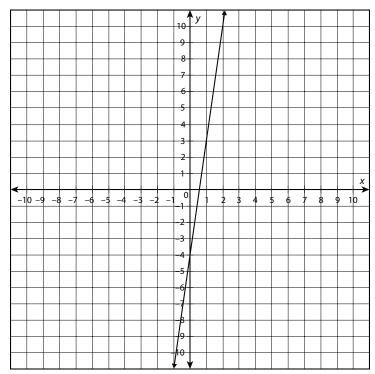
## **Lesson 3: Function Transformations**

**Assessment** 

## **Progress Assessment**

Circle the letter of the best answer.

1. The function g(x) is the translation 2 units to the left of the following graph. Which equation represents g(x)?



a. 
$$g(x) = 7x + 10$$

c. 
$$g(x) = 7x - 6$$

b. 
$$g(x) = 7x - 2$$

d. 
$$g(x) = 5x - 4$$

2. Find g(x) such that g(x) is the translation 4 units down of f(x) = 3 - 2x.

a. 
$$g(x) = 7 - 3x$$

$$c. \quad g(x) = -1 - 2x$$

b. 
$$g(x) = 3 - 6x$$

d. 
$$g(x) = 7 + 2x$$

3. Let  $f(x) = 2^x$ . Find g(x) such that g(x) is the translation 2 units up of f(x).

a. 
$$g(x) = 2^x - 2$$

$$c. \quad g(x) = 4^x$$

b. 
$$g(x) = 2^{2x}$$

d. 
$$g(x) = 2^x + 2$$

## **Lesson 3: Function Transformations**

**Assessment** 

4. Let  $f(x) = 3^x$ . Suppose f(x) is stretched horizontally to g(x) and that  $k = \frac{1}{2}$ . Find g(x).

a. 
$$g(x) = 3^{\frac{x}{2}}$$

$$c. \quad g(x) = \left(\frac{3}{2}\right)^x$$

b. 
$$g(x) = 3^{2x}$$

d. 
$$g(x) = \frac{1}{2}(3)^x$$

5. Find g(x) such that g(x) is the reflection of f(x) = 6x - 5 across the *y*-axis.

a. 
$$g(x) = -6x - 5$$

c. 
$$g(x) = -6x + 5$$

b. 
$$g(x) = 6x + 5$$

d. 
$$g(x) = 6x - 5$$

6. Find f(x) such that f(x) is the reflection of g(x) = 3x - 7 across the *x*-axis.

a. 
$$f(x) = -3x - 7$$

c. 
$$f(x) = 3x + 7$$

b. 
$$f(x) = -3x + 7$$

d. 
$$f(x) = 3x - 7$$

7. Let  $f(x) = x^2$ . Suppose f(x) is stretched vertically and that k = 2. Find g(x).

a. 
$$g(x) = 4x^2$$

$$c. \quad g(x) = 2x^2$$

b. 
$$g(x) = x^4$$

d. 
$$g(x) = 2x^4$$

8. Let  $f(x) = 3^x$ . Is this function even, odd, or neither?

a. both even and odd

c. odd but not even

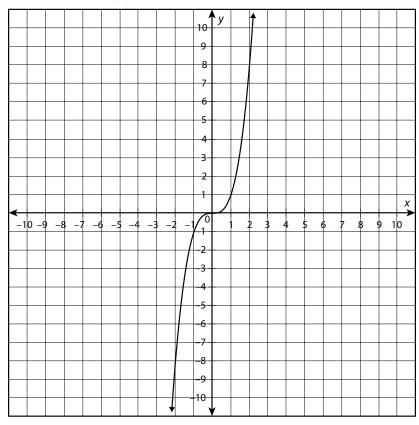
b. even but not odd

d. neither even nor odd

## **Lesson 3: Function Transformations**

**Assessment** 

9. Is the function in the following graph even, odd, or neither?



- a. both even and odd
- b. even but not odd

- c. odd but not even
- d. neither even nor odd
- 10. Suppose  $g(x) = 3x^2$ . Is g(x) even, odd, or neither?
  - a. both even and odd

c. odd but not even

b. even but not odd

d. neither even nor odd

## **Lesson 3: Function Transformations**

**Assessment** 

Use what you know about function transformations and symmetry to complete the following problem.

- 11. Suppose  $f(x) = 3x^2$ .
  - a. Find g(x) if g(x) translates f(x) down by 2 units.

b. Find h(x) if h(x) vertically compresses f(x) by a factor of 0.5.

c. Find j(x) such that j(x) is the reflection of f(x) across the x-axis.

d. Determine whether f(x), g(x), h(x), and j(x) are even, odd, or neither.