List of LaTeX mathematical symbols

From OeisWiki

All the predefined mathematical symbols from the TEX package are listed below. More symbols are available from extra packages.

Contents

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
$\Digamma$	\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
$\not\subseteq$	`\nsubseteq`	is not a subset of	$\not\supseteq$	`\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 relations

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
$\not<$	\nless	is not less than	$\not>$	\ngtr	is not greater than
$\not\leq$	\nleq	is not less than or equal to	$\not\geq$	\ngeq	is not greater than or equal to
$\not\leqslant$	\nleqslant		$\not\geqslant$	\ngeqslant	
$\not\leqq$	\nleqq		$\not\geqq$	\ngeqq	
$\lneq$	\lneq		$\gneq$	\gneq	
$\lneqq$	\lneqq		$\gneqq$	\gneqq	
$\lvertneqq$	\lvertneqq		$\gvertneqq$	\gvertneqq	
$\lnsim$	\lnsim		$\gnsim$	\gnsim	
$\lnapprox$	\lnapprox		$\gnapprox$	\gnapprox	
$\not\prec$	\nprec	does not precede	$\not\succ$	\nsucc	does not succeed
$\not\preceq$	\npreceq	neither precedes nor equals	$\not\succeq$	\nsucceq	neither succedes nor equals
$\precneqq$	\precneqq		$\succneqq$	\succneqq	
$\precnsim$	\precnsim		$\succnsim$	\succnsim	
$\precnapprox$	\precnapprox		$\succnapprox$	\succnapprox	
$\not\sim$	\nsim	is not similar to	$\not\cong$	\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	
$\not\triangleleft$	\ntriangleleft		$\not\triangleright$	\ntriangleright	
$\not\trianglelefteq$	\ntrianglelefteq		$\not\trianglerighteq$	\ntrianglerighteq	
$\not\subseteq$	\nsubseteq		$\not\supseteq$	\nsupseteq	
$\not\subseteqq$	\nsubseteqq		$\not\supseteqq$	\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
$\overline{\rm AB}$	`\overline{\rm AB}`	segment	$\overrightarrow{\rm AB}$	`\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 or \to		⇒	\Rightarrow		⟶	\longrightarrow		⟹	\Longrightarrow	
↦	\mapsto					⟼	\longmapsto				
← or ←	\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}

***Sections remaining to be done**: Table 3 onwards from symbols.pdf* (To do)[1]

Notes

1. To do.

External links

- Scott Pakin, The Comprehensive LaTeX Symbol List (http://tug.ctan.org/info/symbols/comprehensive/symbols-a4.pdf), 2017. (Lists thousands of symbols and the corresponding LaTeX commands that produce them.)
- Comprehensive TeX Archive Network (http://www.ctan.org/)
- http://ctan.cms.math.ca/tex-archive/info/symbols/comprehensive/SYMLIST