Notes on Combining Like Terms

CONSTANT: Just a number. Like 5, 4, 10, and -3. No variables allowed at all.

COEFFICIENT: A number that is being multiplied by a variable. For example, in the expression 3x, 3 is the coefficient. In the expression -4y, -4 is the coefficient.

TERMS: A term is a number, a variable, or a combination of the 2 with multiplication. Examples of terms are 6, -3, y, xyz, 3x, -5q. (Remember when a letter and number are side by side, it is UNDERSTOOD to be MULTIPLICATION between them.)

LIKE TERMS: Like terms are terms that have the same letters and exponent combination. The only thing that can be different about them is the COEFFICIENT. Examples of like terms are 3y and -5y, 10x and x, $4s^2$ and $2s^2$.

The following are NOT LIKE TERMS: 3x and 4y (different letters), $2x^2$ and $3x^3$ (different exponents on the variable.)

Combining like terms: To simplify algebraic expressions, combine all of the like terms you can by adding the coefficients together. The operation directly in front of the number stays with that number.

For example, look at the following algebraic expression: 4x + 3y + 7x + 12 + 13y – 5x – 2y – 10. The like terms in the expression are as follows: 4x, 7x, and 5x; 3y and 2y; 12 and 10. So by combining these together, we get:

4x + 7x – 5x = 6x (4+7-5=6)

3y – 2y = 1y = y (3-2=1)

12 – 10 = 2

So 4x + 3y + 7x + 12 + 13y – 5x – 2y – 10 simplifies to 6x + y + 2. There are no like terms remaining, so my final simplified answer is 6x + y + 2.