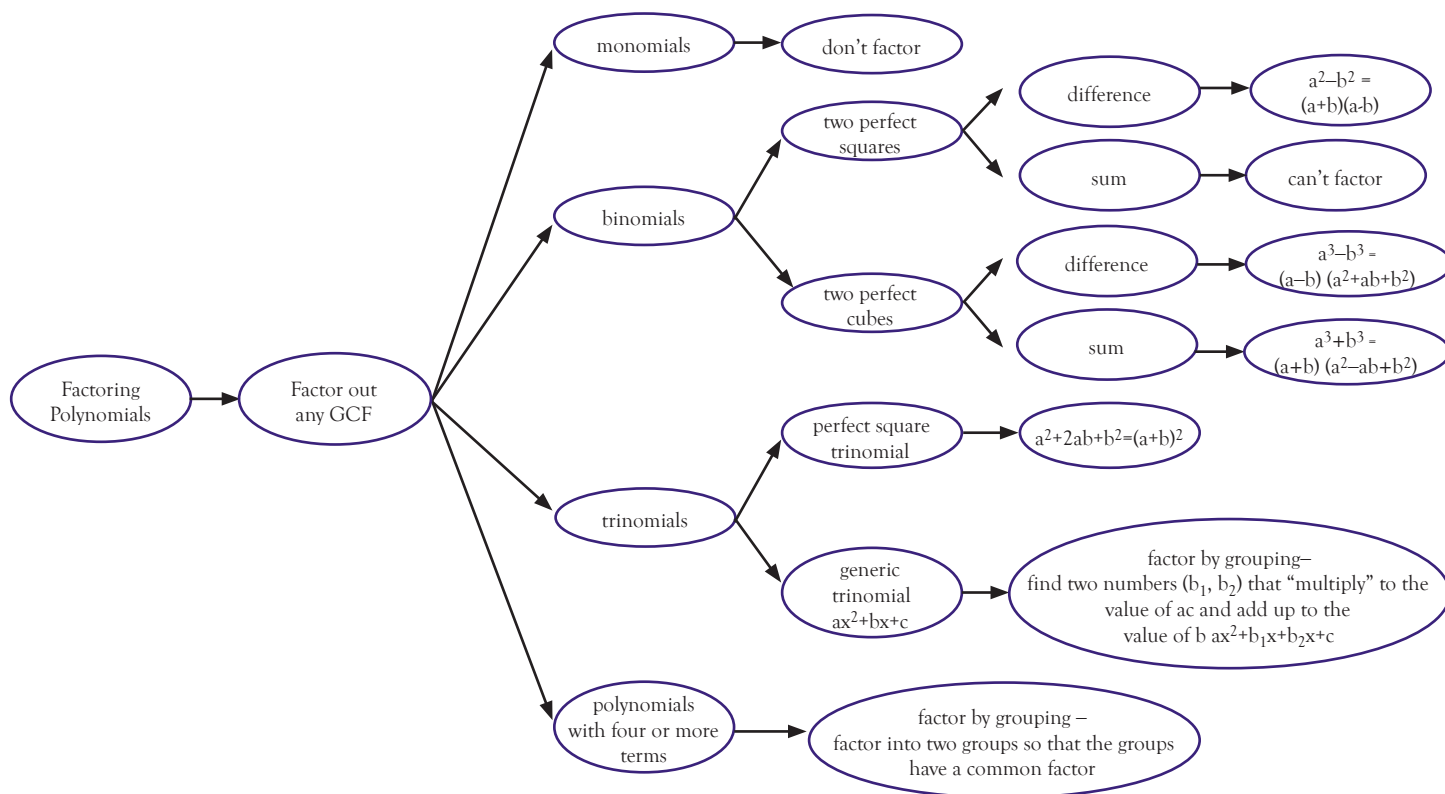


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Factoring Polynomials



Before beginning to factor by any of the methods below, check to see if each term of your polynomial has a common factor that you factor out.

Difference of Two Squares: $a^2 - b^2 = (a + b)(a - b)$

Difference of Two Cubes: $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

Sum of Two Cubes: $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

Quadratics:

$$Ax^2 + Bx + C = (ax + b)(cx + d)$$

- $A = ac$
- $B = ad + bc$
- $C = bd$

$$Ax^2 - Bx + C = (ax - b)(cx - d)$$

- $A = ac$
- $B = ad + bc$
- $C = bd$

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$$Ax^2 + Bx - C = (ax + b)(cx - d)$$

- $A = ac$
- $B = bc - ad$, where $bc > ad$
- $C = bd$

$$Ax^2 - Bx - C = (ax + b)(cx - d)$$

- $A = ac$
- $B = ad - bc$, where $ad > bc$
- $C = bd$

Quadratic Formula:

$$\text{For } Ax^2 + Bx + C = 0$$

$$x = \frac{-B \pm \sqrt{B^2 - 4AC}}{2A}$$

Factoring by Grouping:

$$Ax^3 + Bx^2 + Cx + D = ax^2(cx + d) + b(cx + d) = (ax^2 + b)(cx + d)$$