Math Dictionary

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Tips For Using This Dictionary:

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A

A.M. - the period of time from midnight to just before noon; morning.

Abacus - an oriental counting device and calculator; a rack of ten wires with ten beads on each wire.

Abelian group - a group in which the binary operation is commutative, that is, ab=ba for all elements a abd b in the group.

Abscissa - the x-coordinate of a point in a 2-dimensional coordinate system.

Absolute Value - a number’s distance from zero on the number line.

Abstract Number - used without reference to any particular unit.

Abundant Number - a positive integer that is smaller than the sum of its proper divisors.

Acceleration - the rate of change of velocity with respect to time.

Accute Triangle - a triangle of which the largest angle measures more than 0o and less than 90o.

Acre - a unit of measure used for measuring land in the United States. An acre is 43,560 square feet or 4,840 square yards.

Acute Angle - an angle whose measure is less than 90 degrees.

Addend - the numbers added in an addition problem, the operation of combining two or more numbers to form a sum.

Addition - the operation of calculating the sum of two numbers or quantities.

Additive Identity - the number 0... Zero can be added to any number and that number keeps its identity (it stays the same.)

Additive Inverse - the number that when added to the original number will result in a sum of zero.

Additive property of inequality - a property of real numbers such that, for any real numbers a, b, and c, if a > b, then a + c > b + c, and also c + a > c + b.

Adjacent - means that two things are next to each other.

Adjacent Angles - two angles that share a ray, thereby being directly next to each other.

Agent - a person who transacts business for another.

Algebra - a problem in which one or more number is unknown.

Algebraic Equation - an equation of the form f(x)=0 where f is a polynomial.

Algebraic Expression - an expression obtained by combining constants and/or variables using the arithmetic operators +, -, x, ./.

Algebraic Number - a number that is the root of an algebraic polynomial.

Algebraic phrase - a meaningful arrangement of numbers and variables.

Algebraic proof - use of definitions, axioms, and deductive reasoning to prove algebraic assertions.

Algorithm - step-by-step procedure by which an operation can be carried out.

Alphametic - a cryptarithm in which the letters, which represent distinct digits, form related words or meaningful phrases.

Alternate Exterior Angles - angles located outside a set of parallel lines and on opposite sides of the transversal.

Alternate Interior Angles - angles located inside a set of parallel lines and on opposite sides of the transversal.

Alternating Sequence - a list of numbers that goes positive, negative, positive, negative... or negative, positive, negative, positive.

Altitude - the altitude of a triangle is the line segment from one vertex that is perpendicular to the opposite side.

Amicable Numbers - two numbers are said to be amicable if each is equal to the sum of the proper divisors of the other.

Analysis - the process of solving problems by tracing the relations of the given results.

Angle - the figure formed by two line segments or rays that extend from a given endpoint, also the measure of the rotation of a ray about its endpoint from an initial position to a final position.

Angle Bisector - a ray that divides an angle into two congruent angles.

Annual - yearly.

Annuity - an investment where you put in a certain amount of money each year or each month.

Annulus - the region enclosed by two concentric circles.

Apothem - a line drawn from the center of the polygon perpendicular to one of its sides.

Arc - portion of a circle.

Area - the number that tells how many square units are contained in a closed figure, the amount of surface contained by a figure, Length x width = Area, lw=A.

Arithmetic - the science of numbers, and the art of computation.

Arithmetic Mean - the arithmetic mean of n numbers is the sum of the numbers divided by n.

Arithmetical Operations - the various changes to which numbers are subject.

Array - a rectangular arrangement of numbers or symbols in columns and rows; a polka-dot grid.

Associative Property - this property applies both to multiplication and addition and states that you can group several numbers that are being added or multiplied(not both) in any way and yield the same value. It is a property of real numbers that notes that, for any real numbers a, b, and c, (a + b) + c = a + (b + c) and (a x b) x c = a x (b x c).

Automorphism - an isomorphism from a set onto itself.

Average - refers to the arithmetic mean.

Average Expected Payoff - an estimate of the amount that will be gained in a game of chance, calculated by multiplying the probability of winning by the number of points won each time.

Axiom - a rule in math that is always true, or a statement that is assumed to be true without proof, also called a postulate.

Axioms of Probability - there are three axioms of probability: 1. Probability is always more than zero 2. The chance that something happens is 1,or 100% 3. If two events cannot both occur at the same time, the chance that either one occurs is the sum of the chances that each occurs.

Axis of Symmetry - a line that cuts an object in half so that the two halves are mirror images of each other.

B

Ball - a sphere together with its interior.

Bar Graph - a diagram showing a system of connections or interrelations between two or more things by using bars.

Base - the number on which the rate is estimated; the side that forms a right angle with the height of the object.

Base Depth of the Triangular Prism - the perpendicular distance from the base of the triangle to the top of the triangle.

Base of the Triangular Prism - the triangular end of the prism.

Basic arithmetic operations - addition, subtraction, multiplication, and division.

Bayes's Rule - a rule for finding conditional probability.

Biannual - twice a year.

Bias - favoring one choice over another in a survey.

Bijection - a one-to-one onto function.

Bill - a written statement of the purchase or sale of goods.

Bimodal - having two modes, which are the most frequently occurring number in a list.

Binary - "base 2" which means that it uses just two digits: 0 and 1.

Binary Number - a number written to base 2.

Binary Operation - a binary operation is an operation that involves two operands. For example, addition and subtraction are binary operations.

Binomial - an expression that is the sum of two terms; polynomial with two terms.

Binomial Coefficient - the coefficients of x in the expansion of (x+1)n.

Biquadratic Equation - a polynomial equation of the 4th degree.

Bisect - to cut an angle in half.

Bisect - to cut in half.

Bisector - the line that cuts an object in half.

Bit - a binary digit.

Borrowing - adding more value from a higher column to the next column so that a larger number can be subtracted, such as from the tens column to the units column.

Borrowing - to rearrange quantities in place values of numbers during calculations.

Boxplot - also called box-and-whisker plot, this graph shows the distribution of data by dividing the data into four groups with the same number of data points in each group. The box contains the middle 50% of the data points and each of the two whiskers contain 25% of the data points.

Braces - the symbols { and } used for grouping or to represent a set.

Byte - the amount of memory needed to represent one character on a computer, typically 8 bits.

C

Calculator - a machine for performing arithmetical calculations.

Calendar - a chart that shows the days of the week and their dates in a month.

Caliban puzzle - a logic puzzle in which one is asked to infer one or more facts from a set of given facts.

Cancellation - simplifying the multiplication of fractions, the process of abridging operations in division by rejecting equal factors. If a numerator is equal to or a multiple of a denominator one of the numbers may be divided into the other. If the numerator and the denominator have the same number, these two numbers cancel out. If, after these, the numerator is larger than the denominator there is a remainder when they are divided.

Capacity - the amount of liquid a container can hold.

Capital of a Company - the money or other property invested by the partners.

Cardinal Number - a number that indicates the quantity but not the order of things.

Cartesian coordinate system - a standard method of locating points in the plane that uses pairs of numbers denoting distances along two fixed intersecting number lines, called the axes. The axes are perpendicular to each other and intersect at the origin of both axes. The system is names for the French mathemetitian Rene Descartes. It is also called a rectangular coordinate system.

Cartesian Coordinates - are a set of numbers officially called “an ordered pair” that are in the form (x , y).

Cartesian Plane - a plane made up of an x axis and a y axis.

Catenary - a curve whose equation is y = (a/2)(ex/a+e-x/a). A chain suspended from two points forms this curve.

Ceiling Function - the ceiling function of x is the smallest integer greater than or equal to x.

Celsius - a scale used on some thermometers to measure temperatures.

Center - the point inside a circle from which all points on the circle are equally distant.

Centimeter - metric unit of measurement: 1 centimeter (cm) = 10 milimeters (mm); 100 centimeters - 1 meter.

Central Angle - an angle between two radii of a circle.

Centroid - the center mass of a figure. The centroid of a triangle is the intersection of the medians.

Centroid of a Triangle - center of the triangle.

Century - a period of one hundred years.

Cevian - a line segment extending from a vertex of a triangle to the opposite side.

Chance - a way of expressing the likelihood of an event; the probability of an event expressed as a percent.

Chord - line segment that connects two points that are on the outside edge (circumference) of the circle.

Chronological order - the order of dates or times when listed from earliest to latest.

Circle - a plane figure bounded by a curved line, called the circumference, every point of which is equally distant from a point within called the center.

