

Algebra 1

Lesson 9.7
Factor Special Products

Warm-Up

Multiply each of the following.

(a) $(x+5)(x-5)$

(b) $(z-4)(z+4)$

(c) $(2y+1)(2y-1)$

(d) $(x+2)^2$

(e) $(b-3)^2$

(f) $(2t+5)^2$

Example 1. Factor the Difference of Two Squares

Factor the polynomial.

(a) $y^2 - 9$

(b) $x^2 - 36$

(c) $b^2 - 16$

Example 2. More Difference of Two Squares

Factor the polynomial.

(a) $16x^2 - 25$

(b) $8 - 18n^2$

(c) $9b^2 - 49$

Try It!

Factor.

(a) $x^2 - 1$

(b) $m^2 - 49$

(c) $2t^2 - 32$

(d) $4x^2 - 121$

Example 3. Factor Perfect Square Trinomials

Factor the polynomial.

(a) $a^2 + 6a + 9$

(b) $9x^2 - 12x + 4$

(c) $-2n^2 - 16n - 32$

Example 4. Factoring and Solving Practice

Solve each equation by factoring.

(a) $4w^2 - 36 = 0$

(b) $d^2 + 49 = 14d$

KEY CONCEPT*For Your Notebook***Difference of Two Squares Pattern****Algebra**

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

Example

$4x^2 - 9 = (2x)^2 - 3^2 = (2x + 3)(2x - 3)$

KEY CONCEPT*For Your Notebook***Perfect Square Trinomial Pattern****Algebra**

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

Example

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

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

$x^2 - 10x + 25 = x^2 - 2(x \cdot 5) + 5^2 = (x - 5)^2$

Assignment**New:** Pg. 603 #4 - 30 (evens)**Review:**

Factor completely.

1. $4x - 12x^3$

2. $x^2 - 4x - 60$

3. $5a^2b^4 + 20a^3b^2$

4. $2x^2 - 3x - 20$

5. $6x^2 - 5x - 4$

6. $8x^4 - 16x^2 + 20x$

7. $x^2 + x + 6$

8. $3(y - 1) + x(y - 1)$