Chapter 5 and 7 - Polynomials

LESSON 9: REVIEW OF CHAPTER 5

Polynomial – an algebraic expression formed by adding or subtracting terms.
- Monomial – 1 term (ex. $2x^2y^2z$)
- Binomial – 2 terms (ex. $2x^2 - 2y$)
- Trinomial – 3 terms (ex. $2x^2 + 2x - 4$)

Like terms – a term with the same variables raised to the same exponents.

Unlike terms – a term with different variables raised to different exponents.

Variables – a symbol used to represent a number

Degree of a term – The sum of the exponents of the variables

Examples	Degree
$4x^3$	3
$3xy^2$	$1 + 2 = 3$
$-5a^2b^3c^4$	$2 + 3 + 4 = 9$

Degree of a polynomial – The highest power of the variable in any one term

Examples	Degree
$2x^3 + 2xy$	3
$4x^2y^3 + 3x^4y^5 + 6y^6x^2$	8

Opposites – numbers or expressions with the same numeral, but different signs.
Ex. 1) $x + 7 = -x - 7$
2) $x^2 - x - 4 = -x^2 + x + 4$

Numerical coefficient – the number that multiplies a variable

Constant term – a term with no variable

It is always a good habit to arrange terms descending order of degree

Ex. $2x^2 + x^3 - 5x + 7$ Ex. $4xy^2 - 2x^2y^2 - 3x^4 + 2$
$= x^3 + 2x^2 - 5x + 7$ $= -3x^4 - 2x^2y^2 + 4xy^2 + 2$

Ex.1:   Complete the table

Expression	# of Terms	Name	# of Variables	Degree	Coefficient of First Term	Constant Term
$3x^2 + 7x - 3$						
$-6x^3y^2 + 14x^4$						
$15xy^2z^4 + 7$						

Adding Polynomials & Subtracting Polynomials

ONLY LIKE TERMS CAN BE ADDED OR SUBTRACTED!!!

Addition: If a (+) is before the brackets, remove the brackets and leave the signs the same.

Ex.2:   Simplify

a) $3x^2 + 2x - 4 - 6x + 1 + x^2$

b) $(2x^2 - 4x - 6) + (-5x - 4x^2 + 7)$

Subtraction: If a (-) is before the brackets, you must add the opposite (i.e. remove the brackets and change all of the signs of terms inside)

Ex.3:   Collect like terms

a) $(4x^2 - 5x + 7) - (8x^2 + 2x - 5)$

b) $(-5y^2 + 7y - 12) - (-3y^2 - 2 + 4y)$