

GLOSSARY FOR ACHIEVEMENT INDICATOR TERMS IN MATHEMATICS

Absolute Value: A number's distance from zero on a number line. The absolute value of 2 is equal to the absolute value of -2 .

Acute Angle: An angle that measures less than 90 degrees.

Acute Triangle: A triangle in which all three interior angles are acute (less than 90°).

Accuracy: Correctness, usually referring to numerical computations. The accuracy of a table may mean either (1) the number of significant digits appearing in the table; (2) the number of correct places in computations made with the table.

Analog Clock: A traditional clock with a face and hands used to indicate time.

Angle: The figure formed by two rays from the same initial point. The two rays are called the sides of the angle and the initial point is called the vertex of the angle. The symbol for angle is \sphericalangle .

Angle of Inclination: The positive angle, less than 180 degrees, that measures the steepness of the slope.

Area: The size of a two-dimensional region typically measured in square units.

Arithmetic Sequence: An arithmetic sequence is a sequence in which the difference between each term and the one after it is constant.

Associative: The property which states that the manner of grouping three or more numbers when added or multiplied does not change the answer (e.g., $2+(3+5) = (2+3)+5$).

Attribute: A characteristic of an object, such as color, shape, size, etc.

Binomials: Algebraic expressions that can be represented by exactly two unlike terms when simplified, i.e., $(2x + 3y)$.

Bisector: A straight line or a plane that divides a line, a plane, an angle, or a shape into two equal parts.

Box and Whisper Plot: A graphic method used to display the middle (median) of a set of data, the middle of each half of that data, and the extremes of the data.

Calculate: (Compute) The process of adding, subtracting, multiplying, dividing or finding the square root of an equation/problem.

Capacity: The maximum amount of liquid a container can hold.

Categorical Data: Non-numerical categories used to describe data. (favorite color, food, or pet)

Census: The collection of data from the entire population, rather than from a sample.

Central Angle: An angle that has its vertex at the center of a given circle.

Chart: A diagram to show the major steps for solving a particular problem. All steps may be enclosed within boxes that are linked together by arrows to show the logic in which those major steps must be carried out.

Chord: A straight line segment that connects two sides of a circle, but does not go through the exact center.

Circumference: The boundary line of a circle or the length of such a boundary line.

Combination: The number of possible ways of selecting m objects out of n objects when you don't care about the order in which the m objects are arranged.

Common Denominator: A whole number that is a common multiple of all the denominators of a set of fractions.

Commutative: The order in which two numbers are added or multiplied does not change the outcome.

Compare: To contrast or evaluate at a minimum two ideas, terms or numerical representations with each other.

Compass: A tool used to construct circles, draw arcs, and copy line segments.

Complementary: Two angles whose measures sum exactly 90 degrees.

Composite Number: A whole number that is the result of at least two numbers (with "1" not one of the numbers) being multiplied together and that can be broken down into factors (i.e., $20 = 2 * 10$).

Conditional Statement: A logical statement consisting of a hypothesis and a conclusion. (If-then statement)

Congruent: Figures that have the same size and shape.

Conjecture: An idea or theory that has not been proved.

Converse of the Pythagorean Theorem: If the square of one of the sides of a triangle is equal to the sum of the squares of the other two sides of a triangle, then the triangle is a right triangle.

Coordinate Grid: A (two-dimensional) flat surface formed by two intersecting number lines, one horizontal and one vertical, which can be used to name any point on the surface by an ordered pair of numbers.

Coordinate Point Plane: A plane formed by two intersecting and perpendicular number lines used to help locate the position of any point on a map or graph.

Coordinates: A pair of numbers that describe the position of a point on a coordinate plane by using the horizontal and vertical distances from the two reference axes

Counterexample: An example that proves a statement false.

Customary System: The measurement system that is used most frequently in the United States today.

Decimal: A number that uses a decimal point and digits to represent tenths, hundredths, and etc.

Deductive Reasoning: The process of reasoning that starts from statements accepted as true and applied to a new situation to reach a conclusion (i.e., if $a+b = b+a$, $4+5 = 5+4$).

Degree of Accuracy: The precision of a measurement or value that can be indicated by the number of significant digits or decimal places.

