**Berikut beberapa istilah-istilah matematika dalam bahasa Inggris.**

* Bilangan Bulat = Integers (Z)
* Bilangan Asli = Natural number (N)
* Bilangan Cacah = Whole number (W)
* Bilangan Genap = Even number
* Bilangan Ganjil = Odd number
* Penjumlahan = Addition
* Pengurangan = Subtraction
* Pembagian = Divisio
* Perkalian = Multiplication
* Sifat asosiatif = Associative principle
* Sifat komutatif = Commutative principle
* Kelipatan persekutuan terkecil (KPK) = Least common multiple
* Faktor persekutuan terbesar (FPB) = Greatest common divisor
* Pecahan = fraction
* Pecahan-pecahan yang senilai dan tidak senilai = Equality and inequality of rational numbers
* Pecahan campuran = Mixed rational number
* Desimal = Decimals
* Operasi bilangan desimal = The operations of decimals
* Garis bilangan = The number line
* Bentuk baku = Scientific notation
* Pangkat bilangan = Powers of numbers
* Bentuk aljabar = Algebraic forms
* Aritmatika sosial = Social arithmetic
* Persamaan linier = Linear equations
* Variabel = Variable
* Pertidaksamaan linier = Linear inequalities
* Modulus (Pengayaan) = Enrichment
* Perbandingan = Proportion
* Pembilang= Numerator
* Penyebut = Denominator
* Perbandingan seharga = Direct proportion
* Perbandingan berbalik harga = Inverse proportion
* Garis = Lines
* Sudut = Angles
* Derajat = Degrees
* Keliling = Circumference
* Luas = Area
* Sisi = Side
* Sudut dalam = Interior angle
* Himpunan = Sets
* Himpunan semesta = Universal set
* Gabungan himpunan = Union of sets
* Irisan himpunan = Intersection of sets
* Komplemen suatu himpunan = Complement of a set
* Diagram Venn = Venn diagrams
* Himpunan-himpunan yang sama = Equal sets
* Himpunan-himpunan yang ekuivalen = Equivalent sets
* Himpunan-himpunan yang saling lepas (Saling asing) = Disjoint sets

Basic math symbols

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | Symbol Name | Meaning / definition | Example |
| = | [equals sign](http://www.rapidtables.com/math/symbols/Equals_Sign.htm) | equality | 5 = 2+3 |
| ≠ | not equal sign | inequality | 5 ≠ 4 |
| > | strict inequality | greater than | 5 > 4 |
| < | strict inequality | less than | 4 < 5 |
| ≥ | inequality | greater than or equal to | 5 ≥ 4 |
| ≤ | inequality | less than or equal to | 4 ≤ 5 |
| ( ) | parentheses | calculate expression inside first | 2 × (3+5) = 16 |
| [ ] | brackets | calculate expression inside first | [(1+2)\*(1+5)] = 18 |
| + | [plus sign](http://www.rapidtables.com/math/symbols/Plus_Sign.htm) | addition | 1 + 1 = 2 |
| − | [minus sign](http://www.rapidtables.com/math/symbols/Minus_Sign.htm) | subtraction | 2 − 1 = 1 |
| ± | plus - minus | both plus and minus operations | 3 ± 5 = 8 and -2 |
| ∓ | minus - plus | both minus and plus operations | 3 ∓ 5 = -2 and 8 |
| \* | [asterisk](http://www.rapidtables.com/math/symbols/Times_Sign.htm) | multiplication | 2 \* 3 = 6 |
| × | [times sign](http://www.rapidtables.com/math/symbols/Times_Sign.htm) | multiplication | 2 × 3 = 6 |
| ∙ | [multiplication dot](http://www.rapidtables.com/math/symbols/Times_Sign.htm) | multiplication | 2 ∙ 3 = 6 |
| ÷ | [division sign / obelus](http://www.rapidtables.com/math/symbols/Division_Sign.htm) | division | 6 ÷ 2 = 3 |
| / | [division slash](http://www.rapidtables.com/math/symbols/Division_Sign.htm) | division | 6 / 2 = 3 |
| – | [horizontal line](http://www.rapidtables.com/math/symbols/Division_Sign.htm) | division / fraction | \frac{6}{2}=3 |
| mod | modulo | remainder calculation | 7 mod 2 = 1 |
| . | period | decimal point, decimal separator | 2.56 = 2+56/100 |
| *ab* | power | exponent | 23= 8 |
| *a^b* | caret | exponent | 2 ^ 3= 8 |
| √*a* | square root | √*a ·*√*a  = a* | √9 = ±3 |
| 3√*a* | cube root | 3√*a ·*3*√a  ·*3*√a  = a* | 3√8 = 2 |
| 4√*a* | fourth root | 4√*a ·*4*√a  ·*4*√a  ·*4*√a  = a* | 4√16 = ±2 |
| *n*√*a* | n-th root (radical) |  | for *n*=3, *n*√8 = 2 |
| % | [percent](http://www.rapidtables.com/math/number/Percentage.htm) | 1% = 1/100 | 10% × 30 = 3 |
| ‰ | [per-mille](http://www.rapidtables.com/math/number/Per_mille.htm) | 1‰ = 1/1000 = 0.1% | 10‰ × 30 = 0.3 |
| [ppm](http://www.rapidtables.com/math/number/PPM.htm) | [per-million](http://www.rapidtables.com/math/number/PPM.htm) | 1ppm = 1/1000000 | 10ppm × 30 = 0.0003 |
| ppb | per-billion | 1ppb = 1/1000000000 | 10ppb × 30 = 3×10-7 |
| ppt | per-trillion | 1ppt = 10-12 | 10ppt × 30 = 3×10-10 |

