

Terminology

Term: an expression formed by the product of numbers and/or variables

Example: In the term $4x^2$, 4 is the **coefficient** and x^2 is the **variable**

Polynomial: an algebraic expression consisting of one or more terms connected by addition or subtraction operators. A polynomial can be classified by the number of terms it has (monomial, binomial, trinomial, etc.)

Degree of a term: the sum of the exponents on the variables in a term

Degree of a polynomial: the degree of the highest degree term

Example: $7x^4y^2 + x^6y$ is a **seventh degree binomial**

Like Terms

Like terms: terms that have identical variables with identical exponents

You can simplify a polynomial by adding or subtracting like terms. This is called *collecting like terms*.

Example:

$$\begin{aligned}5x^2 + 2 - 6x + 9x - 3x^2 - 7 \\&= 5x^2 - 3x^2 - 6x + 9x + 2 - 7 \\&= 2x^2 + 3x - 5\end{aligned}$$

Chapter 3 - Polynomials

+ and - Polynomials

To **add polynomials**, remove brackets and collect like terms.

Example: $(4x + 3) + (7x + 2)$

$$\begin{aligned}&= 4x + 3 + 7x + 2 \\&= 4x + 7x + 3 + 2 \\&= 11x + 5\end{aligned}$$

To **subtract a polynomial**, add the opposite polynomial.

Example: $(3y + 5) - (7y - 4)$

$$\begin{aligned}&= (3y + 5) + (-7y + 4) \\&= 3y + 5 - 7y + 4 \\&= 3y - 7y + 5 + 4 \\&= -4y + 9\end{aligned}$$

Distributive Property

The **distributive property** allows you to expand algebraic expressions. When distributing, multiply the monomial by each term in the polynomial.

$$a(x + y) = ax + ay$$

Example:

$$\begin{aligned}3x(x - 5) \\&= 3x(x) + 3x(-5) \\&= 3x^2 - 15x\end{aligned}$$