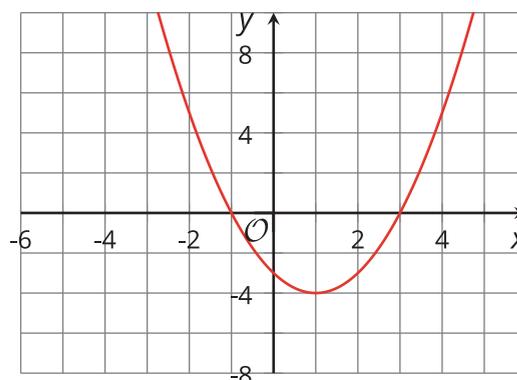


## Lesson 10 Practice Problems

1. A quadratic function  $f$  is defined by  $f(x) = (x - 7)(x + 3)$ .
  - a. Without graphing, identify the  $x$ -intercepts of the graph of  $f$ . Explain how you know.
  - b. Expand  $(x - 7)(x + 3)$  and use the expanded form to identify the  $y$ -intercept of the graph of  $f$ .
  
2. What are the  $x$ -intercepts of the graph of the function defined by  $(x - 2)(2x + 1)$ ?
  - A.  $(2, 0)$  and  $(-1, 0)$
  - B.  $(2, 0)$  and  $(-\frac{1}{2}, 0)$
  - C.  $(-2, 0)$  and  $(1, 0)$
  - D.  $(-2, 0)$  and  $(\frac{1}{2}, 0)$

3. Here is a graph that represents a quadratic function.

Which expression could define this function?



- A.  $(x + 3)(x + 1)$
- B.  $(x + 3)(x - 1)$
- C.  $(x - 3)(x + 1)$
- D.  $(x - 3)(x - 1)$

4. a. What is the  $y$ -intercept of the graph of the equation  $y = x^2 - 5x + 4$ ?
- b. An equivalent way to write this equation is  $y = (x - 4)(x - 1)$ . What are the  $x$ -intercepts of this equation's graph?
5. Noah said that if we graph  $y = (x - 1)(x + 6)$ , the  $x$ -intercepts will be at  $(1, 0)$  and  $(-6, 0)$ . Explain how you can determine, without graphing, whether Noah is correct.

6. A company sells a video game. If the price of the game in dollars is  $p$  the company estimates that it will sell  $20,000 - 500p$  games.

Which expression represents the revenue in dollars from selling games if the game is priced at  $p$  dollars?

- A.  $(20,000 - 500p) + p$
- B.  $(20,000 - 500p) - p$
- C.  $\frac{20,000 - 500p}{p}$
- D.  $(20,000 - 500p) \cdot p$

(From Unit 6, Lesson 7.)

7. Write each quadratic expression in standard form. Draw a diagram if needed.
- a.  $(x - 3)(x - 6)$
- b.  $(x - 4)^2$
- c.  $(2x + 3)(x - 4)$
- d.  $(4x - 1)(3x - 7)$

(From Unit 6, Lesson 9.)

8. Consider the expression  $(5 + x)(6 - x)$ .

a. Is the expression equivalent to  $x^2 + x + 30$ ? Explain how you know.

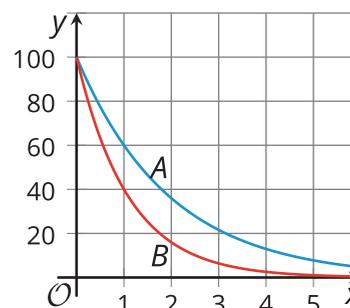
b. Is the expression  $30 + x - x^2$  in standard form? Explain how you know.

(From Unit 6, Lesson 9.)

9. Here are graphs of the functions  $f$  and  $g$  given by

$$f(x) = 100 \cdot \left(\frac{3}{5}\right)^x \text{ and } g(x) = 100 \cdot \left(\frac{2}{5}\right)^x.$$

Which graph corresponds to  $f$  and which graph corresponds to  $g$ ? Explain how you know.

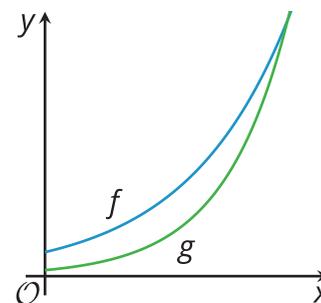


(From Unit 5, Lesson 12.)

10. Here are graphs of two functions  $f$  and  $g$ .

An equation defining  $f$  is  $f(x) = 100 \cdot 2^x$ .

Which of these could be an equation defining the function  $g$ ?



A.  $g(x) = 25 \cdot 3^x$

B.  $g(x) = 50 \cdot (1.5)^x$

C.  $g(x) = 100 \cdot 3^x$

D.  $g(x) = 200 \cdot (1.5)^x$

(From Unit 5, Lesson 13.)