Symbols & Logical Syntax in \LaTeX

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Greek & Hebrew Letters

Alphabetical Characters

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

Miscellaneous Characters & Punctuation

F	\digamma	C	\complement	\Im	\Im	G	\Game	£	\pounds		
×	\aleph	ℓ	\ell	\Re	\Re	4	\Finv	\$	\\$,	,
コ	\beth	ð	\eth	Ω	\mho	∂	\partial	§	\S	٠, ٠,	·, ,
٦	\d	\hbar	\hbar	Ø	\wp	TM , ©	\trademark, \copyright	!	!	", "	", " or "
J	\gimel	\hbar	\hslash	k	\Bbbk	®, ®	\textregistered, \circledR	?	?	:	\colon or :
\imath	\imath	Т	\top	Ø	\emptyset	\Diamond	\diamondsuit	þ	\natural	;	;
J	$\$ jmath	\perp	bot	∞	∞	\Diamond	\heartsuit	#	\sharp		
∇	\nabla	_	\angle		\Box	*	\clubsuit	b	\flat		
\triangle	\triangle	\checkmark	\surd	\Diamond	Diamond	•	\spadesuit				

Basic Math Mode Syntax

XY	Z xyz	<pre>XYZ\ xyz \mathbb{XYZ}</pre>	XYZ xyz XYZ	<pre>\mathrm{XYZ\ xyz} \mathcal{XYZ}</pre>	XYZ xyz XY3 xŋ3	<pre>\mathit{XYZ\ xyz} \mathfrak{XYZ\ xyz}</pre>	XYZ xyz	<pre>\mathbf{XYZ\ xyz} \mathtt{XYZ\ xyz}</pre>
$\begin{array}{cccc} xyz \\ x & y & z \\ a & b & c & d \\ a & b & \end{array}$	a	z space{4mu}c\med b\mspace{18mu} tom{xxx}b		Math spacing Extended spacing 4mu ('medium') space 18mu ('quad') space Space width of 'xxx'	$\begin{vmatrix} \sin x \cos y \\ abcd \\ abcd \\ abad \end{vmatrix}$	\sin x\cos y ab\mspace{3mu}c\t a\;b\mspace{5mu}c\t a\!b\mspace{-3mu}c\	chickspace d	Operator spacing 3mu ('thin') space 5mu ('thick') space Neg. 3mu ('thin') space

Math Accents & Constructs

\hat{x}	\hat{x}	×	\check{x}	\tilde{x}	\tilde{x}	x x	\acute{x}	À	\grave{x}
\dot{x}	\dot{x}	\ddot{x}	\ddot{x}	×	\breve{x}	\bar{x}	\bar{x}	\vec{x}	$\operatorname{vec}\{x\}$
\widehat{xyz}	\widehat{xyz}	\widetilde{xyz}	\widetilde{xyz}	$\frac{abc}{xyz}$	\frac{abc}{xyz}	f, f'	f, f\prime	\sqrt{x}	\sqrt{x}
$\sqrt[n]{x}$	$\sqrt[n]{x}$	\overline{xyz}	\overline{xyz}	$\frac{xyz}{}$	\underline{xyz}	\widehat{xyz}	\overbrace{xyz}	xyz	\underbrace{xyz}
\overrightarrow{xyz}	\overrightarrow{xyz}	$\frac{\overleftarrow{xyz}}{}$	\overleftarrow{xyz}	\overrightarrow{xyz}	\overleftrightarrow{xyz}	$\frac{xyz}{abc}$	\xleftarrow[abc]{xyz}	$\stackrel{xyz}{\leftarrow}$	\xrightarrow[abc]{
$\sum_{i=1}^{x} \sum_{k=1}^{j} i_{k}$	$\left(y^x\right)_{k^j}\sum_{k^j}$	\sum_{K}	\overset{K}{\sum}	\sum_{i}	\sunderset{k=1}{\sum}				

Binary Relations

Note that you can produce according negations by either adding the \not command as a prefix or ordinarily by preceding the commands with 'n'. For example, \not= or \neq turns = to \neq .

