A List of Mathematical Words and Phrases

[Version 2.0]

Not included in this selection of about 2000 words and phrases, are all the number words (except for a few special ones) and all fractions. Similarly, only the more usual shapes are listed. While many, but not every, possible unit of linear measure is included, compound measures are not. Spellings are UK English (*metre rather than meter etc.*)

at the back -

Table Ilists the Greek alphabetTable IIlists the SI prefixes and their values

We should be glad to be told of errors and omissions.

Α

A P R abacus Abelian group abscissa absolute convergence absolute difference absolute error absolute unit absolute value absolute zero abstract algebra abundant number acceleration account accuracy Achilles and the tortoise acnode acre actuary acute angle acute triangle ad infinitum add addend addition addition formula additive identity additive inverse additive number system adjacent angles adjacent edges (or sides) adjunction aggregrate affine aleph null algebra algebraic fraction algebraic number algorithm alidade aliquant part aliquot part alpha alphametics alternate angle alternate segment alternating group alternating series altitude (of a shape) ambiguous case

amicable pair amplitude amount analogue analysis analysis situs analytic engine analytic geometry anchor-ring angle angle at the centre angle bisector angle in a segment angle in a semicircle angle of declination angle of depression angle of elevation angle of repose angle properties of a circle angle sum angle, vertex angstrom angular velocity anharmonic ratio annual annual percentage rate annuity annular annulus annum answer ante meridiem (a.m.) anticlockwise antilogarithm antipodal points antiprism AP aperiodic apex aphelion apogee Apollonius' circle Apollonius' theorem apothecaries measure apothem appreciate approximate APR Arabic numerals arc arccos Archimedean solid

Archimedes' spiral arcsin arctan are (unit of area) area Argand diagram argument arithmetic arithmetic mean arithmetic progression arithmetic series arm of an angle array arrow diagrams arrowhead ascending assets assign associative assumption asterithm astroid astronomical unit asymmetric asymptote attoaugend automorphic number auxiliary circle average avoirdupois axes axiom axis axis of rotation axis of symmetry azimuth

B

Babylonian number system back bearing balance ballistics bar (as a unit) bar (in logarithms) bar characteristic bar chart or graph barrel (as a shape) barrel (as a unit) base (and index) base (in number) base (of a shape) BASIC basic wage beam compass bearing bench marks beta biannual biased bicimal biennial bijection bilateral symmetry billion bimodal binary number binary operation binomial binomial distribution binomial theorem biometry biquadratic bisect bisector bit bivariate block graph BODMAS bonus Boolean algebra border patterns boundary bounds box and whisker plot boxplot braces brachistochrone brackets breadth Brianchon's theorem bridges of Konigsberg Brigg's logarithms Brocard's points Buffon's problem bushel buying price byte

С

C and C++ C G S System calculate calculator calculus calendar calibrate calorie cancel cancellation cap (in set notation) cap (of a sphere) capacity carat cardinal numbers cardinal points (of compass) cardioid casting out nines Cartesian coordinates Cartesian product category categorical data catenary Cauchy's test caustic Celsius degree Celsius scale census cental centesimal centicentigrade (angle) centigrade (temperature) centilitre centillion centimetre central tendency centre centre of enlargement centre of rotation centre of symmetry centred-polygon numbers centroid certain certainty Ceva's theorem chain chaining line chain rule chance

changing the subject characteristic chi chord circle circle, great circle, small circular cone circular functions circular paraboloid circumcentre circumcircle circumference circumscribe circum-sphere cissoid of Diocles class class interval class limits clinometer clock arithmetic clockwise closed set closed curve closed interval coaxial circles codomain coefficient (in algebra) coefficient (in science) co-interior angles collinear column column graph column matrix column vector combined events combined probabilities combination commensurable commission common denominator common difference common divisor common factors common fractions common logarithms common multiple common ratio common tangent commutative compass (directions) compass (drawing instrument)

compass and traverse complement (of an angle) complement (of a set) complementary addition complementary angles complementary ratios complementary set complete quadrangle complete quadrilateral complete the square complex fraction complex numbers component composite function composite number composite shape compound event compound interest compound measures comptometer computation computer concave concave polygon concentric circles concurrent concylic conchoid conchoid of Nicomedes conditional equation conditional probability cone confidence interval congruent (in number) congruent (in shape) conic conical conic sections conjecture conjugate conjugate angles connective consecutive numbers conservation consistent equations constant construction contingency table continued fraction continued product continuity continuous

