

WRITING EQUATIONS OF LINEAR FUNCTIONS

To write the equation of a linear function, we need to know the rate of change, or _____, and the _____. Once we have these values, we can write equations for linear functions in slope-intercept form, or _____.

If given the slope and an ordered pair of a linear relationship, follow the steps below:

EQUATIONS FROM A POINT AND SLOPE

- Label x and y in the _____.
- Substitute all values into _____.
- Solve the equation for _____.
- Write the equation in slope-intercept form.

$$\text{slope} = 3; (2, 11)$$

In 1-4, the slope and a point on the graph of a linear function are given. Write the equation of the line in slope-intercept form.

1. Slope = $\frac{1}{3}$; (6, 14)

2. Slope = -5; (5, -22)

3. Slope = 1.75; (10, 16.5)

4. Slope = $\frac{2}{5}$; (-15, -6)

5. A line has a slope of -7 and passes through the point (0, -7). Is it possible to write the equation of the line without doing any work? Explain why or why not.

If given two (x, y) values of a linear relationship, follow the steps below to write its equation.

EQUATIONS FROM TWO ORDERED PAIRS

- First, find the _____ using _____
- Then, choose one of the _____
- _____ the slope and the _____ into $y = mx + b$ and solve for _____.

6.
 $(-4, 0)$ and $(1, 5)$

7.
 $(4, -2)$ and $(-4, -4)$

8.
 $(-4, -2)$ and $(-3, 5)$

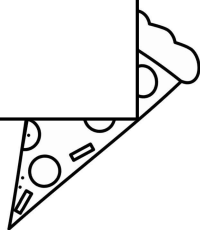
9.
 $(2, -24)$ and $(-3, 36)$

Apply your knowledge of writing equations of linear functions to answer the question below.

10. At a local pizza shop, customers pay a set price for a large pizza, plus an additional charge per topping ordered. A large pizza with 2 toppings would cost \$13.50, and a large pizza with 5 toppings would cost \$15.75.

- What two ordered pairs can you write from the situation?
- Write an equation for the situation using the ordered pairs. Show all work.

Summarize today's lesson:



WRITING EQUATIONS OF LINEAR FUNCTIONS

Use the given information in each problem to write an equation in slope-intercept form. Use the value of b , the y -intercept, and its corresponding letter to solve the riddle at the bottom.

1 Slope = $-\frac{1}{6}$; (12, -2) y -intercept: _____ equation: _____	2 Slope = 2; (14, 33) y -intercept: _____ equation: _____	3 Slope = -7; (4, -30) y -intercept: _____ equation: _____	4 Slope = $\frac{1}{2}$; (-2, 7) y -intercept: _____ equation: _____
5 (-3, -14) and (0, -9) y -intercept: _____ equation: _____		6 (-2, 5) and (2, 1) y -intercept: _____ equation: _____	
7 (7, -1) and (21, -5) y -intercept: _____ equation: _____		8 (1, 9) and (6, 34) y -intercept: _____ equation: _____	

P: -9	A: -8	H: 3	S: 1	L: 8	E: 4
O: 5	C: 9	K: -4	D: 7	T: -2	I: 0

WHAT DID THE MATHEMATICIAN DO TO PRACTICE OVER WINTER BREAK?

$\frac{\quad}{6}$ $\frac{\quad}{1}$ $\frac{\quad}{3}$ $\frac{\quad}{3}$ $\frac{\quad}{6}$ $\frac{\quad}{8}$ $\frac{\quad}{7}$ $\frac{\quad}{4}$ $\frac{\quad}{2}$ $\frac{\quad}{5}$ $\frac{\quad}{8}$ $\frac{\quad}{7}$