Name _____ Pd 1/2 Date September 11, 2017 **Section 1.B.5**

Polynomial Vocabulary

A Monomials is a real number, a variable, or a product of a real number and one or more variables with whole-number exponents.

Examples: 18 z $-4x^2$ $2.5xy^3$ $\frac{a}{3}$

The degree of a monomial is the sum of the Exponents on its variables.

Example	Degree	Why?
$5x^1$	1	Because variable has an exponent of invisible 1
$6x^3y^2$	5	The exponents are 3 and 2 $3+2=5$
4^0	0	There are no variables

You Try: What is the degree of the monomial?

1) $8xy$ 2) $-7y^4z^3$ 3) 11

2 7 0 (zero)

A Polynomial is a monomial or a sum of monomials.

Standard form means that The polynomial is written in decreasing degree order

deg: ⇒ $3x^4 + 5x^2 - 7x + 1$

4 2 1 0

Simplify the expression and write in standard form.

4) $6x + 12 - 2(x^2 + 3x^5 - 3)$

$6x + 12 - 2x^2 - 6x^5 + 6$

$-6x^5 - 2x^2 + 6x + 18$

5) $-x^4 + 2 - 3x - (x^4 + 2x^3 + x^2)$

$-x^4 + 2 - 3x \; -1x^4 - 2x^3 - 1x^2$

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

deg:

↑ degree of the highest degree monomial

Classifying You can name a polynomial based on its degree and the number of monomials it contains.

Polynomial	Degree	Name Using Degree	Number of Terms	Name Using Number of Terms
6	0	Constant	1	monomial
$5x + 9$	1	Linear	2	binomial.
$4x^2 + 7x + 3$	2	quadratic	3	Trinomial
$2x^3$	3	Cubic	1	monomial
$8x^4 - 2x^3 + 3x$	4	4th degree	3	Trinomial

Write the polynomial in standard form. Name the polynomial based on its degree and number of terms.

6) $3x + 4x^2$

$4x^2 + 3x$

quadratic binomial

7) $4x - 1 + 5x^3 + 7x$

$5x^3 + 11x - 1$

Cubic Trinomial

Adding & Subtracting Polynomials

8) The number of overnight stays (in thousands) in U.S. National Park Service campgrounds and in the backcountry of the national park system over a 5-yr period can be modeled by the following polynomials:

Campgrounds: $-7.1x^2 - 180x + 5800$

Backcountry: $21x^2 - 140x + 1900$

What polynomial models the total number of overnight stays (in thousands) in both campgrounds and backcountry? Name the polynomial.

$(-7.1x^2 - 180x + 5800) + (21x^2 - 140x + 1900)$

$13.9x^2 - 320x + 7700$

quadratic Trinomial

9) The population of a large high school can be modeled by the polynomial $2c^2 + 7c - 1$. The population of English Language Learners at the high school can be modeled by the polynomial $3c^3 - c + 5$. What polynomial can model the population that is not ELL? Name the polynomial.

Whole − ELL = NOT ELL

$2c^2 + 7c - 1 - 1(3c^3 - c + 5)$

$2c^2 + 7c - 1 - 3c^3 + 1c - 5$

$-3c^3 + 2c^2 + 8c - 6$

Cubic polynomial w/ 4 terms.