Circle - the set of points equidistant from a given point (the center).

Circle graph - a graph made of a circle divided into sectors.

Circular Cone - a cone whose base is a circle.

Circumcenter - the circumcenter of a triangle is the center of the circumscribed circle.

Circumcircle - the circle circumscribed about a figure, the distance around a circle, also called the perimeter of a circle.

Circumference - the boundary of a circle.

Cissoid - a curve with equation y2(a-x)=x3.

Clockwise - moving in the same direction as the arms on a clock.

Coefficients - the numbers in front of the letters in a mathematical expression.

Combinations - how many different ways you can choose things from a set of objects.

Combinatorics - the science that studies the numbers of different combinations, which are groupings of numbers.

Commission - an allowance made to an agent for transacting business.

Common Denominator - a multiple shared by the denominators of two or more fractions, necessary for adding and subtracting fractions.

Common year - a year with 365 days; not a leap year.

Commutative Property - this property of both multiplication and addition states that you can rearrange the order of the numbers being added or reorder numbers being multiplied without changing the value of the expression.A property of real numbers that notes that, for any real numbers a and b, such that a + b = b + a and that a x b = b x a.

Compass - a tool used to draw circles and arcs.

Complementary Angles - two angles whose sum is 90º.

Complementary Probability - considering probabilities in decimal form, the sum of two probabilities equal to one. As a percent, the two probabilities are considered complementary if they sum to 100%.

Complex Fraction - a fraction whose numerator, or denominator, or both, are fractional.

Complex Number - the sum of a real number and an imaginary number.

Composite - a number that has more than two factors.

Composite Number - an integer that has other integral factors besides unity and itself.

Compound Ratio - the product of two or more simple ratios.

Compute - to solve problems that use numbers.

Concave - curved from the inside.

Concave polygon - a polygon in which one or more interior angles have a measure greater than 180.

Concave Up - a curve is “concave up” when it is a concave shape, meaning curved like the inside of a bowl, with the two ends of the curve pointing up.

Concentric Circles - circles that have the same center and varying radii.

Concrete Number - used with reference to some particular unit.

Conditional equation - an equation whose truth or falsity depends on the numbers used to replace the variables in the equation.

Conditional Probability - the probability of an event occurring given that another event also occurs.

Cone - a three-dimensional solid that rises from a circular base to a single point at the top.

Congruent - two objects that are the same size and shape.

Congruent figures - two geometric figures that are identical in size and shape.

Conic Section - the cross section of a right circular cone cut by a plane. An ellipse, parabola, and hyperbola are conic sections.

Conjunction - a statement of two conditions which must both be true in order for the statements to be true.

Consecutive - one right after the other.

Consecutive integers - integers that are 1 unit apart.

Consistent equations - simultaneous equations that have a single solution. The graphs of consistent equations are lines that intersect at a single point.

Constant Functions - stay the same no matter what the variable does.

Constant of proportionality - a constant in an equaion that defines the relationship of two or more variables. In the equation y = 5zx the number 5 is the constant of proportionality.

Constants - things that do not change.

Continuous Graph - in a graph, a continuous line with no breaks in it forms a continuous graph.

Convex polygon - a polygon in which all interior angles have a measure less than or equal to 180.

Coordinate - a number that is associated with a point on a graph.

Coordinate plane - a plane with a coordinate system that can be used to designate the position of any point in the plane.

Coordinate Plane - a plane with a point selected as an origin, some length selected as unit of distance, and two perpendicular lines that intersect at the origin, with positive and negative direction selected on each line.

Coordinates - a unique ordered pair of numbers that identifies a point on the coordinate plane. The first number in the ordered pair identifies the position with regard to the x-axis while the second number identifies the position on the y-axis.

Coplanar - objects that lie in the same plane.

Coprime - integers m and n are coprime if gcd(m,n)=1.

Correlation - a statistical measure referring to the relationship between two random variables. It is a positive correlation when each variable tends to increase or decrease as the other does, and a negative or inverse correlation if one tends to increase as the other decreases.

Correlation Coefficient - a numerical value (between +1 and -1) that identifies the strength of the linear relationship between variables. A value of +1 indicates an exact positive relationship, -1 indicates an exact inverse relationship, and 0 indicates no predictable relationship between the variables.
Corresponding Angles - two angles in the same relative position on two lines when those lines are cut by a transversal.

Counter-Clockwise - moving in the opposite direction of the arms on a clock.

Counting Numbers - the numbers used to count; 1, 2, 3, 4, ...

Cryptarithm - a number puzzle in which an indicated arithmetical operation has some or all of its digits replaced by letters or symbols and where the restoration of the original digits is required. Each letter represents a unique digit.

Cube - a box formed by putting six squares together, connected at the edges; a geometric solid that has six identical square faces. Dice are examples.

Cube Root - one of three equal factors which produce it.

Cubic Equation - a polynomial equation of degree 3.

Cuboctahedron - one of the semi-regular Platonic solids, created by either truncating (cutting off) the cube one half of the way into each edge or by truncating the octahedron one half of the way into each side.

Curve - the path traced by a moving point.

Curved Surface - one no portion of which is plane.

Cyclic Polygon - a polygon whose vertices lie on a circle.

Cylinder - a rounded three-dimensional solid that has a flat circular face at each end.

D

Data - facts that have been collected but not yet interpreted.

Decade - a period of ten years.

Decagon - a ten sided polygon.

Decameter - 10 meters (in the metric system).

Deceleration - a slowing down of speed.

Decimal - part of a number based on ten.

Decimal Fraction - is a fraction whose denominator is 10, 100, 1000, etc.

Decimal Number - a number written to the base 10.

Decimal Places - places to the right of a decimal point.

Decimal Point - the period in a decimal number separating the integer part from the fractional part.

Decimal system - the system of numeration that uses decimal numbers.

Deduction - act of taking away, subtraction; reasoning from the general to the particular, from given premises to their necesary conclusion.

Deficient Number - a positive integer that is larger than the sum of its proper divisors.

Degree - the degree of a term in one variable is the exponent of that variable (as in a degree of a polynomial), a unit of measure for agles. A right angle is a 90 degree angle and a straight angle is a 180 degree angle.

Degree of an Angle - a special unit of measure that measures things that are circular.

Degrees - a circle is measured in units called degrees. The entire circle is 360 degrees, half a circle is 180 degrees, and one quarter of a circle is 90 degrees. The “L” shaped 90 degree circle forms what is called a right angle. When examining circular objects, such as spinners, the size of each segment in the circle can be described in degrees.

Denominator - the number below the fraction bar that indicates how many parts into which the whole is divided.

Dependent equations - simultaneous equations whose solution sets are equal. The graphs of dependent equations are single lines.

Dependent variable - when considering a function, the variable whose value depends on the value assigned to another variable called the independent variable. Where the function $y = 4x + 6$, y is the dependent variable.

Diagonal - in a polygon, the line segment joining a vertex with another (non-adjacent) vertex is called a diagonal.

Diameter - the longest chord of a figure. In a circle, a diameter is a chord that passes through the center of the circle.

Difference - the answer you get when you subtract one number from another number, the remainder in subtraction.

Differential Calculus - that part of calculus that deals with the operation of differentiation of functions.

Digimetic - a cryptarithm in which digits represent other digits.

Digit - In the decimal system, one of the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

Dihedral Angle - the interior angle formed by two planes.

Dimension - the indication of how far something extends in space; especially length, height, and width.

Diophantine Equation - an equation that is to be solved in integers.

Disc - a circle together with its interior.

Discontinuous Graph - a line in a graph that is interrupted, or has breaks in it.

Disjoint Events - events that can't both happen at the same time.

Disjunction - a statement of two conditions of which only one condition must be true in order for the statement to be true.

Distributive Law - the formula a(x+y)=ax+ay.

Distributive Property - summing two numbers and then multiplying by another number yields the same value as multiplying both values by the other value and then adding; a property of real numbers that notes that, for any real numbers a, b, and c, a(b + c) = ab + ac and (b + c)a = ba + ca.

Dividend - in the expression "a divided by b", a is the dividend and b is the divisor; the number you are dividing. The dividend is divided by the divisor to find the quotient.

Division - a basic arithmetical operation determining how many times one quantity is contained within another, the inverse operation of multiplication.

Division sign - .-. A symbol indicating that one number is to be divided by another.

Division is also indicated as a fraction, i.e., 21/7=3.

