Section Overview

Polynomials

Why? Polynomial expressions are the building blocks of polynomial functions, which are used to model, represent, and analyze many real-world situations.

A **monomial** is a number, variable, or a product of numbers and variables with exponents that are whole numbers.

Examples	
Monomials	$2n$, x^3, $4a^4b^3$, 7
Not Monomials	$p^{2.4}$, 2^x, $\sqrt{x}$, $\frac{5}{g^2}$

A **polynomial** is one monomial or the sum or difference of monomials.

Polynomials	
Monomial (1 term)	$10ab^2$
Binomial (2 terms)	$9x^2 + 2$
Trinomial (3 terms)	$2a^2 + 3a - 5$

The **degree** of a polynomial is the degree of the term with the greatest degree.

$$4x^2 \quad + \quad 2x^5 \quad + \quad x \quad + \quad 5$$

Degree 2   Degree 5   Degree 1   Degree 0

Degree 5

Simplifying Polynomials

Why? In order to solve polynomial equations, you need to know how to simplify polynomials.

Like terms have the same variables raised to the same powers.

Example: $5x^2y + 2xy^2 + 6x^2y + 7y$

Like terms

To **simplify a polynomial,** add or subtract like terms. You may need to use the Distributive Property to simplify a polynomial.

$$2(3ab^2 - 6b) + 2ab^2 + 5$$

$$\mathbf{2} \cdot 3ab^2 - \mathbf{2} \cdot 6b + 2ab^2 + 5 \qquad \textit{Distributive Property}$$

$$\mathbf{6ab^2} - 12b + \mathbf{2ab^2} + 5$$

$$8ab^2 - 12b + 5 \qquad \textit{Combine like terms.}$$