Symbols & Logical Syntax in LATEX

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Greek & Hebrew Characters

Alphabetical Letters

A, α	\Alpha, \alpha	Ι, ι	\Iota, \iota	Ρ, ρ, ρ	\Rho, \rho, \varrho
B, β	\Beta, \beta	Κ, κ, κ	\Kappa, \kappa, \varkappa	Σ , σ , ς	\Sigma, \sigma, \varsigma
Γ , γ	\Gamma, \gamma	Λ, λ	\Lambda, \lambda	T, τ	\Tau, \tau
Δ , δ	\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	О, о	\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	_	\angle	3	\Im	G	\Game	£	\pounds
×	\aleph	ℓ	\ell	4	\measuredangle	R	\Re		\Finv	\$	\\$
コ	\beth	ð	\eth	∢	\sphericalangle	υ	\mho	∂	\partial	?	?
٦	\daleth	\hbar	\hbar		\surd	go .	\wp	TM , ©	\trademark, \copyright	!	!
I	\gimel	ħ	\hslash	Ц	\natural	k	\Bbbk	®, ®	\textregistered, \circledR		•
\imath	\imath	T	\top	#	\sharp	Ø	\emptyset	\Diamond , \Diamond	\diamondsuit, \lozenge	,	,
J	\jmath	1	\bot	Ь	\flat	∞	\infty	\Diamond	\heartsuit	٠, ٠,	·, ,
∇	\nabla	§	\\$	Δ	\vartriangle	□, □	\Box, \square	*	\clubsuit	", "	", ,, or "
\triangle	\triangle	Ø	\varnothing	▽	\triangledown	♦	\Diamond	•	\spadesuit	:, ;	:,;
A	\blacktriangle		\blacksquare	\	\diagdown	3	\exists	*	\bigstar		
▼	$\blue{blacktriangledown}$	•	\blacklozenge	/	\diagup	∄	\nexists				

Basic Math Mode

Math Alphabets

$XYZ \ xyz$	XYZ\ xyz	XYZ xyz	\mathrm{XYZ\ xyz}	XYZ xyz	\mathit{XYZ\ xyz}	XYZ xyz	\mathbf{XYZ\ xyz}
$\mathbb{X}\mathbb{Y}\mathbb{Z}$	\mathbb{XYZ}	$\mathcal{X}\mathcal{Y}\mathcal{Z}$	\mathcal{XYZ}	XYI3 rnz	$XYZ\ xyz$	XYZ xyz	$XYZ\ xyz$
XY7 xvz	XV7\ yvz			•		•	

Math Spacing

xyz	xyz	Math spacing	$\sin x \cos y$	\sin x\cos y	Operator spacing
x y z	x\ y\ z	Extended spacing	abcd	ab\mspace{3mu}c\thinspace d	3mu ('thin') space
$a\ b\ c\ d$	a\:b\mspace{4mu}c\medspace d	4mu ('medium') space	$a\ b\ c\ d$	a\;b\mspace{5mu}c\thickspace d	5mu ('thick') space
a b c d	a b\mspace{18mu}c d	18mu ('quad') space	abad	a\!b\mspace{-3mu}c\negthinspace d	Neg. 3mu ('thin') space
a b	ab	Space width of 'xxx'			

Math Accents & Constructs

۵	\hat{x}	I ±	\check{x}	l ==	\tilde{x}	ŕ	\acute{x}	À	\grave{x}
x	\nat{x}	X	/cneck{x}	\dot{x}	\tilde{x}		\acute(x)	x	\grave(x)
\dot{x}	\dot{x}	\ddot{x}	\ddot{x}	\breve{x}	\breve{x}	\bar{x}	\bar{x}	\vec{x}	\vec{x}
\widehat{xy}	\hat{z} \widehat{xyz}	\widetilde{xyz}	<page-header></page-header>	$\frac{abc}{xyz}$	\frac{abc}{xyz}	f, f'	f, f\prime	\sqrt{x}	\sqrt{x}
$\sqrt[n]{3}$	\overline{x} \sqrt[n]{x}	\overline{xyz}	\overline{xyz}	xyz	\underline{xyz}	\widehat{xyz}	\overbrace{xyz}	xyz	\underbrace{xyz}
\overline{xy}	$\stackrel{ ightharpoonup}{z}$ xy	xz } xyz	\overleftarrow{xyz}	\overrightarrow{xyz}	\overleftrightarrow{xyz}	$\frac{xyz}{abc}$	\xleftarrow[abc]{xyz}	$\frac{xyz}{abc}$	\xrightarrow[abc]{
,	$\sum_{k}^{j} \text{\sideset}_{y^x}_{k}$	$j}\sum$	\overset{K}{\sum}	$\sum_{k=1}$	\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 \not = turns = to \neq .

