

Name: _____

Sec. 1.6: Represent Functions as Rules and Tables

Many situations in the real world—such as buying hot dogs at a food stand—can be modeled as _____. We have several methods of representing these functions; first we'll look at _____ and _____.

A function consists of:

- Domain: set of numbers called _____
- Range: set of numbers called _____
- A pairing of inputs and outputs such that each input matches with exactly one output

In our example of buying hot dogs, the input would be the number of hot dogs bought, and the output would be the cost in dollars.

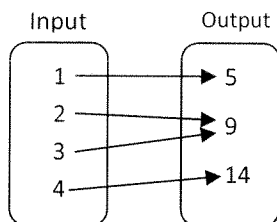
Using the input-output table below, identify the domain and range of the function.

Input (hot dogs bought)	1	2	5	10
Output (cost in dollars)	1.50	3.00	7.50	15.00

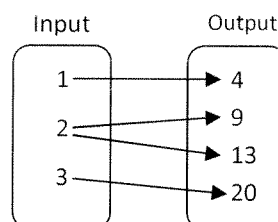
Domain:

Range:

Mapping Diagram: We can also represent a function with a _____, which _____ inputs with outputs. An output can have multiple inputs, but each input must have exactly _____ input.



Function



Not a Function

Name: _____

Function Rules: We can represent a function with a rule that relates one variable to another.

- Independent variable: the _____ variable
- Dependent variable: the _____ variable, the value of which _____ on the value of the input variable

Examples

1. Tell whether the pairing is a function.

a.

Input	0	2	5	9
Output	3	-1	3	12

b.

Input	0	2	2	7
Output	4	6	3	0

2. The domain of the function $y = x + 5$ is 1, 3, 7, and 10. Make a table of the function, and then identify the range of the function.

Input				
Output				

Range:

3. Write a rule for the function.

Input	0	2	5	7
Output	-3	-1	2	4

4. You are buying pens at \$2 each to support your favorite club. Write your cost (in dollars) as a function of the number of pens you buy. Identify the independent and dependent variables. Identify the domain and range of the function, if you have a budget of \$10.

Name: _____

Sec. 1.6 Practice Problems

Identify the domain and range of the function.

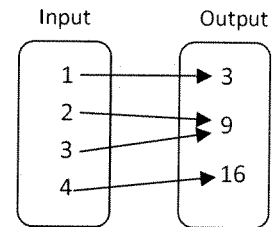
1)

Input	Output
0	8
1	11
2	17
3	22

2)

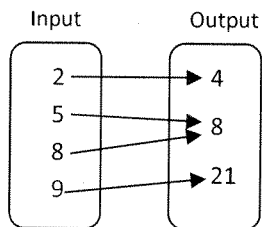
Input	Output
2	4
5	5
7	11
13	25

3)



Tell whether the pairing is a function.

4)



5)

Input	Output
0	8
1	5
2	1
3	5

6)

Input	Output
5	2
9	12
9	16
13	26

In exercises 7 and 8, identify AND correct the error made related to the function represented by the table.

Input, x	1	2	3	4	5
Output, y	5	6	7	8	7

7)

The pairing is not a function because one output is paired with two inputs.

8)

The pairing is a function. The range is 1, 2, 3, 4, and 5.

Name: _____

13) The range of the function $y = 2x$ is 6, 10, 18, 24, and 30. What is the domain?

Make a table for the function. Identify the range of the function.

14) $y = x - 6$

Domain: 10, 14, 16, and 21

15) $y = x + 2.5$

Domain: 4, 7, 12, and 17.5

16) $y = 2x + 3$

Domain: 4, 9, 12, and 17

Write a rule for the function.

17)

Input, x	0	1	2	3
Output, y	1.8	2.8	3.8	4.8

18)

Input, x	0	1	2	3
Output, y	0	3	6	9

19)

Input, x	0	1	2	3
Output, y	-4	-3	-2	-1

Name: _____

Sec. 1.6 Practice Problems

Identify the domain and range of the function.

1)

Input	Output
0	8
1	11
2	17
3	22

Domain: 0, 1, 2, 3

Range: 8, 11, 17, 22

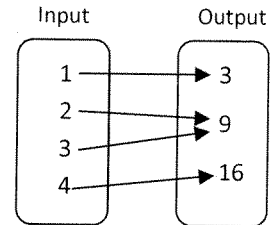
2)

Input	Output
2	4
5	5
7	11
13	25

Domain: 2, 5, 7, 13

Range: 4, 5, 11, 25

3)

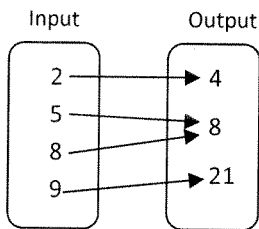


Domain: 1, 2, 3, 4

Range: 3, 9, 16

Tell whether the pairing is a function.

4)



yes

5)

Input	Output
0	8
1	5
2	1
3	5

yes

6)

Input	Output
5	2
9	12
9	16
13	26

no

In exercises 7 and 8, identify AND correct the error made related to the function represented by the table.

Input, x	1	2	3	4	5
Output, y	5	6	7	8	7

7)

The pairing is not a function because one output is paired with two inputs.

It is ok to have one output paired with two inputs; it is a function.

8)

The pairing is a function. The range is 1, 2, 3, 4, and 5.

It is a function but the student identified the domain.

Range: 5, 6, 7, 8

Name: _____

13) The range of the function $y = 2x$ is 6, 10, 18, 24, and 30. What is the domain?

Domain: 3, 5, 9, 12, 15

Make a table for the function. Identify the range of the function.

14) $y = x - 6$

Domain: 10, 14, 16, and 21

Input	Output
10	4
14	8
16	10
21	15

15) $y = x + 2.5$

Domain: 4, 7, 12, and 17.5

Input	Output
4	6.5
7	9.5
12	14.5
17.5	20

16) $y = 2x + 3$

Domain: 4, 9, 12, and 17

Input	Output
4	11
9	21
12	27
17	37

Write a rule for the function.

17)

Input, x	0	1	2	3
Output, y	1.8	2.8	3.8	4.8

$$y = x + 1.8$$

18)

Input, x	0	1	2	3
Output, y	0	3	6	9

$$y = 3x$$

19)

Input, x	0	1	2	3
Output, y	-4	-3	-2	-1

$$y = x - 4$$