Symbols & Logical Syntax in LaTeX

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Greek & Hebrew Characters

Alphabetical Letters

A, α	`\Alpha, \alpha`	I, ι	`\Iota, \iota`	P, 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`	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`	X, 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

$\digamma$	`\digamma`	$\complement$	`\complement`	$\angle$	`\angle`	$\Im$	`\Im`	$\Game$	`\Game`
$\aleph$	`\aleph`	ℓ	`\ell`	$\measuredangle$	`\measuredangle`	$\Re$	`\Re`	$\Finv$	`\Finv`
$\beth$	`\beth`	$\eth$	`\eth`	$\sphericalangle$	`\sphericalangle`	$\mho$	`\mho`	∂	`\partial`
$\daleth$	`\daleth`	$\hbar$	`\hbar`	$\surd$	`\surd`	$\wp$	`\wp`	™, ©	`\trademark, \copyright`
$\gimel$	`\gimel`	$\hslash$	`\hslash`	$\natural$	`\natural`	$\Bbbk$	`\Bbbk`	£, \$	`\pounds, \$`
$\imath$	`\imath`	$\top$	`\top`	$\sharp$	`\sharp`	$\emptyset$	`\emptyset`	$\diamondsuit$, $\lozenge$	`\diamondsuit, \lozenge`
$\jmath$	`\jmath`	$\bot$	`\bot`	$\flat$	`\flat`	∞	`\infty`	$\heartsuit$	`\heartsuit`
∇	`\nabla`	§	`\S`	$\vartriangle$	`\vartriangle`	$\Box$, $\square$	`\Box, \square`	$\clubsuit$	`\clubsuit`
$\triangle$	`\triangle`	$\varnothing$	`\varnothing`	$\triangledown$	`\triangledown`	$\Diamond$	`\Diamond`	$\spadesuit$	`\spadesuit`
$\blacktriangle$	`\blacktriangle`	$\blacksquare$	`\blacksquare`	$\diagdown$	`\diagdown`	$\exists$	`\exists`	$\bigstar$	`\bigstar`
$\blacktriangledown$	`\blacktriangledown`	$\blacklozenge$	`\blacklozenge`	$\diagup$	`\diagup`	$\nexists$	`\nexists`		

Text Mode Miscellaneous Characters & Punctuation

ó	`\'{o}`	o̲	`\b{o}`	ǒ	`\v o`	Ø, ø	`\O, \o`	¶	`\P`	£, \$	`\pounds, \$`
ò	``\`{o}``	ȯ	`\.{o}`	ọ	`\d o`	Å, å	`\AA, \aa`	§	`\S`	!, ?	`!,?`
ö	`\"{o}`	ọ	`\d{o}`	o̊	`\r o`	Æ, æ	`\AE, \ae`	†	`\dag`	., ,	`., ,`
ô	`\^{o}`	o̧	`\c{o}`	ő	`\H o`	ß	`\ss`	‡	`\ddag`	‘, ’	`‘, ’`
õ	`\~{o}`	ŏ	`\u{o}`	o͡	`\t o`	ı	`\i`	™, ©	`\trademark, \copyright`	“, ”	`‘‘, ’’ or "`
ō	`\={o}`	ő	`\H{o}`	o͡o	`\t{oo}`	ȷ	`\j`	®, ®	`\textregistered, \circledR`	:, ;	`:, ;`

Basic Math Mode

Alphabets

$XYX\ xyz$	`XYZ\ xyz`	$\mathbf{XYZ\ xyz}$	`\mathbf{XYZ\ xyz}`	$\mathbb{XYZ}$	`\mathbb{XYZ}`
$\mathnormal{XYZ\ xyz}$	`\mathnormal{XYZ\ xyz}`	$\mathsf{XYZ\ xyz}$	`\mathsf{XYZ\ xyz}`	$\mathcal{XYZ}$	`\mathcal{XYZ}`
$\mathit{XYZ\ xyz}$	`\mathit{XYZ\ xyz}`	$\mathtt{XYZ\ xyz}$	`\mathtt{XYZ\ xyz}`	$\mathfrak{XYZ}$	`\mathfrak{XYZ}`
$\mathrm{XYZ\ xyz}$	`\mathrm{XYZ\ xyz}`				