<	<	>	>	=	=	\in	\in	∋	\ni or \owns
\leq	$\leq or \leq o$	\geq	\geq or \ge	=	\equiv	-	\vdash	-	\dashv
«	\11	>>	\gg	Ė	\doteq		\mid		\parallel
\prec	\prec	>	\succ	~	\sim	_	\smile		\frown
\preceq	\preceq	≥	\succeq	~	\simeq	∃	\exists	_	\lnot or \neg
\subset	\subset	\supset	\supset	\approx	\approx	=	\models	上	\perp
\subseteq	\subseteq	\supseteq	\supseteq	\simeq	\cong	\asymp	\asymp	\propto	\propto
	\sqsubset		\sqsupset	M	Join	≠	\neq	\forall	\forall
	\sqsubseteq		\sqsupseteq	\bowtie	\bowtie	∉	\notin	٧, ١	\prime, \backprime

Binary Operators

Standard Operators

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

\sum	\sum	ſ	$\$ int	ſſſ	\iiint	∩	\bigcap	\oplus	\bigoplus	V	bigvee
Π	\prod	∮	\oint	ſſſſ	\iiiint	U	\bigcup	\otimes	\bigotimes	\wedge	\bigwedge
П	\coprod	ſſ	\iint			⊎	\bigoplus	\odot	\bigodot		\bigsqcup

Functions

arccos	\arcoss	csc	\csc	inj lim	\injlim	max	\max	tan	\tan
arcsin	\arcsin	deg	\deg	ker	\ker	min	\min	tanh	\tanh
arctan	\arctan	det	\det	lg	\lg	Pr	\Pr	\varinjlim	\varinjlim
arg	\arg	dim	\dim	lim	\lim	proj lim	\projlim	ļim	\varprojlim
cos	\cos	exp	\exp	lim inf	\liminf	sec	\sec	lim	\varliminf
cosh	\cosh	gcd	\gcd	lim sup	\limsup	sin	\sin	lim	\varlimsup
cot	\cot	hom	\hom	ln	\ln	sinh	\sinh	226_0^1	\operatorname{226}_0^1
\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.

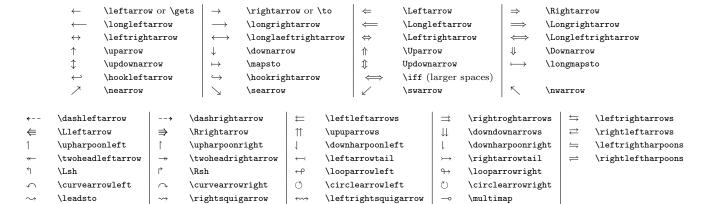
Standard Delimiters



Large Delimiters

	\1 amoun	l	\ ~~~~	I	\lmana+paha	1	\rmoustache	Li	\arrowvert	Lii	\Arrowvert	1	\ bwo corrowt
Ţ	\1group)	\rgroup	^	\1moustache		/Imoustache		/arrowverc	"	/HIIOWVELC	'	\bracevert

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

$egin{array}{cccccccccccccccccccccccccccccccccccc$	<pre>\begin{matrix} a & b & c\\ x & y & z \end{matrix}</pre>	\begin{pmatrix} a & b & c \\ (x & y & z) & x & y & z \\ & & & & & & & & & & & & & & & &	$\begin{bmatrix} a & b & c \\ x & y & z \end{bmatrix}$	<pre>\begin{bmatrix} a & b & c\\ x & y & z \end{bmatrix}</pre>
$ \left\{ \begin{array}{ccc} a & b & c \\ x & y & z \end{array} \right. $	\begin{Bmatrix} a & b & c\\ x & y & z \end{Bmatrix}	\begin{vmatrix} a	$ \begin{vmatrix} a & b & c \\ x & y & z \end{vmatrix} $	<pre>\begin{Vmatrix} a & b & c\\ x & y & z \end{Vmatrix}</pre>

Dots

... \dots or \ldots \ ... \cdots \ ... \ddots \ ... \vdots