9.1: Add/Subtract Polynomials

Goals:

***Identify polynomials**

- Classify polynomials as **monomials, binomials or trinomials** based on the number of terms in each.

***Identify degree of monomials and polynomials**

***Write polynomial expressions in descending order**

***Add and subtract polynomials by combining like terms**

Monomial –

Degree of a monomial –

Ex: Monomial? Yes or no? Why? Why not? If yes, what is the degree?

a. 17 **b.** $\frac{x^3}{2}$ **c.** $\frac{5}{x}$ **d.** $4x^2y^5z$

e. $5 + x$ **f.** 4^a **g.** x^{-1} **h.** $\frac{1}{2}ab^2$

Polynomial –

Binomial –

Trinomial –

Degree of a polynomial –

Ex: Classify each polynomial as a monomial, binomial, trinomial or polynomial, then find the degree of each.

1. $15x - x^3 + 3$ **2.** $5xy^2$ **3.** $6a^2c + 5ac^5$

4. $5x^3 - 4xy^2 - 2x + 6$ **5.** $7b^3c + 4bc^4$ **6.** $6n^4 + 3n + 7x^8 - 4n^3$

****Write Polynomials in Descending Order****

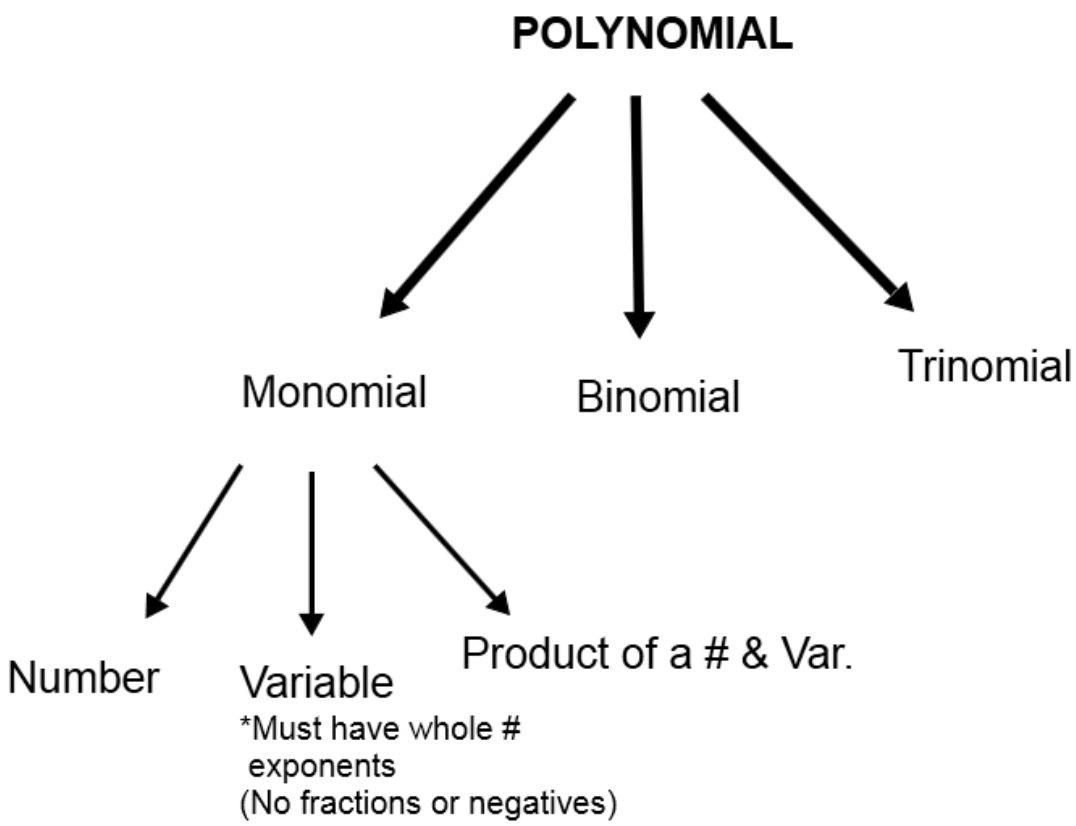
Polynomials should be written so the first alphabetical variable's exponents decrease from left to right.

Example: $-5x + x^2 + 3 + 2x^3$ is a 3rd degree polynomial, if written in descending order it would look like:

Rewrite the following polynomials in descending order, based on the variable that comes first alphabetically.

1. $15x - x^3 + 3$ **2.** $-xy + x^4y^2$ **3.** $-3ac^4 + a^2c^2 - a^3c$

4. $3b^3 - 4b^4 + b^2$ **5.** $7x^2y + 4xy^3 - 3x^3y^2$



Adding Polynomials –

Ex: $(2x^3 - 5x^2 + x) + (2x^2 + x^3 - 1)$

Ex: $(3x^2 + x - 6) + (x^2 + 4x + 10)$

Ex: $(-2x^2 + 3x - x^3) + (3x^2 + x^3 - 12)$

Ex: $(4x^3 + 2x^2 - 4) + (x^3 - 3x^2 + x)$

Subtracting Polynomials –

Ex: $(4n^2 + 5) - (-2n^2 + 2n - 4)$

Ex: $(4x^2 - 3x + 5) - (3x^2 - x - 8)$

Ex: $(2c^2 - 8) - (3c^2 - 4c + 1)$

Ex: $(5y^2 + 2y - 4) - (-y^2 + 4y - 3)$

CHALLENGE

$(4x^3y + 3x^2\ y^2 - 5xy^3 + 6x - 2y) + (7y - 4x + 6x^2y^2 - x^3y + 2xy^3)$