Spacing

xyz	`xyz`	Default math	$a\!b\mspace{-3mu}c\negthinspace d$	`a\!b\mspace{-3mu}c\negthinspace d`	Neg. 3mu ‘thin’
$x\ y\ z$	`x\ y\ z`	Expanded	$a\negmedspace b\mspace{-4mu}c\negmedspace d$	`a\negmedspace b\mspace{-4mu}c\negmedspace d`	Neg. 4mu ‘medium’
$\sin x\cos y$	`\sin x\cos y`	Operator	$a\negthickspace b\mspace{-5mu}c\negthickspace d$	`a\negthickspace b\mspace{-5mu}c\negthickspace d`	Neg. 5mu ‘thick’
$a\,b\mspace{3mu}c\thinspace d$	`a\,b\mspace{3mu}c\thinspace d`	3mu ‘thin’	ab	`a\phantom{xxx}b`	Width of ‘xxx’
$a\:b\mspace{4mu}c\medspace d$	`a\:b\mspace{4mu}c\medspace d`	4mu ‘medium’			
$a\;b\mspace{5mu}c\thickspace d$	`a\;b\mspace{5mu}c\thickspace d`	5mu ‘thick’			

Math Accents & Constructs

Note that most basic accents can be stacked. For example, `\acute{\acute{x}}` yields $\acute{\acute{x}}$. Or, `\acute{\tilde{x}}` yields $\acute{\tilde{x}}$.

$\acute{x}$	`\acute{x}`	$\dot{x}$	`\dot{x}`	$\overline{xyz}$	`\overline{xyz}`	$\xleftarrow[abc]{xyz}$	`\xleftarrow[abc]{xyz}`	$\overset{K}{\sum}$	`\overset{K}{\sum}`
$\grave{x}$	`\grave{x}`	$\ddot{x}$	`\ddot{x}`	$\underline{xyz}$	`\underline{xyz}`	$\xrightarrow[abc]{xyz}$	`\xrightarrow[abc]{xyz}`	$\underset{k=1}{\sum}$	`\underset{k=1}{\sum}`
$\bar{x}$	`\bar{x}`	$\check{x}$	`\check{x}`	$\overrightarrow{xyz}$	`\overrightarrow{xyz}`	$\overbrace{xyz}$	`\overbrace{xyz}`	$\sqrt{x}$	`\sqrt{x}`
$\hat{x}$	`\hat{x}`	$\vec{x}$	`\vec{x}`	$\overleftarrow{xyz}$	`\overleftarrow{xyz}`	$\underbrace{xyz}$	`\underbrace{xyz}`	$\sqrt[n]{x}$	`\sqrt[n]{x}`
$\tilde{x}$	`\tilde{x}`	$\widehat{xyz}$	`\widehat{xyz}`	$\overleftrightarrow{xyz}$	`\overleftrightarrow{xyz}`	f, f', $f\prime$	`f, f', f\prime`		
$\breve{x}$	`\breve{x}`	$\widetilde{xyz}$	`\widetilde{xyz}`	$\frac{abc}{xyz}$	`\frac{abc}{xyz}`	$\sideset{_y^x}{_k^j}\sum$	`\sideset{_y^x}{_k^j}\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 $\neq$. This rule also holds for arrows, which will be seen later.