Geometry symbols

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | Symbol Name | Meaning / definition | Example |
| ∠ | angle | formed by two rays | ∠ABC = 30º |
| http://www.rapidtables.com/math/symbols/geometry_symbols/measured_angle.gif | measured angle |  | http://www.rapidtables.com/math/symbols/geometry_symbols/measured_angle.gifABC = 30º |
| http://www.rapidtables.com/math/symbols/geometry_symbols/spherical_angle.gif | spherical angle |  | http://www.rapidtables.com/math/symbols/geometry_symbols/spherical_angle.gifAOB = 30º |
| ∟ | right angle | = 90º | α = 90º |
| º | degree | 1 turn = 360º | α = 60º |
| ´ | arcminute | 1º = 60´ | α = 60º59' |
| ´´ | arcsecond | 1´ = 60´´ | α = 60º59'59'' |
| http://www.rapidtables.com/math/symbols/geometry_symbols/line.gif | line | infinite line |  |
| AB | line segment | line from point A to point B |  |
| http://www.rapidtables.com/math/symbols/geometry_symbols/ray.gif | ray | line that start from point A |  |
| http://www.rapidtables.com/math/symbols/geometry_symbols/arc.gif | arc | arc from point A to point B | http://www.rapidtables.com/math/symbols/geometry_symbols/arc.gif = 60º |
| | | perpendicular | perpendicular lines (90º angle) | AC | BC |
| || | parallel | parallel lines | AB || CD |
| ≅ | congruent to | equivalence of geometric shapes and size | ∆ABC ≅∆XYZ |
| ~ | similarity | same shapes, not same size | ∆ABC ~∆XYZ |
| Δ | triangle | triangle shape | ΔABC ≅ΔBCD |
| |*x*-*y*| | distance | distance between points x and y | | *x*-*y* | = 5 |
| π | pi constant | *π* = 3.141592654...  is the ratio between the circumference and diameter of a circle | *c* = *π*·*d* = 2·*π*·*r* |
| rad | radians | radians angle unit | 360º = 2π rad |
| grad | grads | grads angle unit | 360º = 400 grad |