Divisor - in the expression "a divided by b", a is the dividend and b is the divisor; the number you are dividing by. The dividend is divided by the divisor to find the quotient.

Dodecagon - a twelve sided polygon.

Dodecahedron - 3 dimensional geometric figure (a polyhedron) that is made up of 12 regular pentagons.

Domain - the domain of a function f(x) is the set of x values for which the function is defined.

Domain of the Function F - the set of numbers x for which f(x) is defined.

Domino - two congruent squares joined along an edge.

Dozen - a group of twelve.

Duodecimal Number System - the system of numeration with base 12.

E

Edge - outside boundaries.

Egyptian Fraction - a number of the form 1/x where x is an integer is called an Egyptian fraction.

Elapsed Time - a period of time that has passed, usually between a given starting time and ending time.

Element - a member of or an object in a set.

Elementary Function - one of the functions: rational functions, trigonometric functions, exponential functions, and logarithmic functions.

Elements of Percentage - are the base, the rate, and the percentage.

Ellipse - An ellipse is a stretched out circle whose equation is x2/a2+y2/b2=1.

Ellipsoid - a three dimensional ellipse whose equation is x2/a2+y2/b2+z2/c2=1.

Empty Set - a set with no members. { } Also called the null set.

End Point Convention - in histograms, one needs to decide where to count values that are on the exact boundary between two intervals: either in the left or in the right interval. Let readers of the histogram know which side is chosen.

Endpoints - the points at which a line segment ends.

Enumerable Set - a countable set.

Equal - of the same value.

Equal sign - the = sign used to indicate that both sides of an equation have the same value.

Equality - a math statement showing that two things are equal.

Equally Likely - in probability, when there are the same chances for more than one event to happen, the events are equally likely to occur.

Equals - has the same value as.

Equation - a math statement showing that two things are equal; It is indicated by this sign = . An equation is a statement of equality existing between numbers or combinations of numbers. An algebraic statement connected by an equal sign.

Equiangular Polygon - a polygon all of whose interior angles are equal.

Equiangular triangle - a triangle whose three angles all have equal measure. Each angle in an equilateral triangle has a measure of 60 degrees.

Equichordal Point - a point inside a closed convex curve in the plane is called an equichordal point if all chords through that point have the same length.

Equidistant - the same distance.

Equilateral Polygon - a polygon all of whose sides are equal.

Equilateral Triangle - a triangle whose sides are all the same length.

Equivalent equations - equations that have the same solution set.

Equivalent Fractions - different fractions that name the same amount.

Escribed Circle - an escribed circle of a triangle is a circle tangent to one side of the triangle and to the extensions of the other sides.

Estimate - the best guess arrived at after considering all the information given in a problem.

Euclidean Algorithm - the method for finding remainders by multiplying the divisor by the quotient and subtracting that amount from the number being divided.

Euler Line - the Euler line of a triangle is the line connecting the centroid and the circumcenter.

Euler's Constant - the limit of the series 1/1+1/2+1/3+...+1/n-ln n as n goes to infinity. Its value is approximately 0.577216.

Evaluate - to find the value of an expression.

Even Function - a function f(x) is called an even function if f(x)=f(-x) for all x.

Even Number - an integer that is divisible by 2; any of the set {..., -6, -4, -2, 0, 2, 4, 6, ...}.

Event - in probability, an event is an occurrence or the possibility of an occurrence that is being investigated.

Exact Interest - that which is computed by reckoning 365 days to the year.

Excenter - the center of an excircle.

Excircle - an escribed circle of a triangle.

Expanded Notation - a number written out to show all the place values.

Expected Value - the amount that is predicted to be gained, using the calculation for average expected payoff.

Experimental Probability - the chances of something happening, based on repeated testing and observing results. It is the ratio of the number of times an event occurred to the number of times tested.

Exponent - a little number to the right and a bit above a number.; an expression of the number of times that a base is used as a factor.

Exponential Expression - an expression that indicates that the base is to be used as a factor the number of times shown by the exponent.

Exponential Function - the function f(x)=ex.

Exponential Function to base a - the function f(x)=ax.

Expression - any combination of symbols, numerals, or operators.

Exradius - an exradius of a triangle is the radius of an escribed circle.

Exterior Angles - a pair of parallel lines that are intersected with a transversal.

F

Face Angle - the plane angle formed by adjacent edges of a polygonal angle in space.

Face of a Polyhedron - one the sides of a polyhedron.

Faces - the plane surfaces bounding a solid.

Fact Family - a group of three numbers related by addition and subtraction or by multiplication and division.

Factor (noun) - an exact divisor of a number. This 4 is a factor of 12; any of the numbers or symbols in mathematics that when multiplied together form a product.

Factor (verb) - to find the factors of a number.

Factor in Arithmetic - one or more of the numbers we multiply together to get our answer.

Factorial - n! (read n factorial) is equal to the product of the integers from 1 to n.

Factoring - the operation of finding the integral factors of a given integer.

Fahrenheit - a scale used on some thermometers to measure temperature.

Farey Sequence - the sequence obtained by arranging in numerical order all the proper fractions having denominators not greater than a given integer.

Fermat Number - a number of the form 2^{2^n}+1.

Fermat's Spiral - a parabolic spiral.

Fibonacci Number - a member of the sequence 0, 1, 1, 2, 3, 5,... where each number is the sum of the previous two numbers. Named for Leonardo of Pisa, an Italian mathematician of the Middle Ages, who called himself Fibonacci, short for filiusBonacci which means "son of Bonacci". The original problem he investigated in 1202 A.D. was about how fast rabbits could breed under ideal circumstances. His research led to the construction of this unique set of numbers.

Figurate Numbers - polygonal numbers.

Finite - means that there is an end to the thing you are counting.

Finite Group - a group containing a finite number of elements.

Floor Function - the floor function of x is the greatest integer in x, i.e. the largest integer less than or equal to x.

Focal Chord - a chord of a conic that passes through a focus.

Focal Radius - a line segment from the focus of an ellipse to a point on the perimeter of the ellipse.

Foot of Altitude - the intersection of an altitude of a triangle with the base to which it is drawn.

Foot of Line - the point of intersection of a line with a line or plane.

Formula - a concise statement expressing the symbolic relationship between two or more quantities, a mathematical relationship which uses letters and symbols in place of words, shorthand description of how to solve a problem.

Fourier Series - a periodic function with period 2 pi.

Fractal - an image that is generated by a computer using complex numbers.

Fraction - a rational number of the form a/b where a is called the numerator and b is called the denominator.

Fractional Numbers - express parts of a number.

Fractional parts - portions of an object or quantity which has been divided into smaller pieces.

Frequency - the number of items occurring in a given category.

Frequency Theory of Probability - the probability of an event is the limit of the percentage of times that the event occurs in repeated, independent trials under essentially the same circumstances.

Frequency View - an approach taken by mathematicians and scientists to determine the chances of an event happening by repeating the experiment many times and using the results to calculate the probability.

Frustum - for a given solid figure, a related figure formed by two parallel planes meeting the given solid. In particular, for a cone or pyramid, a frustum is determined by the plane of the base and a plane parallel to the base. NOTE: this word is frequently incorrectly misspelled as frustrum.

Function - a function f of a variable x is a rule that assigns to each number x in the function's domain a single number f(x). The word "single" in this definition is very important.

G

Gaussian Curve - a normal curve.

Generator - the bent line-segment or figure that replaces the initiator at each iteration of a fractal.

Geoboard - a flat board into which nails have been driven in a regular rectangular pattern. These nails represent the lattice points in the plane.

Geodesic - the arc on a surface of shortest length joining two given points.

Geodesic Dome - a spherical structure made up of triangles.

Geodesy - a branch of mathematics dealing with the shape, size, and curvature of the Earth.

Geometric Mean - the geometric mean of n numbers is the nth root of the product of the numbers.

Geometric Progression - a series of numbers which increase or decrease by a common multiplier.

Geometric Sequence - a set where each element is a multiple of the previous element.

Geometric Series - a series in which the ratio of each term to the preceding term is a given constant.

Geometric Solid - the bounding surface of a 3-dimensional portion of space.

Geometry - the branch of mathematics that deals with the nature of space and the size, shape, and other properties of figures as well as the transformations that preserve these properties.

Gergonne Point - in a triangle, the lines from the vertices to the points of contact of the opposite sides with the inscribed circle meet in a point called the Gergonne point.

Golden Ratio - (1+Sqrt[5])/2.

Golden Rectangle - a rectangle whose sides are in the golden ratio.

