

**Algebra I**  
**Lesson 7.5 Polynomials**  
**Mrs. Snow, Instructor**

Mono, means one or singular. So when we have a monomial we have a single term expression or a single term equation.

**Vocabulary**

**Monomial** – is a number, a variable, or a product of a number and a variable (a variable with a coefficient). The exponent of the variable must be a whole number.

**Polynomial** – is a monomial, or it may be more than one monomial added or subtracted together.

**Degree of a monomial** – the sum of the exponents of each variable

**Degree of a polynomial** – the degree of the term with the greatest degree (hummm) Look at each term of the polynomial, the degree of the polynomial will be that of the highest degree of all the terms.

**Standard Form** – terms of the polynomial are arranged in order from greatest to smallest degree.

**Leading Coefficient** – the coefficient of the first term of the polynomial.

**Classifying a polynomial** – a system of naming a polynomial based on the degree of the polynomial and the number of terms:

Degree	Name
0	Constant
1	linear
2	Quadratic
3	Cubic
4	Quartic
5	Quintic
6 or more	6 <sup>th</sup> degree, 7 <sup>th</sup> degree, etc.

Terms	Name
1	Monomial
2	Binomial
3	Trinomial
4 or more	Polynomial

Which terms are considered monomials?

$-7xy$	$3x + y$	$x^{-2}$	4	$0.4y^3$	$5x$	$\frac{2}{x^2}$	$x^0$
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Find the degree of the following monomials:

$7x^3y^5$ add the exponents: $3 + 5 = 8$ $\therefore$ <b>the degree is 8</b>	$1.5km^2$	$5x$	$3r^4$	$2x^3y^0$
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Find the degree of the following polynomials:

$4x + 6x^3$	$5x - 6$	$x^3y^2 + x^3y^3 - x^4 + 2$	$4a^5 - 5b^6$	$2xy + 3x^2y - 3x$
What is the degree of each term?				
$4x$ degree = 1				
$6x^3$ degree = 3				
highest degree is 3				
<b><math>\therefore</math> degree of the polynomial is 3</b>				

Write each polynomial in standard form:

$20x - 4x^3 + 2 - x^2$	$16 - 4x^2 + x^5 + 9x^2$	$18x^5 - 3y^8 + 14y$
reorder descending order high to low		
<b><math>-4x^3 - x^2 + 20x + 2</math></b>		

Classify the following polynomials:

$5x - 6$	$2x^2 + 3x - 5$	$4x^3 - 2x^2 + 7x - 5$	5
degree is 1 has 2 terms			
<b><math>\therefore</math> linear binomial</b>			