

Advanced Math

ABSOLUTE VALUE - The distance of a number from zero; the positive value of a number.

< 2 indexes draw 2 lines down - like the symbol >

ALGEBRA - A branch of mathematics in which symbols, usually letters of the alphabet, represent numbers or members of a specified set and are used to represent quantities and to express general relationships that hold for all members of the set.

<2 "A"s like "math">

ANALYZE - To examine methodically by separating into parts and studying their interrelations.

<"analyze">

ANGLE - The union of two rays with a common endpoint, called the vertex.

<DH index outlines "L" of NDH>

APPROXIMATE (verb)- To come close to; be nearly the same as.

<"approximate">

AREA - The number of square units that covers a shape or figure.

<"area">

ASYMPTOTE - Lines that resemble the graph of a rational expression in certain regions of the coordinate plane.

<"line" bounced to indicate a dotted line.>

AVERAGE - A number that represents the characteristics of a data set.

<"average">

AXIS - One of the reference lines of a coordinate system.

<2h "B"s makes an "X" or DH "X" draws horizontal line + then "Y" draws vertical line>

BASE - 1. The side or face of a geometric figure to which an altitude is to be drawn. 2. The number that is raised to various powers to generate the principal counting units of a number system.

<outline geometric shape, then hold w/NDH and use index of DH to point to the base of the shape or fingerspell "b-a-s-e">

BINOMIAL - Two terms connected by (+) or (-).

<2h big "G"s >

BOTH SIDES (of an equation) - The process of doing the same operation on both sides of an equation.

<DH and NDH point to both sides of an imaginary equation simultaneously>

For phrases like 'add 2 to both sides' one can sign "Add 2" <in left space> then "Add 2" < in right space simultaneously>

CALCULATE, FIGURE - To ascertain by computation.

< "figure-out" >

CALCULATOR - An electronic or mechanical device for the performance of mathematical computations.

< fingers of DH tap on palm of NDH; mime using a calculator>

CALCULUS - The branch of mathematics that deals with limits and the differentiation and integration of functions of one or more variables.

< 2 "C"s like "math">

CIRCLE - A plane curve equidistant from a given fixed point, the center.

< NDH holds modified "C" DH outlines circle >

CIRCUMFERENCE - The boundary line of a circle.

< "measure" + "circle">

COEFFICIENT - A constant factor as distinguished from a variable in a mathematical term.

<"number" + "with" + "letter">

"COMPLETE THE SQUARE" - Raising a term to the second power.

<"make" or "raise-to" + "square">

COMPLEX (fraction) - A fraction with a fraction or mixed number in the numerator or denominator or both.
<"complicated">

CONJUGATE - Inversely or oppositely related with respect to one of a group of otherwise identical properties, especially designating either or both of a pair of complex numbers differing only in the sign of the imaginary term.
< "opposite">

CONTINUOUS, CONTINUUM - Of or relating to a line or curve that extends without a break or irregularity.
< "continue">

COSINE - 1. In a right triangle, the ratio of the length of the side adjacent to an acute angle to the length of the hypotenuse. 2. The abscissa at the endpoint of an arc of a unit circle centered at the origin of a Cartesian coordinate system, the arc being of length x and measured counterclockwise from the point $(1, 0)$ if x is positive or clockwise if x is negative.
<C-O-S>

CUBED - A number raised to the third power; a number multiplied by itself three times.
<DH 3:CL start palm-out and twist up to palm-in high space>

DECIMAL (NUMBER) - A proper fraction in which the denominator is the power of ten.
<"period">

DENOMINATOR - The bottom part of a fraction.
<DH shakes "D" under NDH horizontal "B">

DIAGONAL - The line segment connecting two nonadjacent vertices in a polygon.
< draw a diagonal line with a "B" or 1"CL>

DIAMETER - The line segment joining two points on a circle and passing through the center of the circle.
<"measure" + NDH hold modified "C" DH draws the diameter>

DISCRETE - Defined for a finite or countable set of values; not continuous.
<"limit">

DETERMINANT - The value computed from a square matrix of numbers by a rule of combining products of the matrix entries and that characterizes the solvability of simultaneous linear equations. Its absolute value can be interpreted as an area or volume.

<D-E-T>

DIFFERENCE - The amount by which one number differs from another.

< BH point left, right> + "different" + "how much"

DOMAIN - The set of values to which a variable is limited.

<"group">

ELLIPSE - A closed plane curve generated by a point moving in such a way that the sums of its distances from two fixed points is a constant.

<BH "C"s FT touching (ball) flattened>

EXPRESSION - A mathematical symbol or combination of symbols and signs representing a quantity or operation.

<"math" + "sentence">

EQUAL, EQUIVALENT - Having the same value.

<"equal">

EQUATION - A statement of the equality of two mathematical expressions.

< 2h "E"s palms-out, DH moves horizontally >

EVEN - Characterized or indicated by a number exactly divisible by 2.

