

## 4-6

## Practice

Form G

## Formalizing Relations and Functions

Identify the domain and range of each relation. Use a mapping diagram to determine whether the relation is a function.

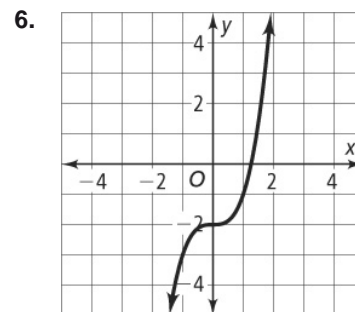
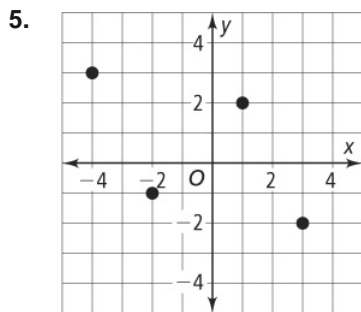
1.  $\{(3, 6), (5, 7), (7, 7), (8, 9)\}$

2.  $\{(0, 0.4), (1, 0.8), (2, 1.2), (3, 1.6)\}$

3.  $\{(5, -4), (3, -5), (4, -3), (6, 4)\}$

4.  $\{(0.3, 0.6), (0.4, 0.8), (0.3, 0.7), (0.5, 0.5)\}$

Use the vertical line test to determine whether the relation is a function.



7. The function  $w(x) = 60x$  represents the number of words  $w(x)$  you can type in  $x$  minutes. How many words can you type in 9 minutes?

8. Sound travels about 343 meters per second. The function  $d(t) = 343t$  gives the distance  $d(t)$  in meters that sound travels in  $t$  seconds. How far does sound travel in 8 seconds?

## 4-6

## Practice (continued)

Form G

## Formalizing Relations and Functions

Find the range of each function for the given domain.

9.  $f(x) = -3x + 2$ ;  $\{-2, -1, 0, 1, 2\}$

10.  $f(x) = x^3$ ;  $\{-1, -0.5, 0, 0.5, 1\}$

11.  $f(x) = 4x + 1$ ;  $\{-4, -2, 0, 2, 4\}$

12.  $f(x) = x^2 + 2$ ;  $\{0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1\}$

Find a reasonable domain and range for each function. Then graph the function.

13. A high school is having a pancake breakfast fundraiser. They have 3 packages of pancake mix that each feed 90 people. The function  $N(p) = 90p$  represents the number of people  $N(p)$  that  $p$  packages of pancake mix feed.

14. A charter boat travels at a maximum rate of 25 miles per hour. The function  $d(x) = 25x$  represents the distance  $d(x)$ , in miles, that the boat can travel in  $x$  hours. The charter boat travels a maximum distance of 75 miles from the shore.

15. **Reasoning** If  $f(x) = x^2 - 3$  and  $f(a) = 46$ , what is the value of  $a$ ? Explain.

16. **Open-Ended** What is a value of  $x$  that makes the relation  $\{(2, 4), (3, 6), (8, x)\}$  a function?