continuous variable continuum contrapositive convention convergent series convergent lines converse conversion factors conversion graph conversion scale convex polygon convex polyhedron coordinates coplanar coprime corner corollary correct to correlation correspondence corresponding angles corresponding points cos cosecant cosine cosine curve cosine formula cosine rule cost price cotangent count counter clockwise counter example counting numbers counting on counting out problem Cramer's rule crescent criteria critical path cross-multiply cross-section cross-staff cryptarithm cube (number) cube (shape) cube root cubic cubic (volume) cubic equation cubic function cubit

cuboid cumulative frequency cumulative frequency diagram cup currency curvature curve curve of constant breadth curve of distribution curve of pursuit curved surface curvilinear cusp cybernetics cycle cyclic cyclic formulas cyclic group cyclic permutation cyclic quadrilateral cyclic variations cycloid cyclotomy cylinder

D

D'Alembert's test data database datum day DeMoivre's theorem De Morgan's law decadecade decagon decahedron decametre decay deceleration decemdecidecibel decilitre decimetre decimal decimal fraction decimal numbers decimal places decimal point decimal system

decimetre decomposition decreasing Dedekind cut deduce deduct deduction deficient number definite integral definition degenerate conic degree (angle) degree (temperature) degree of a polynomial degree of a term degree of an equation deka -Delian problem delta deltahedron deltoid denary denominator density denumerable dependent events dependent variable depreciation depression depth derangements derivative derived funtion derived units Desargues' theorem descending determine determinant development of surface deviation diagonal diagonal matrix diagonal scales diameter Dido's problem difference difference of two squares difference engine differentiation differential calculus differential coefficient digit

digit sum digital digital invariants digital root dihedral angle dilation dimension **Diophantine** analysis direct direct common tangent direct isometry direct proof direct proportion direct route directed line directed numbers direction director circle directrix discontinuity discount discrete discrete data discrete variable discriminant disjoint disjunction dispersion displacement disprove dissection distance distribution distributive law diverge divergent lines divergent series divide dividend dividers divisible divisibility tests division divisor dodecadodecagon dodecahedron domain dominoes dot product double double time

doubling sequence dozen dp or d.p. dram drop a perpendicular dry measures dual duodecagon duodecimal duplication problem dyadic dynamics

E

e eccentric circles eccentricity ecliptic edge Egyptian numbers eight eighth (a fraction) eighth (in order) element elements of geometry elevation (angle of) elevation (in a drawing) elimination ellipse ellipsoid empirical empty set enantiomorphic end points ends enlargement enlargement matrix enumerate envelope epicycloid epsilon epitrochoid error equal equal addition equally likely equality equation equation of a line equations of uniform motion equator equiangular

equiangular spiral equidistant equilateral equilateral triangle equilibrium equinox equipotent equivalence equivalent equivalent fractions equivalent ratios Eratosthene's sieve error escribed circle estimate eta Euclid's algorithm Euclidean geometry Euclidean space Euler points Euler square Euler's formula Euler's constant evaluate even number even chance evenly even number evens event even vertex evolute evolution exaexcentre exchange rates exclusive events excosecant expand expansion expected value experimental probability explicit exponent exponential curve exponential equation exponential function exponential series expression exsecant exterior angle extracting a root extrapolate

F f(x)F(x)F(x, y)F P S system face (in topology) face (of a shape) face diagonal factor factorial factorize factors factor theorem Fahrenheit scale fair fallacy false farad fathom feet femto-Fermat's last theorem Fermat's problem Fibonacci sequence field fifteen puzzle figurate numbers finger reckoning finite finite arithmetic finite differences finite set first flexagon floating point flow chart fluid measure focus foot foot of a perpendicular formula forty four four 4's problem fourth four colour problem Fourier series fractal fraction fractional change

fraction point

frame of reference free vector French curves frequency frequency diagram frieze pattern frustrum frustrum full period prime full period prime full turn function fundamental theorem of arithmetic furlong