Graceful Graph - A graph is said to be graceful if you can number the n vertices with the integers from 1 to n and then label each edge with the difference between the numbers at the vertices, in such a way that each edge receives a different label.

Grad (or grade) - 1/100th of a right angle

Gram - a unit of weight in the metric system.

Graph - a graph is a set of points (called vertices) and a set of lines (called edges) joining these vertices.

Graph - a visual representation of data that displays the relationship among variables, usually cast along x and y axes.

Graph of the Function F - the set of all the points on the coordinate plane of the form (x, f(x)) with x in the domain of f.

Great Circle - a circle on the surface of a sphere whose center is the center of the sphere.

Greater Than - having a larger value than.

Greatest Common Divisor - the greatest common divisor of a sequence of integers, is the largest integer that divides each of them exactly.

Greatest Common Factor - same as greatest common divisor.

Greatest Lower Bound - the greatest lower bound of a set of real numbers, is the largest real number that is smaller than each of the numbers in the set.

Group - a mathematical system consisting of elements from a set G and a binary operation * such that x*y is a member of G whenever x and y are (x*y)*z=x*(y*z) for all x, y, and z there is an identity element e such that e*x=x*e=e for all x each member x in G has an inverse element y such that x*y=y*x=e

H

Half-Line - a ray.

Half-Plane - the part of a plane that lies on one side of a given line.

Hankel Matrix - a matrix in which all the elements are the same along any diagonal that slopes from northeast to southwest.

Harmonic Analysis - the study of the representation of functions by means of linear operations on characteristic sets of functions.

Harmonic Division - a line segment is divided harmonically by two points when it is divided externally and internally in the same ratio.

Harmonic Mean - the harmonic mean of two numbers a and b is 2ab/(a + b).

Hectare - a unit of measurement in the metric system equal to 10,000 square meters (approximately 2.47 acres).

Height of the Triangular Prism - the distance between the two bases.

Helix - the path followed by a point moving on the surface of a right circular cylinder that moves along the cylinder at a constant ratio as it moves around the cylinder. The parametric equation for a helix is x=a cos t; y=a sin t; z=bt

Hemisphere - half of a sphere.

Heptagon - a seven sided polygon.

Heronian Triangle - a triangle with integer sides and integer area.

Hexagon - polygon having six equal sides and six equal angles.

Hexagonal Number - a number of the form n(2n-1).

Hexagonal Prism - a prism with a hexagonal base.

Hexahedron - a polyhedron having 6 faces. The cube is a regular hexahedron.

Hexomino - a six-square polyomino.

Histogram - a bar graph such that the area over each class interval is proportional to the relative frequency of data within this interval.

Homeomorphism - a one-to-one continuous transformation that preserves open and closed sets.

Horizontal Line - a line parallel to the earth’s surface or the bottom of a page.

Hundred - 100.

Hundreds column - third column of numbers to the left of the decimal point.

Hyperbola - a curve with equation x2/a2-y2/b2=1.

Hyperbolic Spiral - the curve whose equation in polar coordinates is r*theta=a.

Hyperboloid - a geometric solid whose equation is x2/a2+y2/b2-z2/c2=1 orx2/a2+y2/b2-z2/c2=-1.

Hypotenuse - the longest side of a right triangle.

I

Icosahedron - a polyhedron made up of twenty equilateral triangles.

Icosidodecahedron - a polyhedron - one of the thirteen semi-regular Platonic solids. Formed by either cutting the dodecahedron one half of the way into each side or cutting the icosahedron one half of the way into each side.

Idempotent - the element x in some algebraic structure is called idempotent if x*x=x.

Identity - a number that when an operation is applied to a given number yields that given number. For multiplication, the identity is one and for addition the identity is zero.

Imaginary Axis - the y-axis of an Argand diagram.

Imaginary Number - a complex number of the form xi where x is real and i=sqrt(-1).

Imaginary Part - the imaginary part of a complex number x+iy where x and y are real is y.

Imperfect Power - a number which is not the product of equal factors.

Improper Fraction - a simple fraction whose value is equal to or greater than one, the numerator is greater than the denominator.

Incenter - the incenter of a triangle is the center of its inscribed circle.

Incircle - the circle inscribed in a given figure.

Indefinitely - an unspecified amount, having no exact limits.

Independent Events - two events A and B are independent if the probability that they happen at the same time is the product of the probabilities that each occurs individually.

Inequality - the statement that one quantity is less than (or greater than) another.

Infinite - a list of numbers that goes on forever and ever and never stops.

Infinitesimal - a variable that approaches 0 as a limit.

Infinity - greater than any fixed counting number, or extending forever. No matter how large a number one thinks, infinity is larger than that number. Infinity has no limits.

Inflection - a point of inflection of a plane curve is a point where the curve has a stationary tangent, at which the tangent is changing from rotating in one direction to rotating in the opposite direction.

Initiator - a line-segment or figure that begins as the beginning geometric shape for a fractal. The initiator is then replaced by the generator for the fractal.

Injection - a one-to-one mapping.

Input - the number or value that is entered, for example, into a function machine. The number that goes into the machine is the input.

Inscribed Angle - the angle formed by two chords of a curve that meet at the same point on the curve.

Integer - one of the member of this set: { ... , -3, -2, -1, 0, 1, 2, 3, 4, 5, ... }, numbers that express whole units.

Interest - a sum paid for the use of money.

Intersect - two figures are said to intersect if they meet or cross each other.

Intersection - the point where two lines cross.

Intersection of Sets - a set of elements that appears in both sets.

Involution - the process of raising a number to a given power.

Irrational Number - a number whose decimal part goes on forever and ever without repeating.

Irregular Fractals - complex fractals whose dimension is often difficult to determine and in some cases is unknown.

Isogonal Conjugate - isogonal lines of a triangle are cevians that are symmetric with respect to the angle bisector. Two points are isogonal conjugates if the corresponding lines to the vertices are isogonal.

Isometry - a length preserving map.

Isosceles tetrahedron - a tetrahedron in which each pair of opposite sides have the same length.

Isosceles Trapezoid - a trapezoid whose sides are the same length (congruent.)

Isosceles Triangle - a triangle with two equal sides.

Isotomic Conjugate - two points on the side of a triangle are isotomic if they are equidistant from the midpoint of that side. Two points inside a triangle are isotomic conjugates if the corresponding cevians through these points meet the opposite sides in isotomic points.

Item - the things or objects that are the subject of a bar graph.

Iteration - repeating a set of rules or steps over and over.

J

Joint Probability - the probability of event A and event B happening at the same time.

Joint Probability Function - a function that gives the probability that each of two or more random variables takes at a particular value.

Joint Variation - a variation in which the values of one variable depend upon those of 2 or more variables.

Jordan Curve - a simple closed curve.

Jordan Matrix - a matrix whose diagonal elements are all equal (and nonzero) and whose elements above the principal diagonal are equal to 1, but all other elements are 0.

Joule - a unit of energy or work.

Julia Set - the set of all the points for a function of the form Z^2+C. The iterations will either approach zero, approach infinity, or get trapped.

Jump Discontinuity - a discontinuity in a function where the left and right-hand limits exist but are not equal to each other.

K

Kelvin - a scale used on some thermometers to measure temperature.

Kilo - means “a thousand of.”

Kilobyte - 1000 bytes a unit of measurement for data on computers. Kilo means a thousand of.

Kilogram - 1000 grams. It is the weight of a special platinum rod in Paris that is used as the standard unit of measure for the metric system. A kilogram is about 2.2 pounds.

Kilometer - 1000 meters (a unit to measure length in the metric system). A kilometer is about 3280 feet. Kilo means “a thousand of.”

Kilowatt - 1000 watts and is a unit of measure for electrical power. Kilo means “a thousand of.”

Kinematics - a branch of mechanics dealing with the motion of rigid bodies without reference to their masses or the forces acting on the bodies.

Kite - a quadrilateral that has two sets of adjacent sides that are the same length and one set of opposites angles that are congruent.

Klein Bottle - a special bottle that only has one side. Most bottles have an inside and an outside. In a Klein bottle, the “inside” and the “outside” are the same side!

Knight’s Tour - a knight’s tour of a chessboard is a sequence of moves by a knight such that each square of the board is visited exactly once.

Knot - a curve in space formed by interlacing a piece of string and then joining the ends together; a unit of speed in navigation equal to one nautical mile per hour.

L

L-Tetromino - a tetromino is the shape of the letter L.

