

Index

- absolute, magnitude, 31
- aleatory (random) variable, 36
- algebra, 4, 5
- algebra, fundamental theorem, 20
- altitude theorem, 6
- altitude, height, 7, 11
- angle (vector, line, plane), 15, 32–34
- angle bisector, 7
- angle bisector planes, 34
- annuity (finance), 26
- antiderivative, 28, 29
- arc length, 9, 30
- Argand diagram, 2
- arithmetic sequences and series, 23
- associativity, 3
- asymptote, 16

- base area, 11
- base change (log), 19
- binomial coefficient, 35
- binomial distribution, 37
- binomial formulae, theorem, 4
- bivariate data, 39
- box plot, 38
- box plot (statistics), 38
- bracket rules, 3

- cartesian form (line, plane), 33, 34
- Cavalieri's principle, 11
- center, 9, 12, 32
- centroid, 7, 32
- chain rule, 27
- Chebychev, inequality, 38
- chord, 9
- circle angle theorems, 9
- circle: parts and equations, 9
- circumcircle, 7–9
- co-domain (range), 14
- collinear vectors, 31
- combinatorics, 35
- commutativity, 3
- coplanar vectors, 31
- complement, 35
- complementary probability, 36
- complex numbers, conjugate, 2
- conditional probability, 36
- cone, 11
- conic sections, 10
- constant rule, 27, 29
- correlation, covariance, 39
- cosine function, 17
- cosine rule, 6
- cross product, 32
- cube, cuboid, 11, 12
- cumulative distribution, 36, 37
- cyclic quadrilateral, 8
- cylinder, 11

- data (statistics), 38, 39
- degree of denominator, numerator, 16
- density function, 36, 37
- derivative, 27, 28
- determinant, 22
- diagonal, 8, 11
- differential calculus, 27
- direction vector (line, plane), 33, 34
- discriminant, 20
- distance, 33, 34
- distributions (prob.), 36, 37
- distributivity, 3
- dodecahedron, 12
- domain, 14

- eigenvectors, eigenvalues, 22
- elasticity (finance), 26
- ellipse, 10
- ellipsoid, 13
- empty set, 35
- equations, 4, 20, 21
- equilateral triangles, 7
- equivalence transformations, 4
- Euclid's theorem, 6
- Euler's formula, 2
- expectation value, 36–38
- explicit definition, 23
- exponent (powers), 5
- exponential functions, 18

- factorial, 35
- financial mathematics, 26
- fractions, 5
- frequency (statistics), 38
- frustum (pyramid, cone), 11
- function, 14
- fundamental theorem of algebra, 20
- fundamental theorem of calculus, 29

Gaussian algorithm, 22
 geometric sequences and series, 23
 geometry (2-dim, 3-dim), 6, 11
 golden ratio, 25
 growth rate (finance), 26
 growth, exponential, 18, 24

 harmonic section, 25
 harmonic series, 23
 height, altitude, 7, 11
 Hesse's normal form, 34
 hyperbola, 10

 icosahedron, 12
 identity matrices, 21
 imaginary unit, 2
 indefinite integral, 29
 induction, 25
 inequality, 4
 infinite geometric series, 23
 inflection point, 28
 integers, 2
 integral calculus, 29
 intercept form (line, plane), 15, 34
 Intercept theorems, 6
 intersecting chord/secant theorem, 9
 intersection of sets, 35
 inverse function, 14
 inverse matrix, 22
 irrational numbers, 2
 isosceles triangles, 7

 kite, 8

 L'Hôpital's rule, 24
 Laplace-probability, 35
 lateral area, 11
 limits, 24
 linear combination, 31
 linear function, line, 15, 33
 linear independence, 22
 linear regression, 39
 lines in a triangle, 7
 logarithms, 5, 19

 magnitude, length, 31
 marginal function (finance), 26
 mathematical symbols, 40
 matrices, 21
 mean value, 25, 36–38
 median, 38
 median (triangle), 7
 midpoint, 32
 modulus (complex numbers), 2

 natural numbers, 2
 normal distribution, 37
 normal form (line, plane), 15, 34
 normal vector, 33, 34
 number systems, 2

 octahedron, 12
 orthogonal matrices, 22

 parabola (conic section), 10
 parabola (function), 14, 15
 paraboloid, 13
 parallel (lines, planes), 15, 33
 parallelogram, 8
 parametric form (line, plane), 33, 34
 Pascal's triangle, 4
 permutation, 35
 perpendicular (lines, planes), 15, 33
 perpendicular bisector, 7
 planes, 34
 Platonic solids, 12
 point of inflection, 28
 poles, 16
 polyhedra, 12
 polynomial functions, equations, 14, 20
 position vector, 31
 power series, 30
 powers, 2, 5
 primitive (int), 28, 29
 prisms, 11
 probability, 35
 probability distributions, 36, 37
 product rule, 27
 proportionality theorems, 6
 pyramids, 11
 Pythagorean theorem, 6

 quadratic equations, 20
 quadrilateral, 8
 quotient rule, 27

 radian, 17
 random variable, 36
 range (function), 14
 range (statistics), 38
 rank of a matrix, 22
 rational and real numbers, 2
 rational functions, 16
 rational numbers, 2

real numbers, 2
 rectangle, 8
 recursive definition, 23
 regression, linear, 39
 rent (finance), 26
 rhombus, 8
 right-angled triangle, 6, 17
 root, 5, 16
 rotation, 3
 rotational volume, 30
 rules of differentiation, 27
 rules of integration, 29

 sample space (probability), 35
 scalar product, 32
 secant, 9, 27
 sector, segment, 9, 12
 sequences and series, 23
 set theory, 35
 similarity, 6
 sine function, 17
 sine rule, 6
 slope of a line, 15
 slope of secant, tangent, 27
 solids, 11–13
 sphere: parts and equations, 12
 square, 8
 square root, 5, 16
 standard deviation, 36, 38
 stationary points, 27, 28
 statistics, 38
 Stereometry, 11
 subset, 35
 substitution rule (int), 29
 surd function, 16
 surface area, 11
 symmetry, 19
 systems of linear equations, 21

 tangent (circle, sphere), 9, 12
 tangent (slope), 27
 tangent function, 17
 tangential quadrilateral, 8
 Taylor polynomials, 30
 tetrahedron, 12
 Thales' theorem, 9
 torus, 13
 trace points (line), 33
 translation, 3
 transposed matrix, 22
 trapezium, 8

 triangles, 6, 7
 trigonometric functions, 6, 17
 triple product, 32

 union of sets, 35
 unit circle, 17
 unit vectors, 21, 31
 univariate data, 38

 variance, 36, 38
 vector equation (line, plane), 33, 34
 vector product, 32
 vectors, 31
 vertex (parabola), 15
 Viète's formulas, 20
 volume of solids, 11, 13, 30

 z-transformation, 37
 zone (sphere), 12