G

g GMT gallon game theory gamma Gaussian integer Gb gelosia Genaille's rods general angle generalize generator geoboard geodesic line geodesy geodetic geoid geometric mean geometric progression geometric series geometry gigagill glide reflection glissette global maximum global minimum gnomon Goldbach's conjecture golden ratio golden rectangle golden section googol googolplex GP grad grade

gradient Graeco-Latin square grain gram graph gravitational acceleration great circle greater than greatest common divisor greatest common factor Greek number system Greenwich meridian grid references gross (a number) gross (of a quantity) group grouped data growth н

ľ

half half-angle formula half line half turn Hamiltonian walk happy numbers harmonic mean harmonic progression Harshad numbers haversine hcf hectare hectohectogram hectolitre hectometre height helix hemisphere hendecaheptheptagon heptahedron Hero's formula Heronic triples hertz heuristic hex hexadecimal numbers hexaflexagon hexagon hexagonal numbers hexagram

hexahedron hexomino hexiamonds highest common factor Hindu-Arabic numbers hire purchase histogram homogeneous Hooke's law horizontal hour hyperbola hyperbolic secant hyperbolic spiral hyperboloid hyperspace hypocycloid hypotenuse hypothesis hypotrochoid

i icon icosahedron identical identification numbers identity identity element identity mapping identity matrix identity transformation iff illusions image imaginary number imaginary root imperial units implicit implicit function implicit relation improper fraction incentre inch incidence matrix incircle inclined plane included angle inclusive income income tax incommensurable

increasing increment indefinite integral independent equations independent events independent variable indeterminate equation index laws index notation index number indices indirect proof induction inequality inequation inference infinite infinite series infinite set infinitesimal infinitesimal calculus infinity infix notation inflation inflection inflexion inner product inscribed circle inscribed polygon in-sphere instalment integer integral calculus integration intercept interest interior vertex angle international date line interpolate interquartiles interquartile range intersect intersecting chords intersection (of sets) interval intransitive intuitive invalid invariable invariant inverse inverse case

inverse cosine inverse element inverse function inverse matrix inverse operation inverse proportion inverse sine inverse square law inverse tangent inverse variation inversion inversely investigation involute involution iota irrational number irreducible fraction irreducible polynomial irregular polygon isochronous isogon isogonal isometric axes isometric drawing isometic paper isometric projection isometry isomorphic isosceles trapezium isosceles triangle iterate iteration iterative procedure

J

j joint variation Jordan curve joule

K

kappa Kaprekar's constant Kb kelvin Kelvin scale Kendall's rank order coefficient Kepler's laws kg kilo kilocalorie kilogram kilojoule kilojoule kilolitre kilometre kilowatt kite Klein bottle km knot (*in space*) knot (*in speed*) Konigsberg bridge problem kurtosis

L

L or l lambda Lami curves Latin square latitude latus rectum law of large numbers laws of indices lcd lcm leading diagonal leap year least common denominator least common multiple least squares method left-handed system left identity Leibnitz' theorem lemma lemniscate of Bernoulli length leptokurtic less than level Levy's conjecture light-year like terms likely limacon of Pascal limit line linear linear algebra linear equation linear graph linear interpolation

linear programming linear relation linear scale factor linear transformation line graph line of best fit line segment line symmetry link Lissajous figures literal equation litre local maximum local minimum locus logarithm logarithmic function logarithmic scale logarithmic spiral logic Logo (computer language) logo (symbol) long division longitude look-see proof lower bound lower quartile lowest common denominator lowest common multiple lowest terms loxodrome Lucas sequence lune

Μ

m Mach number Maclaurin's theorem magic square magnitude main diagonal major arc major axis major sector major segment manifold mantissa many-to-one correspondence mapping mapping diagram mark-up

Mascheroni construction mass matrices matrix matrix addition matrix multiplication matrix transformations maximum Mayan numbers Mb mean mean deviation mean value theorem measure measures of central tendency median (in statistics) median (of a triangle) median triangle mediator megamember mensuration Menelaus' theorem meridian Mersenne primes method of least squares metre metric system micromid-ordinate rule midpoint mile millimillibar milligram millilitre millimetre million minim minimum minor arc minor axis minor sector minor segment minuend minus minute (angle) minute (= small) minute (time) mirror line mirror symmetry mixed number