Latera Recta - plural of lattice rectum, which see.

Latin Square - an n X n array of numbers in which only n numbers appear. No number appears more than once in any row or column.

Latitude - the angular distance of a point on the Earth from the equator, measured along the meridian through that point.

Lattice Point - a point with integer coordinates.

Latus Rectum - a chord of an ellipse passing through a focus and perpendicular to the major axis of the ellipse. Plural: latera recta.

Leap Year - a year with 366 days, occurs every four years.

Least Common Denominator - (LCD) least common multiple of the denominators of two or more fractions.

Least Common Denominator - the smallest number that can be used as the common denominator for a group of fractions.

Least Common Multiple (LCM) - the least common multiple of a set of integers is the smallest integer that is an exact multiple of every number in the set.

Least Upper Bound - the least upper bound of a set of numbers is the smallest number that is larger than every member of the set.

Legend - a notation on a map, graph, or diagram that describes the meaning of the symbols and or the scale used; list.

Legs of a right triangle - the two sides that are not the hypotenuse. The legs are the two sides that are on either side of the right (90 degree) angle.

Lemata - plural of lemma.

Lemma - a proposition that is useful mainly for the proof of some other theorem.

Length - the straight line distance between two points.

Less Than - having the smaller value than.

Like terms - Mathematical expressions containing the same letters, 5ab and 8ab.

Line - may be considered as the distance between two points, and is represented by joining the two points.

Line Graph - a diagram showing a system of connections or interrelations between two or more things by using lines.

Line of Best Fit - a straight line used as a best approximation of a summary of all the points in a scatter-plot. The position and slope of the line are determined by the amount of correlation between the two, paired variables involved in generating the scatter-plot. This line can be used to make predictions about the value of one of the paired variables if only the other value in the pair is known.

Line Segment - a piece of a line with endpoints at both ends.

Line Symmetry - If a figure is divided by a line and both divisions are mirrors of each other, the figure has line symmetry. The line that divides the figure is the line of symmetry.

Linear - an equation or graph is linear if the graph of an equation is a straight line.

Linear Function - a function of the form f(x) = mx + b where m and b are some fixed numbers. The names “m” and “b” are traditional. Functions of this kind are called “linear” because their graphs are straight lines.

Linear Regression - an attempt to model the relationship between two variables by fitting a linear equation to observed data. One variable is considered as the independent variable, and the other is considered as the dependent variable.

Locus - the set of all points meeting some specified condition.

Logarithm - the exponent of the power to which a base number must be raised to equal a given number.

Logic - the study of the formal laws of reasoning.

Lowest Common Denominator - the smallest number that is exactly divisible by each denominator of a set of fractions.

Lowest Terms - a fraction in which the numerator and denominator have no common factor.

Loxodrome - on a sphere, a curve that cuts all parallels under the same angle.

Lucas Number - a member of the sequence 2, 1, 3, 4, 7,... where each number is the sum of the previous two numbers. L0=2, L1=1, Ln=Ln-1+Ln-2.

Lune - the portion of a sphere between two great semicircles having common endpoints (including the semicircles).

M

Main Diagonal - in the matrix [aij], the elements a11, a22, ..., ann.

Major Axis - the major axis of an ellipse is it’s longest chord.

Malfatti Circles - three equal circles that are mutually tangent and each tangent to two sides of a given triangle.

Mandelbrot Set - generated by taking the set of all functions f(Z)=Z^2+C, looking at all of the possible C points and their Julia sets, and assigning colors to the points based on whether the Julia set is connected or dust.

Matrix - a rectangular array of elements.

Maximum - the largest of a set of values.

Mean - the sum of a list of numbers, divided by the total number of numbers in the list.

Medial Triangle - the triangle whose vertices are the midpoints of the sides of a given triangle.

Median - the median of a triangle is the line from a vertex to the midpoint of the opposite side.

Median - when a set of numbers is ordered from smallest to largest, the median number is the one in the middle of the list.

Mensuration - that branch of mathematics which treats of the measurements of lines surfaces and solids.

Mersenne Number - a number of the form 2p-1 where p is a prime.

Mersenne Prime - a number that is prime.

Metric System - a series of measures whose units are derived from a fixed standard called the meter.

Midnight - 12:00 a.m.

Midpoint - the point M is the midpoint of line segment AB if AM=MB. That is, M is halfway between A and B.

Midpoint Formula - the exact point that's in the middle.

Milligram - one 1000th of a gram.

Millimeter - one 1000th of a meter.

Millisecond - one 1000th of a second.

Minimum - the smallest of a set of values.

Minor Axis - the smallest chord of an ellipse.

Minuend - the number you are subtracting from. The minuend minus the subtrahend equals the difference, or remainder.

Minus sign - the dash symbol - used to indicate that one number is to be subtracted from another.

Mixed Numbers - numbers that have both whole numbers and decimals, or whole numbers and fractions.

Mode - the most frequently occurring value in a sequence of numbers.

Modular Arithmetic - a method for finding remainders where all the possible numbers (the numbers less than the divisor) are put in a circle, and then by counting around the circle the number of times of the number being divided, the remainder will be the final number landed on.

Modulo - the integers a and b are said to be congruent modulo m if a-b is divisible by m.

Modulus - a unit of measure.

Monic Polynomial - a polynomial in which the coefficient of the term of highest degree is 1.

Mono - one.

Monochromatic Triangle - a triangle whose vertices are all colored the same.

Monomial - an algebraic expression consisting of just one term.

Monotone - a sequence the terms of which are not increasing or decreasing.

Multimodal Distribution - a distribution with more than one mode.

Multinomial - an algebraic expression consisting of 2 or more terms.

Multiple - a number that is the product of a given number and some other number.

Multiples - the product of multiplying a number by a whole number.

Multiplicand - a number to be multiplied by another. Factor x factor = Product where the first factor is also called a multiplicand.

Multiplication - the basic arithmetical operation of repeated addition.

Multiplication Rule - the probability that events A and B both occur (i.e., that event AB occurs), is equal to the conditional probability that A occurs given that B occurs, times the unconditional probability that B occurs: P(A & B)=P(A/B)*P(B).

Multiplication sign - usually the symbol x, sometimes a suspended dot (not used with decimal figures), placing numbers in parentheses nest to each other (3)(2)=6. Also placing variables next to each other 4xyz means 4 times the value of x times the value of y.

Multiplicative Inverse - the number that when multiplied by the original number will result in a product of one.

Multiplier - the number which is multiplied times the multiplicand. Factor x factor = Product where the second factor is also called a multiplier.

N

Nadir - the point on the celestial sphere in the direction downwards of the plumb-line.

Nagel Point - in a triangle, the lines from the vertices to the points of contact of the opposite sides with the excircles to those sides meet in a point called the Nagel point.

Natural Numbers - are: { 1, 2, 3, 4, 5, 6, ... } the counting numbers without zero.

Negative Number - numbers that appear to the left of zero on the number line, a quantity having a negative sign.

Net Proceeds - the balance due the consignor after deducting the commission and other changes.

Nine Point Center - in a triangle, the circumcenter of the medial triangle is called the nine point center.

Nine Point Circle - in a triangle, the circle that passes through the midpoints of the sides is called the nine point circle.

Nomograph - a graphical device used for computation which uses a straight edge and several scales of numbers.

Nonagon - a nine sided polygon.

Nonagonal Number - a number of the form n(7n-5)/2.

Nonary - associated with 9.

Noon - 12:00 p.m.

Normal Distribution - also called “bell curve,” the normal distribution is the curved shape of a graph that is highest in the middle and lowest on the sides.

Notation - the method of writing numbers.

Null Hypothesis - the hypothesis that is being tested in a hypothesis-testing situation.

Null set - a set with no members { }

Number - represents the value or quantity of something.

Number Line - an infinitely long line whose points match up with the real number system.

Number Sentence - the complete sentence that uses numbers and symbols but not words.

Number Theory - the study of integers.

Numbers - are used to express how many units, or parts of a unit.

Numeral - a symbol that stands for a number.

Numerator - the number above the fraction bar that indicates the number of parts of the whole that are in a rational number, the number in the top half of the fraction.

Numerical Analysis - the study of methods for approximation of solutions of various classes of mathematical problems including error analysis.

O

Oblate Spheroid - an ellipsoid produced by rotating an ellipse through 360º about its minor axis.

Oblique - slanting or sloping not horizontal or vertical.

Oblique Angle - an angle whose measure is greater than 90 degrees.

