

# 1.7

## Represent Functions as Graphs

**Goal** • Represent functions as graphs.

### Your Notes

#### GRAPHING A FUNCTION

- You can use a graph to represent a function.
- In a given table, each corresponding pair of input and output values forms an ordered pair.
- An ordered pair of numbers can be plotted as a point.
- The x-coordinate is the input.
- The y-coordinate is the output.
- The horizontal axis of the graph is labeled with the input variable.
- The vertical axis is labeled with the output variable.

#### Example 1 Graph a function

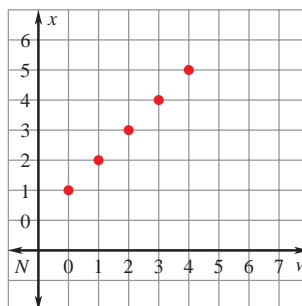
Graph the function  $y = x + 1$  with domain 1, 2, 3, 4, and 5.

#### Solution

Step 1 Make an input-output table.

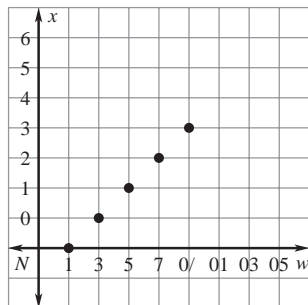
x	1	2	3	4	5
y	2	3	4	5	6

Step 2 Plot a point for each ordered pair (x, y).



**Example 2****Write a function rule for a graph**

Write a function rule for the function represented by the graph. Identify the domain and the range of the function.

**Solution**

**Step 1** Make a table for the graph.

$x$	2	4	6	8	10
$y$	0	1	2	3	4

**Step 2** Find a relationship between the input and output values.

From the table, each output value is 1 less than half the corresponding input value.

**Step 3** Write a function rule that describes the relationship.

$$y = \frac{1}{2}x - 1$$

A rule for the function is  $y = \frac{1}{2}x - 1$ . The

domain of the function is 2, 4, 6, 8, and 10.

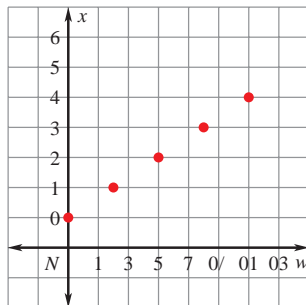
The range is 0, 1, 2, 3, and 4.

## Your Notes

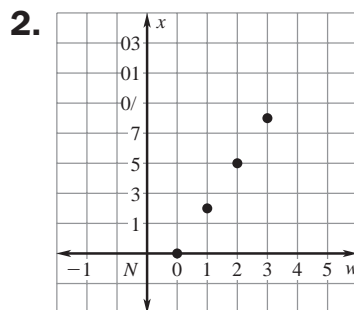
**✓ Checkpoint** Complete the following exercise.

1. Graph the function  $y = \frac{1}{3}x + 1$  with domain 0, 3, 6, 9, and 12.

$x$	0	3	6	9	12
$y$	1	2	3	4	5



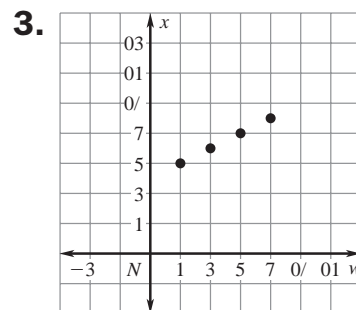
**✓ Checkpoint** Write a rule for the function represented by the graph. Identify the domain and the range of the function.



$$y = 3x - 3$$

Domain: 1, 2, 3, 4

Range: 0, 3, 6, 9



$$y = \frac{1}{2}x + 5$$

Domain: 2, 4, 6, 8

Range: 6, 7, 8, 9

**Homework**