

Factor

$$125x^3 - 8y^3$$

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

$$a^3 - b^3$$

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

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

$$8x^4 - \frac{x}{8}$$

$$x \left(8x^3 - \frac{1}{8} \right)$$

$$x \left[\left(2x \right)^3 - \left(\frac{1}{2} \right)^3 \right]$$

$$x \left(2x - \frac{1}{2} \right) \left(4x^2 + x + \frac{1}{4} \right)$$

Factor

① look for GCF

② Count the # terms

2-terms $\left\{ \begin{array}{l} a^2 - b^2 = (a+b)(a-b) \\ a^3 + b^3 = (a+b)(a^2 - ab + b^2) \\ a^3 - b^3 = (a-b)(a^2 + ab + b^2) \end{array} \right.$

3 terms $\left\{ \begin{array}{l} \text{trial \& error} \\ \text{OR} \\ \text{factor by grouping (pairs)} \end{array} \right.$

4-terms $\left\{ \begin{array}{l} \text{factor by grouping (pairs)} \\ \text{factor by grouping (3+1)} \\ \text{* must have 3 perfect square} \end{array} \right.$

$$24x^3 - 3$$

$$3 \left(\begin{array}{c} 8x^3 \\ (2x) \end{array} - \begin{array}{c} 1 \\ (1) \end{array} \right)$$

$$3(2x-1)(4x^2+2x+1)$$

$$11x^5 - 11xy^2$$

$$11x \left(\begin{array}{c} x^4 \\ x^2 \end{array} - \begin{array}{c} y^2 \\ y^2 \end{array} \right)$$

$$11x(x+y)(x-y)$$

$$14y^3 + 7y^2 - 10y$$

$$y(14y^2 + 7y - 10)$$

prime

- 1.140
- 2.70
- ~~3.35~~
- 5.28
- 7.20
- 10.14

$$5x^3 + x^6 - 14$$

$$x^6 + 5x^3 - 14$$

$$(x^3 + 7)(x^3 - 2)$$

$$Q: (x^3 + 8)(x^3 - 1)$$

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

$$3x^3 + 8x + 9x^2 + 24$$

$$3x^3 + 9x^2 + 8x + 24$$

$$3x^2(x+3) + 8(x+3)$$

$$(x+3)(3x^2+8)$$

$$x^2 - 4a^2 + 12x + 36$$

$$(x^2 + 12x + 36) - 4a^2$$

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

$$(x+6+2a)(x+6-2a)$$

$$32y^2 - 48y + 18$$

$$2(\underline{16y^2} - 24y + \underline{9})$$

$$2(4y - 3)(4y - 3)$$

$$2(4y - 3)^2$$

$$4x^9 - 400x$$

$$4x(x^8 - 100)$$

$$(x^4)^2 - (10)^2$$

$$4x(x^4 + 10)(x^4 - 10)$$