

Factoring Polynomials

→ Greatest Common Factor

GCF

ALWAYS TRY 1ST!

$7x + 35x^2 = (1 + 5x)7x$

Binomials

Trinomials

4 Terms

- 1
- 4
- 9
- 16
- 25
- 36
- 49
- 64
- 81
- 100
- 121
- 144
- 169
- 196
- 225
- 256

2 terms

Perfect Squares

Diff of Sq
 $a^2 - b^2 = (a+b)(a-b)$

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

Perfect Cubes

Sum & Diff of Cubes

$a^3 \pm b^3 = (a \pm b)(a^2 \mp ab + b^2)$

same signs → prime

$125x^3 - 27$

$(5x - 3)(25x^2 + 15x + 9)$

3 terms

same signs

$ax^2 \pm bx + c$

mm

add to bx

diff signs

$ax^2 \pm bx - c$

mm

subtract to bx

$b^2 - 4ac$

discriminant

= perf sq or 0

↳ it will factor

Grouping

3 GCFs

$(x^3 + x^2) + (x + 1)$

Must be +

$x^2(x+1) + 1(x+1)$

$(x+1)(x^2+1)$