Chapter 5 and 7 - Polynomials

LESSON 1: THE LANGUAGE OF ALGEBRA

- Algebra: a branch of mathematics that uses symbols to represent unknown numbers or quantities

- Variable: a letter that represents an unknown number

- Coefficient: a number that multiplies the variable

- Term: a number or a variable or the product of numbers and variables

- Constant term: known value in an expression (term that has no variable)

- Polynomial: an expression made up of terms joined by addition or subtraction

Name	Number of terms	Example
Monomial	1	$6x^2$
Binomial	2	$3a^2 - 5$
Trinomial	3	$-w^2 - 5w + 1$
Polynomial	more than 3	$2s^2 - t^2 + st + 7t - 4$

- Degree of a term: sum of exponents of all variables in a term

  Ex: $3x \rightarrow$ $-5x^2 y \rightarrow$ $8 \rightarrow$

- Degree of a polynomial: the same degree as its highest-degree term

  Ex: $x^2 + 5x - 7 \rightarrow$ $5ab^2 + 6a^2 b^3 + 7ab - 8b^4 \rightarrow$

Ex.1:   For each expression, complete the following chart

| Expression	# of Terms	Name	# of Variables	Degree	Coefficient of First Term	Constant Term
$5y - 3$						
$6ab^2 - 5b^2 - 8c^3$						
$-t^2 + 5b^3$						
$5xy^2 z^3$						
$4x^2 - 5y + 7z^2 - 8xyz + 12$						
-4						

<u>Ex.2</u>: Give an example of a polynomial that satisfies all statements below:
- consists of three terms
- contains two variables
- has degree 2
- one term is of degree 1 with a coefficient of 7
- one term is a constant

Algebra Tiles

You can use models, such as algebraic tiles and diagrams, to represent some polynomials.

For example: $2x^2 - 4x + 3$
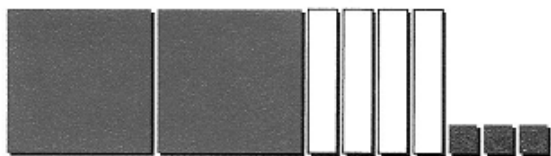
▪ = positive 1-tile		☐ = negative 1-tile	
▮ = positive x-tile		☐ = negative x-tile	
■ = positive x^2		☐ = negative x^2	

<u>Ex.3</u>: Write the expression represented by each set of algebra tiles.

a)

b)

c)

d)