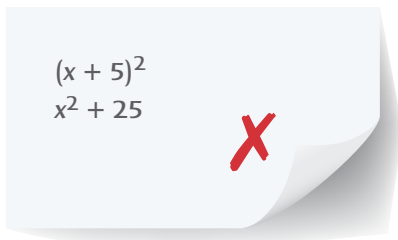




UNDERSTAND

11. **Generalize** Find each product.
- $(x + 9)(x + 9)$
 - $(x - 7)(x - 7)$
 - $(2x - 1)^2$
- a. What do all products of the square of a binomial have in common?
- b. Will the third term of the square of a binomial always be positive? Explain.
- c. What is the relationship between the sign of the binomial and the sign of the second term in the product?
- d. What is true about the exponents representing perfect square variables?
12. **Look for Relationships** Find a value for m or n to make a true statement.
- a. $mx^2 - 36 = (3x + 6)(3x - 6)$
- b. $(mx + ny)^2 = 4x^2 + 12xy + 9y^2$
13. **Error Analysis** Describe and correct the error a student made when squaring $(x + 5)$.



14. **Use Structure** The expression $96^2 - 95^2$ is a difference of two squares. How can you use the factors $(96 - 95)(96 + 95)$ to make it easier to simplify this expression?
15. **Construct Arguments** Jacob makes the following conjectures. Is each conjecture correct? Provide arguments to support your answers.
- a. The product of any two consecutive even numbers is 1 less than a perfect square.
- b. The product of any two consecutive odd numbers is 1 less than a perfect square.

PRACTICE

Write each product in standard form. SEE EXAMPLE 1

16. $(y + 9)(y + 9)$ 17. $(5x - 3)(5x - 3)$
18. $(a + 11)(a + 11)$ 19. $(x - 13)(x - 13)$
20. $(p + 15)^2$ 21. $(3k + 8)^2$
22. $(x - 4y)^2$ 23. $(2a + 3b)^2$
24. $(\frac{2}{5}x + \frac{1}{5})^2$ 25. $(0.4x + 1.2)^2$

Use the square of a binomial to find each product.

SEE EXAMPLE 1

26. 56^2 27. 72^2

Write each product in standard form.

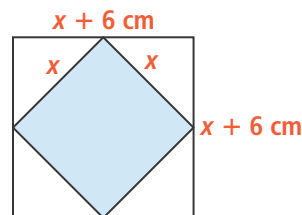
SEE EXAMPLE 2

28. $(x - 12)(x + 12)$ 29. $(2x + 5)(2x - 5)$
30. $(3a - 4b)(3a + 4b)$ 31. $(x^2 - 2y)(x^2 + 2y)$
32. $(\frac{1}{4}x - \frac{2}{3})(\frac{1}{4}x + \frac{2}{3})$ 33. $(x + 2.5)(x - 2.5)$

Use the product of sum and difference to find each product. SEE EXAMPLE 2

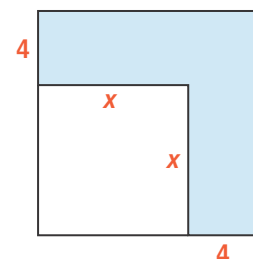
34. $32 \cdot 28$ 35. $83 \cdot 97$

36. Consider the figure shown. SEE EXAMPLE 3



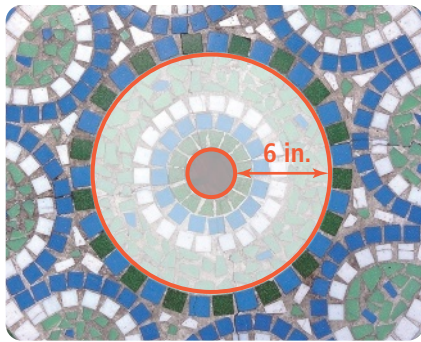
- a. What expression represents the total area of the four white triangles?
- b. If the length of each side of the shaded square is 12 cm, what is the total area of the four white triangles?
37. What is the area of the shaded region?

SEE EXAMPLE 3

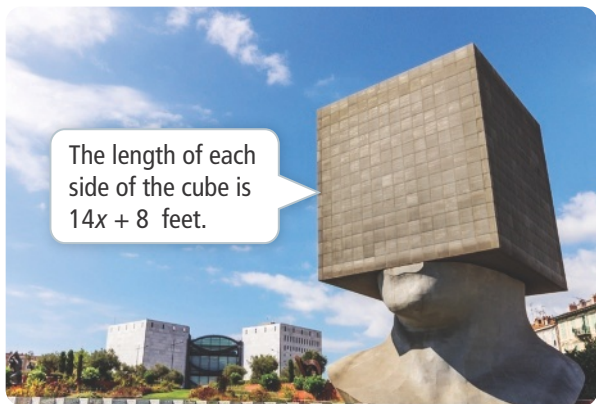
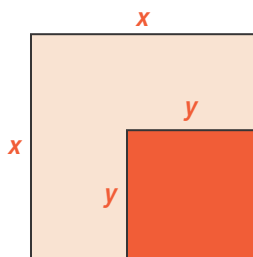


APPLY

- 38. Mathematical Connections** The radius of the inner circle of a tile pattern shown is x inches. Write a polynomial in standard form to represent the area of the space between the inner and outer circle.



- 39. Make Sense and Persevere** In the figure shown, the darker square is removed.
- Divide the remaining figure into two rectangles. What are the dimensions of each rectangle?
 - What is the area of each rectangle?
 - What is the total area of the remaining figure? How does this figure represent the difference of two squares?
- 40. Higher Order Thinking** The sculpture shown contains a large cube.



- Write a polynomial in standard form to represent the surface area of the cube.
- Write a polynomial in standard form to represent the volume of the cube.

ASSESSMENT PRACTICE

- 41.** Consider each expression. Can you use the expression to find the product 53^2 ? Select **Yes** or **No** in each row.

	Yes	No
$(50 + 3)^2$	<input type="checkbox"/>	<input type="checkbox"/>
$(50 - 3)^2$	<input type="checkbox"/>	<input type="checkbox"/>
$(60 + 7)^2$	<input type="checkbox"/>	<input type="checkbox"/>
$(60 - 7)^2$	<input type="checkbox"/>	<input type="checkbox"/>
$(50 + 3)(50 - 3)$	<input type="checkbox"/>	<input type="checkbox"/>

- 42. SAT/ACT** What is the product of $(3x^2 - 4y)(3x^2 + 4y)$?
- $9x^4 - 24x^2y - 16y^2$
 - $3x^2 - 4y^2$
 - $9x^4 - 16y^2$
 - $3x^2 + 14x^2y - 4y$
- 43. Performance Task** Consider the difference of squares $a^2 - b^2$, for integer values of a and b .
- Part A** Make a table of the difference of squares using consecutive integers for a and b . What pattern do you notice?
- Part B** Use the pattern from Part A to find pair of consecutive integers that generates a difference of squares of -45 .
- Part C** Make a table of the difference of squares using consecutive even integers for a and b . What pattern do you notice?
- Part D** Use the pattern from Part C to find a pair of consecutive even integers that generates a difference of squares of -100 .