Warm-up 1-9

Evaluate Each Expression

1. $2x + 3x$; $x = 2$

2. $x^2 + 4$; $x = -3$

Identify the coefficient in each term

3. $4x^3$ 4. y^3 5. $2n^7$ 6. $-s^4$

Warm-up 1-10

Evaluate Each Expression

1. $2x + 3x$; $x = 2$

$2(2)+3(2) = 4+6 = 10$

2. $x^2 + 4$; $x = -3$

$(-3)^2+4 = +9+4 = 13$

Identify the coefficient in each term

3. $4x^3$ 4. y^3 5. $2n^7$ 6. $-s^4$

4 1 2 -1

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
$2x^2y$	$2x^2+3y$

Monomial

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

Degree of a Monomial

-the sum of the exponents of the **variables**

Examples:

$4p^4q^3$

$4+3$

7

$7ed^1$

$1+1$

2

3

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

$2x^2y + 3x^2$

Degree of a Polynomial

-the highest monomial degree

Examples

$11x^7 + 3x^3$

7 3

7

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

3 4 0

4

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

5 4 4 0

5

Standard Form of a Polynomial

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

Examples

$20x^1 - 4x^3 + 2 - x^2$ (3)

1 3 0 2

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

$6x + 18x^2 - 5x^3 - 19 + x^3y^1$ (4)

1 2 3 0 4

$1x^3y - 5x^3 + 18x^2 + 6x - 19$

Identify the leading coefficient of each polynomial.

1 0

4. $5x - 6$

5

1 3 0 2

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

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

-84

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

7 4 1 0

7

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

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	$-9r^5+5r^3-7r^2+r+3$	5	polynomial
Degree of 6	6	$x^6 - 7x + 13$		

Examples

$x^2 + 2x + 3$
2 1 0

D: 2 T: 3

Quadratic Trinomial

$3c^2 + 5c^4 + 5c^3 - 4$
2 4 3 0

D: 4 T: 4

Quartic Polynomial

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!!!

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

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

Quadratic Trinomial

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

Degree of 7 Binomial

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/Name the polynomial
- Identify the leading coefficient

Homework

pg. 264 #2, 3, 5-9

(pg. 140 in the paperback)