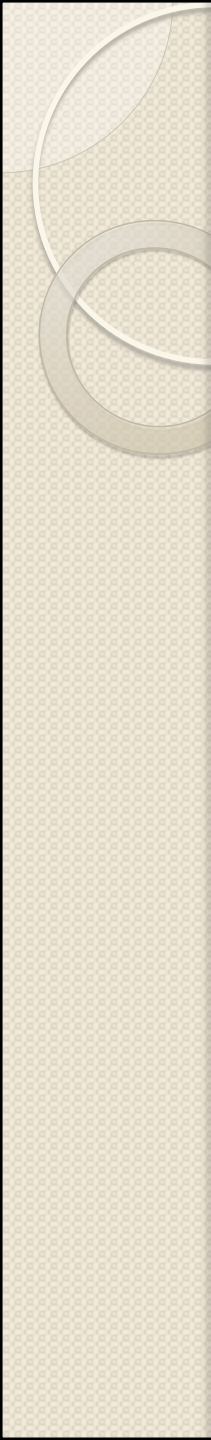


6.3 Special Factoring

Written by: Cindy Alder

Objectives

- Factor a perfect square trinomial.
- Factor a difference of squares.
- Factor a difference of cubes.
- Factor a sum of cubes.

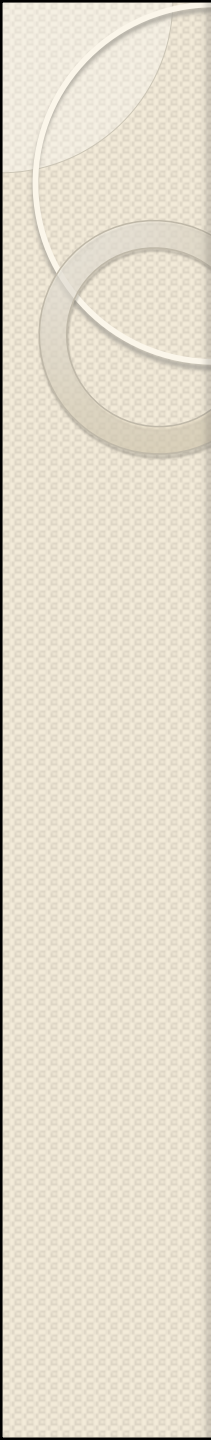


Perfect Square Trinomials

Identify the Perfect Square Trinomial

- $4m^2 + 20m + 25$

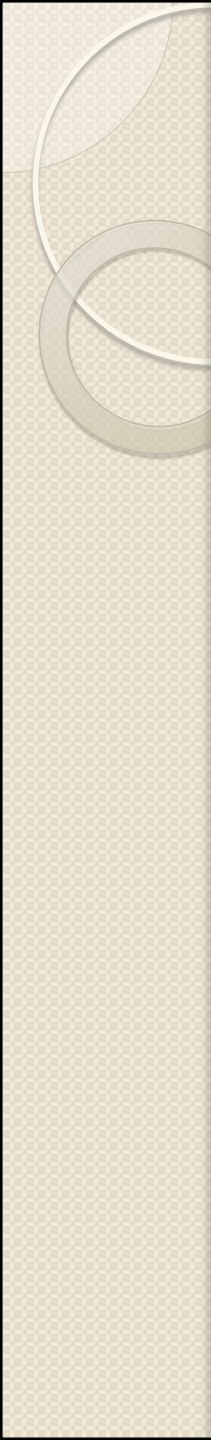
- $p^2 - 8p + 64$



Factor each polynomial.

- $144p^2 - 120p + 25$

- $9a^2 + 48ab + 64b^2$



#	Perfect Squares	Perfect Cubes
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

Foldable

Factoring Polynomials

Is there a Greatest Common Factor (GCF)?

$$\textcircled{\text{ex}} \quad 30x^6 + 25x^5 + 10x^4 = \boxed{5x^4(6x^2 + 5x + 2)}$$

Foldable

How many terms are remaining?

