

Due today

Name

Key

Factoring A Sum/Difference of Cubes

Date

Period

Factor each completely.

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

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

1) $x^3 + 125$

$$(x)^3 + (5)^3$$

$$a = x$$

$$b = 5$$

$$= (x+5)(x^2 - 5x + 25)$$

2) $a^3 + 64 = (a)^3 + (4)^3$

$$(a+4)(a^2 - 4a + 16)$$

$$a = a$$

$$b = 4$$

3) $x^3 - 64$

$$(x)^3 - (4)^3$$

$$a = x$$

$$b = 4$$

$$(x-4)(x^2 + 4x + 16)$$

4) $u^3 + 8 = (u)^3 + (2)^3$

$$(u+2)(u^2 - 2u + 4)$$

$$a = u$$

$$b = 2$$

5) $x^3 - 27$

$$(x)^3 - (3)^3$$

$$a = x$$

$$b = 3$$

$$(x-3)(x^2 + 3x + 9)$$

6) $125 - x^3$

$$(5)^3 - (x)^3$$

$$a = 5, b = x$$

$$(5-x)(25 + 5x + x^2)$$

7) $1 - a^3$

$$(1-a)(1+a+a^2)$$

8) $a^3 + 125$

$$(a+5)(a^2 - 5a + 25)$$

9) $x^3 + 27$

$$(x+3)(x^2 - 3x + 9)$$

10) $x^3 + 1$

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

11) $8x^3 + 27 = (2x)^3 + (3)^3$

$$a = 2x$$

$$b = 3$$

$$(2x+3)((2x)^2 - 6x + 9)$$

$$(2x+3)(4x^2 - 6x + 9)$$

12) $-27u^3 + 125 \rightarrow 125 - 27u^3$

$$(-3u)^3 + (5)^3$$

$$(-3u+5)((-3u)^2 - (-3u)(5) + (5)^2)$$

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