Standard Relations

$<$	`<`	$>$	`>`	$=$	`=`	$\in$	`\in`	$\ni$	`\ni` or `\owns`
$\leq$	`\leq` or `\le`	$\geq$	`\geq` or `\ge`	$\equiv$	`\equiv`	$\vdash$	`\vdash`	$\dashv$	`\dashv`
$\ll$	`\ll`	$\gg$	`\gg`	$\doteq$	`\doteq`	$\mid$	`\mid`	$\parallel$	`\parallel`
$\prec$	`\prec`	$\succ$	`\succ`	$\sim$	`\sim`	$\smile$	`\smile`	$\frown$	`\frown`
$\preceq$	`\preceq`	$\succeq$	`\succeq`	$\simeq$	`\simeq`	$\exists$	`\exists`	$\neg$	`\lnot` or `\neg`
$\subset$	`\subset`	$\supset$	`\supset`	$\approx$	`\approx`	$\models$	`\models`	$\perp$	`\perp`
$\subseteq$	`\subseteq`	$\supseteq$	`\supseteq`	$\cong$	`\cong`	$\asymp$	`\asymp`	$\propto$	`\propto`
$\sqsubset$	`\sqsubset`	$\sqsupset$	`\sqsupset`	$\Join$	`Join`	$\neq$	`\neq`	$\forall$	`\forall`
$\sqsubseteq$	`\sqsubseteq`	$\sqsupseteq$	`\sqsupseteq`	$\bowtie$	`\bowtie`	$\notin$	`\notin`	$\prime$, $\backprime$	`\prime`, `\backprime`

Additional Relations

$\lessdot$	`\lessdot`	$\gtrdot$	`\gtrdot`	$\subseteqq$	`\subseteqq`	$\supseteqq$	`\supseteqq`	$\thicksim$	`\thicksim`
$\leqslant$	`\leqslant`	$\geqslant$	`\geqslant`	$\Subset$	`\Subset`	$\Supset$	`\Supset`	$\thickapprox$	`\thickapprox`
$\eqslantless$	`\eqslantless`	$\eqslantgtr$	`\eqslantgtr`	$\sqsubset$	`\sqsubset`	$\sqsupset$	`\sqsupset`	$\approxeq$	`\approxeq`
$\leqq$	`\leqq`	$\geqq$	`\geqq`	$\therefore$	`\therefore`	$\because$	`\because`	$\backsim$	`\backsim`
$\lll$	`\lll` or `\llless`	$\ggg$	`\gggtr`	$\shortmid$	`\shortmid`	$\shortparallel$	`\shortparallel`	$\backsimeq$	`\backsimeq`
$\lessapprox$	`\lessapprox`	$\gtrapprox$	`\gtrapprox`	$\smallsmile$	`\smallsmile`	$\smallfrown$	`\smallfrown`	$\vDash$	`\vDash`
$\lessgtr$	`\lessgtr`	$\gtrless$	`\gtrless`	$\vartriangleleft$	`\vartriangleleft`	$\vartriangleright$	`\vartriangleright`	$\Vdash$	`vdash`
$\lesseqgtr$	`\lesseqgtr`	$\gtreqless$	`\gtreqless`	$\trianglelefteq$	`\trianglelefteq`	$\trianglerighteq$	`\trianglerighteq`	$\Vvdash$	`Vvdash`
$\lesseqqgtr$	`\lesseqqgtr`	$\gtreqqless$	`\gtreqqless`	$\blacktriangleleft$	`\blacktriangleleft`	$\blacktriangleright$	`\blacktriangleright`	$\backepsilon$	`\backepsilon`
$\preccurlyeq$	`\precurlyeq`	$\succcurlyeq$	`\succcurlyeq`	$\doteqdot$	`\doteqdot` or `\Doteq`	$\eqcirc$	`\eqcirc`	$\varpropto$	`\varpropto`
$\curlyeqprec$	`\curlyeqprec`	$\curlyeqsucc$	`\curlyeqsucc`	$\risingdotseq$	`\risingdotseq`	$\fallingdotseq$	`\fallingdotseq`	$\between$	`\between`
$\precsim$	`\precsim`	$\succsim$	`\succsim`	$\circeq$	`\circeq`	$\triangleq$	`\tirangleeq`	$\pitchfork$	`\pitchfork`
$\precapprox$	`\precapprox`	$\succapprox$	`\succapprox`	$\bumpeq$	`\bumpeq`	$\Bumpeq$	`\Bumpeq`		

