

# 7.7

## Notetaking with Vocabulary

I can factor a difference of two squares.

I can factor a perfect square trinomial (a square - double - square).

### Core Concepts

#### Difference of Two Squares Pattern

Algebra

$$a^2 - b^2 = (a + b)(a - b)$$

Example

$$x^2 - 9 = x^2 - 3^2 = (x + 3)(x - 3)$$

Notes:

Key: perfect squares in first + last terms  $(4x - 7)(4x + 7)$

~~$a^2 + b^2$~~

	4x	-7	
4x	16x <sup>2</sup>	-28x	= 16x <sup>2</sup> - 49
7	-28x	49	

#### Perfect Square Trinomial Pattern

Algebra

$$a^2 + 2ab + b^2 = (a + b)^2$$

square double square  $(a + b)(a + b)$

$$a^2 - 2ab + b^2 = (a - b)^2$$

Example

$$x^2 + 6x + 9 = x^2 + 2(x)(3) + 3^2 = (x + 3)^2$$

$$x^2 - 6x + 9 = x^2 - 2(x)(3) + 3^2 = (x - 3)^2$$

Notes:

$$(3x + 11)^2 = (3x + 11)(3x + 11)$$

	3x	11
3x	9x <sup>2</sup>	33x
11	33x	121

$$9x^2 + 2(33x) + 121$$

$$9x^2 + 66x + 121$$

perfect sq.      even      2 · product      perfect sq.

**7.7** Notetaking with Vocabulary (continued)

Practice: In Exercises 1–8, factor the polynomial.

1.  $s^2 - 49$

① Use pattern  $s^2 - 49$   
 $\sqrt{s^2} \quad \sqrt{49}$   
 $s \quad 7$   
 $(s + 7)(s - 7)$

~~2.  $16x^2$~~   
 ② Use a.c method  $s^2 - 49$   
 $a = 1 \quad b = 0 \quad c = -49$   
 $\frac{7 \cdot -7 = -49}{7 + -7 = 0}$   $(s - 7)(s + 7)$   
 $\frac{a \cdot c}{b}$

③  $4g^2 - 25$   
 $\sqrt{4g^2} \quad \sqrt{25}$   
 $2g \quad 5$

②  $a = 4 \quad b = 0 \quad c = -25$   
 $\frac{-10 \cdot 10 = -100}{-10 + 10 = 0}$

$(2g - 5)(2g + 5)$

	$2g$	$-5$
$2g$	$4g^2$	$-10g$
$5$	$10g$	$-25$

4.  $16x^2 - 49y^2 = (4x - 7y)(4x + 7y)$   
 $\sqrt{16x^2} \quad \sqrt{49y^2}$   
 $4x \quad 7y$

5.  $x^2 + 16x + 64$

$\sqrt{x^2} \quad \downarrow \quad \sqrt{64}$   
 $x \quad 2(8 \cdot x) \quad 8$   
 $16x \checkmark$

$(x + 8)^2$

6.  $r^2 - 26r + 169$

7.  $36c^2 + 84c + 49 = (6c + 7)^2$

$6c \quad 7$   
 $2(6c \cdot 7)$   
 $2 \cdot 42c \checkmark$

8.  $100x^2 - 20x + 1$