

GOAL

Identify a function, make an input-output table for a function.

VOCABULARY

A **function** is a relationship between two quantities, called the **input** and the **output**.

Making an **input-output table** is one way to describe a function.

The collection of all input values is the **domain** of the function.

The collection of all output values is the **range** of the function.

EXAMPLE 1**Identifying a Function**

Does the table represent a function? Explain.

<i>Input</i>	<i>Output</i>
5	1
5	2
10	3
15	4

SOLUTION

The table does not represent a function. For the input value 5, there is not exactly one output value.

Exercises for Example 1

In Exercises 1 and 2, does the table represent a function? Explain.

1.

<i>Input</i>	<i>Output</i>
1	4
2	8
3	12
4	16

2.

<i>Input</i>	<i>Output</i>
1	5
2	6
2	7
3	8

Reteaching with Practice

For use with pages 46-52

EXAMPLE 2 Making an Input-Output Table

Make an input-output table for the function $y = 3x + 1.5$. Use 0, 1, 2, and 3 as the domain.

SOLUTION

List an output for each of the inputs.

INPUT	FUNCTION	OUTPUT
$x = 0$	$y = 3(0) + 1.5$	$y = 1.5$
$x = 1$	$y = 3(1) + 1.5$	$y = 4.5$
$x = 2$	$y = 3(2) + 1.5$	$y = 7.5$
$x = 3$	$y = 3(3) + 1.5$	$y = 10.5$

Make an input-output table.

Input x	Output y
0	1.5
1	4.5
2	7.5
3	10.5

Complete the sentence.

1. A ? is a relationship between two quantities, called the input and output.
2. The collection of all ? values is called the domain of the function. The collection of all ? values is called the range of the function.
3. In a function, there is exactly one ? for each ?.
4. An ? is a table that lists the outputs for several different inputs.

Does the table represent a function? Explain.

5.

Input	Output
2	10
4	12
6	10
8	12

6.

Input	Output
9	0
8	0
7	0
6	0

7.

Input	Output
1	1
2	2
2	3
3	4

Make an input-output table for the function. Use 0, 1, 2, and 3 as the domain. **Graph**

8. $y = 2x + 5$

9. $y = 4x$

10. $y = 15 - x$

Make an input-output table for the function. Use 2, 2.5, 4, 5, and 5.5 as the domain. **Tables only**

14. $y = 3x + 1.5$

15. $y = \frac{22}{x} + 7$

16. $y = x^2 - 2.5$