Denominator: The part of a fraction that defines the number of parts into which the whole number is divided.

Diameter: A line segment that passes through the center of a circle and has its two endpoints on the circle. It also represents the length of such a line segment.

Difference: The answer after one quantity is subtracted from another or the amount by which one quantity is greater or less than another.

Dilation: A transformation that enlarges or reduces a figure.

Discrete Graph: A graph that has discontinuous information that results in breaks in the display (the graph shows the temperatures only for weekdays and not for weekends).

Distributive Property: The distributive property states that multiplying a sum by a number gives the same result as multiplying each addend by the number and then adding the products together

Digit: A digit is any one of the basic symbols used to write a numeral. For example, the numeral 23 is made up of the digits 2 and 3.

Division: The operation of finding out how many times the second number will go into the first when dividing one number by a second number. It is the opposite operation of multiplication, that is, $a / b = c$ is the same as $b \times c = a$.

Domain: A collection of potential values to be used in place of the variable in a mathematical sentence describing a relationship.

Edge: The line formed when two faces of a three-dimensional figure intersect.

Elapsed Time: The time interval from the start of an activity to the end of that activity.

Equal to: Describing quantities or sizes that are the same, often denoted by the equal sign =.

Equation: A mathematical statement that represents the equality of two expressions involving either constants, variable(s), or both. For example, $1 + 2 = 3$ is an equation. So is $xy = 1$.

Equilateral Triangle: A triangle that has all three sides congruent.

Equivalent: Describing two quantities that have a different appearance but the same value.

Error: The difference between the true value and the measurement or estimate of a quantity, often expressed as either an absolute error or relative error.

Estimate: To give an approximate and reasonable answer for an arithmetical exercise without the need of calculating the exact answer.

Evaluate: To calculate the value of.

Experimental Probability: The frequency that a particular event occurs when compared to the total number of trials during an experiment.

Exponent: A term that is used to describe the power to which a number or variable is raised. For example, in the expression 3^4 , the 4 is referred to as the exponent.

Expression: A combination of numbers, symbols, and operations to represent a certain quantity.

Exterior Angle: Any of the four external angles formed by cutting a pair of (usually parallel) lines with a third straight line

Extrapolation: Estimating the value of a number using the value of known numbers that precede it.

Face: The shape formed by one of the sides of a three-dimensional figure.

Factor: A number that can divide into another number with no remainder.

Fraction: A number that represents one or more equal parts of a whole, written as a quotient such as m/n (one number m divided by another number n).

Frequency Table: A listing of data that includes the number of times an item occurs.

Function: An association of one object (or number) from one group or collection with one and only one object of another group or collection. This association is often represented in words, graphically, or algebraically.

Fundamental Counting Principle: The principle that states all possible outcomes in a given situation can be found by multiplying the number of ways each event can happen

Geometric Sequence: A sequence of numbers in which the next term can be found by multiplying the current term by some number (given the initial term 3 and a multiplier of 2 yields the geometric sequence of 3, 6, 12, 24...).

Greater than: Greater in number, size, or extent.

Greatest Possible Error: The measurement error which results from rounding or estimating a measurement to the nearest specified unit of measure.

Histogram: Data grouped in intervals with the frequency of occurrence within each interval displayed.

Horizontal Line: A line that has direction from left to right, or at a right angle to an upright line.

Hypotenuse: The side of a right (90 degree) triangle that is across from the right angle.

Identity Property: An element or an operation that leaves others unchanged when combined with them.

Improper Fraction: A fraction whose numerator is larger than the denominator.

Indirect Measure: A measure found by using a formula or other strategy and not actually measuring something (i.e., finding the height of a tree without actually holding a ruler next to it).

Inductive Reasoning: A particular type of logic which involves drawing conclusions from several specific, known facts and using them to make generalizations about other, similar situations.

Inequality: A relationship between two expressions that are not equal, often written with the symbols $>$, $>=$, $<$, and $<=$ that mean greater than, greater than or equal, less than, less than or equal, respectively.

Integers: Positive and negative whole numbers.

Intercept: The point at which a line or curve crosses a given axis. Intercept also refers to the line segment cut out of a transversal by another pair of lines.