Mobius strip or band mod modal class mode modelling modulo arithmetic modulus (of a number) modulus (complex number) Monte Carlo methods month more than mosaic motif moving average mu multifoil multigrade multinomial multiple multiple angle formula multiplicand multiplication multiplicative identity multiplicative inverse multiplier mutually exclusive events

Ν

n n!!n nano-Napier's bones or rods Naperian logarithms natural logarithms natural numbers nautical mile nearest necessary necessary and sufficient negative negative angle negative correlation negative gradient negative index negative numbers negatively skewed negative vector needle problem nephroid nested intervals nested multiplication

net (in money and weight) net (of a shape) network newton Newton's laws Newton's method nilpotent nine nine-point circle node nominal data nominal value nomogram nonanonagon non-collinear points non-convex polyhedron non-euclidean geometry non-periodic normal curve normal distribution normal (to a curve) normal (to a surface) notation nought nu null set null vector number line number patterns number theory numeral numerator О

object oblate oblique (shape) oblong obtuse angle occurence octoctagon octahedron octal system octant odd numbers odd vertex odds offset ogee ogive ohm

omega omicron one one-sided surface one-to-one correspondence one-to-many correspondence open interval operation operator opposite angles opposite edge opposite isometry opposite sides or edges orbit order (of a group) order (of a matrix) order (of a node) order (of a vertex) order (of symmetry) order of magnitude order of operations order of rotational symmetry ordered pair ordinal numbers ordinate origin orthocentre orthogonal orthogonal circles orthogonal projection orthogonal vectors ounce outcomes outlier overheads overtime

Ρ

P() or Pr() palindromic number pandigital pantograph parabola parabola of safety parabolic motion parabolic segment parabolic space parabolic spiral paraboloid parallel parallel ruler parallel vectors parallel postulate parallelepiped parallelogram parameter parametric equations parenthesis parity parsec partial derivative partial differentiation partial fractions partial product partial sum partition (a number) partition (as division) Pascal's triangle path pattern Pearson's product moment coeff. Peaucellier's linkage peck pedal curve pedal equation pedal line pedal triangle pencil penny pennyweight pentpentadecagon pentafoil pentagon pentagon numbers pentagram pentahedron pentomino per annum per cent per mil percentage percentage change percentage error percentage fraction percentage point percentile perfect cube perfect numbers perfect square

paradox

pericycloid Perigal's dissection perigee perigon perihelion perimeter period periodic decimals periodic function periodicity (of a curve) periodic tiling periodic variations permutation perpendicular perpendicular bisector perpendicular distance perpendicular height perpendicular vectors perpetual calendar persistance (of a number) perspective phase petaphi pi Pick's theorem picopictogram pie chart pinboard pint pitch place-holder place-value plan plan view plane plane curve plane geometry plane symmetry plane table plane vector planimeter Platonic solids platykurtic Playfair's axiom plot plumb-line plus point point symmetry point of inflection

points of the compass Poisson's ratio polar axis polar coordinates polar zenithal projection pole (in navigation) pole (in polar coordinates) polite numbers polycubes polygon polygon numbers polygrams polyhedron polyhexes polyiamonds polynomial polyomino population population pyramids position position vector positive positive angle positive correlation positive numbers positively skewed possibility possible postfix notation poslt meridiem (p.m.) postulate pound (in money) pound (in weight) poundal power practice prefix prefixes premise premium pressure primary data prime prime factors prime numbers primitive principal principal diagonal principle prism prismatoid prismoid

probability probability scale probability space probable produce (a line) product profit program progression projectile projection projective geometry proof proof by contradiction proof by exhaustion proof by induction prolate pronumeral proper divisors proper factors proper fraction proper subset properties proportion proposition pro rata protractor pseudosphere psi Ptolemy's theorem pyramid Pythagoras' theorem Pythagorean triplets

Q

QED quadquadrable quadrangle quadrant quadratic equation quadratic function quadrature quadric quadrennial quadrilateral quadrillion quadrinomial quadrivium qualitative data quantitative data

quart quaternions quartic quartile quinquinary system quincunx quinquangle quintal quintic quintillion quire quota sampling quotient quotition quinquangle

