

Domain: the set of all input values (x)

Range: the set of all output values (y)

Define and Identify Functions

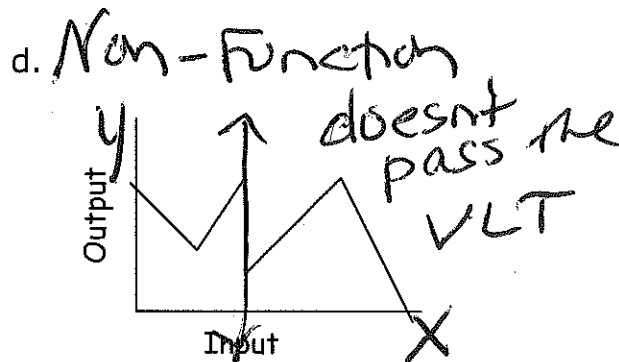
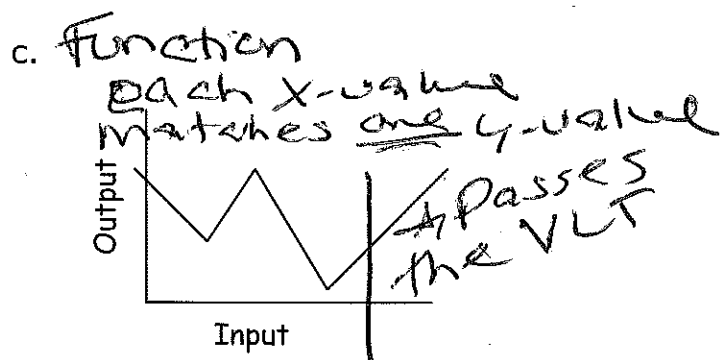
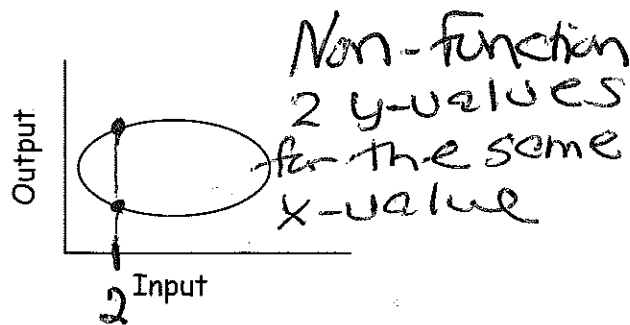
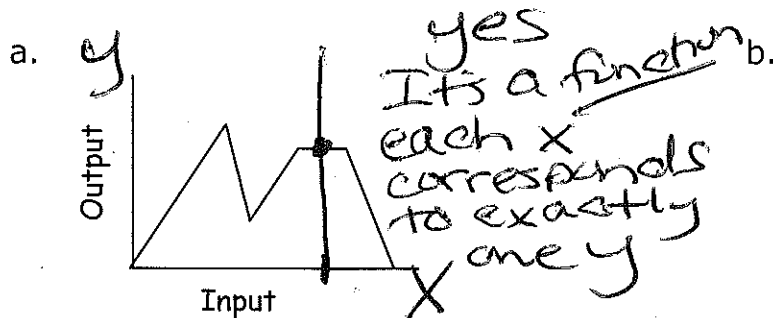
Activity Class Notes

Name _____

Date _____ Period _____

Function: For each input (x) there is exactly one output (y).

1. Determine whether or not each graph represents a function. Justify your answers.



Notes: One way to determine whether a graphed relationship is a function is to determine whether a vertical line intersects the graph in more than one place. This is called the "**Vertical Line Test**". (VLT)

Verbal Descriptions (x, y) (input, output)

2. Determine whether or not each relationship represents a function. Justify your answer.

a. (first name, last name) **Non-function**
many last names with the same first name

b. (person, birth date) **function**
each person has only one birth day

c. (birth date, person) **Non-function**
many people have same b-day

d. (student, school ID number) **function**, each student has one ID

3. Determine whether or not each set of ordered pairs represents a function. Justify your answer.

a. $\{(-1, -4), (0, 0), (2, 8), (10, 40)\}$ **Function** - NO repeating x-values

b. $\{(-4, 0), (-1, 4), (-1, -4), (3, 0)\}$ **Non-functions** - (-1) repeats has 2 y-values

Tables

4. Determine whether each table of x- and y-values represents a function. Explain your answers.

a. Non-function

x	y
1	8
2	7
4	6
3	8
4	9
5	3
7	4

repeating x-values

b. Function

x	y
4	6
2	4
5	5
7	8
3	7
8	9
1	6

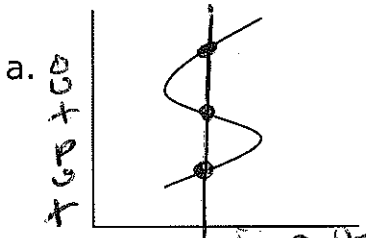
no repeating x-values

c. Function

x	y
2	5
3	12
4	7
6	3
5	12
7	8
9	11

no repeating x-values

5. Determine whether or not each relationship represents a function. Why do you say that?



Non-function: fails the vertical line test

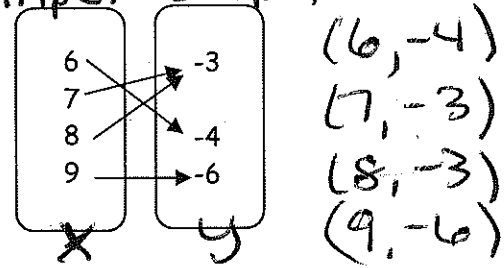
c.

x	y
6	-2
6	-1
6	0
6	1
6	2

Non-function: All x-values repeat

b. $\{(-2, 4), (-1, 1), (0, 0), (1, 1), (2, 4)\}$.
Function: no repeating x-values

d. Mapping
input output



Function: only one arrow from each input

A **function** is a special type of relation that pairs each domain value (input) with **exactly** one range value (output).

A function is a rule that for every input assigns a specific output

One input corresponds One output
with