List of LaTeX mathematical symbols

Greek letters

Greek letters

Symbol	LaTeX	Symbol	LaTeX
A and α	`\Alpha` and `\alpha`	N and ν	`\Nu` and `\nu`
B and β	`\Beta` and `\beta`	Ξ and ξ	`\Xi` and `\xi`
Γ and γ	`\Gamma` and `\gamma`	O and o	`\Omicron` and `\omicron`
Δ and δ	`\Delta` and `\delta`	Π, π and ϖ	`\Pi`, `\pi` and `\varpi`
E, ϵ and ε	`\Epsilon`, `\epsilon` and `\varepsilon`	P, ρ and ϱ	`\Rho`, `\rho` and `\varrho`
Z and ζ	`\Zeta` and `\zeta`	Σ, σ and ς	`\Sigma`, `\sigma` and `\varsigma`
H and η	`\Eta` and `\eta`	T and τ	`\Tau` and `\tau`
Θ, θ and ϑ	`\Theta`, `\theta` and `\vartheta`	Υ and υ	`\Upsilon` and `\upsilon`
I and ι	`\Iota` and `\iota`	Φ, ϕ, and φ	`\Phi`, `\phi` and `\varphi`
K, κ and $\varkappa$	`\Kappa`, `\kappa` and `\varkappa`	X and χ	`\Chi` and `\chi`
Λ and λ	`\Lambda` and `\lambda`	Ψ and ψ	`\Psi` and `\psi`
M and μ	`\Mu` and `\mu`	Ω and ω	`\Omega` and `\omega`

Archaic Greek letters

Symbol	LaTeX
$\digamma$	`\Digamma`
$\varGamma$	`\digamma`

Unary operators

Unary operators

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
$+$	+		$-$	-	negation	$!$	!	factorial	$\#$	\#	primorial
			$\neg$	`\neg`	not						

Relation operators

Relation operators

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
$<$	<	is less than	$>$	>	is greater than
$\not<$	\nless	is not less than	$\not>$	\ngtr	is not greater than
$\leq$	\leq	is less than or equal to	$\geq$	\geq	is greater than or equal to
$\leqslant$	\leqslant	is less than or equal to	$\geqslant$	\geqslant	is greater than or equal to
$\not\leq$	\nleq	is neither less than nor equal to	$\not\geq$	\ngeq	is neither greater than nor equal to
$\not\leqslant$	\nleqslant	is neither less than nor equal to	$\not\geqslant$	\ngeqslant	is neither greater than nor equal to
$\prec$	\prec	precedes	$\succ$	\succ	succeeds
$\not\prec$	\nprec	doesn't precede	$\not\succ$	\nsucc	doesn't succeed
$\preceq$	\preceq	precedes or equals	$\succeq$	\succeq	succeeds or equals
$\not\preceq$	\npreceq	neither precedes nor equals	$\not\succeq$	\nsucceq	neither succeeds nor equals
$\ll$	\ll		$\gg$	\gg	
$\lll$	\lll		$\ggg$	\ggg	
$\subset$	\subset	is a proper subset of	$\supset$	\supset	is a proper superset of
$\not\subset$	\not\subset	is not a proper subset of	$\not\supset$	\not\supset	is not a proper superset of
$\subseteq$	\subseteq	is a subset of	$\supseteq$	\supseteq	is a superset of
$\nsubseteq$	\nsubseteq	is not a subset of	$\nsupseteq$	\nsupseteq	is not a superset of
$\sqsubset$	\sqsubset		$\sqsupset$	\sqsupset	
$\sqsubseteq$	\sqsubseteq		$\sqsupseteq$	\sqsupseteq	

Symbol	LaTeX	Comment
$=$	=	is equal to
$\doteq$	\doteq	
$\equiv$	\equiv	is equivalent to
$\approx$	\approx	is approximately
$\cong$	\cong	is congruent to
$\simeq$	\simeq	is similar or equal to
$\sim$	\sim	is similar to
$\propto$	\propto	is proportional to
$\neq$ or $\neq$	\neq or \ne	is not equal to

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
$\parallel$	\parallel	is parallel with	$\nparallel$	\nparallel	is not parallel with
$\asymp$	\asymp	is asymptotic to	$\bowtie$	\bowtie	
$\vdash$	\vdash		$\dashv$	\dashv	
$\in$	\in	is member of	$\ni$	\ni	owns, has member
$\smile$	\smile		$\frown$	\frown	
$\models$	\models	models	$\notin$	\notin	is not member of
$\perp$	\perp	is perpendicular with	$\mid$	\mid	divides

