Name_____ Pd_____ Date_____ **Module 1 Topic B Study Guide**
Complete this Study Guide and turn in on the day of your quiz to earn +5 EXTRA CREDIT on your quiz!

Simplifying and Combining Like Terms

Coefficient ⟶ $4x^2$ ⟵ Exponent, Variable (or Base)
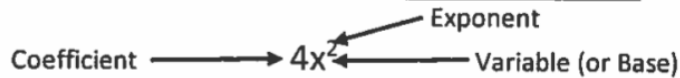
* Write the coefficients, variables, and exponents of the following:

	Coefficients	Variables	Exponents
$8c^2$			
$9x$			
y^8			
$12a^2b^3$			

Like Terms: Terms that have identical variable parts (same variable(s) and same exponent(s)).

When simplifying using addition and subtraction, you combine "like terms" by keeping the "like term" and adding or subtracting the numerical coefficients.

Examples:

$3x + 4x = 7x$ $13xy - 9xy = 4xy$ $12x^3y^2 - 5x^3y^2 = 7x^3y^2$

Can you simplify?

$4x^3 + 4y^3$ $11x^2 - 7x$ $6x^3y + 5xy^3$

Simplify the following:

1) $7x + 5 - 3x$	2) $6w^2 + 11w + 8w^2 - 15w$	3) $6x + 4 + 15 - 7x$
4) $(12x - 5) - (7x - 11)$	5) $(2x^2 - 3x + 7) - (-3x^2 + 4x - 7)$	6) $11a^2b - 12ab^2$

WORKING WITH THE DISTRIBUTIVE PROPERTY

Example: $3(2x - 5) + 5(3x + 6) =$
Since in the order of operations, multiplication comes before addition and subtraction, we must get rid of the multiplication **before** you can combine like terms. We do this by using the **distributive property**:

$3(2x - 5) + 5(3x + 6) =$
$3(2x) - 3(5) + 5(3x) + 5(6) =$
$6x - 15 + 15x + 30 =$

Now you can combine the like terms:

$6x + 15x = 21x$ *Final answer*:
$-15 + 30 = 15$ $3(2x - 5) + 5(3x + 6) = 21x + 15$

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1) $\quad 4(7x - 8) + 6(5x + 10)$	2) $\quad 6(4x^2 - 5x + 2) + 3(-8x^2 + 11x + 4)$
3) $\quad 5(4x^2 - 8x + 3) - 7(6x^2 - 4x + 11)$	4) $\quad 4(6x^3 - 4x^2 + 7x + 1) - 9(4x^3 - 2x^2 - 6x + 1)$
5) $\quad 10(4x^2 + 8x + 7) - 8(5x^2 + 10x - 9)$	6) $\quad 6(4x^2 - 3x + 2) + 5(3x - 6)$
7) $\quad 9(4x^2 - 7x + 12) - 12(3x^2 - 5x - 9)$	8) $\quad 4(6x^3 - 4x^2 + 11) - 7(5x^2 + 9)$
9) $\quad 3(12x^4 - 16x^3 + 4x^2 - 8x + 24) - 4(9x^4 - 12x^3 - 3x^2 - 6x + 18)$	