

1) Pull out common factors

2) How many terms?

2 terms = look for perfect squares or
cubes

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

$$a^2 + b^2 = a^2 + b^2$$

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

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

3 terms = UNFOLD

4 terms = Grouping

$$63) \quad 16n^4 - 1$$

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

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

$$11) \quad 10w^{10} - 19w^9 + 6w^8$$

$$w^8 (10w^2 - 19w + 6) \quad \begin{matrix} 1 & 6 \\ 2 & 3 \end{matrix}$$

$$w^8 (5w - 2)(2w - 3)$$

-15w

$$58) \quad 8m^3 - 343$$

$$(2m - 7)(4m^2 + 14m + 49)$$

FACTORING By GROUPING

$$\begin{aligned}
 & (2x^3 - 6x^2 - 9x + 27) \\
 & \underline{2x^2(x-3) - 9(x-3)} \quad \leftarrow \text{must get same} \\
 & \qquad \qquad \qquad \qquad \qquad \qquad \text{quantity} \\
 & (x-3)(2x^2-9)
 \end{aligned}$$

$$\begin{aligned}
 & \text{25/ } (3a^3 + 18a^2)(+8a + 48) \\
 & \underline{3a^2(a+6) + 8(a+6)} \\
 & (a+6)(3a^2+8)
 \end{aligned}$$