Algebra symbols

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | Symbol Name | Meaning / definition | Example |
| *x* | x variable | unknown value to find | when 2*x* = 4, then*x* = 2 |
| ≡ | equivalence | identical to |  |
| ≜ | equal by definition | equal by definition |  |
| := | equal by definition | equal by definition |  |
| ~ | approximately equal | weak approximation | 11 ~ 10 |
| ≈ | approximately equal | approximation | *sin*(0.01) ≈ 0.01 |
| ∝ | proportional to | proportional to | *f*(*x*) ∝ *g*(*x*) |
| ∞ | [lemniscate](http://www.rapidtables.com/math/symbols/Infinity_Symbol.htm) | [infinity symbol](http://www.rapidtables.com/math/symbols/Infinity_Symbol.htm) |  |
| ≪ | much less than | much less than | 1 ≪ 1000000 |
| ≫ | much greater than | much greater than | 1000000 ≫ 1 |
| ( ) | parentheses | calculate expression inside first | 2 \* (3+5) = 16 |
| [ ] | brackets | calculate expression inside first | [(1+2)\*(1+5)] = 18 |
| { } | braces | set |  |
| ⌊*x*⌋ | floor brackets | rounds number to lower integer | ⌊4.3⌋= 4 |
| ⌈*x*⌉ | ceiling brackets | rounds number to upper integer | ⌈4.3⌉= 5 |
| *x*! | exclamation mark | [factorial](http://www.rapidtables.com/math/algebra/Factorial.htm) | 4! = 1\*2\*3\*4 = 24 |
| | *x* | | single vertical bar | absolute value | | -5 | = 5 |
| *f*(*x*) | function of x | maps values of x to f(x) | *f*(*x*) = 3*x*+5 |
| (*f*∘*g*) | function composition | (*f*∘*g*)(*x*) = *f*(*g*(*x*)) | *f*(*x*)=3*x*, *g*(*x*)=*x*-1 ⇒(*f*∘*g*)(*x*)=3(*x*-1) |
| (*a*,*b*) | open interval | (*a*,*b*) = {*x* | *a* < *x* < *b*} | *x* ∈ (2,6) |
| [*a*,*b*] | closed interval | [*a*,*b*] = {*x* | *a* ≤ *x* ≤ *b*} | *x* ∈ [2,6] |
| ∆ | delta | change / difference | ∆*t* = *t*1-*t*0 |
| ∆ | discriminant | Δ = *b*2 - 4*ac* |  |
| ∑ | sigma | summation - sum of all values in range of series | ∑*xi= x*1*+x*2*+...+xn* |
| ∑∑ | sigma | double summation | http://www.rapidtables.com/math/symbols/statistical_symbols/double_sum_ex.gif |
| ∏ | capital pi | product - product of all values in range of series | ∏*xi=x*1*∙x*2*∙...∙xn* |
| *e* | [e constant](http://www.rapidtables.com/math/number/e_constant.htm) / Euler's number | *e* = 2.718281828... | *e* = lim (1+1/*x*)*x* , *x*→∞ |
| γ | [Euler-Mascheroni  constant](http://en.wikipedia.org/wiki/Euler%E2%80%93Mascheroni_constant) | γ = 0.527721566... |  |
| φ | golden ratio | golden ratio constant |  |
| π | pi constant | *π* = 3.141592654...  is the ratio between the circumference and diameter of a circle | *c* = *π*·*d* = 2·*π*·*r* |

