

Name the **independent** and **dependent** variable in each situation:

1. Grass will grow taller if fertilizer is added each week
2. Students perform better on tests if they chew gum.
3. The thickness of paper towels affects the amount of water they can absorb.
4. Corn seeds sprouted at different times depending on the temperature of the air in which they were placed.
5. The type of shoe a runner wears affects the rate at which they run.

Solve each equation or inequality. Write your answer in all possible forms.



1.  $-10|v + 2| = -70$

2.  $\frac{|-9 + v|}{8} = 3$

3.  $9|x + 8| + 10 < 55$

# Announcements

- Unit 3 Test is tomorrow



# Intro to functions through graphing and linear functions

10/15/2018



- Relation:** A relation is a set of ordered pairs.
- Domain:** The **domain** of the relation is the set of all first components of the ordered pairs. This is also called the **x value** or the **input**.
- Range:** The **range** of the relation is the set of all second components of the ordered pairs. This is also called the **y value** or the **output**.

Now we will consider a special kind of relation called a function.

- Function:** In order for a relation to be called a **function**, each x value must have exactly one y value. You cannot have two or more y values or no y values.
- Vertical Line Test:** This is a special test that can be used to determine if a graph is a function. If you can draw a vertical line so that it intersects a graph more than once, the graph is **NOT A FUNCTION**. If you cannot draw a vertical line that intersects a graph more than once, then the graph **IS A FUNCTION**.

# Additional vocab to know

Linear Function- Function whose graph is a nonvertical line or part of a nonvertical line.

Rate of Change-Pattern of the change in the dependent variable per change in the independent variable.

1.)  $\{(-2, 5), (-1, 2), (0, 1), (2, 5)\}$

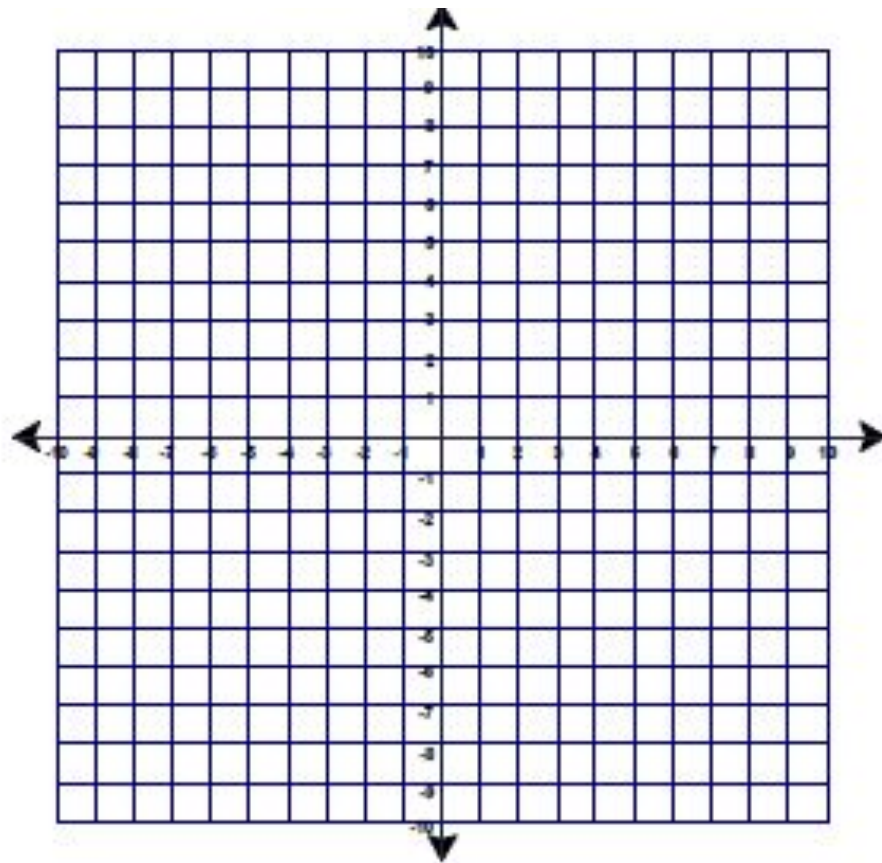
Does this relation represent a function?

Why or why not?

