7.1 Practice

▶ Review & Refresh

Choose an appropriate data display for the situation. Explain your reasoning.

1. the number of runners in each age group at a marathon

2. the high temperature and the attendance at a water park each day

Graph the linear equation.

3. $y = 2x - 3$
4. $y = -0.5x$
5. $y = -3x + 4$

6. Which word best describes two figures that have the same size and the same shape?

   **A.** congruent   **B.** adjacent   **C.** parallel   **D.** similar

▶ Concepts, Skills, & Problem Solving

INTERPRETING DIAGRAMS Describe the relationship between the *inputs* and *outputs* in the diagram. Then complete the diagram. Is there more than one possible answer? Explain your reasoning. (See Exploration 1, p. 275.)
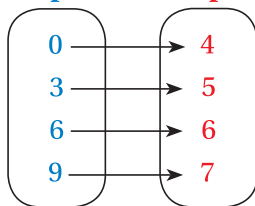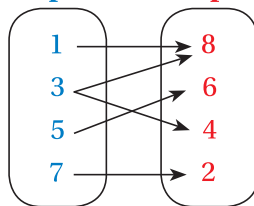
7.
Input	Output
1	−1
2	−5
3	−9
4	−13
5	▢
▢	−21

8.
Input	Output
basketball	
baseball	b
football	f
soccer	s
▢	
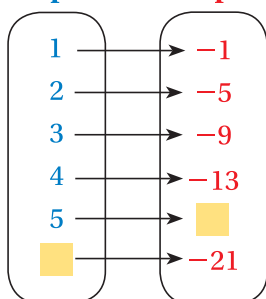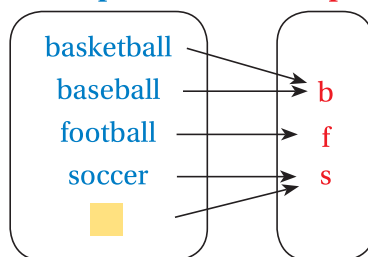
LISTING ORDERED PAIRS List the ordered pairs shown in the mapping diagram.

9.
Input	Output
0	4
3	5
6	6
9	7

10.
Input	Output
1	8
3	6
5	4
7	2

11.
Input	Output
6	
7	−5
8	−10
9	
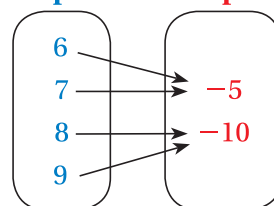
IDENTIFYING FUNCTIONS Determine whether the relation is a function.

12.
Input	Output
−2	5
0	10
2	15
4	20

13.
Input	Output
0	−18
4	−9
8	0
12	9

14.
Input	Output
−3	
−2	7
−1	14
0	
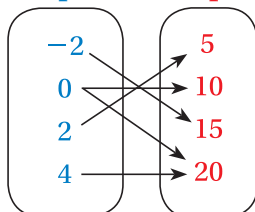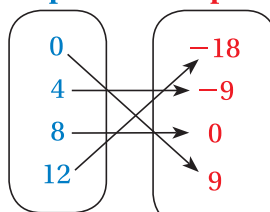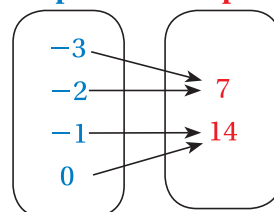
**15.** **MP** **YOU BE THE TEACHER** Your friend determines whether the relation shown in the mapping diagram is a function. Is your friend correct? Explain your reasoning.

Input   Output

4 → 5
4 → 6
4 → 7
4 → 8

Each output is paired with exactly one input. So, the relation is a function.
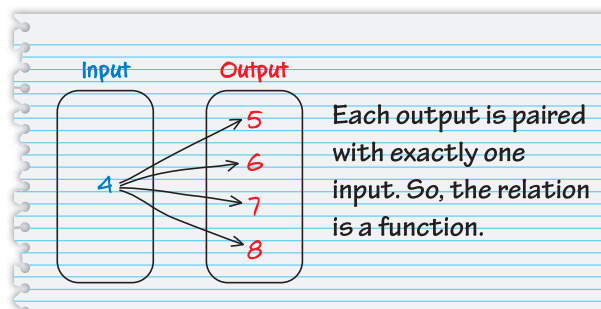
MP **REASONING** Draw a mapping diagram that represents the relation. Then determine whether the relation is a function. Explain.

16.

17.

18.
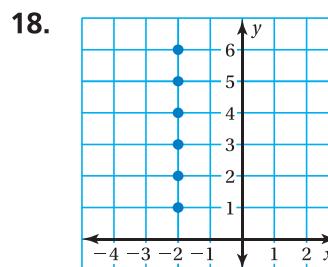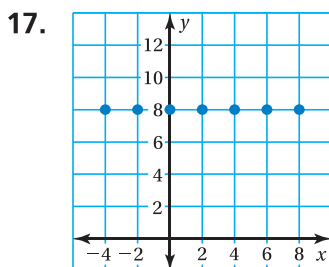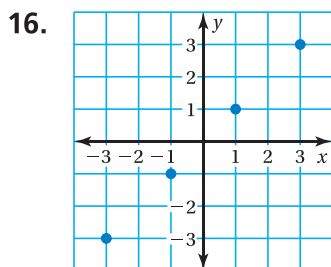
19. **MP** **MODELING REAL LIFE** The normal pressure at sea level is 1 atmosphere of pressure (1 ATM). As you dive below sea level, the pressure changes. The mapping diagram represents the pressures at different depths.

a. Complete the mapping diagram.

b. Is pressure a function of depth?

c. Describe the relationship between pressure and depth.

d. List the ordered pairs. Then plot the ordered pairs in a coordinate plane. What do you notice about the points?

e. **RESEARCH** What are common depths for beginner scuba divers? What are common depths for experienced scuba divers?

Input, Depth → **Output, Pressure**

0 m → 1 ATM
10 m → 2 ATM
20 m → 3 ATM
30 m → ▢
40 m → ▢
50 m → ▢
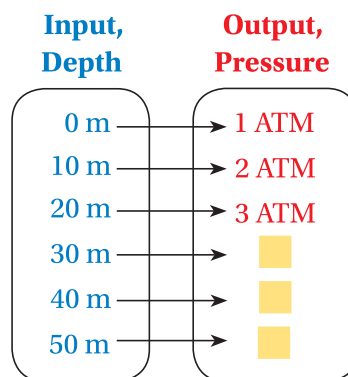
20. **DIG DEEPER!** The table shows the cost of purchasing 1, 2, 3, or 4 T-shirts from a souvenir shop.

a. Is the cost a function of the number of T-shirts purchased?

b. Describe the relationship between the cost and the number of T-shirts purchased. How does the *cost per T-shirt* change as you purchase more T-shirts?

T-Shirts	Cost
1	$10
2	$18
3	$24
4	$28

21. **MP** **REPEATED REASONING** The table shows the outputs for several inputs. Use two methods to predict the output for an input of 200.

Input, *x*	0	1	2	3	4
Output, *y*	25	30	35	40	45