Lesson Title 2.1 Simplifying Algebraic Expressions NOTES   **B2A2**   Date _____

Vocabulary
Define these in your own words.

Term <u>combination of #'s & variables</u>

Coefficient <u># at front of each term</u>

Like Terms <u>exact variable & power</u>

Unlike Terms <u>different variable and/or power</u>

Combining Like Terms (CLT) <u>Simplifying (+) or (−)</u>

OBJECTIVE 1: *Identifying Terms, Like Terms, & Unlike Terms*

Task 1: Circle the coefficient of each term

a) $-3y$ b) $22z^4$ c) $11y$

d) $-x$ e) $\dfrac{x}{7} = \dfrac{1}{7}x$

Task 2: Write the six terms in the appropriate box.

Like Terms	Unlike Terms	Reason…
$3x, 2x$	$5x, 5x^2$	Same variable, but different powers.
$2ab^2c^3$ ab^2c_3	$6abx^3, 6ab^2$	Different variables.
$-6xy, 2x^2y,$ $4x^2zy$	$7y, 3z, 8x^2$	Different variables and different powers.

OBJECTIVE 2: *Combining Like Terms (CLT)*

Task 3: Simplify each expression by combining like terms.

a) $7x - 3x$ b) $10y^2 + y^2$ c) $8x^2 + 2x - 3x$
   $4x$ $11y^2$ $8x^2 - x$

d) $9n^2 - 5n^2 + n^2$ e) $-3y + 11y$ f) $20y^2 - y^2 + 2y^2$
   $5n^2$ $8y$ $21y^2$

Task 4: Simplify each expression by CLT.

a) $2x + 3x + 5 + 2$ b) $-5a - 3 + a + 2$
   $5x + 7$ $-4a$ -1
                            $= -4a - 1$ or $-(4a+1)$

c) $4y - 3y^2$ d) $-\dfrac{1}{2}b + b = -\dfrac{1}{2}b + \dfrac{2}{2}b = \dfrac{1}{2}b$
   $-3y^2 + 4y$

OBJECTIVE 3: Using the Distributive Property

Task 5: Find each product by using the distributive property to remove parentheses.

a) $5(3x + 2)$

$\boxed{15x + 10}$

b) $-2(y + 0.3z - 1)$

$-2y - 0.6z + 2$

c) $-(9x + y - 2z + 6)$

$-9x - y + 2z - 6$

Task 6: Simplify each expression.

a) $3(2x - 5) + 1$

$6x - 15 + 1$

$\boxed{6x - 14}$

b) $-2(4x + 7) - (3x - 1)$

$-8x - 14 - 3x + 1$

$\boxed{-11x - 13}$

c) $9 + 3(4x - 10)$

$9 + 12x - 30$

$\boxed{12x - 21}$

Task 7: Write the phrase below as an algebraic expression. Then simplify, if possible.

a) Subtract $4x - 2$ from $2x - 3$

$2x - 3 - (4x - 2)$

$2x - 3 - 4x + 2$

$\boxed{-2x - 1}$

b) Subtract $7x - 1$ from $2x + 3$

$2x + 3 - (7x - 1) = 2$

$2x + 3 - 7x + 1$

$\boxed{-5x + 4}$

OBJECTIVE 4: Writing Word Phrases as Algebraic Expressions

Task 8: Write the following phrases as algebraic expressions and simplify, if possible. Let x represent the unknown number.

a) Twice a number, plus six

$2x + 6$

b) The difference of a number and four, divided by seven

$\dfrac{x - 4}{7} = \dfrac{1}{7}x - \dfrac{4}{7}$

c) Five added to triple the sum of a number and one

$5 + 3(x + 1) = 5 + 3x + 3 = \boxed{3x + 8}$

d) The sum of twice a number, three times the number, and five times the number

$2x + 3x + 5x$

$\boxed{10x}$

Summary

Expression   CLT   unlike   like   coefficient   term   distributive

1. $23y^2 + 10y - 6$ is called a(n) __expression__ while $23y^2$, $10y$, & -6 are each called a(n) __term__.

2. To simplify $x + 4x$, we __CLT__.

3. The term y has an understood __coefficient__ of 1.

4. The terms $7z$ and $7y$ are __unlike__ terms and the terms $7z$ and $-z$ are __like__ terms.

5. For the term $-\frac{1}{2}xy^2$, the number $-\frac{1}{2}$ is the __coefficient__.

6. $5(3x - y)$ equals $15x - 5y$ by the __distributive__ property.

Still need help with: