

In Exercises 1–9, use one coordinate plane to plot the points.

1. $A(4, 2)$

2. $B(-2, 2)$

3. $C(-2, 0)$

4. $D(2, -4)$

5. $E(7, -4)$

6. $F(-6, -10)$

7. $G(10, -7)$

8. $H(-8, -4)$

9. $I(9, 4)$

Solve the equation.

1. $x + 5 = -6$

2. $7 = m + 0$

3. $r - 5 = 4$

4. $10 - w = 6$

5. $h + 3 = 9$

6. $j - 10 + 2 = 9$

7. $9 = 4p + p + 8$

8. $n - 9 = 10$

Essential Question

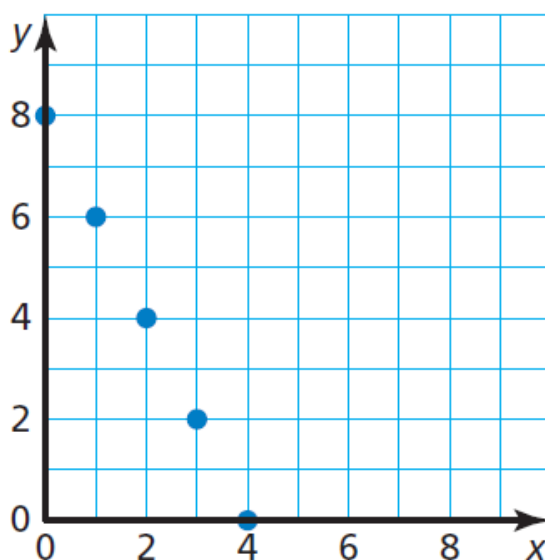
What is a function?

Work with a partner. Functions can be described in many ways.

- by an equation
- by an input-output table
- using words
- by a graph
- as a set of ordered pairs

a. Explain why the graph shown represents a function.

b. Describe the function in two other ways.



Work with a partner. Determine whether each relation represents a function. Explain your reasoning.

$(0,8)(1,8)(2,8)(3,8)(4,8)$

a.

Input, x	0	1	2	3	4
Output, y	8	8	8	8	8

FUNCTION

b.

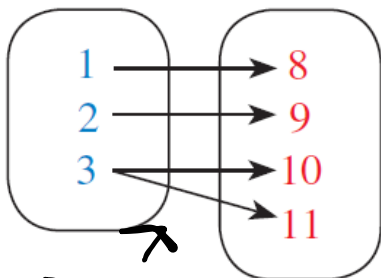
Input, x	8	8	8	8	8
Output, y	0	1	2	3	4

Relation

Work with a partner. Determine whether each relation represents a function. Explain your reasoning.

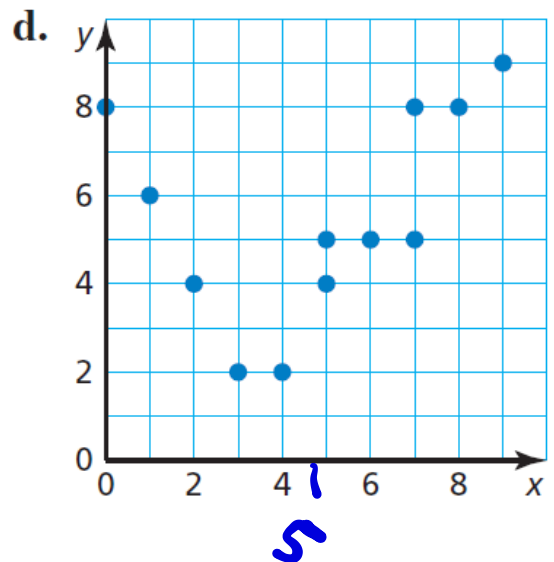
Relation

c. Input, x Output, y



$\cdot (3, 10) (3, 11)$

Relation



Work with a partner. Determine whether each relation represents a function. Explain your reasoning.

e. $(-2, 5), (-1, 8), (0, 6), (1, 6), (2, 7)$ } Function

f. $(-2, 0), (-1, 0), (-1, 1), (0, 1), (1, 2), (2, 2)$ } Relation

g. Each radio frequency x in a listening area has exactly one radio station y .

h. The same television station x can be found on more than one channel y .

i. $x = 2$

j. $y = 2x + 3$

Determine whether each relation is a function. Explain.