Interior Angle: One of the angles inside a polygon or one of the internal angles formed when two or more lines are intersected by a transversal.

Interpolation: Estimating the value of a number using the value of known numbers on either side of the missing number.

Inter-quartile Range: Difference between the first and third quartiles in a data set

Intersecting Lines: A set of lines that cross and have exactly one point in common.

Inverse Operations: Two operations that undo each other (i.e., addition and subtraction).

Inverse Property: The sum of a number and its additive inverse is always zero. ($x + (-x) = 0$)

Irrational Numbers: Numbers which have infinite, but non-repeating, decimal representations.

Irregular Polygon: A polygon in which not all sides or interior angles are congruent.

Less than: A symbol used to indicate one number is smaller than another, with the smaller number given first.

Like Terms: Algebraic expressions in which all parts [variable(s) and exponent(s) of these variables] except the numerical coefficients are the same.

Line of Symmetry: When an object can be folded in half to form two mirror objects.

Line Plot: A graph that displays data as points above a number line or some other line of characteristics or attributes.

Line Segments: Part of a line defined by two endpoints.

Linear Equation: An algebraic equation that describes a straight line.

Linear Rule: A function of the type $y = f(x) = ax + b$ because its graph is a straight line.

Mass: The measure of the amount of matter of an object in the object's mass while an object's weight is a measure of the force with which gravity attracts the object. Although you mass is the same on Earth as it is on the Moon, you weigh more on Earth because the attraction of gravity is greater on Earth.

Matrices: Plural of matrix. A way of displaying information in an array. For example, the expression $3x^2 + 4x + 2$ can be displayed in a matrix form as $\begin{bmatrix} 3 & 4 & 2 \end{bmatrix}$.

Mean: In a collection of data, the sum of all the data divided by the number of data.

Measures of Central Tendency: Numbers that represent information about cluster and "average" of a collection of data such as mean, median, mode, and geometric mean.

Median: The middle number (or the average of the two middle numbers when necessary) in a collection of numbers that are arranged in order from least to greatest.

Metric System: A system of measurement using the meter as the basic unit of length, the kilogram as the basic unit of mass or weight, the liter as the basic unit of liquid volume, and multiples and submultiples of 10.

Midpoint: The point on a line segment that divides the given line segment into two congruent parts.

Mixed Number: A number that is made up of a whole number and a fraction.

Mode: The number that occurs most often in a collection of data.

Multiple: A multiple of a number is the product of that number and any whole number. For example, 24 is a multiple of 6.

Multiplication: The operation of finding the product of two or more quantities, usually written as $a \times b$ when multiplying two numbers a and b . Multiplication is actually a repeated addition in the sense that $a \times b$ means b is added to itself a times.

Normal Distribution: The bell-shaped curve obtained by graphing the variation of a quantity when the same measurement is taken multiple times.

Number Line: A straight line on which each point represents a real number.

Number Sentence: Either an addition sentence, subtraction sentence, multiplication sentence, or division sentence.

Numerator: The top number of a fraction. In the fraction $\frac{2}{3}$, 2 is the numerator and 3 is the denominator. The numerator is actually the dividend.

Numerical Data: Usually raw, unprocessed facts and figures collected about people or things.

Oblique Line: A line that is neither parallel nor perpendicular.

Obtuse Angle: An angle with a measure that is greater than 90 degrees and less than 180 degrees.

Obtuse Triangle: A triangle that has an obtuse angle (greater than 90°) in its interior.

Odds: Comparison of the number of "favorable outcomes" to the number of "unfavorable outcomes" in a probability experiment.

Open Number Sentence: A mathematical sentence with at least one missing value. ($1 + \underline{\quad} = 12$)

Order: To arrange with respect to numerical value, physical size or other quality.

Order of Operation: A rule used to provide conformity in the results of a string of operations. For example, $3+5 \times 4-2$ should be interpreted as equal to 21 because the order of operations requires that we multiply and divide before we add and subtract.

Ordered Pair: A pair of numbers that give the location of a point on a coordinate grid. The first number in the ordered pair describes the horizontal reference and the second describes the vertical.

