

Factoring the Sum or Difference of Two Cubes

Steps in Factoring the Sum or Difference of Two Cubes:

- A. To find the binomial factor:
 - a. Find the cube root of the first cube.
 - b. Find the cube root of the second cube, then affix the sign of the second cube.
- B. To find the trinomial factor:
 - a. Square the first term of the binomial factor.
 - b. Multiply the first and second terms of the binomial factor, then affix the sign that is opposite the sign of the second term.

c. Square the second term of the binomial factor.

In symbols,

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

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