

Factoring Polynomials

Factoring a polynomial means

Method #1: Factoring using GCF

** Always

Steps

1.

2.

3.

Ex: $6c^3d - 12c^2d^2 + 3cd$

1. $6x^3 + 3x^2 - 12x$

2. $5x^2 - 10x + 35$

3. $16x^3y^4z - 8x^2y^2z^3 + 12xy^3z^2$

Method #2: Factoring using Difference of Squares

Formula:

Ex: $x^2 - 16$

Ex: $\frac{1}{49}x^2 - 81$

1. $x^2 - 121$

2. $9y^2 - 169x^2$

3. $x^4 - 16$

Method# 3: Factoring a trinomial

Steps

1.

2.

3.

4.

Ex: $x^2 - 6x + 8$

Ex: $6x^2 - 12x - 18$

Ex: $6x^2 + 13x - 5$

Factoring a Perfect Square Trinomial

Formulas:

Ex: $x^2 + 8x + 16$

Ex: $4x^2 - 12x + 9$

Method #4: Factoring By Grouping

Steps

- 1.
- 2.
- 3.

Ex: $b^3 - 3b^2 + 4b - 12$

Ex2: $2x^3 - 16x^2 - 8x + 64$

Summary

Factor out the GCF.	
If 2 terms	
If 3 terms	
If 4 or more terms	

Practice Problems:

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

2. $3x^2 + 11x - 20$

3. $x^3 + 8x + 16$

4. $3x^3 - 6x^2 - 24x$