rise = _____ Run = _____



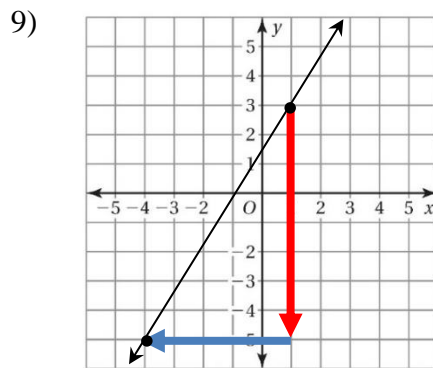
Rise = _____ Run = _____



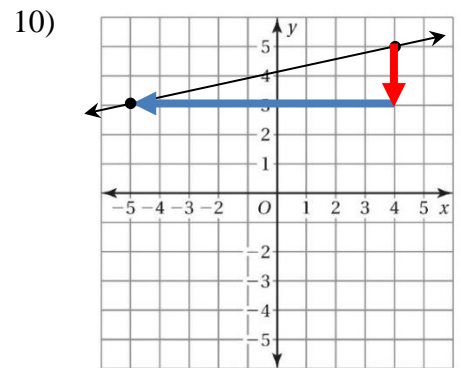
Rise = _____ Run = _____



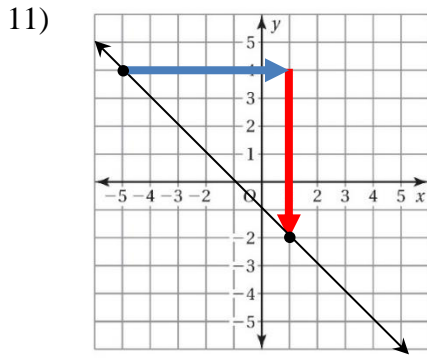
Rise = _____ Run = _____



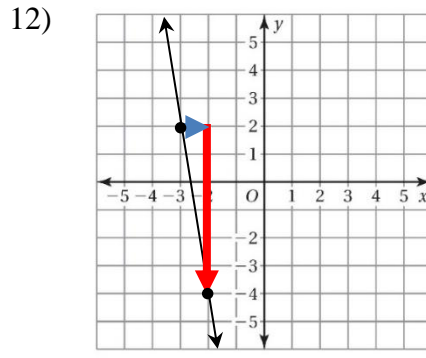
Rise = _____ Run = _____



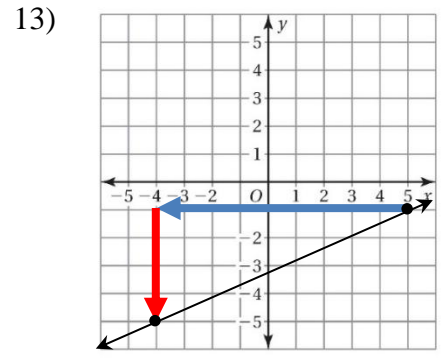
Rise = _____ Run = _____



Rise = _____ Run = _____



Rise = _____ Run = _____

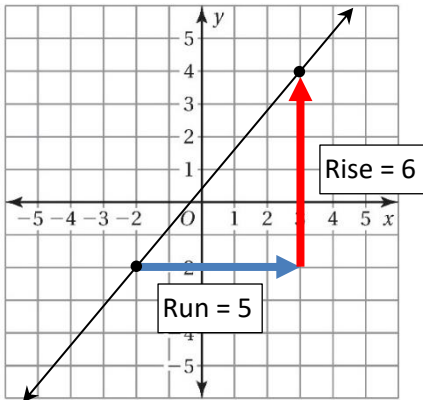


Rise = _____ Run = _____

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 =

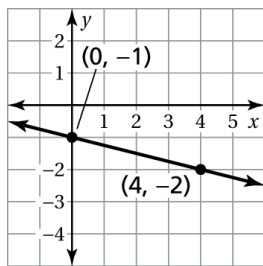
22) Problem 13
slope =

Concept Check:

23) 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:

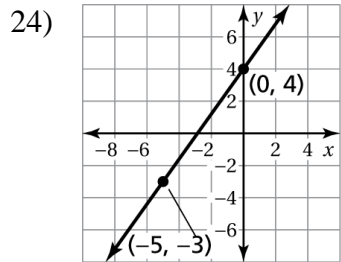


If you notice on the left, the line crosses the y-axis at point (0,-1).