Negated Relations

$\nless$	`\nless`	$\ngtr$	`\ngtr`	$\subsetneq$	`\subsetneq`	$\supsetneq$	`\supsetneq`
$\lneq$	`\lneq`	$\gneq$	`\gneq`	$\varsubsetneq$	`varsubsetneq`	$\varsupsetneq$	`\varsupsetneq`
$\nleq$	`\nleq`	$\ngeq$	`\ngeq`	$\nsubseteq$	`\nsubseteq`	$\nsupseteq$	`\nsupseteq`
$\nleqslant$	`\nleqslant`	$\ngeqslant$	`\ngeqslant`	$\subsetneqq$	`\subsetneqq`	$\supsetneqq$	`\supsetneqq`
$\lneqq$	`\lneqq`	$\gneqq$	`\gneqq`	$\varsubsetneqq$	`\varsubsetneqq`	$\varsupsetneqq$	`\varsupsetneqq`
$\lvertneqq$	`\lvertneqq`	$\gvertneqq$	`\gvertneqq`	$\nsubseteqq$	`\nsubseteqq`	$\nsupseteqq$	`\nsupseteqq`
$\nleqq$	`\nleqq`	$\ngeqq$	`\ngeqq`	$\nmid$	`\nmid`	$\nparallel$	`\nparallel`
$\lnsim$	`\lnsim`	$\gnsim$	`\gnsim`	$\nshortmid$	`\nshortmid`	$\nshortparallel$	`\nshortparallel`
$\lnapprox$	`\lnapprox`	$\gnapprox$	`\gnapprox`	$\nsim$	`\nsim`	$\ncong$	`\ncong`
$\nprec$	`\nprec`	$\nsucc$	`\nsucc`	$\nvdash$	`\nvdash`	$\nvDash$	`\nvDash`
$\npreceq$	`\npreceq`	$\nsucceq$	`\nsucceq`	$\nVdash$	`\nVdash`	$\nVDash$	`\nVDash`
$\precneqq$	`\precneqq`	$\succneqq$	`\succneqq`	$\ntriangleleft$	`\ntriangleleft`	$\ntriangleright$	`\ntriangleright`
$\precnsim$	`\precnsim`	$\succnsim$	`\succnsim`	$\ntrianglelefteq$	`\ntrianglelefteq`	$\ntrianglerighteq$	`\ntrianglerighteq`
$\precnapprox$	`\precnapprox`	$\succnapprox$	`\succnapprox`				

Binary Operators

Standard Operators

$+$	`+`	$-$	`-`	$\vee$	`\lor` or `\vee`	$\wedge$	`\land` or `\wedge`	$\lhd$	`\lhd`	$\rhd$	`\rhd`
$\pm$	`\pm`	$\mp$	`\mp`	$\oplus$	`\oplus`	$\ominus$	`\ominus`	$\unlhd$	`\unlhd`	$\unrhd$	`\unrhd`
$\times$	`\times`	$\cdot$	`\cdot`	$\odot$	`\odot`	$\oslash$	`\oslash`	$\bullet$	`\bullet`	$\circ$	`\circ`
$\div$	`\div`	$\setminus$	`\setminus`	$\otimes$	`\otimes`	$\bigcirc$	`\bigcirc`	$\ast$	`\ast`	$\star$	`\star`
$\cup$	`\cup`	$\cap$	`\cap`	$\bigtriangleup$	`\bigtriangleup`	$\bigtriangledown$	`\bigtriangledown`	$\diamond$	`\diamond`	$\wr$	`\wr`
$\sqcup$	`\sqcup`	$\sqcap$	`\sqcap`	$\triangleleft$	`\triangleleft`	$\triangleright$	`\triangleright`	$\amalg$	`\amalg`	$\uplus$	`\uplus`

