

Coahoma County Jr-Sr High School

Foundations of Algebra  
&  
Algebra I

Week 2

March 30-April 3, 2020

## Section 3: Introduction to Functions

### Section 3 – Topic 1

### Input and Output Values

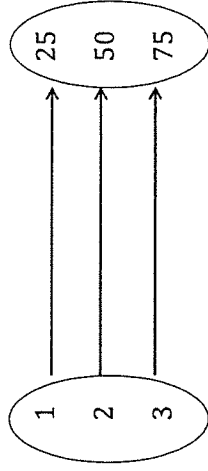
A function is a relationship between input and output.

- **Domain** is the set of values of  $x$  used for the \_\_\_\_\_ of the function.
- **Range** is the set of values of  $y$  calculated from the domain for the \_\_\_\_\_ of the function.

In a function, every  $x$  corresponds to only one  $y$ .

- $y$  can also be written as  $f(x)$ .

Consider the following function.



For every  $x$  there is a unique  $y$ .

input	output
domain	range

We also refer to the variables as independent and dependent. The dependent variable \_\_\_\_\_ the independent variable.

Refer to the mapping diagram on the previous page.

Which variable is independent?

Which variable is dependent?

Consider a square whose perimeter depends on the length of its sides.

What is the independent variable?

What is the dependent variable?

How can you represent this situation using function notation?

### **STUDY EDGE TIP**

We can choose any letter to represent a function, such as  $f(x)$  or  $g(x)$ , where  $x$  is the input value. By using different letters, we show that we are talking about different functions.

**Let's Practice!**

You earn \$10.00 per hour babysitting. Your total earnings depend on the number of hours you spend babysitting.

- a. What is the independent variable?
- b. What is the dependent variable?
- c. How would you represent this situation using function notation?

The table below represents a relation.

$x$	$y$
-3	5
0	4
2	6
-3	8

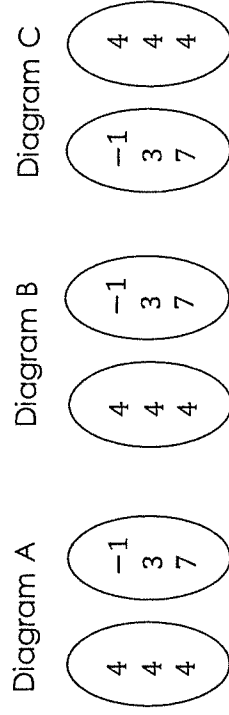
- a. Is the relation also a function?  
Justify your answer.
- b. If the relation is not a function, what number could be changed to make it a function?

**Try It!**

- 3. Mrs. Krabappel is buying composition books for her classroom. Each composition book costs \$1.25.
  - a. What does her total cost depend upon?
  - b. What are the input and output?
  - c. Write a function to describe the situation.
  - d. If Mrs. Krabappel buys 24 composition books, they will cost her \$30.00. Write this function using function notation.



4. Consider the following incomplete mapping diagrams.



- a. Complete Diagram A so that it is a function.
- b. Complete Diagram B so that it is NOT a function.
- c. Is it possible to complete the mapping diagram for Diagram C so it represents a function? If so, complete the diagram to show a function. If not, justify your reasoning.

**BEAT THE TEST!**

1. Isaac Messi is disorganized. To encourage Isaac to be more organized, his father promised to give him three dollars for every day that his room is clean and his schoolwork is organized.

Part A: Define the input and output for the given scenario.

Input:

Output:

Part B: Write a function to represent this situation.



2. The cost to manufacture  $x$  pairs of shoes can be represented by the function  $C(x) = 63x$ . Complete the statement about the function.

If  $C(6) = 378$ , then

0  
6  
63  
378

pairs of shoes cost

\$6.  
\$189.  
\$378.  
\$2,268.

3. Which of the following relations is not a function?

- Ⓐ  $\{(0, 5), (2, 3), (5, 8), (3, 8)\}$   
Ⓑ  $\{(4, 2), (-4, 5), (0, 0)\}$   
Ⓒ  $\{(6, 5), (4, 1), (-3, 2), (4, 2)\}$   
Ⓓ  $\{(-3, -3), (2, 1), (5, -2)\}$



Algebra  
Wall

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