How do we factor ?

Multiply

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

$= x^3 - x^2y + xy^2 + yx^2 - xy^2 + y^3$

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

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

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

1) x^3+8

$= x^3+2^3 = (x+2)(x^2-x2+2^2)$

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

2) x^3+27

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

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

Factor

$27 + a^3$

$= 3^3 + a^3$

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

$= (3+a)(9 - 3a + a^2)$

Factor $\square^3 + \square^3$

$8x^3 + 1$

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

$= (2x+1)(4x^2 - 2x + 1)$

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

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

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

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

$$x^3-8 =$$

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

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