Additional Operators

$\dotplus$	`\dotplus`	$\centerdot$	`\centerdot`	$\boxplus$	`\boxplus`	$\boxminus$	`\boxminus`	$\divideontimes$	`\divideontimes`
$\ltimes$	`\ltimes`	$\rtimes$	`\rtimes`	$\boxtimes$	`\boxtimes`	$\boxdot$	`\boxdot`	$\circledast$	`\circledast`
$\Cup$	`\Cup` or `\doublecup`	$\Cap$	`\Cap` or `\doublecap`	$\leftthreetimes$	`\leftthreetimes`	$\rightthreetimes$	`\rightthreetimes`	$\circledcirc$	`\circledcirc`
$\veebar$	`\veebar`	$\barwedge$	`\barwedge`	$\curlyvee$	`\curlyvee`	$\curlywedge$	`\curlywedge`	$\circleddash$	`\circleddash`
$\doublebarwedge$	`\doublebarwedge`	$\intercal$	`\intercal`	$\setminus$	`\setminus`	$\smallsetminus$	`\smallsetminus`		

Large Operators

$\sum$	`\sum`	$\int$	`\int`	$\iiint$	`\iiint`	$\bigcap$	`\bigcap`	$\bigoplus$	`\bigoplus`	$\bigvee$	`bigvee`
$\prod$	`\prod`	$\oint$	`\oint`	$\iiiint$	`\iiiint`	$\bigcup$	`\bigcup`	$\bigotimes$	`\bigotimes`	$\bigwedge$	`\bigwedge`
$\coprod$	`\coprod`	$\iint$	`\iint`			$\biguplus$	`\bigoplus`	$\bigodot$	`\bigodot`	$\bigsqcup$	`\bigsqcup`

Functions

$\arccos$	`\arcoss`	$\csc$	`\csc`	$\injlim$	`\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`	$\projlim$	`\projlim`	$\varprojlim$	`\varprojlim`
$\cos$	`\cos`	$\exp$	`\exp`	$\liminf$	`\liminf`	$\sec$	`\sec`	$\varliminf$	`\varliminf`
$\cosh$	`\cosh`	$\gcd$	`\gcd`	$\limsup$	`\limsup`	$\sin$	`\sin`	$\varlimsup$	`\varlimsup`
$\cot$	`\cot`	$\hom$	`\hom`	$\ln$	`\ln`	$\sinh$	`\sinh`	$\operatorname{226}_0^1$	`\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 $\left(\frac{abc}{xyz}\right)$. Sometimes commands can be preceded with ‘`l`’ or ‘`r`’ e.g., `\lVert xyz\rVert` makes $\lVert xyz\rVert$. Thus, giving the `\Vert` command properties of paired symbols.

Standard Delimiters

$($	`(`	$[$	`\lbrack` or `[`	$\langle$	`\langle`	$\lfloor$	`\lfloor`	$\ulcorner$	`\ulcorner`	$\uparrow$	`\uparrow`
$)$	`)`	$]$	`\rbrack` or `]`	$\rangle$	`\rangle`	$\lceil$	`\lceil`	$\urcorner$	`\urcorner`	$\downarrow$	`\downarrow`
$\vert$	`\vert` or |	$\{$	`\lbrace` or `\{`	$\lceil$	`\lceil`	$/$	`/`	$\llcorner$	`\llcorner`	$\Uparrow$	`\Uparrow`
$\Vert$	`\Vert` or \\\|	$\}$	`\rbrace` or `\}`	$\lfloor$	`\lfloor`	$\backslash$	`\backslash`	$\lrcorner$	`\rcorner`	$\Downarrow$	`\Downarrow`

Large Delimiters

$\lgroup$	`\lgroup`	$\rgroup$	`\rgroup`	$\lmoustache$	`\lmoustache`	$\rmoustache$	`\rmoustache`	$\arrowvert$	`\arrowvert`	$\Arrowvert$	`\Arrowvert`	$\bracevert$	`\bracevert`