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2.)  $\{(2, 8), (-3, -7), (0, 2), (-1, -1)\}$

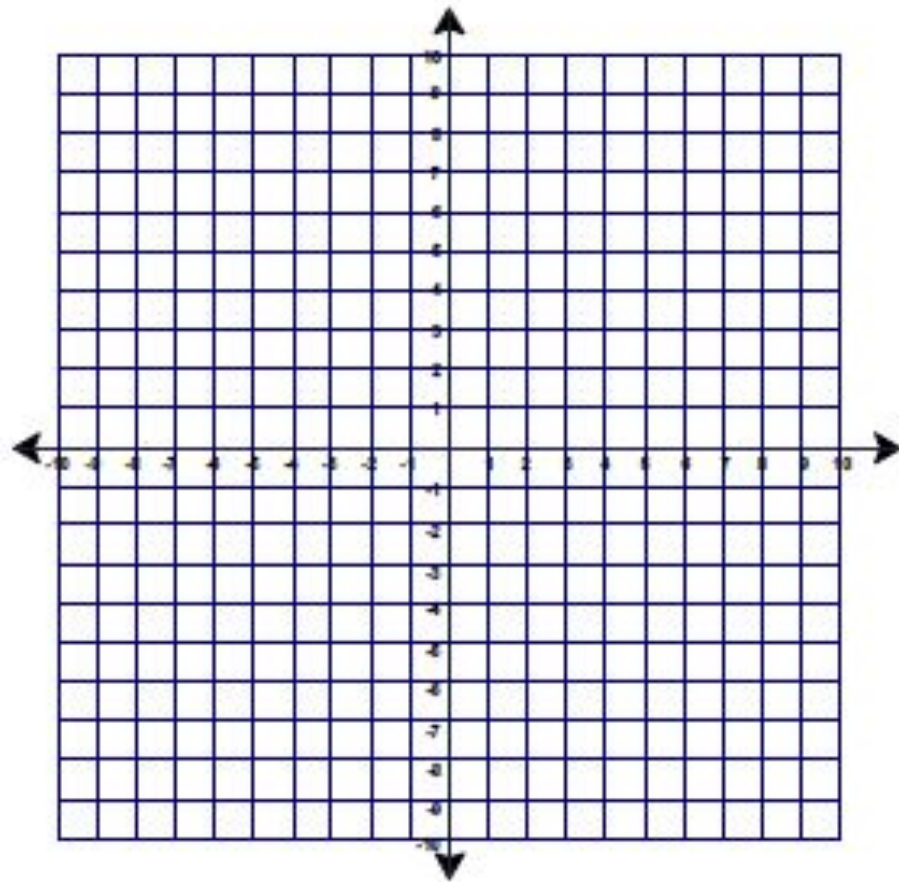
Does this relation represent a function?

Why or why not?