<	<	>	>	=	=	€	\in	∋	\ni or \owns
\leq	$\leq or \leq o$	\geq	\geq or \ge	≡	\equiv	-	\vdash	-	\dashv
«	\11	>>	\gg	Ė	\doteq		\mid	П	\parallel
\prec	\prec	>	\succ	~	\sim	_	\smile		\frown
\preceq	\preceq	≽	\succeq	~	\simeq	3	\exists	_	\lnot or \neg
\subset	\subset	\supset	\supset	≈	\approx	=	\models	上	\perp
\subseteq	\subseteq	\supseteq	\supseteq	\simeq	\cong	\asymp	\asymp	\propto	\propto
	\sqsubset		\sqsupset	M	Join	≠	\neq	\forall	\forall
	\sasubsetea		\sasupsetea	\bowtie	\bowtie	∉	\notin	7. \	\prime. \backprime

Binary Operators

Standard Operators

+	+	_	-	V	\lor or \vee	Λ	\land or \wedge	⊲	\lhd	\triangleright	\rhd	†	\dagger
\pm	\pm	 	\mp	\oplus	\oplus	Θ	\ominus	⊴	\unlhd	⊵	\unrhd	‡	\ddagger
×	\times		\cdot	0	\odot	Ø	\oslash	•	\bullet	0	\circ	¶	\P
÷	\div	\	\setminus	8	\otimes	0	\bigcirc	*	\ast	*	\star	ĺ	
\cup	\cup	\cap	\cap	Δ	\bigtriangleup	∇	\bigtriangledown	♦	\diamond		\wr	ĺ	
Ш	\sqcup	П	\sqcap	⊲	\triangleleft	⊳	\triangleright	П	\amalg	₩	\uplus	ĺ	

Large Operators

\sum	\sum	 	\int	\cap	\bigcap	\oplus	\bigoplus	V	bigvee	
Π	\prod	∮	\oint	U	\bigcup	\otimes	\bigotimes	Λ	\bigwedge	
П	\coprod		\iint	⊎	\bigoplus	\odot	\bigodot	│	\bigsqcup	

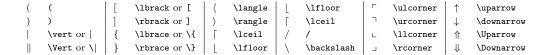
Functions

arccos	\arcoss	csc	\csc	inj lim	\injlim	max	\max
arcsin	\arcsin	deg	\deg	ker	\ker	min	\min
arctan	\arctan	det	\det	lg	\lg	Pr	\Pr
arg	\arg	dim	\dim	lim	\lim	proj lim	\projlim
cos	\cos	exp	\exp	lim inf	\liminf	sec	\sec
\cosh	\cosh	gcd	\gcd	\limsup	\label{limsup}	sin	\sin
cot	\cot	hom	\hom	ln	\ln	sinh	\sinh
\coth	\coth	inf	\inf	log	\log	sup	sup

Delimiters

Note that you can produce according relatively sized symbols by preceding the commands with \left or \right. For example, \left(\frac{abc}{xyz}\right) turns $(\frac{abc}{xyz})$ to $(\frac{abc}{xyz})$. Sometimes commands can be preceded with '1' or 'r' e.g., \left xyz\rVert makes ||xyz||. Thus, giving the \Vert command properties of paired symbols.

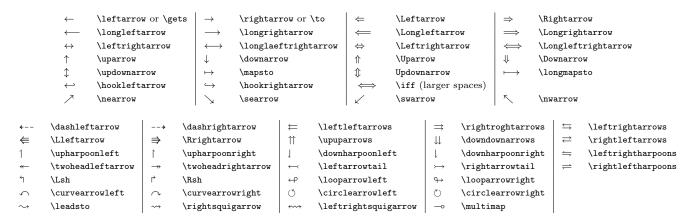
Standard Delimiters



Large Delimiters



Arrows



Matrices

Note that any of the following can also be displayed inline as well as stand-alone. It's recommended that you use smallmatrix for this. Thus, you must preced and succeed \begin and \end smallmatrix with \left<delimiter> and \right<delimiter>, respectively. For example, \left(\begin{smallmatrix}a & b & c\\x & y & z\end{smallmatrix}\right) yields $\begin{pmatrix} a & b & c \\ x & y & z \end{pmatrix}$.

Syntax