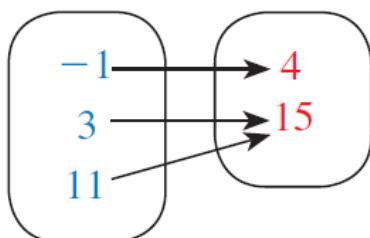
a. $(-2, 2), (-1, 2), (0, 2), (1, 0), (2, 0)$

b. $(4, 0), (8, 7), (6, 4), (4, 3), (5, 2)$

c.

Input, x	-2	-1	0	0	1	2
Output, y	3	4	5	6	7	8

d. **Input, x** **Output, y**



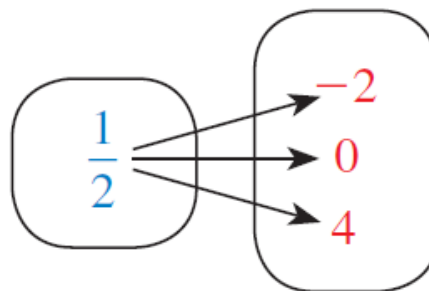
Determine whether the relation is a function. Explain.

1. $(-5, 0), (0, 0), (5, 0), (5, 10)$ 2. $(-4, 8), (-1, 2), (2, -4), (5, -10)$

3.

Input, x	Output, y
2	2.6
4	5.2
6	7.8

4. **Input, x** **Output, y**

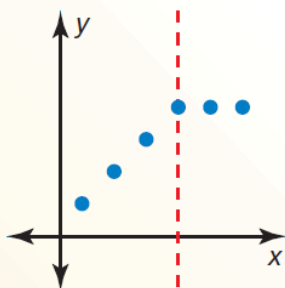


Core Concept

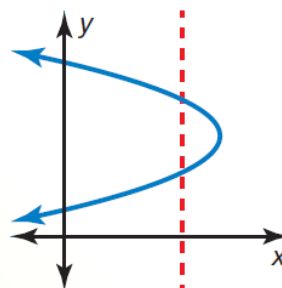
Vertical Line Test

Words A graph represents a function when no vertical line passes through more than one point on the graph.

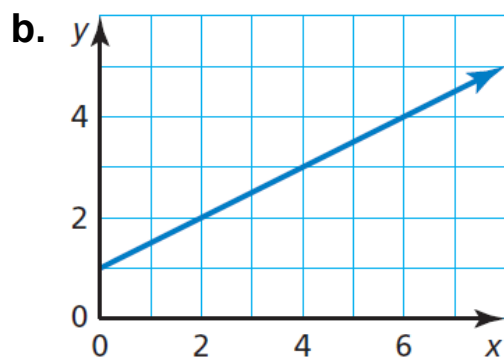
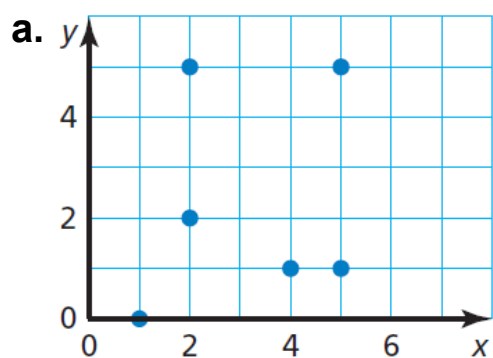
Examples Function