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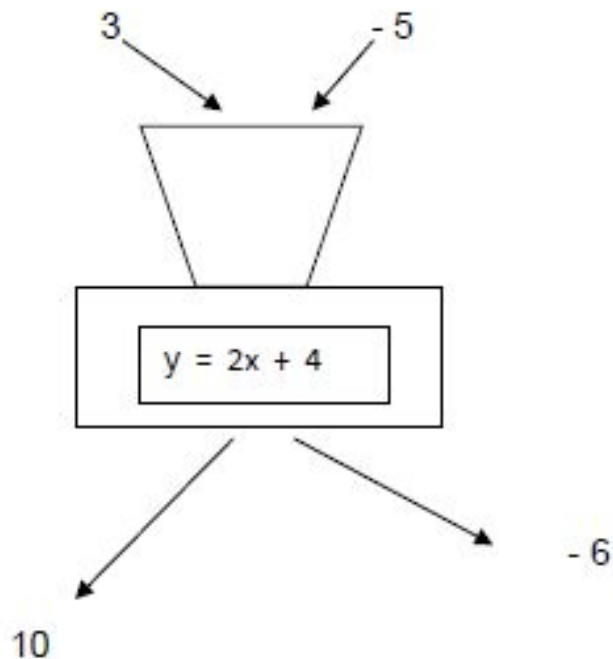
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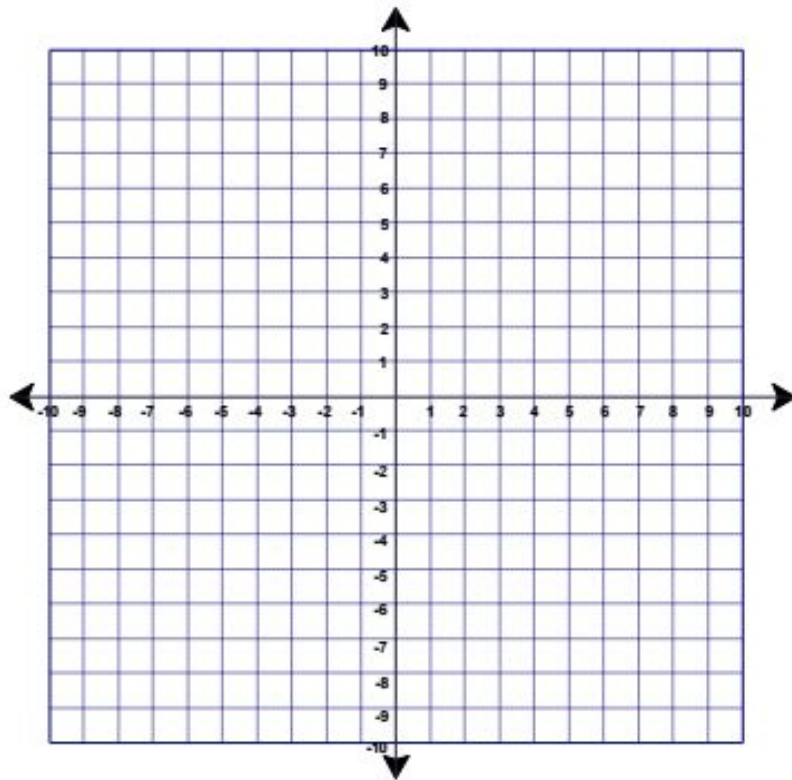
If it helps, think of a function as a machine that has been programmed with a certain correspondence or rule. An input value is then fed into the machine, the machine does the correspondence or rule, and the result is the output.

### Function Machine



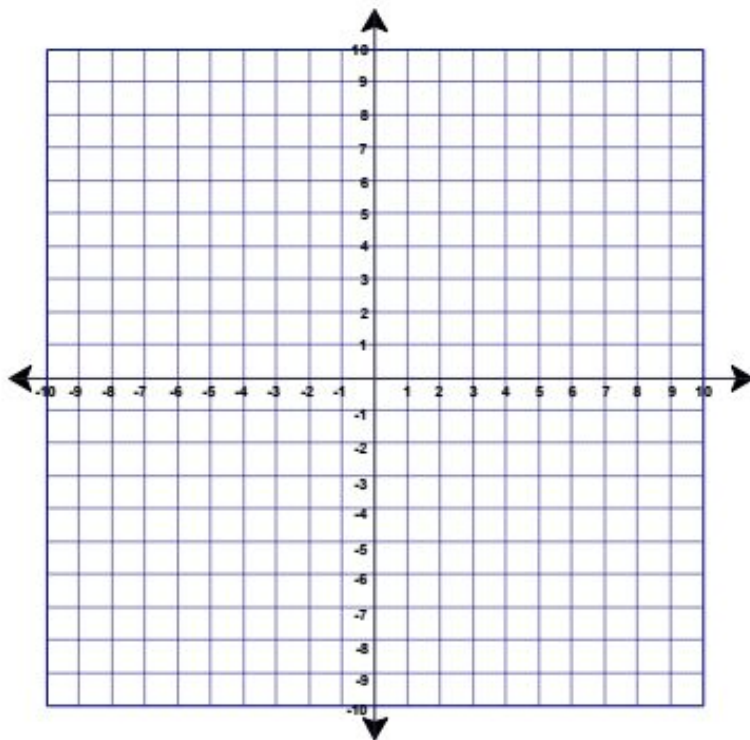


6.) Graph the function  $y = 2x + 4$

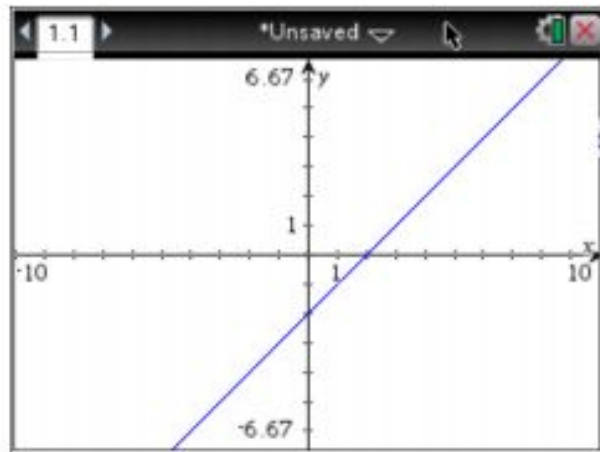


7.) Make a table of values and graph the function  $y = -2x + 3$

x	y



8.)