Outcome: All possible results of a trial or an experiment.

Parallel Lines: Lines in the same plane that are always the same distance apart.

Pattern: A repeating arrangement of numbers, colors and shapes.

Percent: A ratio that compares a number to 100.

Perfect Square: A number whose square root is an integer.

Perimeter: The sum of the lengths of the sides of a two-dimensional figure.

Permutation: An arrangement of items in which order is important (i.e., a list of the possible 1st, 2nd, and 3rd place winners).

Perpendicular Lines: Two lines that intersect to form right angles.

Pictograph: A graph that shows numerical information by using picture symbols.

Pitch (slope): Another name for gradient.

Place Value: The value of a digit as determined by multiplying its face value by its place value. For example, in the numeral 643, the 6 is in the "hundreds place" and represents a value of 600.

Plane Figure: A two-dimensional region.

Point: A geometric object that has no dimension and is used to indicate a location.

Polygon: A simple, closed plane figure with sides consisting of line segments.

Polynomials: Algebraic expressions that can be represented by two or more unlike terms when simplified (i.e., $5x + 2y + 3z$).

Powers: A term that is used to describe an exponent. For example, the expression 3^4 can be read as 3 to the fourth power.

Precision of Measurement:

Precision of measurement tells how finely a measurement is made. The size of the units determines the precision. The smaller the unit, the more precise the measurement.

Prime Number: A whole number greater than 1 that has only 1 and itself as factors. For example, 13 is a prime number, 10 is not a prime number.

Prism: A three-dimensional figure with two opposite bases that are identical polygons and faces that are parallelograms.

Product: The result obtained when multiplying numbers, vectors, matrices, etc.

Probability: The number of favorable outcomes compared to the number of possible outcomes of an experiment.

Proportions: An equation that represents the equality of two ratios.

Protractor: An instrument for measuring the size of an angle.

Pythagorean Theorem: If a triangle is a right triangle, then the square of the length of one leg added to the square of the length of the other leg is equal to the square of the hypotenuse.

Quadrant: Labels for the four regions formed by the axes of a coordinate grid. The first quadrant is the region which includes only positive ordered pairs.

Quadratic Equation: A polynomial equation in which the highest power of the variable is two. The general form of such equations in the variable x is $ax^2 + bx + c = 0$

Quadrilateral: A four-sided plane figure.

Quartile: One of the three points that divide a set of numerically ordered data into four equal parts, that can be used to give us some idea of the spread of data.

Quotient: The number resulting from division.

Radicals: A term used to refer to roots of numbers such as the cube root of 5.

Radius: The distance from the center of a circle to any point on its circumference.

Range: The difference between the largest and smallest values in a set of data.

Range: The solutions determined by evaluating a mathematical sentence using its domain.

Rate: A ratio that compares two quantities expressed in two different units.

Ratio: A comparison of two quantities or a rate of change.

Rational Number: A number that can be written in the form of a fraction.

Ray: A part of a line that has one endpoint and extends endlessly in one direction.

Real Numbers: The rational numbers and the irrational numbers.

Reciprocal: A number related to another in such a way that when these two numbers are multiplied together their product is 1. For example, the reciprocal of 2 is $1/2$, and the reciprocal of $3/4$ is $4/3$.

Reflection: The mirror image of a figure often referred to as a flip.

Replacement Set: A collection of potential values to be used in place of the variable in an open mathematical sentence.

Right Angle: An angle that measures exactly 90 degrees.

Right Triangle: A triangle in which one angle is a right angle (equal to 90 degrees).

Root: A number that can be used as a factor a given number of times to produce the original number (i.e., the fifth root of 32 is 2 because $2 \times 2 \times 2 \times 2 \times 2 = 32$).

Rounding: Finding an approximate number that has fewer non-zero digits, so that it will be easier for further estimation calculation(s).

Rotation: A transformation obtained by rotating a figure around a given point often referred to as a turn.

Sample Space: A way to list all the possible results or outcomes for a probability experiment.

Scale Drawing: A reduced or enlarged drawing whose shape is the same as an actual object that it represents.

Scalene Triangle: A triangle having no two sides equal.

Scatter Plot: Data that is plotted as points on a graph to show a possible relationship between two sets of data.

