Adding Polynomials

A **polynomial** is a mathematical expression with **more than one term**.

An expression with **two terms** is a **binomial**.

An expression with **three terms** is a **trinomial**.

An expression with **one term** is a **monomial**.

The **degree** of each term is determined by the exponents of the variables.

When you add polynomials we follow the same pattern as with adding numbers, fractions and decimals:

To compare or combine, you must have the same kind.

Example:

$$(2x^2 + 3x - 4) + (5x^2 - 9x + 7)$$

$$
\begin{array}{r}
(2x^2 + 3x - 4) \\
+ (5x^2 - 9x + 7) \\
\hline
7x^2 - 6x + 3
\end{array}
$$

Multiplying Binomials (FOIL)

This is doing the distributive property twice. The shortcut is the FOIL method.

$$(p + l)(a + n) = pa + pn + la + ln$$

Remember to always keep the sign with the number it precedes (goes before).

Steps:
- Multiply the first terms.
- Multiply the outside terms.
- Multiply the inside terms.
- Multiply the last terms.
- Combine like terms.

Example 1:

$$(x + 2)(x + 3) = x^2 + 3x + 2x + 6 = x^2 + 5x + 6$$

Example 1:

$$(x - 6)(x + 5) = x^2 + 5x - 6x - 30 = x^2 - x - 30$$