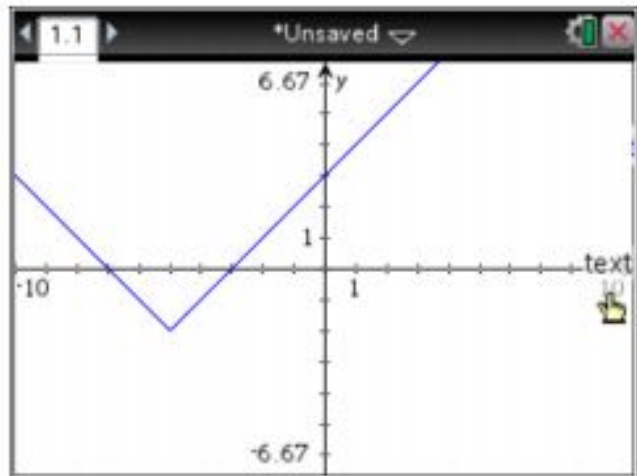
Function or Not a Function

Why or Why Not?

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Function or Not a Function

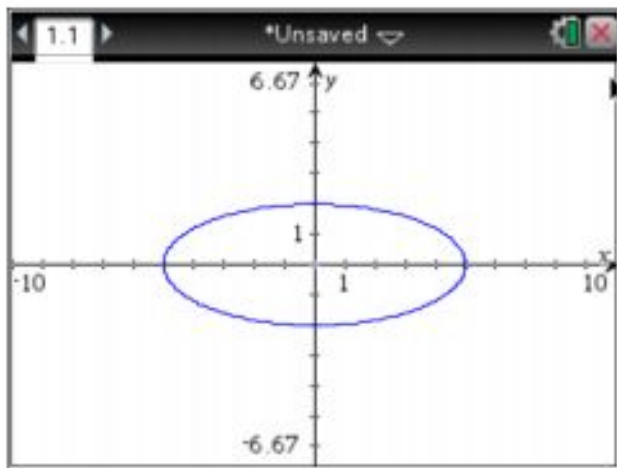
Why or Why Not?

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10.)



Function or Not a Function

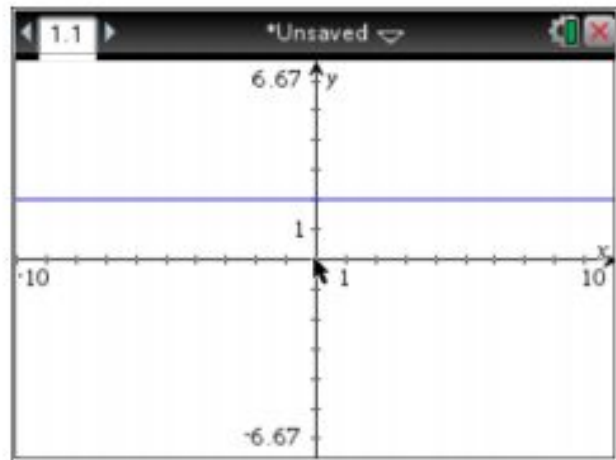
Why or Why Not?

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11.)



Function or Not a Function

Why or Why Not?

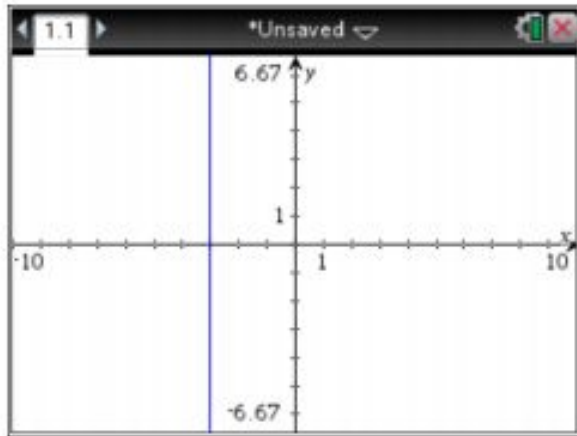
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12.)



Function or Not a Function

Why or Why Not?

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# Homework

Study for tomorrow's test