Scientific Notation: A method of representing a number as a product of a number between 0 and 10 and a power of ten. For example, 3456 can be written as 3.456×10^3 .

Sequence: A series of numbers that are predictable and can be extended using simple addition or subtraction (4, 7, 10, 13...).

Significant Digit: The number of digits used to indicate how precise that measurement is. The number of significant digits depends on the accuracy of the measuring device, that is, the unit of measure offered in that device.

Similar: Anything that has the same shape but different sizes as another object.

Similarity: Denoting two or more figures that have the same shape but different sizes.

Simple Interest: The payment for the use of money borrowed that is calculated by multiplying the principal by the rate by the time (number of years).

Skip Count: To count by multiples of a number (count by two, five, tens, etc.)

Slope: The degree of steepness of a line (or curve) as measured by pitch or rise over run.

Solid Figures: A geometric figure that has three dimensions: length, width and height.

Standard Notation: A representation of very large or very small numbers as the product of two factors: $a \times 10^n$, where $1 < a < 10$.

Stem and Leaf Plot: A method of organizing data for the purpose of comparison where the "leaf" is the number in the smallest place value and the "stem" includes the numbers in the larger place values.

Straight Angle: An angle whose measure is 180° .

Substitution Algebra: Substituting or replacing something, a variable or an expression, in one equation with an equivalent expression from the other equation.

Sum: The result of addition. That is, a sum is the quantity resulting from adding two or more numbers together.

Supplementary Angles: Two angles whose measures total exactly 180 degrees.

Surface Area: The area of the outer surface of a three-dimensional object.

Symmetry: When an object can be folded in half to form two mirror objects (line symmetry) or when an object can be rotated less than 360 degrees about a point to coincide with an image of the object (rotational symmetry).

System of Linear Equations: A group of two or more equations that involve two or more variables.

Theoretical Probability: Identifying, using mathematical expectations, the number of possible ways an event can happen compared to all of the possible events.

Three-Dimensional: A figure that is three-dimensional is one which has length, height, and breadth.

Tolerance: The allowable error in a given measurement. If a part has a given measure of 5.125" – the error allowable when making the part may be 0.005" more or less than the actual measure of 5.125". The standard way of writing the tolerance allowed is 5.125 +/- 0.005; which means that any measure between 5.120" and 5.130" would be acceptable.

Transformation: The change of a shape or position into another by mapping or moving each point in the original geometric figure to a different position by a specified procedure.

Transformational Motion: Movement of an item through translation, reflection, and rotation.

Translation: Changing the position of an object by sliding it in any direction without rotation or reflection. Translations are often referred to as slides.

Transversal: The name given to a line that intersects two or more other lines in a given plane.

Tree Diagram: A method of finding all of the possible outcomes of an experiment by systematically listing the possibilities.

Trend: A general pattern in a set of data.

Triangular Numbers: The numbers 1, 3, 6, 10... are triangular because they can be expressed by employing the number of dots in successive triangular arrays of dots (this can be thought of as 1, 1+2, 1+2+3, 1+2+3+4, ...).

Triangle Sum Theorem: The sum of the interior angles of any triangle is equal to 180 degrees.

Two-Dimensional: A figure that is two-dimensional is one which can be represented on a coordinate grid.

Unit Cost: The cost per item or the cost per unit of measure.

Variable: A variable is a symbol, such as a letter, box, star, etc., used to represent an unknown or undetermined value in an expression or number sentence.

Venn Diagram: A diagram that represents sets and shows where those sets intersect pictorially

Vertex: (Plural is vertices.) The point where two sides of a two-dimensional figure meet or the point where two or more edges of a three-dimensional figure meet.

Vertical Angle: The pair of angles opposite each other formed by two intersecting lines.

Vertical Line: The direction from top to bottom or, in everyday terms, upright. In geometry, the word "vertical" means measurements perpendicular to a given base line.

Volume: The size of a three-dimensional shape typically measured in cubic units.

Weight: A measure of the heaviness of an object.

Zero Property: The property that states that the sum of zero and any number is that given number. There exists a unique number, zero, such that the product of any Real number x and 0 is always equal to 0.