<E-V-E-N>

F OF X - (need definition)

<F + BH draw parenthesis with index fingers + X placed within the parenthesis>

FACTOR - Any of the numbers or symbols in math that when multiplied together form a product.

<"divide" several times moving down>

"FACTOR OUT" - (factoring out the GCF) Using the distributive property to find the individual factors of a product that has two or more terms

<"parenthesis" + 2h bent "V" (pulls number out of parenthesis, puts in front parenthesis)>

FINITE - Having boundaries or limited.

<"limit">

FIXED - Stationary; established; set; constant.

<"establish">

GRAPH - A diagram that represents change in one variable in comparison with that of one or more other factors.

<DH 4 fingertips drag down NDH palm; DH hand drags across NDH palm>

GREATER THAN - Larger in quantity.

<DH bent-B is held above and touching NDH Bent-B; DH moves up> or <"more" + "than">

GREATEST COMMON FACTOR - The largest number that divides two or more numbers evenly.

<"G-C-F">

HYPERBOLA - The graph of a rational function $f(X) = (x-h)+k$ whose center is (h,k)

<BH draw a ")(" shape>

IDENTITY - An equation that is satisfied by any number that replaces the letter for which the equation is defined.

< "identity">

IMAGINARY (number) - A complex number whose imaginary part is not zero.

<"imagination">

INDETERMINATE - Not known in advance; not leading to a definite end or result.

<"not" + "definite">

INEQUALITY - A formal statement of inequality between two quantities.

<"sentence" + "not" + "equal"> or <outline small "L" with DH>

INFINITE - Having no boundaries or limits.

<DH palm-down "I" draws the infinity symbol (a sideways 8)>

INTEGER - A number that is a natural number (as 1,2,or 3), the negative of a natural number, or zero, also called a whole number.
<"number">

INVERSE - Two operations that undo each other.
<"flip-flop">

IRRATIONAL - A real number that cannot be expressed as the quotient of two integers.
<"fraction" initialized with DH I in numerator moving to R in the denominator>

LEAST COMMON MULTIPLE - The smallest nonzero number that is a multiple of two or more numbers.
<"L-C-M">

"LESS THAN" - More limited in quantity.
< DH bent-B is held below and touching NDH bent-B; DH moves down>

"LESS THAN" or "EQUAL TO" - More limited in quantity or equivalent to.
<"equal" + "less-than">

LINE - A straight set of points that extends into infinity in both directions.
<"line">

LINE SEGMENT - Two points on a line, and all the points between those two points.
<"line" + 2h "dot" (at each end)>

LOGARITHM - The logarithm of any given number is the exponent of a power to which another given invariable number, called the base, must be raised in order to produce that given number.
<"L-O-G">

MATH - A science (or group of related sciences) dealing with the logic of quantity and shape and arrangement.
<"math">

MATRIX - A rectangular array of numeric or algebraic quantities subject to mathematical operations.
<2"M"s draw brackets []>

MEAN, AVERAGE - Having an intermediate value between two extremes, or between the several successive values of a variable quantity during one cycle of variation.

<"average">

MEASURE, MEASUREMENT - Dimensions, quantity, or capacity as ascertained by comparison with a standard.

<"measure">

MEDIAN - Relating to or constituting the middle value of an ordered set of values (or the average of the middle two in an even-numbered set).

<"range" or "middle" + "number">

MINUS, NEGATIVE - A negative quantity; requiring subtraction.

<"negative">

MODE - The number or range of numbers in a set that occurs the most frequently.

<"M-O-D-E">

MULTIPLY - To increase the amount, number, or degree of.

<"multiply">

NUMERATOR - The top part of a fraction.

<DH "N" shakes over ND horizontal "B">

ODD - Designating an integer not divisible by two, such as 1, 3, and 5.

<"O-D-D">

ORDERED PAIR - X,Y representing coordinates on a graph in a specific order; X being first, Y last.

<"couple">

ORIGIN - The point (0,0) on a coordinate plane, where the x-axis and the y-axis intersect.

<2h "B"s makes a plus sign, hits twice; then DH points to center of NDH>

PARABOLA - The curve formed by the intersection of a cone with a plane parallel to one of the sides.

<NDH index points towards DH; DH index touches NDH index arcs up and draws a U shaped curve following the natural shape of a parabola (Sometimes signed with P's)>

PERCENT - A fraction, or ratio, in which the denominator is assumed to be 100. The symbol % is used for percent.

<"percent">

PERCENTILE - One of a set of points on a scale arrived at by dividing a group into parts in order of magnitude. For example, a score equal to or greater than 97 percent of those attained on an examination is said to be in the 97th percentile.

<"percent" initialized with "P">

PERIMETER - The sum of the lengths of the sides of a polygon.

PERPENDICULAR - Two lines are perpendicular if the angle between them is 90 degrees.

<2 indexes; one index taps the other at a 90 degree angle>

pi - The ratio of the circumference of a circle to its diameter.

