# Adding and Subtracting Polynomials

#### **Clear Learning Target**

You will be able to add and subtract polynomials.

#### Words Worth Knowing!

**monomial -** a number, a variable, or a product of a number and one or more variables

**polynomial -** a monomial or sum of monomials

\*cannot have negative exponents nor variable exponents

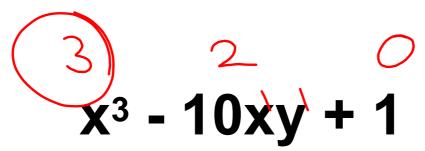
binomial - sum of two monomials

trinomial - sum of three monomials

#### Degrees

**degree of a monomial -** the **sum** of the exponents of all a monomial's variables

degree of a polynomial - the greatest degree of any term in the polynomial



#### Naming Polynomials

Degree	Name
0	constant
1	linear
2	quadratic
3	cubic
4	quartic
5	quintic
6 or more	6th degree, 7th degree, and so on

### MORE Words Worth Knowing!

**standard form (polynomials) -** a polynomial that is written with the terms in order from greatest degree to least degree

**leading coefficient -** the coefficient of the term with the highest degree in a polynomial

**Example #1:** Write each polynomial in standard form.

$$3x^{2} + 4x^{5} - 7x$$
2 5 1
$$4x^{5} + 3x^{2} - 7x$$

**You Try!** Write the polynomial in standard form.

$$5y - 9 - 2y^4 - 6y^3$$

## Adding or Subtracting Polynomials

When finding a sum or difference of polynomials, simply **group like terms** and then **combine like terms**.

\*Remember, like terms are terms with...

1 dentiral variable endings

Example #2: Find the sum or difference.

$$\frac{(2x^2 + 5x - 7) + (3 - 4x^2 + 6x)}{-2x^2 + 11x - 4}$$

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

$$8-6x-x^2$$
 $-x^2-6x+8$ 

You Try! Find the sum or difference.

$$(7p + 4p^3 - 8) - (3p^2 + 2 - 9p)$$
 $(3y + y^3 - 5) + (4y^2 - 4y + 2y^3 + 8)$ 
 $- y + 3y^3 + 3 + 4y^2$ 
 $3y^3 + 4y^2 - y + 3$