Arrows

$\leftarrow$	`\leftarrow` or `\gets`	$\rightarrow$	`\rightarrow` or `\to`	$\Leftarrow$	`\Leftarrow`	$\Rightarrow$	`\Rightarrow`
$\longleftarrow$	`\longleftarrow`	$\longrightarrow$	`\longrightarrow`	$\Longleftarrow$	`\Longleftarrow`	$\Longrightarrow$	`\Longrightarrow`
$\leftrightarrow$	`\leftrightarrow`	$\longleftrightarrow$	`\longlaeftrightarrow`	$\Leftrightarrow$	`\Leftrightarrow`	$\Longleftrightarrow$	`\Longleftrightarrow`
$\uparrow$	`\uparrow`	$\downarrow$	`\downarrow`	$\Uparrow$	`\Uparrow`	$\Downarrow$	`\Downarrow`
$\updownarrow$	`\updownarrow`	$\mapsto$	`\mapsto`	$\Updownarrow$	`Updownarrow`	$\longmapsto$	`\longmapsto`
$\hookleftarrow$	`\hookleftarrow`	$\hookrightarrow$	`\hookrightarrow`	$\iff$	`\iff` (larger spaces)		
$\nearrow$	`\nearrow`	$\searrow$	`\searrow`	$\swarrow$	`\swarrow`	$\nwarrow$	`\nwarrow`
$\nleftarrow$	`\nleftarrow`	$\nrightarrow$	`\nrightarrow`	$\nLeftarrow$	`\nLeftarrow`	$\nRightarrow$	`\nRightarrow`
$\nleftrightarrow$	`\nleftrightarrow`			$\nLeftrightarrow$	`\nLeftrightarrow`		

$\dashleftarrow$	`\dashleftarrow`	$\dashrightarrow$	`\dashrightarrow`	$\leftleftarrows$	`\leftleftarrows`	$\rightrightarrows$	`\rightroghtarrows`	$\leftrightarrows$	`\leftrightarrows`
$\Lleftarrow$	`\Lleftarrow`	$\Rrightarrow$	`\Rrightarrow`	$\upuparrows$	`\upuparrows`	$\downdownarrows$	`\downdownarrows`	$\rightleftarrows$	`\rightleftarrows`
$\upharpoonleft$	`\upharpoonleft`	$\upharpoonright$	`\upharpoonright`	$\downharpoonleft$	`\downharpoonleft`	$\downharpoonright$	`\downharpoonright`	$\leftrightharpoons$	`\leftrightharpoons`
$\twoheadleftarrow$	`\twoheadleftarrow`	$\twoheadrightarrow$	`\twoheadrightarrow`	$\leftarrowtail$	`\leftarrowtail`	$\rightarrowtail$	`\rightarrowtail`	$\rightleftharpoons$	`\rightleftharpoons`
$\Lsh$	`\Lsh`	$\Rsh$	`\Rsh`	$\looparrowleft$	`\looparrowleft`	$\looparrowright$	`\looparrowright`		
$\curvearrowleft$	`\curvearrowleft`	$\curvearrowright$	`\curvearrowright`	$\circlearrowleft$	`\circlearrowleft`	$\circlearrowright$	`\circlearrowright`		
$\leadsto$	`\leadsto`	$\rightsquigarrow$	`\rightsquigarrow`	$\leftrightsquigarrow$	`\leftrightsquigarrow`	$\multimap$	`\multimap`		

Matrices & Arrays

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 preceed 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 $\left(\begin{smallmatrix}a & b & c\\x & y & z\end{smallmatrix}\right)$.