Linear Algebra Symbols

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | Symbol Name | Meaning / definition | Example |
| ∙ | dot | scalar product | *a*∙*b* |
| × | cross | vector product | *a*×*b* |
| *A*⊗*B* | tensor product | tensor product of A and B | *A* ⊗ *B* |
| \langle x,y \rangle | inner product |  |  |
| [ ] | brackets | matrix of numbers |  |
| ( ) | parentheses | matrix of numbers |  |
| | *A* | | determinant | determinant of matrix A |  |
| det(*A*) | determinant | determinant of matrix A |  |
| || *x* || | double vertical bars | norm |  |
| *A*T | transpose | matrix transpose | (*A*T)*ij* = (*A*)*ji* |
| *A*† | Hermitian matrix | matrix conjugate transpose | (*A*†)*ij* = (*A*)*ji* |
| *A*\* | Hermitian matrix | matrix conjugate transpose | (*A*\*)*ij* = (*A*)*ji* |
| *A*-1 | inverse matrix | *A A*-1 = *I* |  |
| rank(*A*) | matrix rank | rank of matrix A | rank(*A*) = 3 |
| dim(*U*) | dimension | dimension of matrix A | rank(*U*) = 3 |

Probability and statistics symbols

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | Symbol Name | Meaning / definition | Example |
| *P*(*A*) | probability function | probability of event A | *P*(*A*) = 0.5 |
| *P*(*A* ∩ *B*) | probability of events intersection | probability that of events A and B | *P*(*A*∩*B*) = 0.5 |
| *P*(*A* ∪ *B*) | probability of events union | probability that of events A or B | *P*(*A*∪*B*) = 0.5 |
| *P*(*A* | *B*) | conditional probability function | probability of event A given event B occured | *P*(*A | B*) = 0.3 |
| *f*(*x*) | probability density function (pdf) | *P*(*a*≤*x*≤*b*) = *∫ f*(*x*)*dx* |  |
| *F*(*x*) | cumulative distribution function (cdf) | *F*(*x*) = *P*(*X*≤*x*) |  |
| *μ* | population mean | mean of population values | *μ* = 10 |
| *E*(*X*) | [expectation value](http://www.rapidtables.com/math/probability/Expectation.htm) | expected value of random variable X | *E*(*X*) = 10 |
| *E*(*X | Y*) | conditional expectation | expected value of random variable X given Y | *E*(*X | Y=2*) = 5 |
| *var*(*X*) | [variance](http://www.rapidtables.com/math/probability/Variance.htm) | variance of random variable X | *var*(*X*) = 4 |
| σ*2* | [variance](http://www.rapidtables.com/math/probability/Variance.htm) | variance of population values | σ*2*= 4 |
| *std*(*X*) | [standard deviation](http://www.rapidtables.com/math/probability/standard_deviation.htm) | standard deviation of random variable X | *std*(*X*) = 2 |
| σ*X* | [standard deviation](http://www.rapidtables.com/math/probability/standard_deviation.htm) | standard deviation value of random variable X | σ*X*=2 |
