1.6: Represent Functions as Rules and Tables

Goals: *Understand what a function is and identify relationships as functions
*****Identify the domain and range of a function
*****Write a rule for a function

Function

Domain:

Range:

Ex: The input-output table shows the cost of various amounts of regular unleaded gas from the same pump. Identify the domain and range of the function.

Input (gallons)	10	12	13	17
Output (dollars)	19.99	23.99	25.99	33.98

Domain: _____ Range:_____

Ex: Identify the domain and range of the given function:

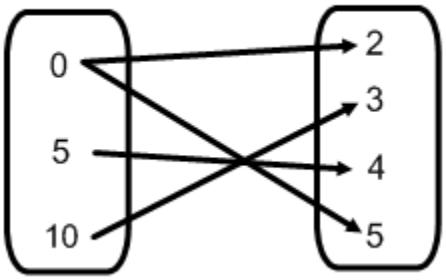
Input	0	1	2	4
Output	5	2	2	1

Domain:_____ Range:_____

**Why is it a function even though 2 appears twice in the output?

Decide if the following relationships represent a function. Explain why or why not. If yes, identify the domain and range.

Ex:



Ex:

Input	Output
0	0
1	2
4	8
6	12

Ex:

Input	3	6	9	12
Output	1	2	2	1

Ex:

Input	2	2	4	7
Output	0	1	2	3

Independent Variable:

Dependent Variable:

Ways to Represent Functions

Verbal Rule

The output is 3 more than the input.

Equation

$y = 3 + x$

Table

Input (x)	0	1	2	3
Output (y)				

Ex: The domain of the function $y = 2x$ is 0, 2, 5, 7, 8. Make a table for the function, then identify the range.

Input					
Output					

Range:_____

Ex: Make a table for the function $y = x - 5$ with a domain of 10, 12, 15, 18, 29. Then identify the range.

Input					
Output					

Range:_____

Writing a Rule for a Function:

Basic Premise: If you have *x*, how do you get *y*?

****REMEMBER THAT ALL FUNCTIONS START WITH: ****

Ex:

Input	0	1	4	6	10
Output	2	3	6	8	12

Ex:

Input	1	2	4	7	9
Output	0	1	3	6	8

Ex:

Input	1	3	5	7	9
Output	1	5	9	13	17

Δ

1.

2.

3.

4.

5.

Write a rule for the following functions. (If you cannot see the relationship between *x* and *y* easily, use the rules provided)

Ex:

Input	0	3	6	9	12
Output	5	14	23	32	41

Ex:

Input	4	6	10	16	26
Output	4	5	7	10	15

Ex: You are buying concert tickets that cost $15 each. You can buy up to six tickets.

a) Write a rule for the amount you spend (in dollars) as a function of the number of tickets you buy.

b) Identify the independent and dependent variables.

c) Identify the domain and range.

Ex: At a community center, art lessons are offered at night. The fee is $12 per lesson. You plan to attend up to 5 lessons.

a) Write a rule for the amount you spend (in dollars) as a function of the number of lessons you attend.

b) Identify the independent and dependent variables.

c) Identify the domain and range.