Oblique Coordinates - a coordinate system in which the axes are not perpendicular.

Oblique Lines - those which approach each other, and will meet if sufficiently produced.

Oblique Prism - one whose sides do not form 90 degree angles with the bases.

Oblique Triangles - a triangle whose measure is greater than 90 degrees.

Obtuse Angle - an angle larger than 90º but smaller than 180º.

Obtuse Triangle - a triangle that has one angle that is greater than 90 degrees.

Octagon - an eight sided polygon.

Octahedron - a 3 dimensional geometric figure (a polyhedron) that is made up of 8 equilateral triangles.

Octant - any one of the 8 portions of space determined by the 3 coordinate planes.

Odd Function - a function f(x) is called an odd function if f(x)=-f(-x) for all x.

Odd Number - an integer that is not evenly divisible by 2.

One to One - a function f is said to be one to one if f(x)=f(y) implies that x=y.

Onto - a function f is said to map A onto B if for every b in B, there is some a in A such f(a)=b.

Open Interval - an interval that does not include its two endpoints.

Optical Illusion - a drawing or object that appears to have an effect that it does not really have.

Order of Operations - tells which order of operations used to solve math problems: (1) Parenthesis (2) Exponents (3) Multiplication & Division (4) Addition (5) Subtraction. (Please Excuse My Dear Aunt Sally.)

Ordered Pair - a set of two numbers in the form: (x, y).

Ordinal Number - a number indicating the order of a thing in a series.

Ordinate - the y-coordinate of a point in the plane.

Origin - the point at which the horizontal and vertical axes intersect, at zero (0,0).

Orthic Triangle - the triangle whose vertices are the feet of the altitudes of a given triangle.

Orthocenter - the point of intersection of the altitudes of a triangle.

Outcome - any one of the possible results of an experiment.

Outcome Space - the set of all possible outcomes of a given experiment.

Outlier - a data point (or points) that lie far outside most of the rest of the points in the data set.

Outlier - a number in a list of data that is distant from the other numbers in the list.

Output - the number or value that comes out from a process. P0=0, P1=1, and Pn=2Pn-1+Pn-2.

P

P.M. - the period of time between noon to just before midnight.

Palindrome - words, numbers and phrases that can be read the same backwards as forwards. (racecar, 1221)

Palindromic - a positive integer is said to be palindromic with respect to a base b if its representation in base b reads the same from left to right as from right to left.

Pandigital - a decimal integer is called pandigital if it contains each of the digits from 0 to 9.

Paraboloid - a paraboloid of revolution is a surface of revolution produced by rotating a parabola about its axis.

Paradox - a statement that appears to contradict itself.

Parallel - lines that are in the same plane that do not intersect.

Parallel Straight Lines - those which have the same direction.

Parallelepiped - a prism whose bases are parallelograms.

Parallelogram - a quadrilateral that contains two pairs of parallel sides.

Parallelopipedon - a prism having parallelograms for its bases.

Parentheses - the symbols (and) used for grouping expressions.

Partnership - the association of two or more persons in business, who unite their capital and services, and share the gains or losses according to a stipulated agreement.

Pascal’s Triangle - a triangular array of binomial coefficients.

Pattern - characteristic(s) observed in one item that may be repeated in similar or identical manners in other items.

Pedal Triangle - the pedal triangle of a point P with respect to a triangle ABC is the triangle whose vertices are the feet of the perpendiculars dropped from P to the sides of triangle ABC.

Pentagon - a five sided polygon.

Pentagonal Number - a number of the form n(3n-1)/2.

Pentomino - a five-square polyomino.

Percent - hundredths, a ratio that compares a number to one hundred. The symbol for percent is %, (cent = 1/100).

Perfect Cube - an integer is a perfect cube if it is of the form m3 where m is the integer, (m x m x m), (m)(m)(m).

Perfect Number - a positive integer that is equal to the sum of its proper divisors. For example, 28 is perfect because 28=1+2+4+7+14.

Perfect Power - a number which is the product of equal factors.

Perfect Square - an integer of the form m2 where m is an integer, (m x m), (m)(m).

Perimeter - the sum of the lengths of all the sides of a polygon, quadrangle s+s+s+s=p.

Permutation - a particular ordering of a set of objects, an arrangement of objects.

Perpendicular - two straight lines are said to be perpendicular if they meet at right angles.

Personal View - an approach taken by mathematicians and philosophers to calculate probability.

Pi - the ratio of the circumference to the diameter.(3.14)

Pictograph - a graph that uses symbols to represent data.

Pie Chart - a type of chart in which a circle is divided up into portions in which the area of each portion represents the size of the data.

Pie Graph - a diagram showing a system of connections or interrelations between two or more things by using a circle divided into segments that look like triangular pieces of a round pie.

Place Value - within a number, each digit is given a place value depending on it's location within the number; ones, tens, hundreds, thousands.

Plane - a two-dimensional area in geometry.

Plane Surface - one with which a straight line joining any two of its points, will exactly coincide.

Plus sign - the + sign used to indicate the addition of numbers.

Point - has no dimension, it has position only.

Point - in geometry, a point represents a position, but has no size. A point called a vortex.

Polar Axis - a ray from the pole in a fixed direction, analogous to the x-axis in the Cartesian system. The angle between this fixed ray and a ray through the pole and the point of interest gives the value of theta in the coordinate pair (r,theta) used in the polar coordinate system.

Pole - in the polar coordinate system, a fixed point, analogous to the origin in the Cartesian coordinate system. The distance from this point to a point of interest gives the value of r in the coordinate pair (r,theta) used in the polar coordinate system.

Polygon - a closed plane figure formed by three or more line segments that do not cross over each other.

Polyhedra - any solid figure with an outer surface composed of polygon faces.

Polyhedron - a three-dimensional object whose faces are polygons.

Polyomino - a planar figure consisting of congruent squares joined edge-to-edge.

Positive Number - numbers that appear to the right of zero on the number line, a number having a plus sign either expressed or understood.

Power - either the number itself, or the product arising from using the number a certain number of times as a factor.

Practical Number - a positive integer m such that every natural number n not exceeding m is a sum of distinct divisors of m.

Prime - a number that has exactly two factors one and itself.

Prime Number - a number that has exactly two factors, 1 and the number itself.

Primitive Pythagorean Triangle - a right triangle whose sides are relatively prime integers.

Primitive Root of Unity - the complex number z is a primitive nth root of unity if zn=1 but zk is not equal to 1 for any positive integer k less than n.

Principle - a fundamental truth from which other truths are derived.

Prism - a polyhedron that is formed with two parallel polygons that are connected at the edges with rectangles.

Prism - a solid whose bases are equal polygons, and whose sides are parallelograms.

Prisoners - values for c in the Julia Set or Mandelbrot set where at each iteration the resulting value becomes smaller and smaller, approaching zero.

Probability - the measure of how likely it is for an event to occur.

Problem - a question to be solved.

Product - the answer when you multiply two (or more) numbers. Factor x Factor = Product.

Pronic Number - a number of the form n(n+1).

Proof - an argument that shows something (like a theorem) is true beyond any doubt.

Proper Divisor - the integer d is a proper divisor of the integer n if 0<d<n and d is a divisor of n.

Proper Fraction - a simple fraction whose value is less than one, the numerator is smaller than the denominator.

Property of Zero for Multiplication - zero times any number is zero.

Proportion - two ratios that are equivalent to each other, two equal ratios conected by an equal sign.

Protractor - an instrument used to measure and draw angles on a flat surface.

Pyramid - a three-dimensional solid whose base is a polygon and whose sides are triangles that come to a point at the top.

Pythagorean Theorem - the sum of the squares of the lengths of the legs of a right triangle is equal to the square of the length of the hypotenuse.

Pythagorean Triangle - a right triangle whose sides are integers.

Pythagorean Triple - an ordered set of three positive integers (a,b,c) such that a2+b2=c2.

Pythagorean Triples - whole numbers that work together in the Pythagorean theorem.

Q

QED - abbreviation for quod erat demonstrandum, used to denote the end of a proof.

Quadrangle - a closed broken line in the plane consisting of 4 line segments.

Quadrangular Prism - a prism whose base is a quadrilateral.

Quadrangular Pyramid - a pyramid whose base is a quadrilateral.

