

Summary of Factoring Techniques

1.) factor out common terms

Be sure to factor out -1 if the leading term is negative

2.) If there are four or more terms: Factor by Grouping

3.) Look for Special Forms:

$$x^2 - y^2 = (x + y)(x - y)$$

$$(x + y)^2 = x^2 + 2xy + y^2$$

$$(x - y)^2 = x^2 - 2xy + y^2$$

$$x^3 - y^3 = (x - y)(x^2 + xy + y^2)$$

$$x^3 + y^3 = (x + y)(x^2 - xy + y^2)$$

4.) For Trinomials of the form: $ax^2 + bx + c$

Factor trinomials using "a-c" method

Multiply first and last terms together

Factor the product

Find a pair that will add or subtract to make the middle term

Then factor by grouping

5.) Check your work by foiling out the product