R

radial survey radian radical radicand radius radius vector radix raise RAM Ramanujan's formula random random sample random sequence random variations range (in statistics) range (of a function) range (of values) rangefinder rank rate rate of change rate of exchange rate of increase rate of interest ratio rational numbers rationalize raw data ray ready reckoner real numbers real variable ream reciprocal

reciprocal bearing reciprocal function record recreational mathematics rectangle rectangle numbers rectangular coordinates rectangular hyperbola rectangular prism rectangular axes rectangular coordinates rectangular hyperbola rectification rectilinear shape recurring decimal recursive sequence reduced fraction reducible reductio ad absurdum reduction formula redundant number re-entrant angle re-entrant polygon reference point reflection reflective symmetry reflex angle reflexive region regular polygon regular polyhedron regular tiling relation relative error relative frequency relative prime relative velocity relativity remainder remainder theorem repeated root repeating decimal repetend resection representative sample rep-tiles repunits residue resolve resultant resultant vector retail prices index

retardation reverse percentage reverse Polish notation revolution revolve rho rhombohedron rhomboid rhombus rhumb line rider right right angle right-angled triangle right circular cone right cone right prism right pyramid right-handed system ring rod Rolle's theorem ROM Roman numerals root root mean square roots of an equation roots of unity rotation rotational symmetry rotation matrix roulette rounding rounding error route matrix row row matrix row vector RPI rule of three ruled surface ruler ruled curve S sf or s.f.

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salary sample sample space sampling error sand reckoner Sarrus' rule

S.I.

satisfy (conditions) satisfy (an equation) scalar scalar multiplication scalar product scalar quantity scale (markings) scale drawing scaled ruler scale factor scalene triangle scatter diagram scattergram Schlegel diagram s'choty scientific notation score scruple seasonal variations secant secant (to a circle) secant (trigonometry) sech second (of angle) second (in order) second (of time) secondary data secondary diagonal section sector (of a circle) sector (of a sphere) secular variations segment (of a circle) segment (of a sphere) selection self-evident self-inverse selling price semicircle semi-interquartile range semi-latus rectum semi-regular polyhedron semi-regular tiling senary sense septseptagon septenary septennial septillion sequence series

set set square set theory seven sexsexagesimal sexagesimal system sextant sextillion shape share sharing shear shift numbers short division short radius S I side sidereal day sidereal year sieve sieve of Eratosthenes sigma sigmoid sign signed numbers significant (in statistics) significant figures similar fractions similar (shapes) similar terms similar triangles similitude simple closed curve simple harmonic motion simple interest simple proportion simplex simplify Simpson's rule simulation simultaneous equations sin sine sine bar sine curve sine rule singular matrix sinh sinusoidal six skew

skew lines skewed distribution slant slant edge slant height slide slide rule slope small circle smaller than software SOHCAHTOA solar day solid solid angle solid of revolution solidus solution solution set solve solving a triangle Soma cubes soroban space space diagonal Spearman's rank order coeff. speed sphere spherical spherical cap spherical coordinates spherical triangle spherical trigonometry spheroid spherometer spinode spiral spread spreadsheet square (in area measures) square (in number) square (in shape) square numbers square root squaring the circle stade standard deviation standard error standard (index) form standard score standard time

standing wave

star polygon statement stationary point stationary value statics statistics statute mile Steiner's problem stem and leaf plot stencil steradian stereographic projection Stirling's theorem stochastic stone straight straight angle straight-edge straight line stratified sampling stretch strip patterns strophoid structure suan pan sub-factorial subfield subgroup subject of a formula sub-multiple subnormal subscript subset substitution subtangent subtended angle subtraction subtrahend sufficient sum summation superannuation superpose superscript superset supplement supplementary angle surd surface survey surveying syllogism

symbols symmetric symmetric difference symmetric equation symmetric relation symmetry symmetry, line symmetry, point symmetry, rotational synthesis systematic sampling Systeme International

