Linear Equations & Inequalities Definitions

Constants - a term that is only a number
Example: 3; -6; -10.5

Coefficients - the number in front of a term
Example: $-3x^2$, -3 is the coefficient

Variable - is an unknown quantity that may change represented by a letter.

Expressions - a group of terms connected by division, addition, subtraction, multiplication, brackets and exponents can be one term
Example: $3x^2$

Equations - two expressions related by an equal symbol.
Example: $4x + 3 = 5$; $y = 2 - 6$

Like Terms - two terms are *like terms* if they have the same variables with the same degree. All constant terms are like terms.
Example: 4a, 12a, & -30a

Unlike Terms - terms with different variables or different degrees are considered *unlike terms*.
Example: $4a^2$, $4b^3$, $5d^5$

Linear - extending along a straight line

Linear Relation - any given change in an independent variable will always produce a corresponding change in the dependent variable.

Extrapolate - to estimate a value that lies beyond data points on a graph.

Interpolate - to estimate a value that lies between 2 data points on a graph.

Balanced - when both sides of an equation are equal.

Rational Numbers – Any # that can be put in fraction form
Examples:

Integer
Whole #
Natural #
Repeating Decimal
Terminating Decimal
already in fraction form

Operations - an operational process like addition, subtraction, division, multiplication or raising to a power.

Sum - the answer to an addition question; the result of two or more numbers being added together.

Difference - the answer to a subtraction question; the result of two or more number being divided.

Product - the answer to a multiplication question; the result of two or more numbers being multiplied

Quotient - the answer to a division question; the result of two or more numbers being divided.

Perimeter - the distance around a closed shape

Area - the number of square units to cover a region

Consecutive - integers that come one after the other without any missing
Examples: 45, 46, 47; -5, -4, -3

Distributive Law - the law relating the operations of multiplication and addition, stated symbolically, $a(b + c) = ab + ac$; that is, the monomial factor a is distributed, or separately applied, to each term of the binomial factor $b + c$, resulting in the product $ab + ac$.

Reciprocal - two numbers whose product is one
Example: ⅔ and 3/2

Lowest Common Denominator - the lowest denominator in two or more fractions that are the same.
Example: 2/6, 4/6, ⅚

Solve - to find an answer or explanation for; to work out an answer or solution to a question.

Verify - to check your answer by performing the opposite operation or solving for x.

Evaluate - to determine the value of a numerical expression

Substitute - putting numbers where the letters are.
Example: what is x + 2 when x = 5.

Solution - a means of solving a problem

Graph - a diagram showing the relation between two or more things.

Table of Values - is a graphic organizer or chart that helps you determine two or more points that can be used to create your graph.

T-chart example:

Horizontal line - a line that runs left to right across the page. It comes from the word "horizon" in the sense that horizontal lines run parallel to the horizon.

Vertical line - a line that goes straight up and down parallel to the y axis of the coordinate plane.

Positive Oblique Lines - a slanting line that rises left to right.

Negative Oblique Lines - a slanting line that falls left to right.

Commutative Property - one of the basic **properties** of numbers. The word "commute" means "exchange" or "swap over" **Commutative property** states that numbers can be added or multiplied in any order. That is: **Commutative Property** of Addition states that changing the order of addends does not change the sum.

Symbols: **read left to right

Symbol	Meaning
<	Less than
>	Greater than
≤	Less than or equal to
≥	Greater than or equal to
=	Equal to
≠	Not equal to
○	Not included
⚫	included
ε	Belongs to

Solving Inequalities

○ (not included) for less than or greater than.
⚫ (included) for less than or equal to or greater than or equal to
*When you are graphing it on a number line, the number you are featuring should go in the middle.

Equations	Inequalities
$2n + 1 = 11$	$2n + 1 \geq 11$
$2n + 1 = 11$ $-1 \quad -1$ $\frac{2n}{2} = \frac{10}{2}$ $n = 5$	$2n + 1 \geq 11$ $-1 \quad -1$ $\frac{2n}{2} \geq \frac{10}{2}$ $n \geq 5$
$4m - 1 = 2m + 7$ $+1 \quad +1$ $4m = 2m + 8$ $-2m \quad -2m$ $\frac{2m}{2} = \frac{8}{2}$ $m = 4$	$4m - 1 < 2m + 7$ $+1 \quad +1$ $4m < 2m + 8$ $-2m \quad -2m$ $\frac{2m}{2} < \frac{8}{2}$ $m < 4$