| http://www.rapidtables.com/math/symbols/statistical_symbols/median.GIF | median | middle value of random variable x | http://www.rapidtables.com/math/symbols/statistical_symbols/median_ex.GIF |
| *cov*(*X*,*Y*) | covariance | covariance of random variables X and Y | *cov*(*X,Y*) = 4 |
| *corr*(*X*,*Y*) | correlation | correlation of random variables X and Y | *corr*(*X,Y*) = 0.6 |
| *ρX*,*Y* | correlation | correlation of random variables X and Y | *ρX*,*Y* = 0.6 |
| ∑ | summation | summation - sum of all values in range of series | http://www.rapidtables.com/math/symbols/statistical_symbols/sum_ex.gif |
| ∑∑ | double summation | double summation | http://www.rapidtables.com/math/symbols/statistical_symbols/double_sum_ex.gif |
| *Mo* | mode | value that occurs most frequently in population |  |
| *MR* | mid-range | *MR* = (*xmax*+*xmin*)/2 |  |
| *Md* | sample median | half the population is below this value |  |
| Q1 | lower / first quartile | 25% of population are below this value |  |
| Q2 | median / second quartile | 50% of population are below this value = median of samples |  |
| Q3 | upper / third quartile | 75% of population are below this value |  |
| *x* | sample mean | average / arithmetic mean | *x*= (2+5+9) / 3 = 5.333 |
| *s*2 | sample variance | population samples variance estimator | *s*2 = 4 |
| *s* | sample standard deviation | population samples standard deviation estimator | *s* = 2 |
| *zx* | standard score | *zx* = (*x*-*x*) /*sx* |  |
| *X*~ | [distribution](http://www.rapidtables.com/math/probability/distribution.htm) of X | distribution of random variable X | *X*~*N*(0,3) |
| *N*(*μ*,*σ*2) | [normal distribution](http://www.rapidtables.com/math/probability/normal_distribution.htm) | gaussian distribution | *X*~*N*(0,3) |
| *U*(*a*,*b*) | uniform distribution | equal probability in range a,b | *X*~*U*(0,3) |
| *exp*(λ) | exponential distribution | *f*(*x*)*= λe*-*λx* , *x*≥0 |  |
| *gamma*(*c*, λ) | gamma distribution | *f*(*x*)*= λ c x*c-1*e*-*λx* / Γ(*c*), *x*≥0 |  |
| χ2(*k*) | chi-square distribution | *f*(*x*)*= xk*/2-1*e*-*x*/2 / ( 2k/2Γ(*k*/2) ) |  |
| *F*(*k*1*, k*2) | F distribution |  |  |
| *Bin*(*n*,*p*) | binomial distribution | *f*(*k*)*= nCk pk*(1*-p*)*n-k* |  |
| *Poisson*(λ) | Poisson distribution | *f*(*k*)*= λke*-*λ* / *k*! |  |
| *Geom*(*p*) | geometric distribution | *f*(*k*)*=  p*(1*-p*)*k* |  |
| *HG*(*N*,*K*,*n*) | hyper-geometric distribution |  |  |
| *Bern*(*p*) | Bernoulli distribution |  |  |

