

**8-8 Study Guide and Intervention** *(continued)***Special Products**

**Product of a Sum and a Difference** There is also a pattern for the product of a sum and a difference of the same two terms,  $(a + b)(a - b)$ . The product is called the **difference of squares**.

<b>Product of a Sum and a Difference</b>	$(a + b)(a - b) = a^2 - b^2$
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**Example** Find  $(5x + 3y)(5x - 3y)$ .

$$(a + b)(a - b) = a^2 - b^2 \quad \text{Product of a Sum and a Difference}$$

$$(5x + 3y)(5x - 3y) = (5x)^2 - (3y)^2 \quad a = 5x \text{ and } b = 3y$$

$$= 25x^2 - 9y^2 \quad \text{Simplify.}$$

The product is  $25x^2 - 9y^2$ .

**Exercises**

Find each product.

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

2.  $(p + 2)(p - 2)$

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

4.  $(2x - 1)(2x + 1)$

5.  $(h + 7)(h - 7)$

6.  $(m - 5)(m + 5)$

7.  $(2c - 3)(2c + 3)$

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

9.  $(x - y)(x + y)$

10.  $(y - 4x)(y + 4x)$

11.  $(8 + 4x)(8 - 4x)$

12.  $(3a - 2b)(3a + 2b)$

13.  $(3y - 8)(3y + 8)$

14.  $(x^2 - 1)(x^2 + 1)$

15.  $(m^2 - 5)(m^2 + 5)$

16.  $(x^3 - 2)(x^3 + 2)$

17.  $(h^2 - k^2)(h^2 + k^2)$

18.  $\left(\frac{1}{4}x + 2\right)\left(\frac{1}{4}x - 2\right)$

19.  $(3x - 2y^2)(3x + 2y^2)$

20.  $(2p - 5s)(2p + 5s)$

21.  $\left(\frac{4}{3}x - 2y\right)\left(\frac{4}{3}x + 2y\right)$