**Algebra 1** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Functions**

- One of the reasons we work with algebraic expressions is to **model situations using functions.**

 - A **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is defined as a relation in which **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

 **\*\*Think of a vending machine….**

-Relations can be represented in multiple ways:



- In a ***function***, the set of the values of the inputs is called the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and the set of values of the outputs is called the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**-** Function Notation: in an equation, use \_\_\_\_\_\_\_\_\_\_\_\_\_ in place of “y”.





 **Use the graph of the function to identify the input or output.**

 Inputs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

f(-4) = If f(x) = -2, then x = \_\_\_\_\_\_\_

f(0) = If f(x) = 0, then x = \_\_\_\_\_\_\_

f(2) = If f(x) = 1, then x = \_\_\_\_\_\_\_

 Outputs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



f(-1) = If f(x) = 1, then x = \_\_\_\_\_\_\_

f(2) = If f(x) = 0, then x = \_\_\_\_\_\_\_\_\_\_\_\_

f(-5) = If f(x) = -2, then x = \_\_\_\_\_\_\_

 Inputs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Outputs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



PRACTICE

**Let f(x) = x2 + 3 and g(x) = x + 1. Find the following values:**

1. f(3) = 2. g(3) = 3. f(2) + g(1) =

4. (f-g)(x) = 5. 5$∙$f(1)= 6. f(2) - g(-6) =

**Let k(x) = -3x+1**

7. If k(x) = -14, then x = \_\_\_\_\_\_\_\_\_\_ 8. If k(x) = -5, then x=\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Function vs. Not a Function

**Vertical line test**: a graph is a function if it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the vertical line test

* Tell if the following are functions or non-functions. Use vertical line test!



1) Function? 2) Function?

 Why? Why?



3) Function? 4) Function?

 Why? Why?

Are the following functions? Be able to explain why or why not.

 Function? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5

-8

1

0

5

7

9

-3

 Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_