Name_____

Period_____Date_____

Bell work

Simplify:

$$\frac{-6^0}{3m^2} \qquad\qquad \frac{x^{10}}{x^{-2}}$$

$$\left(\frac{x^{12}}{y^4}\right)^{\frac{3}{4}} \qquad\qquad (-3)^3(-3)^4$$

Polynomial function

$f(x) = a_n x^n + a_{n-1}x^{n-1} + \ldots + a_1 x + a_0$

leading coefficient: a_n
degree: n
constant term: a_0

Degree	Type	Example
0	Constant	
1	Linear	
2	Quadratic	
3	Cubic	
4	Quartic	

What if the expression has more than 1 variable, how do you find the degree?

Polynomials can also be classified by the number of terms as well as its degree.

Monomial	Binomial	Trinomial

- Polynomial Function   (WHOLE # Exponents for the variables)

- (in standard form the powers are decreasing)

- Leading Coefficient is # in the front of the polynomial if it is in <u>standard form</u>.

- Remember for the variables only
  No Negative Exponents
  No Variable Exponents
  No Fractional Exponents

Identify whether the following are polynomials. If it is a polynomial state the degree, type, leading coefficient, and constant.

1. $g(x) = x^4 - \frac{1}{4}x^2 + 3$

2. $k(x) = 7x - \sqrt{3} + \pi x^2$

3. $f(x) = 5x^2 + 3x^{-1} - x$

4. $h(x) = x + 2^x - .6x^5$

Add or subtract the following polynomials.

1. $(2y^2 - 5y + 1) + (y^2 - y - 4)$

2. $(5x^4 - 3x^3 + 9) - (-2x^4 + 8x^2 - x + 2)$

3. $(4x^5 + 3x^4 - 5x + 1) - (x^3 + 2x^4 - x^5 + 1)$

4.
$\left(2y^2 + \boxed{}y + 1\right) + (y^2 - 4) = \boxed{}y^2 - 6y - 3$

Find the product

4. $2x^3(5x - 1)$

5. $(2x - 4)(3x + 1)$

6. $(y - 1)(y^2 + 6y - 3)$

7. $(-x^2 + 4x + 1)(x^2 - 8x + 3)$

8. $(x + 4)(x - 6)(x - 5)$

9. $(2c + 5)^2$

10. $(5p - 3)(5p + 3)$

11. $(2x + 1)^3$

Find two polynomials with a sum and product that have the following degrees. If you cannot find the polynomials, explain why.

a) sum degree 4 and product is degree 4

b) sum degree 3 and product is degree 5

c) sum degree 2 and product degree 1