<"P + I">

PLOT (verb) - to locate a point by means of coordinates

<"graph" + "period">

"PLUG IN" - to replace a variable with a given value

<"replace">

PLUS, POSITIVE - numerically greater than zero

<BH 1's draw a '+' symbol>

PROBABILITY - The likelihood of the occurrence of any event in the doctrine of chances, or the ratio of the number of favorable chances to the whole number of chances, favorable and unfavorable.

< "can" DM or "guess" or "P" shake or "colon (:)">

PRODUCT - The result of two numbers being multiplied together.

<2 "P"s like "make">

PROPORTION - An equation of fractions in the form:

$a/b = c/d$.

<2 "P"s movement like "also">

QUADRANT - Any one of the four corners into which something is divided by two lines intersecting each other at right angles.

<DH palm-out 5 moves circularly between space delimited by thumb and index of NDH palm-out L>

RADICAL - A sign placed over a mathematical expression to indicate its' root is to be taken.

<DH with index finger draws root symbol>

RADIUS - The distance from the center to a point on a circle; the line segment from the center to a point on a circle.

<"R" indicates radius of circle>

RANGE - The difference between the least and greatest values.

<"Range" (NDH palm-in, DH B palm-vertical swipes NDH palm from left to right)>

RATE - A quantity measured with respect to another measured quantity.

<r-a-t-e>

RATIO, RATIONAL - The quotient of two numbers or mathematical expressions.

<"fraction" initialized with DH R>

RAY - Arc of a line, with one endpoint, and extending to infinity in one direction.

<NDH holds point; DH "R" moves out

RECIPROCAL, INVERT (A FRACTION) - A pair of numbers whose product is one ex: $(2/3) (3/2)$.

<DH flips to index below and middle finger above> (Index finger represents fraction bar, DH V signs "visa-versa")>

RIGHT ANGLE - An angle whose measure is 90 degrees.

<ND holds "L"; DH "R" outlines "L">

SIGN - A character indicating a mathematical operation.

<"plus" + "minus">

SIMPLIFY - To make simple or simpler; to render less complex.

<"condense" or "reduce">

SINE - 1. The ordinate of the endpoint of an arc of a unit circle centered at the origin of a Cartesian coordinate system, the arc being of length x and measured counterclockwise from the point $(1, 0)$ if x is positive or clockwise if x is negative. 2. In a right triangle, the ratio of the length of the side opposite an acute angle to the length of the hypotenuse
<S-I-N>

SET - A collection of mathematical elements (as numbers or points).
<"group">

SOLUTION - The value of a variable that makes an equation true.
<"answer">

SQUARE - A quadrilateral with four equal sides and four 90 degree angles.
<shake "2">

SQUARE ROOT - The square root of x is the number that, when multiplied by itself, gives the number, x .
<"radical">

STATISTICS - The science of collecting, organizing, and analyzing data.
<2 "S"s like "math">

SUBSTITUTE - To increase the amount, number, or degree of.
<"replace">

SUBTRACT - To deduct any number from another.
<"take away" (indicate removing something from NDH palm)>

SYMBOL - Something that represents something else by association, resemblance, or convention, especially a material object used to represent something invisible
<like "show" but use "S">

TABLE (of values) - A systematic arrangement of data in rows or columns for ready reference.
<BH loose G's palms-out draw vertical rows>

TANGENT - The trigonometric function of an acute angle in a right triangle that is the ratio of the length of the side opposite the angle to the length of the side adjacent to the angle.

<T-A-N>

TERM - A mathematical expression connected with another by a plus or minus sign.

<DH palm out open G moves slightly outward>

TRANSPOSE - To move (a term) from one side of an algebraic equation to the other side, reversing its sign to maintain equality.

<2 flat "A"s flip-flop>

TRIANGLE - A three-sided polygon.

<2 indexes draw triangle>

TRIGONOMETRY - The branch of mathematics that deals with the relationships between the sides and the angles of triangles and the calculations based on them, particularly the trigonometric functions.

<2 "T"s like "math">

TRINOMIAL - Three terms connected by (+) or (-)

<"3" + "Term" 2h big "G" +>

UNDEFINED - Not specified distinctly, without set bounds.

<fingerspell UNDEFINED>

VALUE - An assigned or calculated numerical value.

< important" - but contact is made at index tips only DM>

<"letter" + "variety">

VARIABLE - A quantity that may assume any one of a set of values; a symbol in a mathematical formula representing a variable.

<"Letter">

Y-INTERCEPT - The value of y at the point where a curve crosses the y-axis.

X OVER Y (DIVIDED BY) - a fraction with X in the numerator and Y in the denominator

x (above) + <DH palm-down 1 draws a horizontal line> + Y below

X INTO Y (DIVIDED INTO) - A fraction with Y in the numerator and X in the denominator x (below) + <DH palm-down 1 draws a horizontal line> + Y above>