Algebraic Applications

Units- a quantity used as a standard of measurement. Ex: Inches, feet, hours, and year.

Conversion- a change in the form of a measurement, different units, without a change in the size or amount.

Dimensional Analysis - is a problem-solving method that uses the fact that any number or expression can be multiplied by one without changing its value

Algebraic Expressions- Numbers, symbols and operators (such as + and ×) grouped together that show the value of something. No equal sign or inequality symbols

Terms- either a single number or variable, or numbers and variables multiplied together. Terms are separated by + or − signs

Factors- numbers you can multiply together to get another number:
Example: 2 and 3 are factors of 6, because 2 × 3 = 6.

Variable- A symbol for a number we don't know yet. It is usually a letter like x or y.
Example: x + 2 = 6, x is the variable.

Coefficients- A number used to multiply a variable.
Example: 6z means 6 times z, and "z" is a variable, so 6 is a coefficient.
Sometimes a letter stands in for the number.
Example: In $ax^2 + bx + c$, "x" is a variable, and "a" and "b" are coefficients

Verbal Expressions- a translation into words of an algebraic expression that can consist of different operations, numbers and variables**.** An example of this is translating the mathematical equation or phrase "90 - 4(a + 8)" to the verbal expression "90 decreased by 4 times the sum of a number "a" and 8."

Factoring - Finding what to multiply to get an expression.

Greatest Common Factor- *The highest number that divides exactly into two or more numbers.*

Difference of Perfect Squares- Two terms that are squared and separated by a subtraction sign like this: $a^2 - b^2$ it can be factored into (a+b)(a−b)

Factoring Trinomials- trinomials consist of three terms. The factors of $x^2 + 3x - 4$ are :(x+4) and (x−1)

Factor by grouping- grouping terms of a polynomial that can be factored so that those groups then have a common factor

Completing the Square-
A technique for solving quadratic equations; to complete the square means to add a constant to a binomial to create a perfect square

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Quadratic Formula-

Zeros/Roots/Solutions/X-intercepts- is an input value that produces an output of zero (0). If the function maps real numbers to real numbers, its zeroes are the x-coordinates of the points where its graph meets the x-axis. An alternative name for such a point (x,0) in this context is an x-intercept.

Polynomials- an expression of more than two algebraic terms, especially the sum of several terms that contain different powers of the same variable(s).

Equation- a statement that the values of two mathematical expressions are equal (indicated by an equal sign).

Inequality- $a < b$ says that a is less than b
$a > b$ says that a is greater than b
$a \leq b$ means that a is less than or equal to b
$a \geq b$ means that a is greater than or equal to b.

Systems of Equations- is a collection of two or more equations with a same set of unknowns. In solving a system of equations, we try to find values for each of the unknowns that will satisfy every equation in the system.

Literal Equations- an equation where variables represent known values. Literal equations allow use to represent things like distance, time, interest, and slope as variables in an equation.

Inverse Operation- are opposite operations that undo each other. Addition and subtraction are inverse operations. Multiplication and division are inverse operations.