Combinatorics Symbols

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | Symbol Name | Meaning / definition | Example |
| *n*! | [factorial](http://www.rapidtables.com/math/algebra/Factorial.htm) | *n*! = 1·2·3·...·*n* | 5! = 1·2·3·4·5 = 120 |
| *nPk* | permutation | _{n}P_{k}=\frac{n!}{(n-k)!} | 5*P*3*=*5! / (5-3)! = 60 |
| *nCk*    http://www.rapidtables.com/math/symbols/math_symbols/combination.GIF | combination | _{n}C_{k}=\binom{n}{k}=\frac{n!}{k!(n-k)!} | 5*C*3*=*5!/[3!(5-3)!]=10 |

Set theory symbols

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | Symbol Name | Meaning / definition | Example |
| { } | set | a collection of elements | A = {3,7,9,14}, B = {9,14,28} |
| A ∩ B | intersection | objects that belong to set A and set B | A ∩ B = {9,14} |
| A ∪ B | union | objects that belong to set A or set B | A ∪ B = {3,7,9,14,28} |
| A ⊆ B | subset | subset has fewer elements or equal to the set | {9,14,28} ⊆{9,14,28} |
| A ⊂ B | proper subset / strict subset | subset has fewer elements than the set | {9,14} ⊂{9,14,28} |
| A ⊄ B | not subset | left set not a subset of right set | {9,66} ⊄{9,14,28} |
| A ⊇ B | superset | set A has more elements or equal to the set B | {9,14,28} ⊇{9,14,28} |
| A ⊃ B | proper superset / strict superset | set A has more elements than set B | {9,14,28} ⊃{9,14} |
| A ⊅ B | not superset | set A is not a superset of set B | {9,14,28} ⊅{9,66} |
| 2A | power set | all subsets of A |  |
| \mathcal{P}(A) | power set | all subsets of A |  |
| A = B | equality | both sets have the same members | A={3,9,14}, B={3,9,14}, A=B |
| Ac | complement | all the objects that do not belong to set A |  |
| A \ B | relative complement | objects that belong to A and not to B | A = {3,9,14}, B = {1,2,3}, A-B = {9,14} |
| A - B | relative complement | objects that belong to A and not to B | A = {3,9,14}, B = {1,2,3}, A-B = {9,14} |
| A ∆ B | symmetric difference | objects that belong to A or B but not to their intersection | A = {3,9,14}, B = {1,2,3}, A ∆ B = {1,2,9,14} |
| A ⊖ B | symmetric difference | objects that belong to A or B but not to their intersection | A = {3,9,14}, B = {1,2,3}, A ⊖ B = {1,2,9,14} |
| *a*∈A | element of | set membership | A={3,9,14}, 3 ∈ A |
| *x*∉A | not element of | no set membership | A={3,9,14}, 1 ∉ A |
| (*a*,*b*) | ordered pair | collection of 2 elements |  |
| A×B | cartesian product | set of all ordered pairs from A and B |  |
| |A| | cardinality | the number of elements of set A | A={3,9,14}, |A|=3 |
| #A | cardinality | the number of elements of set A | A={3,9,14}, #A=3 |
| http://www.rapidtables.com/math/symbols/set_symbols/aleph-null.gif | aleph-null | infinite cardinality of natural numbers set |  |
| http://www.rapidtables.com/math/symbols/set_symbols/aleph-one.gif | aleph-one | cardinality of countable ordinal numbers set |  |
| Ø | empty set | Ø = { } | C = {Ø} |
| \mathbb{U} | universal set | set of all possible values |  |
| \mathbb{N}0 | natural numbers / whole numbers  set (with zero) | \mathbb{N}0 = {0,1,2,3,4,...} | 0 ∈ \mathbb{N}0 |
| \mathbb{N}1 | natural numbers / whole numbers  set (without zero) | \mathbb{N}1 = {1,2,3,4,5,...} | 6 ∈ \mathbb{N}1 |
| \mathbb{Z} | integer numbers set | \mathbb{Z} = {...-3,-2,-1,0,1,2,3,...} | -6 ∈ \mathbb{Z} |
| \mathbb{Q} | rational numbers set | \mathbb{Q} = {*x*|*x*=*a*/*b*, *a*,*b*∈\mathbb{Z}} | 2/6 ∈ \mathbb{Q} |
| \mathbb{R} | real numbers set | \mathbb{R} = {*x* | -∞ <*x*<∞} | 6.343434 ∈\mathbb{R} |
| \mathbb{C} | complex numbers set | \mathbb{C} = {*z*|*z=a*+*bi*, -∞<*a*<∞,      -∞<*b*<∞} | 6+2*i* ∈ \mathbb{C} |

Logic symbols

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | Symbol Name | Meaning / definition | Example |
| **·** | and | and | *x***·***y* |
| ^ | caret / circumflex | and | *x* ^ *y* |
| & | ampersand | and | *x* & *y* |
| + | plus | or | *x* + *y* |
| ∨ | reversed caret | or | *x* ∨ *y* |
| | | vertical line | or | *x* | *y* |
| *x*' | single quote | not - negation | *x*' |
| *x* | bar | not - negation | *x* |
| ¬ | not | not - negation | ¬ *x* |
| ! | exclamation mark | not - negation | ! *x* |
| ⊕ | circled plus / oplus | exclusive or - xor | *x* ⊕ *y* |
| ~ | tilde | negation | ~ *x* |
| ⇒ | implies |  |  |
| ⇔ | equivalent | if and only if (iff) |  |
| ↔ | equivalent | if and only if (iff) |  |
| ∀ | for all |  |  |
| ∃ | there exists |  |  |
| ∄ | there does not exists |  |  |
| ∴ | therefore |  |  |
| ∵ | because / since |  |  |