Binary operators

Binary operators

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
$\pm$	\pm	plus or minus	$\cap$	\cap	set intersection	$\diamond$	\diamond		$\oplus$	\oplus	
$\mp$	\mp	minus or plus	$\cup$	\cup	set union	$\triangle$	\bigtriangleup		$\ominus$	\ominus	
$\times$	\times	multiplied by	$\uplus$	\uplus	multiset addition	$\triangledown$	\bigtriangledown		$\otimes$	\otimes	
$\div$	\div	divided by	$\sqcap$	\sqcap		$\triangleleft$	\triangleleft		$\oslash$	\oslash	
$*$	\ast	asterisk	$\sqcup$	\sqcup		$\triangleright$	\triangleright		$\odot$	\odot	
$\star$	\star		$\vee$	\vee		$\bigcirc$	\bigcirc		$\circ$	\circ	
$\dagger$	\dagger		$\wedge$	\wedge		$\bullet$	\bullet		$\setminus$	\setminus	set difference
$\ddagger$	\ddagger		$\cdot$	\cdot		$\wr$	\wr		$\amalg$	\amalg	

Negated binary operators

Negated binary operators

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
$\neq$ or $\neq$	`\neq` or `\ne`	is not equal to	$\notin$	`\notin`	is not member of
$\nless$	`\nless`	is not less than	$\ngtr$	`\ngtr`	is not greater than
$\nleq$	`\nleq`	is not less than or equal to	$\ngeq$	`\ngeq`	is not greater than or equal to
$\nleqslant$	`\nleqslant`		$\ngeqslant$	`\ngeqslant`	
$\nleqq$	`\nleqq`		$\ngeqq$	`\ngeqq`	
$\lneq$	`\lneq`		$\gneq$	`\gneq`	
$\lneqq$	`\lneqq`		$\gneqq$	`\gneqq`	
$\lvertneqq$	`\lvertneqq`		$\gvertneqq$	`\gvertneqq`	
$\lnsim$	`\lnsim`		$\gnsim$	`\gnsim`	
$\lnapprox$	`\lnapprox`		$\gnapprox$	`\gnapprox`	
$\nprec$	`\nprec`	does not precede	$\nsucc$	`\nsucc`	does not succeed
$\npreceq$	`\npreceq`	neither precedes nor equals	$\nsucceq$	`\nsucceq`	neither succedes nor equals
$\precneqq$	`\precneqq`		$\succneqq$	`\succneqq`	
$\precnsim$	`\precnsim`		$\succnsim$	`\succnsim`	
$\precnapprox$	`\precnapprox`		$\succnapprox$	`\succnapprox`	
$\nsim$	`\nsim`	is not similar to	$\ncong$	`\ncong`	is not congruent to
$\nshortmid$	`\nshortmid`		$\nshortparallel$	`\nshortparallel`	
$\nmid$	`\nmid`		$\nparallel$	`\nparallel`	is not parallel with
$\nvdash$	`\nvdash`		$\nvDash$	`\nvDash`	
$\nVdash$	`\nVdash`		$\nVDash$	`\nVDash`	
$\ntriangleleft$	`\ntriangleleft`		$\ntriangleright$	`\ntriangleright`	
$\ntrianglelefteq$	`\ntrianglelefteq`		$\ntrianglerighteq$	`\ntrianglerighteq`	
$\nsubseteq$	`\nsubseteq`		$\nsupseteq$	`\nsupseteq`	
$\nsubseteqq$	`\nsubseteqq`		$\nsupseteqq$	`\nsupseteqq`	
$\subsetneq$	`\subsetneq`		$\supsetneq$	`\supsetneq`	
$\varsubsetneq$	`\varsubsetneq`		$\varsupsetneq$	`\varsupsetneq`	
$\subsetneqq$	`\subsetneqq`		$\supsetneqq$	`\supsetneqq`	
$\varsubsetneqq$	`\varsubsetneqq`		$\varsupsetneqq$	`\varsupsetneqq`	

Set and/or logic notation

Set notation

Symbol	LaTeX	Comment
$\emptyset$ or $\emptyset$, and $\varnothing$	`\O` or `\emptyset`, and `\varnothing`	the empty set
$\mathbb{N}$	`\N`	set of natural numbers
$\mathbb{Z}$	`\Z`	set of integers
$\mathbb{Q}$	`\Q`	set of rational numbers
$\mathbb{A}$	`\mathbb{A}`	set of algebraic numbers
$\mathbb{R}$	`\R`	set of real numbers
$\mathbb{C}$	`\C`	set of complex numbers
$\mathbb{H}$	`\mathbb{H}`	set of quaternions
$\mathbb{O}$	`\mathbb{O}`	set of octonions
$\mathbb{S}$	`\mathbb{S}`	set of sedenions
$\in$	`\in`	is member of
$\notin$	`\notin`	is not member of
$\ni$	`\ni`	owns (has member)
$\subset$	`\subset`	is proper subset of
$\subseteq$	`\subseteq`	is subset of
$\supset$	`\supset`	is proper superset of
$\supseteq$	`\supseteq`	is superset of
$\cup$	`\cup`	set union
$\cap$	`\cap`	set intersection
$\setminus$	`\setminus`	set difference