Quadrant - in Cartesian Coordinate geometry, the coordinate plane is divided into four parts. Each of the four parts is called a “quadrant” and is designated by a roman numeral, I, II, III, or IV. Quadrant I contains all coordinates with positive x and positive y values Quadrant II contains all negative x and positive y values; Quadrant III contains all negative x and negative y values; and Quadrant IV contains all positive x and negative y values.

Quadratfrie - square free.

Quadratic Equation - an equation of the form f(x)=0 where f(x) is a second degree polynomial. That is, ax2+bx+c=0.

Quadratic Function - a function of the form f(x) = ax2 + bx + c where a is not equal to zero (in which case the function turns into a linear function).

Quadrature - the quadrature of a geometric figure is the determination of its area.

Quadric Curve - the graph of a second degree equation in two variables.

Quadric Surface - the graph of a second degree equation in three variables.

Quadrilateral - a polygon having four sides and four angles, i.e. square.

Quadrinomial - an algebraic expression consisting of 4 terms.

Quantity - numerical value, used with reference to some particular unit.

Quartic Polynomial - a polynomial of degree 4.

Quartile - the first quartile of a sequence of numbers is the number such that one quarter of the numbers in the sequence are less than this number.

Quintic Polynomial - a polynomial of degree 5.

Quotient - the answer to a division equation. The dividend is divided by the divisor to find the quotient.

R

Radian - a special unit of measure that measures things that are circular.

Radical - a root of a number.

Radical Axis - the locus of points of equal power with respect to two circles.

Radical Center - the radical center of three circles is the common point of intersection of the radical axes of each pair of circles.

Radicand - the number inside the radical sign.

Radii - plural of radius.

Radius - the length of a straight line drown from the center of a circle to a point on its circumference.

Radius of a Circle - a line segment starting at the center and going to the outer edge of the circle. The radius is half of the diameter.

Radix Point - the generalization of decimal point to bases of numeration other than base 10.

Random Number Generators - a device used to produce a selection of numbers in a fair manner, in no particular order and with no favor being given to any numbers.

Range - the range of a set of numbers is the largest value in the set minus the smallest value in the set. Note that the range is a single number, not many numbers.

Range of the Function F - the set of all the numbers f(x) for x in the domain of f.

Rate - a certain percent of the principal which indicates the interest on one dollar for one year; the number denoting how many hundredths of the base are to be taken.

Ratio - a rational number of the form a/b where a is called the numerator and b is called the denominator, a comparison of numbers, the quotient or result of one quantity divided by another (fraction).

Rational Number - a number that can be written as a fraction with integers as the numerator and denominator.

Rationalize the Denominator - a process that gets rid of the radical in the denominator.

Ray - a straight line that begins at a point and continues outward in one direction.

Real Axis - the x-axis of an Argand diagram.

Real Numbers - consist of both the rational and irrational numbers.

Real Part - the real number x is called the real part of the complex number x+iy where x and y are real and i=sqrt(-1).

Real Variable - a variable whose value ranges over the real numbers.

Reciprocal of a Number - the number need to multiply to get 1 as the answer.

Rectangle - a parallelogram with four right angles and four sides.

Rectangular Coordinate System - a plane made up of an x axis (the horizontal line) and a y axis (the vertical line).

Rectangular Solid - a volume bounded by rectangle faces.

Recursion - given some starting information and a rule for how to use it to get new information, the rule is then repeated using the new information.

Reduce - to rewrite a fraction in lowest terms.

Reflect - to repeat an image by flipping it across a line so it appears as it would in a mirror.

Reflex Angle - an angle between 180º and 360º.

Regrouping - to rearrange quantities in place values of numbers during calculations.

Regular Polygon - a polygon whose side lengths are all the same and whose interior angle measures are all the same.

Relation - ordered pair in the form: (x, y)

Relative Frequency - the number of items of a certain type divided by the number of all the numbers being considered.

Relatively Prime - two numbers that have no common factors other than the number 1.

Remainder - amount left that is left after division.

Remainder - the dividend remaining when the quotient is not equally divisible by the divisor, also the name of the answer in a subtraction.

Repdigit - an integer all of whose digits are the same, 11, 222, 333.

Repeating Decimal - a decimal whose digits eventually repeat; .3333.

Repunit - an integer consisting only of 1's.

Residual - the observed value minus the predicted value. It is the difference of the results obtained by observation, and by computation from a formula.

Rhomboid - a parallelogram having its angles oblique, and its adjacent sides unequal.

Rhombus - a quadrilateral whose sides are all the same length (congruent) and whose opposite interior angles are the same size (congruent.)

Right Angle - an angle of 90°, one side of the angle is perpendicular to the other side.

Right Triangle - a triangle containing an angle of 90 degrees.

Roman Numerals - a system of numeration used by the ancient Romans, seven letters of the Roman Alphabet: I, 1; V, 5; X, 10; L, 50; C, 100; D, 500; M, 1000.

Root - one of the equal factors that will produce it.

Root of a Polynomial - solutions when the polynomial is set equal to zero.

Root of Unity - a solution of the equation xn=1, where n is a positive integer.

Rotate - to rotate an object in a tessellation means to repeat the object by spinning it on a point a certain angle.

Round-off Error - the error accumulated during a calculation due to rounding intermediate results.

Rounding - the process of approximating a number to a nearby number.

Ruled Surface - a surface formed by moving a straight line (called the generator).

Rusty Compass - a pair of compasses that are fixed open in a given position.

S

Sales Tax - the tax charged on the sale of an item and based on the item's purchase price, figured as a percent.

Same Side Exterior Angles - angles located outside a set of parallel lines and on the same side of the transversal.

Same Side Interior Angles - angles located inside a set of parallel lines and on the same side of the transversal.

Sample - a part of a population used to conduct a survey; subset of the population.

Scale - a type of number line used to measure things.

Scalene Triangle - a triangle where no two sides are the same length.

Scatter Plot - a graphical representation of the distribution of two random variables as a set of points whose coordinates represent their observed paired values.

Schedule - a list of events organized by the times at which they are planned to occur.

Scientific Notation - a way to write a number as the product of a number between 1 and 10 and a multiple of 10.

Secant - a straight line that meets a curve in two or more points.

Sector - a non-overlapping piece of an object. In the context of a spinner or a circle graph, a "sector" is one of the sections of the graph.

Sector of a Circle - a pie shaped portion of the area of the circle.

Segment - Line Segment - the finite piece of line that connects two points in space.

Self-Similarity - two or more objects having the same characteristics.

Semi-circle - half of a circle.

Semiannual - twice a year.

Sequence - a list of numbers that typically changes according to a pattern.

Series - the sum of a sequence.

Set - a group of objects.

Side - a line segment that is part of a polygon.

Signed numbers - negative or positive numbers.

Significant Digits - the number of digits to consider when using measuring numbers. There are three rules in determining the number of digits considered significant in a number.1) All non-zeros are significant. 2) Any zeros between two non-zeros are significant. 3) Only trailing zeros behind the decimal are considered significant.

Similar - having the same shape, but not necessarily the same size. Similar figures have matching angles and proportional sides.

Similar Figures - two geometric figures are similar if their sides are in proportion and all their angles are the same.

Similar Polygons - have their angles equal, each to each, the same number of sides, and the sides about the equal angles proportional.

Similar Solids - those which have their solid angles equal and like placed, and are bound by the same number of similar and like-placed polygons.

Similar Triangles - triangles whose corresponding angles are congruent and whose sides are proportional.

Simple Fraction - one which has a single integral numerator and denominator.

Simple Interest - the sum charged for the use of the principal.

Simple Proportion - an equality of simple ratios.

Sine - the ratio of the opposite side to the hypotenuse.

Skeleton Division - a long division in which most or all of the digits have been replaced by asterisks to form a cryptarithm.

Slide Rule - a calculating device consisting of two sliding logarithmic scales.

Slope of a Line - tells us how steep a line is and whether it's going up or down.

Slope of a Linear Function - the slope of the line y = mx + b is the rate at which y is changing per unit of change in x. The units of measurement of the slope are units of y per unit of x (cf Linear Functions Discussion).

Snub Cuboctahedron - created by either truncating tips of the cube or the octahedron.

Snub Icosidodecahedron - created by either truncating the dodecahedron or the icosahedron.

Solid - a three-dimensional figure.

Solid of Revolution - a solid formed by rotating a plane figure about an axis in three-space.

Solidus - the slanted line in a fraction such as a/b dividing the numerator from the denominator.

Sphere - a three dimensional circle.

Spherical Trigonometry - the branch of mathematics dealing with measurements on the sphere.