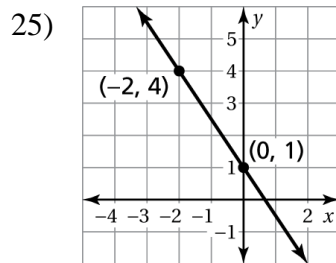
Thus, the

$$y\text{-intercept} = (0, -1)$$

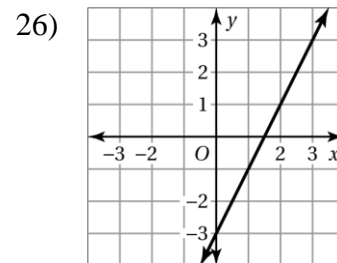
For the following, find the y-intercept of each graph.



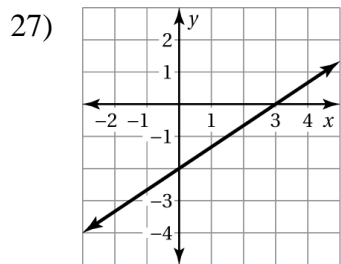
y-intercept = _____



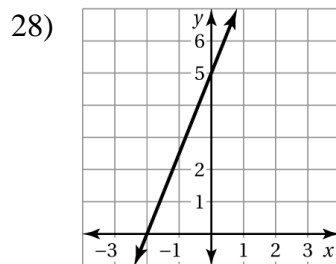
y-intercept = _____



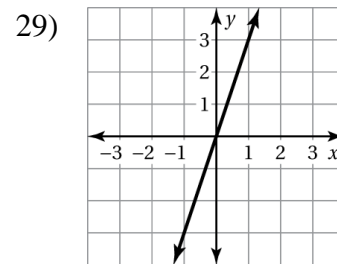
y-intercept = _____



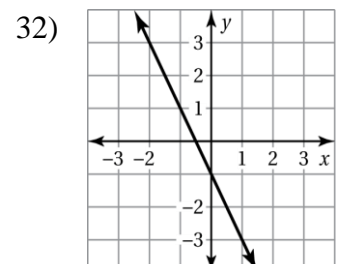
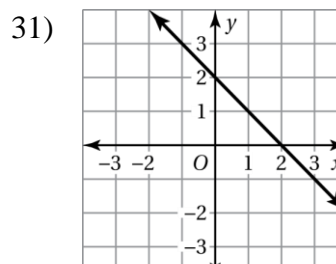
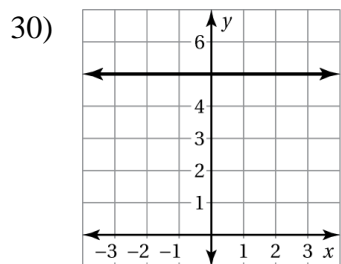
y-intercept = _____



y-intercept = _____



y-intercept = _____



y-intercept = _____

y-intercept = _____

y-intercept = _____



Puzzle Time REVIEW!!!!

Did You Hear The Story About The Smog?

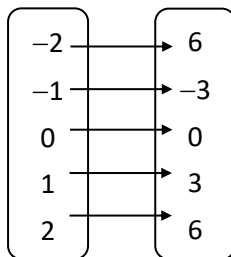
A	B	C	D	E	F
G	H	I	J	K	

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

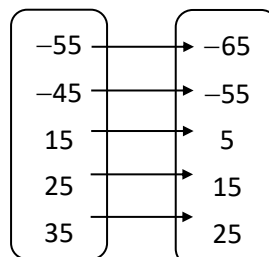
44 IS
$y = x - 5$ HAVE
$y = 3x$ YOU
$y = 10x$ TOWN
$y = 8x$ TO
-1 ALL

Write an equation that describes the function.

A. Input, x Output, y



B. Input, x Output, y



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