

What in tarnation is a **Polynomial** anyway?

twinkl

Poly means "many" and
nomial means "terms"

So polynomials are a
collection of many
algebraic terms!



Operations with Polynomials

Adding ~~*~~ Exponents stay the same

Example 1: $(3x^3 + 3x^2 + 5) + (7x^3 - 2x^2 + 4)$

$$10x^3 + x^2 + 9$$

Example 2: $(7y^3 - 3y^2) + (1 + 5y^3 - 9y)$

$$12y^3 - 3y^2 - 9y + 1$$

Subtracting * Exponents stay the same

Example 3: $(9k^5 - 6k + 8) - (8k^5 - 7k + 3)$

$$\begin{array}{r} 9k^5 - 6k + 8 \\ - (8k^5 - 7k + 3) \\ \hline k^5 + k + 5 \end{array}$$

Example 4: $(10z^4 - 8) - (3z^2 + 2z^4 - 6)$

$$\begin{array}{r} 10z^4 - 8 \\ - (3z^2 + 2z^4 - 6) \\ \hline 8z^4 - 3z^2 - 2 \end{array}$$

Multiplying ★ Exponents are added

Example 1: $5x(3x^2 + 7x - 4)$

$$15x^3 + 35x^2 - 20x$$

CHALLENGE ACCEPTED



Example 2: $5w^2x^3(4w^5 + 6w^2x^7)$

$$20w^7x^3 + 30w^4x^{10}$$

Example 3: $(3x + 4)(5x + 2)$

FOIL

$$15x^2 + \underline{6x} + \underline{20x} + 8$$

$$15x^2 + 26x + 8$$

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

FOIL

$$6x^5 + 2x^2 - 12x^3 - 4$$

$$6x^5 - 12x^3 + 2x^2 - 4$$

Example 5: $(5m - 3)^2$

$$(5m-3)(5m-3) \quad \text{FOIL}$$
$$25m^2 - 15m - 15m + 9$$

$$\boxed{25m^2 - 30m + 9}$$

Homework page 2.1 in packet