Square - four sided figure (quadrangles) having four sides that are equal in length and four right angles. Also, a product of a number multiplied by itself x2, (x)(x).

Square Free - an integer is said to be square free if it is not divisible by a perfect square, n2, for n>1.

Square Number - a number of the form n2.

Square Numbers - the answer when you take an integer and multiply it by itself.

Square Root - the number x is said to be a square root of y if x2 = y.

Square Unit - a square with sides of desired length.

Standard Deviation - tells how spread out numbers are from the average, calculated by taking the square root of the arithmetic average of the squares of the deviations from the mean in a frequency distribution.

Straight Angle - an angle that measures 180o and thus forms a straight line.

Subjective Theory of Probability - a number that measures how strongly we believe an event will occur. The number is on a scale of 0% to 100% (or 0 to 1), with 0% indicating that we are completely sure it won't occur, and 100% indicating that we are completely sure that it will occur.

Subscript - in mathematics, subscripts are numbers or letters written below and to the right of other numbers or letters.

Subset - a set whose members are part of a bigger set.

Subtraction - a basic operation of arithemtic in which you take away one number from another, the process of finding the difference; the inverse of addition. The minuend minus the subtrahend equals the remainder.

Subtrahend - the smaller number in a subtraction problem. The minuend minus the subtrahend equals the remainder.

Sum - the result of adding two or more numbers, the answer in an addition.

Summation - notation to represent a series.

Superscript - in mathematics, superscripts are numbers or letters written above and to the right of other numbers or letters or symbols indicating how many times the latter is to be used as a factor. When typing, one can represent a superscript by using the ^ symbol to indicate raising the number.

Supplementary - two angels are supplementary if they add up to 180º.

Surface - has length and breath.

Surface Area - a measure of the number of square units needed to cover the outside of a figure.

Survey - a method of collecting data about a particular population.

Symmedian - reflection of a median of a triangle about the corresponding angle bisector.

Symmetry - the correspondence in size, form, or arrangement of parts on a plane or line. In line symmetry, each point on one side of the line has a corresponding point on the opposite sidee line. Plane symmetry refers to similar figures being repeated at different but regular locations on the plane.

System of Equations - have more than one equation and more than one variable to solve (the unknowns).

T

Table - a way of organizing data in columns and rows.

Tally Mark - a small mark used to help keep track of a count.

Tangent - a line that meets a smooth curve at a single point and does not cut across the curve.

Tangent - the secant of an angle is the ratio of the opposite side to the adjacent side.

Tangent Line - a line that intersects a circle or graph in just one local point.

Tautology - a sentence that is true because of its logical structure.

Tens column - the second column of numbers to the left of the decimal point.

Terms - individual numbers in a mathmatical operation or equation. Like terms use the same letters 5ab and 8ab. Unlike terms use different letters 7xy and 9yz.

Tessellation - a repeated geometric design that covers a plane without gaps or overlaps.

Tetrahedron - a three dimensional geometric figure (a polyhedron) that is made up of 4 equilateral triangles.

Tetromino - a four-square polyomino.

Theorem - a mathematical statement that has been proven to be true.

Theoretical Probability - the chances of events happening as determined by calculating results that would occur under ideal circumstances.

Theories of Probability - a theory of probability is a way of understanding probability statements. That is, a theory of probability connects the mathematics of probability, which is the set of consequences of the axioms of probability, with the real world of observation and experiment.

Toeplitz Matrix - a matrix in which all the elements are the same along any diagonal that slopes from northwest to southeast.

Tolerance - the amount of error accepted in a given situation.

Torus - a geometric solid in the shape of a donut.

Total - sum, or the overall sum of numbers, or quantities, of many equations.

Trace - the trace of a matrix is the sum of the terms along the principal diagonal.

Transcendental Number - a number that is not algebraic.

Translate - In a tessellation, to translate an object means repeating it by sliding it over a certain distance in a certain direction.

Transversal - a line or ray that divides other lines or rays.

Trapezium - a quadrilateral in which no sides are parallel.

Trapezoid - a quadrilateral with exactly one pair of parallel sides.

Triangle - a geometric figure with three sides.

Triangular Number - a number of the form n(n+1)/2.

Trigonometry - the study of the geometry of triangles.

Trinomial - an algebraic expression consisting of 3 terms; a polynomial with three terms.

Tromino - a three-square polyomino.

Truncated Cube - created by truncating the tips of the cube one third of the way into each edge.

Truncated Cuboctahedron - created by truncating (cutting off) the cuboctahedron one third of the way into each side.

Truncated Dodecahedron - created by truncating (cutting off) the tips of the dodecahedron one third of the way into each edge.

Truncated Icosahedron - created by truncating (cutting off) the tips of the icosahedron one third of the way into each edge.

Truncated Icosidodecahedron - created by truncating (cutting off) the icosidodecahedron one third of the way into each side.

Truncated Octahedron - created by truncating (cutting off) the tips of the octahedron one third of the way into each edge.

Truncated Pyramid - a section of a pyramid between its base and a plane parallel to the base.

Truncated Tetrahedron - created by truncating (cutting off) the tips of the tetrahedron one third of the way into each edge.

Twin Primes - two prime numbers that differ by 2. For example, 11 and 13 are twin primes.

U

U.S. Customary System - a system of measurement used almost exclusively in the United States of America. (teaspoon, tablespoon, ounce, cup, pint, quart, gallon; inch, foot, yard, mile; ounce, pound, ton)

Undefined - if the denominator of a fraction is 0, then the fraction is undefined.

Undefined Slope - vertical lines that have slopes that are called undefined.

Unilateral Surface - a surface with only one side, such as a Moebius strip.

Unimodal - a finite sequence is unimodal if it first increases and then decreases.

Unimodular - a square matrix is unimodular if its determinant is 1.

Union of Sets - the set of all the objects contained by at least one of the sets. The symbol for union is U.

Unit - a single thing used as a standard or measure.

Unit Circle - a unit circle is a circle with radius 1, circle of radius 1 centered at the origin (0,0) of the Cartesian coordinate system.

Unit Cube - a cube with edge length 1.

Unit Fraction - a fraction whose numerator is 1.

Unit Square - a unit square is a square of side length 1.

Unitary Divisor - a divisor d of c is called unitary if gcd(d,c/d) = 1.

Units column - the first column of numbers to the left of the decimal point.

Unity - one

V

Variable - a symbol whose value can change.

Vector - a ray that has a magnitude and a direction.

Vector Space - the three dimensional area where vectors can be plotted.

Velocity - the rate of change of position over time is velocity, calculated by dividing distance by time.

Venn Diagram - a diagram where sets are represented as simple geometric figures, with overlapping and similarity of sets represented by intersections and unions of the figures.

Vertex - the corners on a polygon.

Vertical - a line that goes up and down and is perpendicular to the horizon.

Vertical Angles - the two nonadjacent angles formed when two straight lines intersect.

Vertical Line - a line that runs up and down and is perpendicular to a horizontal line.

Vigesimal - related to intervals of 20.

Vinculum - the horizontal bar in a fraction separating the numerator from the denominator.

Volume - a measure of the number of cubic units needed to fill the space inside an object, length x width x height = volume therefore the units are cubed.

Vulgar Fraction - a common fraction.

W

Weak Inequality - an inequality that permits the equality case. For example, a is less than or equal to b.

Weight - the measure of the earth's attraction in reference to a certain object.

WFF - a well-formed formula.

Whole Numbers - the counting numbers. { 0, 1, 2, 3, 4, 5, 6, ... }

Width of the Triangular Prism - The length of the base of the triangle.

Winding Number - the number of times a closed curve in the plane passes around a given point in the counterclockwise direction.

X

X-Axis - the horizontal axis in the plane.

X-Intercept - the point at which a line crosses the x-axis.

X-Pentomino - a pentomino in the shape of the letter X.

X-Roman numeral for 10.

Y

Y-Axis - the vertical axis in the plane.

Y-Intercept - the point at which a line crosses the y-axis.

Y-Intercept - the y-coordinate of the point where the line crosses the y-axis.

Yard - a measure of length equal to 3 feet or 36 inches.

Year - a measure of time equal to the period of one revolution of the earth about the sun. Approximately equal to 365 days.

Z

Z-Intercept - the point at which a line crosses the z-axis.

Zero Divisors - nonzero elements of a ring whose product is 0.

Zero Element - the element 0 is a zero element of a group if a+0=a and 0+a=a for all elements a.

Zone - the portion of a sphere between two parallel planes.