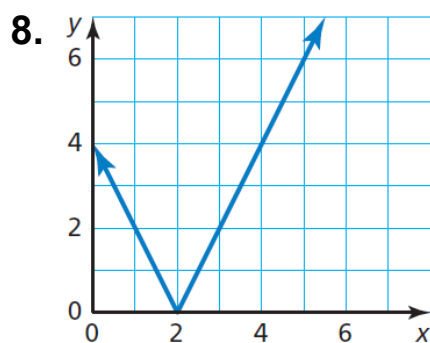
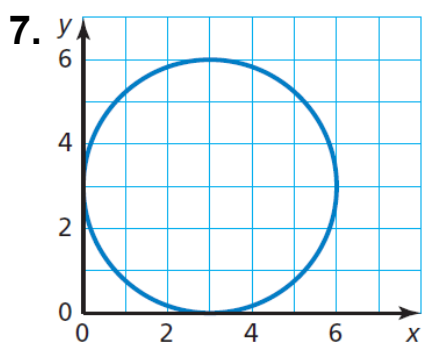
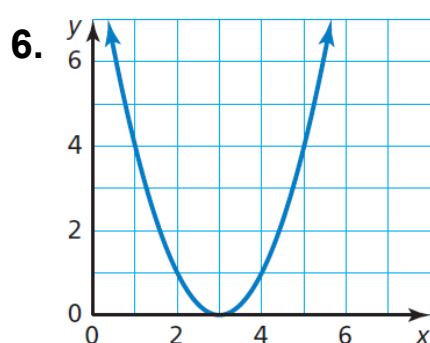
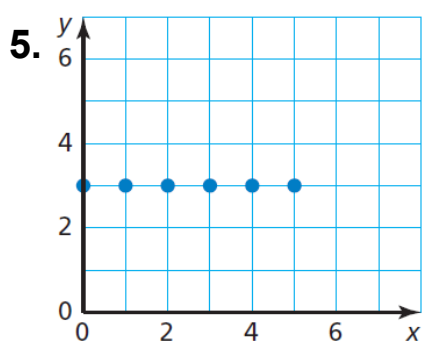
Not a function



Determine whether each graph represents a function. Explain.



Determine whether the graph represents a function. Explain.



Core Concept

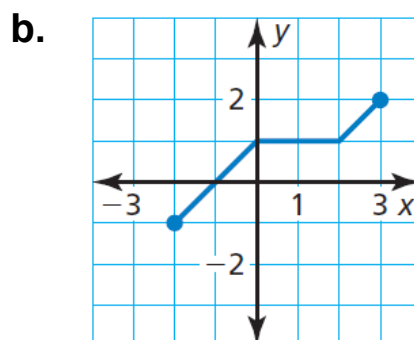
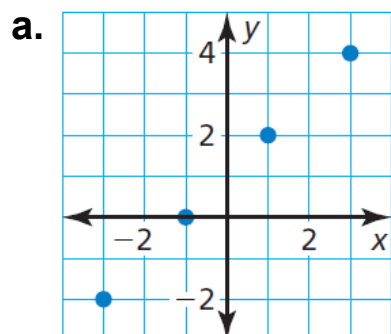
The Domain and Range of a Function

The **domain** of a function is the set of all possible input values.

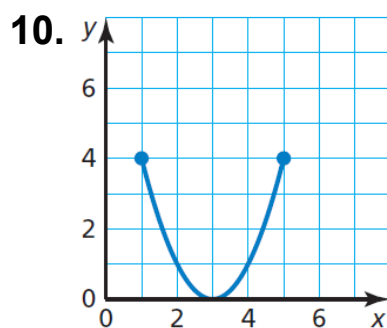
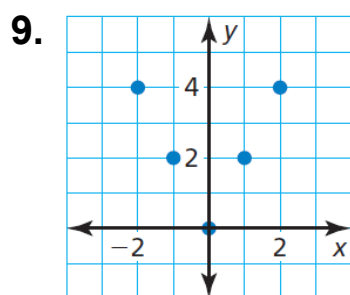
The **range** of a function is the set of all possible output values.



Find the domain and range of the function represented by the graph.



Find the domain and range of the function represented by the graph.



11. The function $a = -4b + 14$ represents the number a of avocados you have left after making b batches of guacamole.

a. Identify the independent and dependent variables.

b. The domain is 0, 1, 2, and 3. What is the range?

12. The function $t = 19m + 65$ represents the temperature t (in degrees Fahrenheit) of an oven after preheating for m minutes.

a. Identify the independent and dependent variables.

b. A recipe calls for an oven temperature of 350°F . Describe the domain and range of the function.

Exit Ticket: Make an input-output table for the function $y = -2x + 3$ using the inputs $-2, 0, 2, 4$.