FACTORING SPECIAL PRODUCTS

SUM OR DIFFERENCE OF CUBES

The sum or difference of cubes factors into a binomial times a trinomial.

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2) \qquad a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

Examples:

$$8x^3 + 27y^3 = (2x + 3y)(4x^2 - 6xy + 9y^2)$$

$$64x^3 - 125y^3 = (4x - 5y)(16x^2 + 20xy + 25y^2)$$

Memorize the patterns: