Unit 5
Vocabulary and Big Ideas

Variable:

A letter or symbol used to represent an unknown number or a quantity that varies.

Example: $y=2x$

x and y are variables

Expression:

A combination of one or more numbers, one or more variables, or both numbers and variables. Has operations, but not equals sign.

Examples: x-9 1/2bh $5 \cdot 2^2$

Terms:

Part of an expression that is added or subtracted.

Example: **4, 3b, and** b^2 are all terms of the expression

$$4 + 3b + b^2$$

Terms

Numerical Expression:

An expression that does not include variables, only numbers.

$36 - (2 + 9) \bullet 3$ or $20 - 8 \div 2$

Order of Operations:

P: Parenthesis

E: Exponents

M/D: Multiply or Divide (left to right)

A/S: Add or Subtract (left to right)

Algebraic Expression:

An expression that includes one or more variables.

Examples:

$10(a+b)$ $7n$ $5x^2 - x$

Evaluate:

Substitute for variables if needed to solve an expression.

Evaluate 10(b+a)

when b=3 and a=4

10(b+a)= 10(3+4)= 10*7=70

Power:

An expression that includes an exponent and represents repeated multiplication.

The power is determined by the exponent.

4^3 (read as "four to the third power")

means 4*4*4

Base:

A number, variable, or expression that is raised to a power.

4^2

4 is the base in this example

Exponent:

In a power, the small, raised number that indicates how many times the base is used as a factor.

3 is the exponent below

$$4^3 = 4 \cdot 4 \cdot 4 = 64$$

Evaluate:

Substitute values for the variables in an expression and then simplify to find your answer.

Example:

10(b+a) when b=3 and a=4

10(3+4) = 10*7= 70

Equivalent Expressions:

Expressions that always have the same value.

Example: B+B+B = 3B

U+U+U+U+U= 5U

Like Terms:

Terms with the same variables raised to the same powers.

Example:

$6 + 2x + 1 + x$

6 and 1 are like terms, 2x and x are like terms.

Simplify:

Perform operations and combine all like terms.

Example:

Simplify: $3x + 5 + x + 2$.

$4x + 7$

*Work out the expression step by step.

Commutative Property of Multiplication or Addition:

The property that states that changing the order of factors does not change their answer.

Example:

3+4+5 = 5+4+3 or 4*8*2 = 2*4*8

Associative Property of Multiplication or Addition:

The property that states changing the grouping of factors does not change the product.

*Think Friends

(9*15)*20 = 9*(15*20)

Coefficient:

The number of a term when the term is a number times a variable or a number times a product of variables.

$5x+2xy$

5 is the coefficient of the term 5x and 2 is the coefficient of the term 2xy

Distributive Property:

The property that allows us to distribute a factor to the other terms.

*Think football or a truck distributing soda.

$$6(3+4) = 6(3) + 6(4)$$

Greatest Common Factor (GCF):

The greatest common factor that two numbers share.

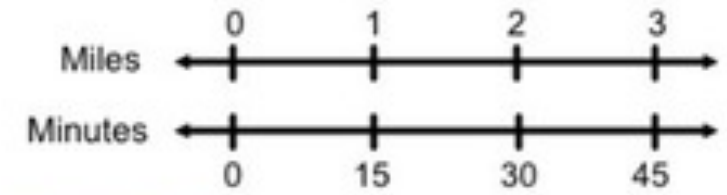
Example:

15 is the GCF of 30 and 45

Double Number Line:

A diagram with two number lines that shows how to quantities relate to each other.

Example: The distance in miles and the time it takes. 1 mile takes 15 minutes.



Dependent Variable:

In a relationship between two variables, the variable that depends on the value of the other.

Example: The cost of gas, **c**, depends on the number of gallons purchased **g**. The cost, c, is the dependent variable.

Independent Variable:

In a relationship between two variables, the variable whose values influence the values of the other variable.

Example: The cost of gas, **c**, depends on the number of gallons purchased **g**. The number of gallons purchased, g, is the independent variable.

Inequality:

A statement comparing two expressions using greater than, less than, greater than or equal to, less than or equal to, or not equal to.

$> \quad < \quad \geq \quad \leq \quad \neq$

$4+7>10$

Infinite Solution Set:

Greater than any whole number; the number of solutions is unlimited.

Example:

$x>3$ has an infinite number of solutions.

Solution:

A value that can be substituted for the variable to make a true statement.

Solution of inequality	Solution of equation
$X=10$ is a solution of $\mathbf{X+3<20}$ because $10+3<20$ is true	$X=4$ is a solution of $\mathbf{3x+1=13}$ because $3(4)+1=$ $12+1=13$

Inverse Operation:

Operations that undo each other.

Addition and subtraction are inverse operations. Multiplication and division are inverse operations.

Example: 5+9=14, so 14-9=5

Multiplicative Inverse:

The product of a number and its multiplicative inverse is one.

6 is the multiplicative inverse of $\frac{1}{6}$

$$6 \bullet \frac{1}{6} = 1$$