Ready To Go On? Skills Intervention

LESSON
6-3 *Polynomials*

Find these vocabulary words in the lesson and the Multi-Language Visual Glossary.

Vocabulary		
monomial	degree of a monomial	polynomial
degree of a polynomial	standard form of a polynomial	leading coefficient
quadratic	cubic	binomial	trinomial

Writing Polynomials in Standard Form

Write each polynomial in standard form and give the leading coefficient.

A. $a + 5 + 6a^3$

Identify the degree of each term: $\underbrace{a}_{1} + \underbrace{5}_{0} + \underbrace{6a^3}_{\_\_}$

Is descending order least to greatest or greatest to least? _____

Arrange in descending order: $6a^3 +$ _____ $+$ _____

What is the leading coefficient? _____

B. $-4a^2 + 12 + a^6 + 7a^3$

Identify the degree of each term: $\underbrace{-4a^2}_{2} + \underbrace{12}_{0} + \underbrace{a^6}_{\_\_} + \underbrace{7a^3}_{\_\_}$

Arrange in descending order: $a^6 +$ _____ $-$ _____ $+ 12$

What is the leading coefficient? _____

Classifying Polynomials

Classify each polynomial according to its degree and number of terms.

A. $6x^3 + 3x^2 - 5$ Degree: 3   Terms: _____

What is the name for an expression with a degree of 3? _____

What is the name for an expression having 3 terms? _____

$6x^3 + 3x^2 - 5$ is a _____ trinomial.

B. $8 - 5y^2 + y - 6y^4$ Degree: _____   Terms: 4

$8 - 5y^2 + y - 6y^4$ is a quartic _____.

Degree	Name
0	Constant
1	Linear
2	Quadratic
3	Cubic
4	Quartic

Terms	Name
1	Monomial
2	Binomial
3	Trinomial
4 or more	Polynomial

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Are You Ready?

Combine Like Terms

Definition: An algebraic term is a number, a variable, or the product of numbers and variables. *Like terms* are those terms that have exactly the same variable factor. For example, $2x$ and $7x$ are like terms because they both have the variable factor, x.

Combining like terms means adding or subtracting them. To combine like terms:

- Step 1: Reorder the terms so that like terms are together.
- Step 2: Add (or subtract) the coefficients of the like terms. If a variable does not have a coefficient, it is understood to be 1.

Example 1	$7x - 5 + 2x + 15$	Example 2	$6 + 2a - 8b + 4a - 11$
Reorder:	$7x + 2x - 5 + 15$	Reorder:	$6 - 11 + 2a + 4a - 8b$
Add:	$7x + 2x = (7 + 2)x = 9x$	Subtract:	$6 - 11 = -5$
Add:	$-5 + 15 = 10$	Add:	$2a + 4a = (2 + 4)a = 6a$
		Single term:	$-8b$
Answer:	$9x + 10$	Answer:	$-5 + 6a - 8b$

Practice on Your Own
Simplify each expression by combining like terms.

1. $2x + 10x$ **2.** $9m + (-5m)$ **3.** $6a^2 + a^2$ **4.** $-10t + 3t$

_____   _____   _____   _____

5. $14b + (-17b)$ **6.** $12d^2 - 4d^2$ **7.** $6x - 7x$ **8.** $-5f + 5f$

_____   _____   _____   _____

9. $8.2h + 2.8h$ _____   **10.** $4y - 9 - 13y$ _____

11. $3 + 6x + 7 + 4x$ _____   **12.** $2 + 4u - 7 + 3u + 10 - 12u$ _____

13. $9y - 2x + 4y + 11x - 3x$ _____   **14.** $16j + 8 - 9j - 4 - 7j$ _____

Check
Simplify each expression by combining like terms.

15. $9x + x$ **16.** $-5c + 2c$ **17.** $a^2 - 4a^2$ **18.** $11.5z - 3.1z$

_____   _____   _____   _____

19. $22m + 16 - m - 5 - 11m$ _____   **20.** $7q + 3r - 2r + q - 6r$ _____

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Directions: For each expression below, simplify the expression by combining *like terms*. Any two terms can be added/subtracted as long as they contain the same variable(s) and the same exponents. Terms that have different variables or exponents must be kept separated. Write the simplified expression on the line provided.

Examples: $5x + 2y + 8x =$ $\underline{13x + 2y}$ $5x^2 + 2y + 8x + 2x^2 =$ $\underline{7x^2 + 8x + 2y}$

1) $13x + 3y + 2x =$ _____

2) $4x^2 + 3y + 5x + 6x^2 =$ _____

3) $7y + 4y + 5x =$ _____

4) $2y^2 + 6y + 4y + 10y^2 =$ _____

5) $9x + y - 3x =$ _____

6) $x^2 + 8y - 4y + 8x^2 =$ _____

7) $17x - 5x + 3y - y + 2x =$ _____

8) $2y^2 + 2y + 2y + 2x^2 =$ _____

9) $21x + 4y - 5x =$ _____

10) $13x^2 + 3y + x + 6x^2 =$ _____