Today's Goals

I can...

- classify polynomials
  - > by number of terms
  - > by degree
- write polynomials in standard form.
- identify the leading coefficient

Section 8.1: Polynomials

Monomial Examples	Non-Monomial Examples
$2x^2y$	$2x^2 - 3y$
$-3x^2y^2$	$-2a^2b + 3y^2$

Monomial

-one term (a constant, a variable or the product of both)

Degree of a Monomial

-the sum (add) of the exponents of the **variables**

Examples:

$4p^4q^3$ Degree 7

$7ed$ Degree 2

3 Degree 0

Try These!!!

Find the degree of each monomial

1. $1.5k^2m$

3

2. $4x$

1

3. $8y$

1

Polynomial

-Many terms (sum or difference of 2 or more monomials)

Polynomial Examples

$2x^2y - 8z$

$-3ab^2 - c^2 + d$

Degree of a Polynomial

-the highest monomial degree

Examples

$11x^7 + 3x^3$

Degree 7

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

Degree 4

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

Degree 5

Standard Form of a Polynomial

-Degrees must be in descending order (highest to lowest)

Examples

$20x - 4x^3 + 2 - x^2$

$-4x^3 - x^2 + 20x + 2$

Degree 3

LC: -4

$6x + 18x^2 - 5x^3 - 19 + x^3y$

$x^3y - 5x^3 + 18x^2 + 6x - 19$

Degree 4

LC: 1

Identify the leading coefficient of each polynomial.

4. $5x - 6$

5. $15y - 84y^3 + 100 - 3y^2$

6. $7a^3b^4 - 2a^4 + 4b - 15$

Try These!!!

Write the polynomial in standard form. Then give the leading coefficient.

7. $16 - 4x^2 + 5x^5 + 9x^3$

8. $15y^3 - 84x^4y^3 + 100 - 3x^2y^2$

Try These!!!

Write the polynomial in standard form. Then give the leading coefficient.

7. $16 - 4x^2 + 5x^5 + 9x^3$

$5x^5 + 9x^3 - 4x^2 + 16$ 5

8. $15y^3 - 84x^4y^3 + 100 - 3x^2y^2$

$-84x^4y^3 - 3x^2y^2 + 15y^3 + 100$

-84

Classifying Polynomials

Quintic Binomial

Name by Degree	Degree	*Examples*	Number of Terms	Name by Terms
Constant	0	36	1	monomial
Linear	1	$14x + 2$	2	binomial
Quadratic	2	$2x^2 + 3x - 1$	3	trinomial
Cubic	3	$m^3 - 5$		
Quartic	4	$8k^4+5k^2-k+1$	4+	polynomial
Quintic	5	$-9r^5+5r^3-7r^2+r+3$		
Degree of 6	6 +	$x^6 - 7x + 13$		

Examples

$x^2 + 2x + 3$

$3c^2 + 5c^4 + 5c^3 - 4$

Try These!!!

Classify the polynomials below according to its degree and number of terms.

9. $4x^2 + 5x - 3$

10. $84x^4y^3 - 3x^2y^2$

Try These!!!

Put the polynomial in standard form and then classify the polynomials below according to its degree and number of terms.

10. $5x - 6$

11. $15y - 84y^3 + 100 - 3y^2$

12. $7a^3b^4 - 2a^4 + 4b - 15$

Try These!!!

Put the polynomial in standard form and then classify the polynomials below according to its degree and number of terms.

10. $5x - 6$

$5x - 6$ Linear Binomial

11. $15y - 84y^3 + 100 - 3y^2$

$-84y^3 - 3y^2 + 15y + 100$ Cubic Polynomial

12. $7a^3b^4 - 2a^4 + 4b - 15$

$7a^3b^4 - 2a^4 + 4b - 15$ Degree of 7 Polynomial

On your index card:

$$13x + 18x^2y + 12x^2$$

- Put the polynomial in standard form
- Classify the polynomial
- Identify the leading coefficient

Homework

2B: pg. 409 #4-13

3B and 4B: pg. 409 #5-19 (odd)