Calculus & analysis symbols

|  |  |  |  |
| --- | --- | --- | --- |
| Symbol | Symbol Name | Meaning / definition | Example |
| \lim_{x\to x0}f(x) | limit | limit value of a function |  |
| *ε* | epsilon | represents a very small number, near zero | *ε*→0 |
| *e* | [e constant](http://www.rapidtables.com/math/number/e_constant.htm) / Euler's number | *e* = 2.718281828... | *e* = lim (1+1/*x*)*x* , *x*→∞ |
| *y*' | [derivative](http://www.rapidtables.com/math/calculus/derivative.htm) | derivative - Lagrange's notation | (3*x*3)' = 9*x*2 |
| *y*'' | second derivative | derivative of derivative | (3*x*3)'' = 18*x* |
| *y*(*n*) | nth derivative | n times derivation | (3*x*3)(3) = 18 |
| \frac{dy}{dx} | [derivative](http://www.rapidtables.com/math/calculus/derivative.htm) | derivative - Leibniz's notation | *d*(3*x*3)/*dx* = 9*x*2 |
| \frac{d^2y}{dx^2} | second derivative | derivative of derivative | *d*2(3*x*3)/*dx*2 = 18*x* |
| \frac{d^ny}{dx^n} | nth derivative | n times derivation |  |
| \dot{y} | time derivative | derivative by time - Newton's notation |  |
| http://www.rapidtables.com/math/symbols/math_symbols/time_drivative_II.GIF | time second derivative | derivative of derivative |  |
| *Dxy* | [derivative](http://www.rapidtables.com/math/calculus/derivative.htm) | derivative - Euler's notation |  |
| *Dx*2*y* | second derivative | derivative of derivative |  |
| \frac{\partial f(x,y)}{\partial x} | partial derivative |  | ∂(*x*2+*y*2)/∂*x* = 2*x* |
| ∫ | [integral](http://www.rapidtables.com/math/calculus/integral.htm) | opposite to derivation |  |
| ∬ | double integral | integration of function of 2 variables |  |
| ∭ | triple integral | integration of function of 3 variables |  |
| ∮ | closed contour / line integral |  |  |
| ∯ | closed surface integral |  |  |
| ∰ | closed volume integral |  |  |
| [*a*,*b*] | closed interval | [*a*,*b*] = {*x*|*a*≤*x*≤*b*} |  |
| (*a*,*b*) | open interval | (*a*,*b*) = {*x*|*a*<*x*<*b*} |  |
| *i* | imaginary unit | *i* ≡ √-1 | *z* = 3 + 2*i* |
| *z*\* | complex conjugate | *z*=*a*+*bi* → *z*\*=*a*-*bi* | *z\** = 3 + 2*i* |
| *z* | complex conjugate | *z*=*a*+*bi* → *z*=*a*-*bi* | *z* = 3 + 2*i* |
| ∇ | nabla / del | gradient / divergence operator | ∇*f*(*x*,*y*,*z*) |
| http://www.rapidtables.com/math/symbols/math_symbols/vector.GIF | vector |  |  |
| http://www.rapidtables.com/math/symbols/math_symbols/unit%20vector.GIF | unit vector |  |  |
| *x*\**y* | [convolution](http://www.rapidtables.com/math/calculus/Convolution.htm) | *y*(*t*) = *x*(*t*) \* *h*(*t*) |  |
| http://www.rapidtables.com/math/symbols/calculus_symbols/L.gif | [Laplace transform](http://www.rapidtables.com/math/calculus/laplace_transform.htm) | *F*(*s*) = http://www.rapidtables.com/math/symbols/calculus_symbols/L.gif{*f*(*t*)} |  |
| http://www.rapidtables.com/math/symbols/calculus_symbols/F.gif | Fourier transform | *X*(*ω*) = http://www.rapidtables.com/math/symbols/calculus_symbols/F.gif{*f*(*t*)} |  |
| *δ* | delta function |  |  |
| ∞ | [lemniscate](http://www.rapidtables.com/math/symbols/Infinity_Symbol.htm) | [infinity symbol](http://www.rapidtables.com/math/symbols/Infinity_Symbol.htm) |  |

