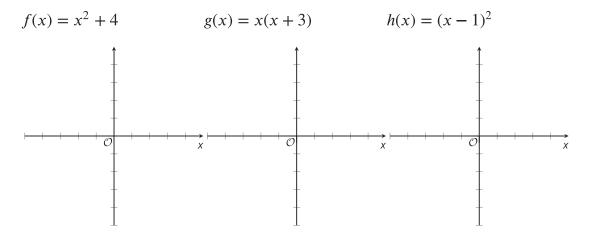


## **Lesson 5 Practice Problems**

- 1. Rewrite each equation so that the expression on one side could be graphed and the *x*-intercepts of the graph would show the solutions to the equation.
  - a.  $3x^2 = 81$ b. (x - 1)(x + 1) - 9 = 5xc.  $x^2 - 9x + 10 = 32$
  - d. 6x(x 8) = 29
- 2. a. Here are equations that define quadratic functions f, g, and h. Sketch a graph, by hand or using technology, that represents each equation.

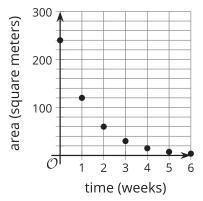


- b. Determine how many solutions each f(x) = 0, g(x) = 0, and h(x) = 0 has. Explain how you know.
- 3. Mai is solving the equation  $(x 5)^2 = 0$ . She writes that the solutions are x = 5 and x = -5. Han looks at her work and disagrees. He says that only x = 5 is a solution. Who do you agree with? Explain your reasoning.



4. The graph shows the number of square meters, *A*, covered by algae in a lake *w* weeks after it was first measured.

In a second lake, the number of square meters, *B*, covered by algae is defined by the equation  $B = 975 \cdot \left(\frac{2}{5}\right)^w$ , where *w* is the number of weeks since it was first measured.



For which algae population is the area decreasing more rapidly? Explain how you know.

(From Unit 5, Lesson 6.)

- 5. If the equation (x 4)(x + 6) = 0 is true, which is also true according to the zero product property?
  - A. only x 4 = 0
  - B. only x + 6 = 0
  - C. x 4 = 0 or x + 6 = 0
  - D. x = -4 or x = 6

(From Unit 7, Lesson 4.)

- 6. a. Solve the equation  $25 = 4z^2$ .
  - b. Show that your solution or solutions are correct.

(From Unit 7, Lesson 3.)



7. To solve the quadratic equation  $3(x - 4)^2 = 27$ , Andre and Clare wrote the following:

Andre

Clare

$$3(x-4)^{2} = 27$$

$$(x-4)^{2} = 9$$

$$x^{2} - 4^{2} = 9$$

$$x^{2} - 16 = 9$$

$$x^{2} = 25$$

$$x = 5 \text{ or } x = -5$$

$$3(x-4)^{2} = 27$$

$$(x-4)^{2} = 9$$

$$x - 4 = 3$$

$$x = 7$$

a. Identify the mistake each student made.

b. Solve the equation and show your reasoning.

(From Unit 7, Lesson 3.)

8. Decide if each equation has 0, 1, or 2 solutions and explain how you know.

a. 
$$x^2 - 144 = 0$$
  
b.  $x^2 + 144 = 0$   
c.  $x(x - 5) = 0$   
d.  $(x - 8)^2 = 0$   
e.  $(x + 3)(x + 7) = 0$