

Name \_\_\_\_\_  
Date \_\_\_\_\_  
Prof. Abel

MTH 098 – Elementary Algebra  
Class #18

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**Polynomials**

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Quality – Accuracy – Transfer – 100%

**Section 1. Combination Add or Subtract of Like Terms.**

1. Define Polynomial: Multi-Termed expression

2. Examples:

a.  $4x^2$  Monomial

b.  $3x^2 - 5x$  Binomial

c.  $x^2 - 5x + 6$  Trinomial

3. The “Degree” of a Polynomial in One Variable: Greatest Exponent in Any Term

The “Degree” of a Polynomial in Two (or more) Variables: Greatest Sum of Exponents Any Term

a.  $2x^3 - 4x + 5$  3<sup>rd</sup>

d.  $4xy^3 + x^2y^3 + 5xy^2$  5<sup>th</sup>

b.  $x^2 - 49$  2<sup>nd</sup>

e.  $-3a^2b^2 - 5ab + 1$  4<sup>th</sup>

c.  $2x - 1$  1<sup>st</sup>

f.  $5x^0$  Constants

\*\*\*\*\* Standard Form Polynomials – Writing Polynomials in “Standard Form” or “Standard Order”.

A polynomial is writing in “Standard Form” or “Standard Order” when the exponents on the variables decrease from left to right in the expression. For Example, the following polynomial is written in standard form.

$$2x^4 + 5x^3 - 6x^2 + 3x - 4$$

4. Addition and Subtraction of Polynomials: AKA Combinations of Like Terms.

To accomplish this task we will use the Distributive and Commutative properties for addition.

a. Simplify:  $(4x^2 + 6x + 3) + (2x^2 + 5x - 1)$   
 $4x^2 + 6x + 3 + 2x^2 + 5x - 1$   
 $4x^2 + 2x^2 + 6x + 5x + 3 - 1$   
 $6x^2 + 11x + 2$

b. Simplify:  $(5a^2 + 3a + b) + (a^2 - 7a + 3)$   
 $5a^2 + 3a + b + a^2 - 7a + 3$   
 $5a^2 + 1a^2 + 3a - 7a + b + 3$   
 $6a^2 - 4a + b + 3$

- c. Simplify:  $(3x^2y + 4xy + y) + (x^2y + 2xy + 3y)$   
 $3x^2y + 4xy + y + x^2y + 2xy + 3y$   
 $3x^2y + x^2y + 4xy + 2xy + y + 3y$   
 $4x^2y + 6xy + 4y$
- d. Add:  $6x^2 - 2x + 2$  and  $-2x^2 - x + 7$   
 $6x^2 - 2x + 2 - 2x^2 - x + 7$   
 $4x^2 - 3x + 9$

## 5. Subtraction of Polynomials

- a. Simplify:  $(3x^2 - 2x + 5) - (x^2 - 3x + 4)$   
 $3x^2 - 2x + 5 - x^2 + 3x - 4$   
 $3x^2 - x^2 - 2x + 3x + 5 - 4$   
 $2x^2 + x + 1$
- b. Subtract  $(-3x^2 - 5x + 3)$  from  $(x^2 + 2x + 6)$   
Reverse  $(x^2 + 2x + 6) - (-3x^2 - 5x + 3)$   
 $x^2 + 2x + 6 + 3x^2 + 5x - 3$   
 $x^2 + 3x^2 + 2x + 5x + 6 - 3$   
 $4x^2 + 7x + 3$
- c. Simplify:  $(x^2 - 4x + 5) - (4x^2 + 5x + 7) + (3x^2 - 4x - 1)$   
 $x^2 - 4x + 5 - 4x^2 - 5x - 7 + 3x^2 - 4x - 1$   
 ~~$x^2 - 4x^2 + 3x^2 - 4x - 5x - 4x + 5 - 7 - 1$~~   
 $- 13x - 3$

## Homework Section:

Section / Pages	Pages / Topics	Problems
5.4 / 316 → 318	Polynomials	17-77 EOO* / 89-109 EOO*