Logic notation

Symbol	LaTeX	Comment
$\exists$	`\exists`	there exists at least one
$\exists!$	`\exists!`	there exists one and only one
$\nexists$	`\nexists`	there is no
$\forall$	`\forall`	for all
$\neg$	`\neg`	not (logical not)
$\vee$	`\lor`	or (logical or)
$\wedge$	`\land`	and (logical and)
$\Longrightarrow$ or $\Longrightarrow$	`\Longrightarrow` or `\implies`	implies
$\Rightarrow$	`\Rightarrow`	*(preferred for right implication)*
$\Longleftarrow$	`\Longleftarrow`	is implied by (only if)
$\Leftarrow$	`\Leftarrow`	*(preferred for left implication)*
$\iff$	`\iff`	is equivalent to (if and only if, iff)
$\Leftrightarrow$	`\Leftrightarrow`	*(preferred for equivalence)*
$\top$	`\top`	
$\bot$	`\bot`	

Geometry

Geometry notation

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
$\overline{\mathrm{AB}}$	`\overline{\rm AB}`	segment	$\overrightarrow{\mathrm{AB}}$	`\overrightarrow{\rm AB}`	ray (half-line)
$\angle$	`\angle`	angle	$\measuredangle$	`\measuredangle`	measured angle
$\triangle$	`\triangle`	triangle	$\square$	`\square`	square
$\cong$	`\cong`	congruent (same shape and size)	$\ncong$	`\ncong`	not congruent
$\sim$	`\sim`	similar (same shape)	$\nsim$	`\nsim`	not similar
$\parallel$	`\\|`	is parallel with	$\nparallel$	`\nparallel`	is not parallel with
$\perp$	`\perp`	is perpendicular to	$\not\perp$	`\not\perp`	is not perpendicular to

Delimiters

Delimiters

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
$\vert$	`|`	divides	$\Vert$	`\\|`	divides unitarily, is parallel with	$/$	`/`	slash	$\backslash$	`\backslash`	
$($	`( \,`	left parenthesis	$)$	`) \,`	right parenthesis	$[$	`[ \,`	left [square] bracket	$]$	`] \,`	right [square] bracket
$\{$	`\{`	left brace	$\}$	`\}`	right brace	$\langle$	`\langle`	left angle bracket	$\rangle$	`\rangle`	right angle bracket
$\lceil$	`\lceil`	ceiling (left)	$\rceil$	`\rceil`	ceiling (right)	$\lfloor$	`\lfloor`	floor (left)	$\rfloor$	`\rfloor`	floor (right)
$\ulcorner$	`\ulcorner`		$\urcorner$	`\urcorner`		$\llcorner$	`\llcorner`		$\lrcorner$	`\lrcorner`	

Arrows

Arrows

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
→ or $\rightarrow$	\rightarrow or \to		⇒	\Rightarrow		⟶	\longrightarrow		⟹	\Longrightarrow	
↦	\mapsto					⟼	\longmapsto				
← or $\leftarrow$	\leftarrow or \gets		⇐	\Leftarrow		⟵	\longleftarrow		⟸	\Longleftarrow	

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
↑	\uparrow	Knuth's up-arrow notation	⇑	\Uparrow	
↓	\downarrow		⇓	\Downarrow	
↕	\updownarrow		⇕	\Updownarrow	

Other symbols

Other symbols

Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment	Symbol	LaTeX	Comment
∂	\partial	partial derivative	$\imath$	\imath		$\Re$	\Re	real part	∇	\nabla	del (vector calculus)
ð	\eth		$\jmath$	\jmath		$\Im$	\Im	imaginary part	□	\Box	
$\hbar$	\hbar	reduced Planck's constant	ℓ	\ell		$\wp$	\wp	[Weierstrass] powerset	∞	\infty	infinity

Hebrew lettters

Symbol	LaTeX	Comment
א	\aleph	aleph numbers
ב	\beth	
ג	\gimel	

Trigonometric functions

Circular functions
The prefix arc *used for inverse circular trigonometric functions is the abbreviation for* arcus.

Symbol	LaTeX	Symbol	LaTeX	Symbol	LaTeX	Symbol	LaTeX
sin	\sin	**arcsin**	\arcsin	**csc**	\csc	**arccsc**	\arccsc
cos	\cos	**arccos**	\arccos	**sec**	\sec	**arcsec**	\arcsec
tan	\tan	**arctan**	\arctan	**cot**	\cot	**arccot**	\arccot

Hyperbolic functions
The abbreviations arcsinh, arccosh, *etc., are commonly used for inverse hyperbolic trigonometric functions (area hyperbolic functions), even though they are misnomers, since the prefix* arc *is the abbreviation for* arcus, *while the prefix* ar *stands for* area.

Symbol	LaTeX	Symbol	LaTeX	Symbol	LaTeX	Symbol	LaTeX
sinh	\sinh	**arsinh**	\operatorname{arsinh}	**csch**	\operatorname{csch}	**arcsch**	\operatorname{arcsch}
cosh	\cosh	**arcosh**	\operatorname{arcosh}	**sech**	\operatorname{sech}	**arsech**	\operatorname{arsech}
tanh	\tanh	**artanh**	\operatorname{artanh}	**coth**	\coth	**arcoth**	\operatorname{arcoth}