

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 the output variable .

Example 1 Graph a function

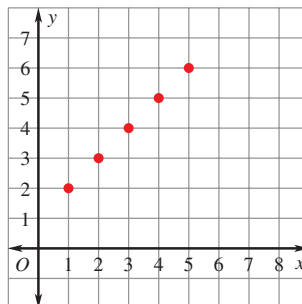
Graph the function $y = x + 1$ with domain 1, 2, 3, 4, and 5.

Solution

Step 1 Make an input-output table.

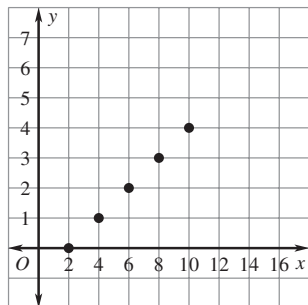
x	1	2	3	4	5
y	2	3	4	5	6

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.

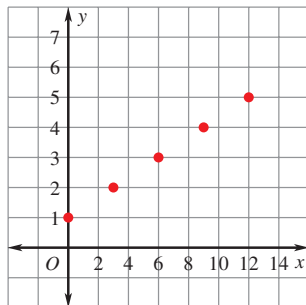
The range is 0, 1, 2, 3, and 4.

Your Notes

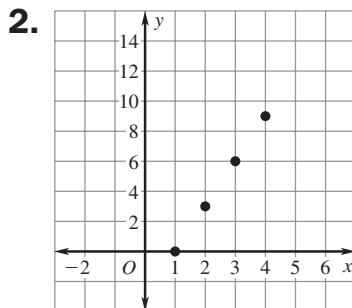
✓ Checkpoint Complete the following exercise.

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

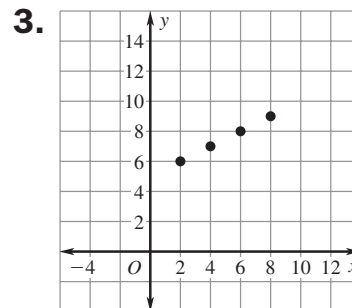
x	0	3	6	9	12
y	1	2	3	4	5



✓ 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