Numeral symbols

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | European | Roman | Hindu Arabic | Hebrew |
| zero | 0 |  | ٠ |  |
| one | 1 | I | ١ | א |
| two | 2 | II | ٢ | ב |
| three | 3 | III | ٣ | ג |
| four | 4 | IV | ٤ | ד |
| five | 5 | V | ٥ | ה |
| six | 6 | VI | ٦ | ו |
| seven | 7 | VII | ٧ | ז |
| eight | 8 | VIII | ٨ | ח |
| nine | 9 | IX | ٩ | ט |
| ten | 10 | X | ١٠ | י |
| eleven | 11 | XI | ١١ | יא |
| twelve | 12 | XII | ١٢ | יב |
| thirteen | 13 | XIII | ١٣ | יג |
| fourteen | 14 | XIV | ١٤ | יד |
| fifteen | 15 | XV | ١٥ | טו |
| sixteen | 16 | XVI | ١٦ | טז |
| seventeen | 17 | XVII | ١٧ | יז |
| eighteen | 18 | XVIII | ١٨ | יח |
| nineteen | 19 | XIX | ١٩ | יט |
| twenty | 20 | XX | ٢٠ | כ |
| thirty | 30 | XXX | ٣٠ | ל |
| fourty | 40 | XL | ٤٠ | מ |
| fifty | 50 | L | ٥٠ | נ |
| sixty | 60 | LX | ٦٠ | ס |
| seventy | 70 | LXX | ٧٠ | ע |
| eighty | 80 | LXXX | ٨٠ | פ |
| ninety | 90 | XC | ٩٠ | צ |
| one hundred | 100 | C | ١٠٠ | ק |

Greek alphabet letters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Greek Symbol | | Greek Letter Name | English Equivalent | Pronunciation |
| Upper Case | Lower Case |
| Α | α | Alpha | a | al-fa |
| Β | β | Beta | b | be-ta |
| Γ | γ | Gamma | g | ga-ma |
| Δ | δ | Delta | d | del-ta |
| Ε | ε | Epsilon | e | ep-si-lon |
| Ζ | ζ | Zeta | z | ze-ta |
| Η | η | Eta | h | eh-ta |
| Θ | θ | Theta | th | te-ta |
| Ι | ι | Iota | i | io-ta |
| Κ | κ | Kappa | k | ka-pa |
| Λ | λ | Lambda | l | lam-da |
| Μ | μ | Mu | m | m-yoo |
| Ν | ν | Nu | n | noo |
| Ξ | ξ | Xi | x | x-ee |
| Ο | ο | Omicron | o | o-mee-c-ron |
| Π | π | Pi | p | pa-yee |
| Ρ | ρ | Rho | r | row |
| Σ | σ | Sigma | s | sig-ma |
| Τ | τ | Tau | t | ta-oo |
| Υ | υ | Upsilon | u | oo-psi-lon |
| Φ | φ | Phi | ph | f-ee |
| Χ | χ | Chi | ch | kh-ee |
| Ψ | ψ | Psi | ps | p-see |
| Ω | ω | Omega | o | o-me-ga |

Roman numerals

|  |  |
| --- | --- |
| Number | Roman numeral |
| 0 | not defined |
| 1 | I |
| 2 | II |
| 3 | III |
| 4 | IV |
| 5 | V |
| 6 | VI |
| 7 | VII |
| 8 | VIII |
| 9 | IX |
| 10 | X |
| 11 | XI |
| 12 | XII |
| 13 | XIII |
| 14 | XIV |
| 15 | XV |
| 16 | XVI |
| 17 | XVII |
| 18 | XVIII |
| 19 | XIX |
| 20 | XX |
| 30 | XXX |
| 40 | XL |
| 50 | L |
| 60 | LX |
| 70 | LXX |
| 80 | LXXX |
| 90 | XC |
| 100 | C |
| 200 | CC |
| 300 | CCC |
| 400 | CD |
| 500 | D |
| 600 | DC |
| 700 | DCC |
| 800 | DCCC |
| 900 | CM |
| 1000 | M |
| 5000 | V |
| 10000 | X |
| 50000 | L |
| 100000 | C |
| 500000 | D |
| 1000000 | M |