Algebra 2

5.3: Polynomial Functions

Goals:

- I can evaluate polynomial functions.

HW:

Definitions:

Degree of the Polynomial: the value of the greatest exponent

Leading Coefficient: the coefficient of the first term of a polynomial in standard form

Polynomial Function: a continuous function that can be described by a polynomial equation in one variable

Polynomial	Expression	Degree	Leading Coefficient
Constant	12	0	12
Linear	$4x - 9$	1	4
Quadratic	$5x^2 - 6x - 9$	2	5
Cubic	$8x^3 + 12x^2 - 3x + 1$	3	8
General	$a_n x^n + a_{n-1} x^{n-1} + \cdots + a_1 x + a_0$	n	a_n

Ex 1: State the degree and leading coefficient of each polynomial in one variable. If it is not a polynomial in one variable, explain why.

   a. $8x^5 - 4x^3 + 2x^2 - x - 3$

   b. $12x^2 - 3xy + 8x$

   c. $3x^4 + 6x^3 - 4x^8 + 2x$

   d. $5x^3 - 4x^2 - 8x + \frac{4}{x}$

Ex 2: Evaluating Functions

Name: _____

Question	Explanation
a. Find $f(3)$ if $f(x) = x^2 + 2x - 3$	- Substitute in whatever is in the parentheses - Combine like terms and simplify
b. Find $f(2c - 1)$ if $f(x) = x^2 - 3x + 7$	- Sub in whatever is in the parentheses - FOIL - Combine like terms and simplify
c. Find $3f(a + 2) - f(2a)$ if $f(x) = x^2 - 2x + 4$	- Remember to move slowly and carefully - Work each section on its own them combine