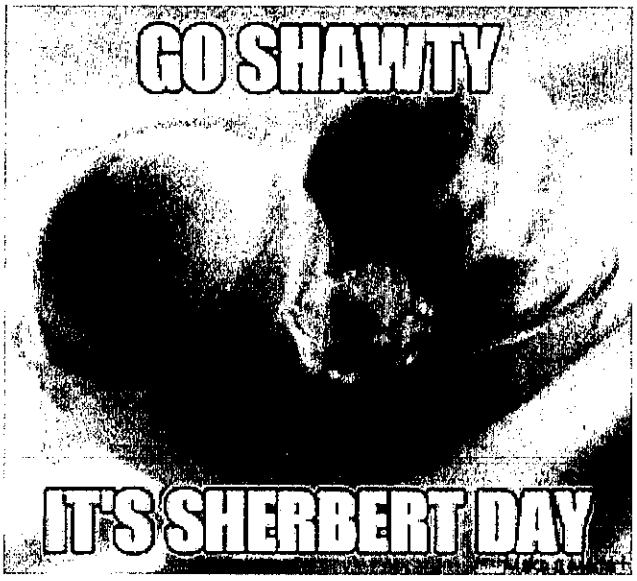
Name: KEY!

Hour: _____

Chapter 7B

Polynomials



Lesson 7-5: Polynomials

Vocabulary

Monomial: a #, variable, or product of #'s & variables w/ whole number exponents

Example: 5, x, $-7xy$, $0.5x^4$ Non-Example: $-0.3x^{-2}$, $4x-y$, $2/x^3$

Polynomial: a monomial or the sum/difference of monomials

Example: $2x^2y - 3$ or $2x + 5y^2 - 6 + 6$

Standard Form of a Polynomial: one variable & is written w/ terms in order from greatest degree to least degree

Degree of a Polynomial: the degree of the term w/ the highest exponent or sum of exponents.

Leading Coefficient: the # in front of the first term of a polynomial written in standard form

Term: each "piece" of a polynomial separated by + or − signs

Polynomials with Multiple Variables

When a polynomial has multiple variables, the degree is the term with the highest sum of exponents.

add the exponents in ea. term

Special Polynomials
Polynomials can be classified by their degree or by the number of terms.

Degree	Name
0	constant
1	linear
2	quadratic
3	cubic
4	quartic
5	quintic
6 or more	6th degree, 7th degree, etc...

# of Terms	Name
1	monomial
2	binomial
3	trinomial
4 or more	polynomial

Practice

Find the degree of each monomial.

1. $4p^4q^3$ $4+3=\boxed{7}$

2. $7ed$ $1+1=\boxed{2}$

3. 3 $\boxed{0}$

4. Use the polynomial: $-3x^3 + 5x + 2x^4 - 6 + x^2$

   a. Write the polynomial in standard form.

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

   b. What is the degree of the polynomial?

   4

   c. Identify the leading coefficient of the polynomial.

   2

   d. Identify the number of terms in the polynomial.

   5

Find the degree of the polynomial.

5. $\frac{1}{3}w^{3}z + \frac{1}{2}z^{4} - 5$

4

6. $x^{5}y^{2} + x^{2}y^{5} - x^{4} + 2$

5

Classify each polynomial according to its degree AND the number of terms.

7. $5n^3 + 4n$

cubic, binomial

8. $4y^6 - 5y^3 + 2y - 9$

6th degree, polynomial

9. $-2x$

linear, monomial

Lesson 7-6: Adding & Subtracting Polynomials

Practice

1. $15m^3 + 6m^2 + 2m^3$

$17m^3 + 6m^2$

2. $3x^2 + 5(-7x^2) + 12$

$-4x^2 + 17$

3. $2x^2y - 1x^2y - 1x^2y$

$0x^2y$

$= 0$

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

$2x^2 - x + x^2 + 3x - 1$

$3x^2 - 2x - 1$

5. $(2x^2 + 6) - 1(4x^2)$

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

$-2x^2 + 6$

6. $(a^4 - 2a) - 1(3a^4 - 3a + 1)$

$a^4 - 2a - 3a^4 + 3a - 1$

$-2a^4 + a - 1$

7. $(11z^3 - 2z) - 1(z^3 - 5)$

$11z^3 - 2z - z^3 + 5$

$10z^3 - 2z + 5$

8. $(20.2y^2 + 6y + 5) - 1(1.7y^2 - 8)$

$20.2y^2 + 6y + 5 - 1.7y^2 + 8$

$18.5y^2 + 6y + 13$

Lesson 7-7: Multiplying Polynomials

Practice

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

$20x^5$

2. $(-3x^3y^2)(4xy^5)$

$-12x^4y^7$

3. $\left(\frac{1}{2}a^3b^1\right)(a^2c^2)(6b^2)$

$\frac{1}{2}a^5b^3c^2$

4. $4a(a^2b+2b^2)$

$4a^3b + 8ab^2$

5. $2x^2y(3x-y)$

$6x^3y - 2y^2$

6. $(x+3)(x+2)$

$x^2 + 2x + 3x + 6$

x^2+5x+6

7. $(x+5)^2$

$(x+5)(x+5)$

$x^2 + 5x + 5x + 25$

$x^2+10x+25$

8. $(3a^2-b)(a^2-2b)$

$3a^4 - 6a^2b - ba^2 + 2b^2$

$3a^4-7a^2b+2b^2$