



7-3

Multiplying Special Cases

EXPLORE & REASON

The table gives values for x and y and different expressions.

x	y	$(x - y)(x + y)$	x^2	y^2	$(x^2 - y^2)$
7	4				
6	2				
3	9				

A. Complete the table.

B. Describe any patterns you notice.

C. **Use Structure** Try substituting variable expressions of the form $7p$ and $4q$ for x and y . Does the pattern still hold? Explain. © MP.7

HABITS OF MIND

Generalize Did your exploration provide enough information to establish a general rule? Explain. © MP.8

**EXAMPLE 1** **Try It!** Determine the Square of a Binomial

1. Find each product.

a. $(3x - 4)^2$

b. 71^2

EXAMPLE 2 **Try It!** Find the Product of a Sum and a Difference

2. Find each product.

a. $(2x - 4)(2x + 4)$

b. $56 \cdot 44$

HABITS OF MIND

Use Appropriate Tools How do area models and algebraic expressions help you understand the patterns for the square of a binomial and for the product of a sum and a difference? © MP.5

**EXAMPLE 3**  **Try It!** Apply the Square of a Binomial

3. What is the area of the square image if the area of the border is 704 square pixels and it is 4 pixels wide?

HABITS OF MIND

Communicate Precisely What mathematical terms apply in this situation? © MP.6



Do You UNDERSTAND?

- ESSENTIAL QUESTION** What patterns are there in the product of the square of a binomial and the product of a sum and a difference?
- Error Analysis** Kennedy multiplies $(x - 3)(x + 3)$ and gets an answer of $x^2 - 6x - 9$. Describe and correct Kennedy's error. © MP.3
- Vocabulary** The product $(x + 6)(x - 6)$ is equivalent to an expression that is called the *difference of two squares*. Explain why the term *difference of two squares* is appropriate.
- Use Structure** Explain why the product of two binomials in the form $(a + b)(a - b)$ is a binomial instead of a trinomial. © MP.7

Do You KNOW HOW?

Write each product in standard form.

5. $(x - 7)^2$

6. $(2x + 5)^2$

7. $(x + 4)(x - 4)$

8. $(3y - 5)(3y + 5)$

Use either the square of a binomial or the difference of two squares to find the area of each rectangle.

9.



10.

