UNIT 2 • QUADRATICS   A–SSE.1b⋆
Lesson 2.2: Interpreting Complicated Expressions

Practice 2.2: Interpreting Complicated Expressions   B

For problems 1 and 2, use what you know about expressions to answer the questions.

1. What values of x make the expression $(x + 4)(x - 6)$ negative?

2. What values of x make the expression $(5x + 7)(2x - 8)$ positive?

For problems 3 and 4, show that the expression is a quadratic expression by writing it in the form $ax^2 + bx + c$. Identify a, b, and c.

3. $(9x - 15)(2x + 1)$

4. $(x - 2)(x + 3) - (x - 4)(2x + 5)$

For problems 5 and 6, determine whether each expression is a quadratic expression. Explain your reasoning.

5. $(x - 1)^2 + 10$

6. $(x + 4)(x + 1)(x - 1)$

continued

For problems 7–10, translate any verbal expressions into quadratic expressions, and then answer the questions.

7. The population of a city t years after 2000 is represented by the quadratic expression $100t^2 + 300t + 50{,}000$. How did the city's population change from 2000 to 2012?

8. The surface area in feet of a cylinder with a radius of 1 foot can be found by adding the product of 2π and the square of the radius to the product of 2π and the radius. How does the surface area change when the radius is tripled from 1 foot to 3 feet?

9. How does the area of a square change when the side length is tripled?

10. The surface area of a sphere is the product of 4π and the square of the radius. How does the surface area change when the radius is halved?