Algebra 1
Factoring Special Products

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Difference of Squares

Perfect Square

Factor by Grouping

Guidelines for Factoring Polynomials Completely

Overview

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

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

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

$(2x)^2$ 5^2
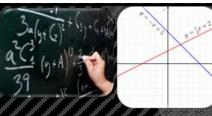
Difference of Two Squares

Find the factors or 8 - 18x²

You Try It

$8 - 18x^2 = 2(4 - 9x^2)$

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

Find the factors or 8 - 18x²

You Try It

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

$a^2 + ab + ab + b^2$

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

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

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

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

Perfect Square

$$x^3 + 3x^2 + 5x + 15$$

$$= x^2(x + 3) + 5(x + 3)$$

$$= (x + 3)(x^2 + 5)$$

Factor By Grouping (Distributive Property)

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factor: $x^3 - 5x + 13x^2 - 65$

You Try It

$$x^3 + 13x^2 - 5x - 65$$

$$x^2(x + 13) - 5(x + 13)$$

$$(x + 13)(x^2 - 5)$$

factor: $x^3 - 5x + 13x^2 - 65$

You Try It
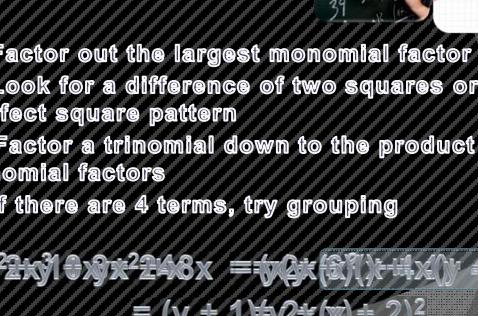
1. Factor out the largest monomial factor
2. Look for a difference of two squares or a perfect square pattern
3. Factor a trinomial down to the product of binomial factors
4. If there are 4 terms, try grouping

Guidelines for Factoring Polynomials Completely

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ctor completely:
$z^4 + 24z^3 + 48z^2$

You Try It

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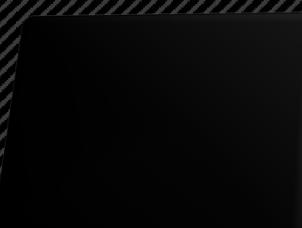
ctor completely:
$z^4 + 24z^3 + 48z^2$

$= 3z^2(z^2 + 8z + 16)$

$= 3z^2(z + 4)^2$

You Try It

factor completely:

$$m^3 + 4m^2 - 25m - 100$$

You Try It

factor completely:

$$m^3 + 4m^2 - 25m - 100$$

$$= (m^3 + 4m^2) - (25m + 100)$$

$$= m^2(m + 4) - 25(m + 4)$$

$$= (m^2 - 25)(m + 4)$$

You Try It

Test your skills with the Worksheets and Quizzes at www.MasterMath.info