

factor

$$\begin{aligned} 25x^2 - 81 &= \\ (5x)^2 - (9)^2 &= \\ (5x + 9)(5x - 9) & \end{aligned}$$

$$x^2 - 10x + 25 - y^2$$

$$(x-5)(x-5)$$

$$(x-5)^2 - y^2$$

$$(x-5+y)(x-5-y)$$

$$z^2 - (x^2 + 10xy - 25y^2)$$

$$z^2 - (x - 5y)^2$$

$$(z)^2 - (x - 5y)^2$$

$$(z + x - 5y)(z - (x - 5y))$$

$$(z + x - 5y)(z - x + 5y)$$

$$\underline{25} - 36y^2 \text{ (circled)} - \underline{30x} + \underline{9x^2}$$

$$9x^2 - 30x + 25 - 36y^2$$

$$(\cancel{3x-5})(\cancel{3x-5})$$

$$(3x-5)^2 - (6y)^2$$

$$(3x-5+6y)(3x-5-6y)$$

# Factor

① look for a GCF

② Count # terms

2-terms

$$a^2 + b^2 = \text{prime}$$

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

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

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

$$8x^3 + 125$$

$$(2x)^3 + (5)^3$$

$$(2x+5)(4x^2-10x+25)$$

$$27x^3 - 1$$

$$(3x)^3 - (1)^3$$

$$(3x-1)(9x^2+3x+1)$$

$$2^3 = 8$$

$$3^3 = 27$$

$$4^3 = 64$$

$$5^3 = 125$$

$$X^3 - 1000$$

$$(X)^3 - (10)^3$$

$$(X - 10)(X^2 + 10X + 100)$$

$$125x^3 + 8y^3$$

$$(5x)^3 + (2y)^3$$

$$(5x + 2y)(25x^2 - 10xy + 4y^2)$$

$$X^6 - 64y^6$$

$$\left(X^2\right)^3 - \left(4y^2\right)^3$$

$$(X^2 - 4y^2)(X^4 + 4X^2y^2 + 16y^4)$$

$$(X + 2y)(X - 2y)(X^4 + 4X^2y^2 + 16y^4)$$



$$216x - x^4$$

$$x \left( \begin{array}{c} 216 \\ 6^3 \end{array} - \begin{array}{c} x^3 \\ x^3 \end{array} \right)$$

$$6^3 - x^3$$

$$x(6-x)(36+6x+x^2)$$

$$x^6 + 8y^3$$

$$\left( x^2 \right)^3 + \left( 2y \right)^3$$

$$(x+2y)(x^4-2xy+4y^2)$$

$$\underline{a^3 + b^3} = (a+b) \left( \begin{array}{c} \phantom{a^2} \\ \phantom{ab} \\ \phantom{b^2} \end{array} \right)$$

$$\underline{a^2 - b^2} = (a-b)(a+b)$$