T

T-score **T**-square tacheometry tacnode tally tally chart tan tanh tangent (to a curve) tangent (in trigonometry) tangent curve tangram tau Taylor's theorem temperature template tends to infinity teratercimal term (in algebra) term (of a sequence) terminal velocity terminating decimal ternary tessellation tetratetragon tetrahedron tetromino theodolite theorem theoretical probability theory theta thickness thousand three-dimensional three-D

tiling time time interval time series time-and-a-half times to the nearest '...' tolerance ton tonne topology topologically equivalent torque torus total towers of Hanoi trace trailing diagonal trajectory trammel transcendental transcendental function transcendental numbers transfinite transformation transformation geometry transformation of formula transitive translation transpose transversal transverse common tangent trapezium trapezium rule trapezoid travel graph traversable traverse tree (in topology) tree diagram trefoil trend trend line tritrial trial and error trial and improvement triangle triangle numbers triangulation trichotomy trigonometric curve

trigonometric function trigonometric indentity trigonometric ratio trigonometric series trigonometry trihedral trihexaflexagon trisectrix of Maclaurin trillion trinomial triple trisection of an angle trivial solution trivium tromino troy measures true truncate (a number) truncate (a shape) truncation error truth table truth value turning point twin primes two-D two-dimensional two-way table

U

unary operation unbounded unconditional undecaundecagon undecidable undenary unequal unicursal uniform unilateral surface union (of a set) unique solution unit units (in measures) unitary method unitary ratio unit circle unity unit vector universal set universal time

universe unknown unlike terms upper bound upper quartile upsilon UT

V

valid value value added tax variable variance varitions vary directly vary inversely VAT vector vector addition vector product vector quantity vector space vector triangle velocity velocity-time graph Venn diagram versed versiera versine vertex (in topology) vertex (of a shape) vertex angle vertical vertically opposite angles vinculum visual proof volume volume scale factor vulgar fraction

W

Wallis' formula wallpaper patterns watt wave wave length week weight weighted mean weighting whole numbers width Wilson's theorem witch of Agnesi working mean

X

x-axis xi

Y

y-axis yangma yard year Young's modulus

Ζ

Z-angles z-axis zenith zenithal projection Zeno's paradoxes zero zero vector zero index zeta zone Zone (of a sphere) zone (in time)

Table I ~ The Greek Alphabet

The Greek alphabet is a rich source of symbols used in both mathematics and science, to the extent that nearly every one of them (both capitals and lower case) is used in some way or other. Some of them appear more than once to represent different things. Below is the full alphabet, and the names of the various symbols. The capital form of the letter is given in the first column, followed by the lower case version and, finally, its name.

Α	α	alpha
В	β	beta
Γ	γ	gamma
Δ	δ	delta
E	ε	epsilon
Z	ζ	zeta
Н	η	eta
Θ	θ	theta
Ι	ι	iota
K	κ	kappa
Λ	λ	lambda
Μ	μ	mu
N	ν	nu
Ξ	ξ	xi
0	0	omicron
П	π	pi
Р	ρ	rho
Σ	σ	sigma
Т	τ	tau
Y	υ	upsilon
Φ	¢	phi
X	χ	chi
Ψ	ψ	psi
Ω	ω	omega

Table II ~ The SI prefixes and their values

The SI allows other units to be created from the standard ones by using prefixes, which act as multipliers. This list gives all the prefixes allowed, the single letter or symbol to be used in the abbreviated form, and the multiplying factor they represent, both in index notation and in full. Note the difference between using capital letters and lower case.

yotta	Υ	×10 ²⁴	1 000 000 000 000 000 000 000 000
zetta	Ζ	×10 ²¹	1 000 000 000 000 000 000 000
exa	Е	×10 ¹⁸	1 000 000 000 000 000 000
peta	Ρ	×10 ¹⁵	1 000 000 000 000 000
tera	Т	×10 ¹²	1 000 000 000 000
giga	G	×10 ⁹	1 000 000 000
mega	Μ	×10 ⁶	1 000 000
kilo	k	×10 ³	1 000
*hecto	h	×10 ²	100
*deca	da	×10 ¹	10
		10º	1
*deci	d	×10 ⁻¹	0.1
*centi	С	×10 ⁻²	0.01
milli	m	×10 ⁻³	0.001
micro	μ	×10 ⁻⁶	0.000 001
nano	n	×10 ⁻⁹	0.000 000 001
pico	р	×10 ⁻¹²	0.000 000 001
femto	f	×10 ⁻¹⁵	0.000 000 000 000 001
atto	а	×10 ⁻¹⁸	0.000 000 000 000 000 001
zepto	z	×10 ⁻²¹	0.000 000 000 000 000 000 001
yocto	У	×10 ⁻²⁴	0.000 000 000 000 000 000 000 000 001

* are those prefixes which are not powers of 10