

## Guidelines for Adding, Subtracting, and Multiplying Polynomials

### Adding Polynomials

Polynomials do not change the problem. Combine like terms + coefficients with values in the same power + then combine coefficients. Exponents do not change.

Example

$$(2x^2 + 3x + 4) + (3x^2 + 2x + 5)$$

$$(2x^2 + 3x^2) + (3x + 2x) + (4 + 5) =$$

### Subtracting Polynomials

All signs for each term must be reflected in the set of parentheses that follow the subtraction sign. Then follow the rules for adding polynomials.

Example

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

$$(2x^2 + 3x^2) - (3x + 2x) + (4 - 5) =$$

### Multiplying Polynomials

When multiplying two polynomials, you are just using the distributive property multiple times. When multiplying two binomials, this is called the FOIL method. We used the box method.

Example

$$(2x^2 + 3x + 4)(3x^2 + 2x + 5)$$

$$6x^4 + 17x^3 + 26x^2 + 14x + 20$$

Use a variety of problem types, resources, and problem sets to practice the adding, subtracting, and multiplying polynomials. Focus on using the distributive property and the FOIL method. What are some special cases of multiplying two binomials? When is it possible to divide and factor polynomials using the distributive property?