Two
Terms

Three
Terms

Four or
More
Terms

How many terms are
remaining?

Three
Terms

Four or
More
Terms

Difference of Two Squares

$$4x^2 - 25$$

Difference of Two Squares

- $z^2 - 81$

- $2x^2 - 18$

- $9a^2 - 16b^2$

- $y^2 - 10$

How many terms are remaining?

Difference of
Two Squares

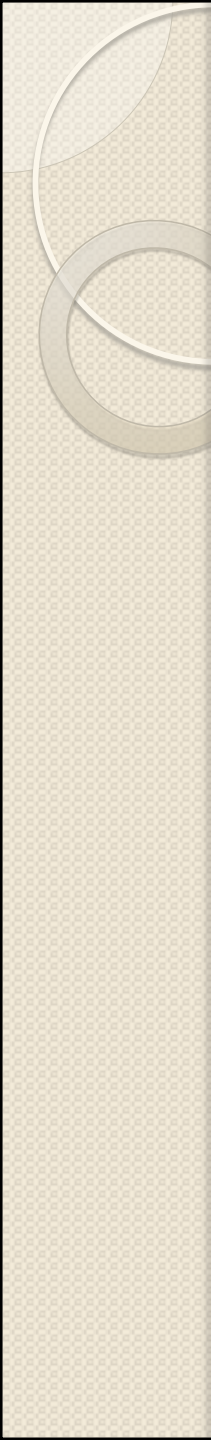
$$a^2 - b^2 = (a - b)(a + b)$$

$$4x^2 - 25 = (2x - 5)(2x + 5)$$

★

Three
Terms

Four or
More
Terms



Sum of Two Squares

Sum of Two Squares

$$x^2 + 25$$

$$3y^2 + 108$$

Factor Completely

- $(m + 3)^2 - 49z^2$

- $y^4 - 16$

How many terms are remaining?

Difference of
Two Squares

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

$$4x^2 - 25 = (2x - 5)(2x + 5)$$

Sum of Two Squares

$$a^2 + b^2 = \text{prime}$$

$$x^2 + 36 = \text{prime}$$

Three
Terms

Four or
More
Terms

*

Difference of Two Cubes

Difference of Two Cubes

$$x^3 - 8$$

Difference of Two Cubes

$$8k^3 - y^3$$

Difference of Two Cubes

$$27m^3 - 64n^3$$

How many terms are remaining?

Difference of
Two Squares

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

$$4x^2 - 25 = (2x - 5)(2x + 5)$$

Sum of Two Squares

$$a^2 + b^2 = \text{prime}$$

$$x^2 + 36 = \text{prime}$$

Difference of
Two Cubes

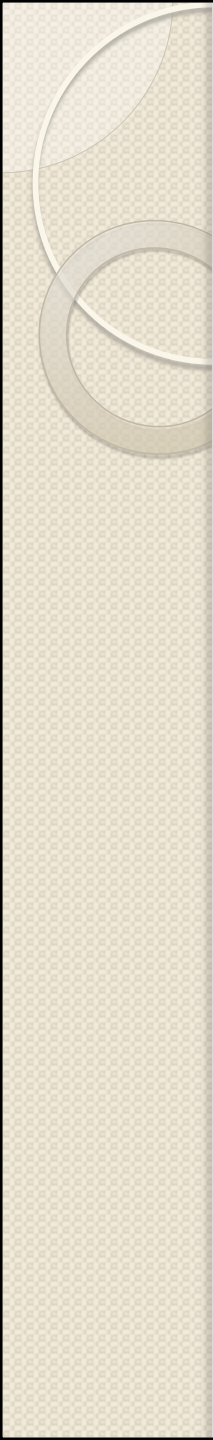
$$a^3 - b^3 =$$

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



Three
Terms

Four or
More
Terms



Sum of Two Cubes

Sum of Two Cubes

$$8p^3 + 125$$

Sum of Two Cubes

$$2x^3 + 2000$$

Sum of Two Cubes

$$(a - 4)^3 + b^3$$