Basic Syntax

$\begin{matrix}a & b & c\\ x & y & z\end{matrix}$	`\begin{matrix}`
	`a & b & c\\`
	`x & y & z`
	`\end{matrix}`
		$\begin{pmatrix}a & b & c\\ x & y & z\end{pmatrix}$	`\begin{pmatrix}`
			`a & b & c\\`
			`x & y & z`
			`\end{pmatrix}`
				$\begin{bmatrix}a & b & c\\ x & y & z\end{bmatrix}$	`\begin{bmatrix}`
					`a & b & c\\`
					`x & y & z`
					`\end{bmatrix}`

$\begin{Bmatrix}a & b & c\\ x & y & z\end{Bmatrix}$	`\begin{Bmatrix}`
	`a & b & c\\`
	`x & y & z`
	`\end{Bmatrix}`
		$\begin{vmatrix}a & b & c\\ x & y & z\end{vmatrix}$	`\begin{vmatrix}`
			`a & b & c\\`
			`x & y & z`
			`\end{vmatrix}`
				$\begin{Vmatrix}a & b & c\\ x & y & z\end{Vmatrix}$	`\begin{Vmatrix}`
					`a & b & c\\`
					`x & y & z`
					`\end{Vmatrix}`

$\left\lceil\begin{matrix}a & b & c\\ x & y & z\end{matrix}\right\rceil$	`\left\lceil\begin{matrix}`
	`a & b & c\\`
	`x & y & z`
	`\left\rceil\end{matrix}`
		$\left\langle\begin{matrix}a & b & c\\ x & y & z\end{matrix}\right\Vert$	`\left\langle\begin{matrix}`
			`a & b & c\\`
			`x & y & z`
			`\right\Vert\end{pmatrix}`

Dots

$\dots$	`\dots` or `\ldots`	$\cdots$	`\cdots`	$\ddots$	`\ddots`	$\vdots$	`\vdots`

Array Environment

Note that arrays operate in the same manner as tables such that they permit column alignment `l`, `c` and `r` etc., columns can be divided using pipes (|) new row lines with `\\`, and the use of `\hline`, to name a few examples. Columns are separated the same as within tables; with $(n-1)$ `&` ampersand symbols, for n columns. Some simple examples follow.

$\begin{array}{lcr}a & b & c\\ x & y & z\\ k & j & i\end{array}$	`\begin{array}{lcr}`
	`a & b & c\\`
	`x & y & z\\`
	`k & j & i`
	`\end{array}`
		$\begin{array}{lcr}a & b & c\\ \hline x & y & z\\ \hline k & j & i\end{array}$	`\begin{array}{lcr}`
			`a & b & c\\`
			`x & y & z\\`
			`k & j & i`
			`\end{array}`

$$\left(\begin{array}{cc}2\tau & 7\phi-\frac{5}{12}\\3\psi & \frac{\pi}{8}\end{array}\right)\mbox{ and }\left[\begin{array}{cc|r}3 & 4 & 5\\1 & 3 & 729\end{array}\right]$$

```
\left(\begin{array}{cc}
2\tau & 7\phi-\frac{5}{12}\\
3\psi & \frac{\pi}{8}
\end{array}\right)
\mbox{~and~}
\left[\begin{array}{cc|r}
3 & 4 & 5\\
1 & 3 & 729
\end{array}\right]
```

$$f(z)=\left\{\begin{array}{rcl}z^2+\cos z & \mbox{for} & k\leq3\\0 & \mbox{for} & j\leq5\\\sin\bar{z} & \mbox{for} & i\leq7\end{array}\right.$$

```
f(z)=\left\{\begin{array}{rcl}
z^2+\cos z & \mbox{for} & k\leq3\\
0 & \mbox{for} & j\leq5\\
\sin\bar{z} & \mbox{for} & i\leq7
\end{array}\right.
```

Relative Font Sizes

Math Mode

$\displaystyle x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$	`\displaystyle x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}`
$\textstyle x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$	`\textstyle x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}`
$\scriptstyle x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$	`\scriptstyle x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}`
$\scriptscriptstyle x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$	`\scriptscriptstyle x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}`

Text Mode

tiny	`\tiny{tiny}`	normal	`\normalsize{normal}`	huge	`\huge{huge}`
script	`\scriptsize{script}`	large	`\large{large}`		
footnote	`\footnotesize{footnote}`	Large	`\Large{Large}`	Huge	`\Huge{Huge}`
small	`\small{small}`	LARGE	`\LARGE{LARGE}`		