α	\alpha	θ	\theta	o	o	τ	\tau
β	\beta	ϑ	\vartheta	π	\pi	υ	\upsilon
γ	\gamma	ι	\iota	ϖ	\varpi	ϕ	\phi
δ	\delta	κ	\kappa	ρ	\rho	φ	\varphi
ϵ	\epsilon	λ	\lambda	ϱ	\varrho	χ	\chi
ε	\varepsilon	μ	\mu	σ	\sigma	ψ	\psi
ζ	\zeta	ν	\nu	ς	\varsigma	ω	\omega
η	\eta	ξ	\xi				
Γ	\Gamma	Λ	\Lambda	Σ	\Sigma	Ψ	\Psi
Δ	\Delta	Ξ	\Xi	Υ	\Upsilon	Ω	\Omega
Θ	\Theta	Π	\Pi	Φ	\Phi		

Table 1: Greek Letters

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

* Not predefined in LaTeX 2_ε. Use one of the packages latexsym, amsfonts or amssymb.

Table 2: Binary Operation Symbols

$\leq$	\leq	$\geq$	\geq	$\equiv$	\equiv	$\models$	\models
$\prec$	\prec	$\succ$	\succ	$\sim$	\sim	$\perp$	\perp
$\preceq$	\preceq	$\succeq$	\succeq	$\simeq$	\simeq	$\mid$	\mid
$\ll$	\ll	$\gg$	\gg	$\asymp$	\asymp	$\parallel$	\parallel
$\subset$	\subset	$\supset$	\supset	$\approx$	\approx	$\bowtie$	\bowtie
$\subseteq$	\subseteq	$\supseteq$	\supseteq	$\cong$	\cong	$\Join$	\Join*
$\sqsubset$	\sqsubset*	$\sqsupset$	\sqsupset*	$\neq$	\neq	$\smile$	\smile
$\sqsubseteq$	\sqsubseteq	$\sqsupseteq$	\sqsupseteq	$\doteq$	\doteq	$\frown$	\frown
$\in$	\in	$\ni$	\ni	$\propto$	\propto	$=$	=
$\vdash$	\vdash	$\dashv$	\dashv	$<$	<	$>$	>
$:$	:						

* Not predefined in LaTeX 2_ε. Use one of the packages latexsym, amsfonts or amssymb.

Table 3: Relation Symbols

$,$	,	$;$	;	$\colon$	\colon	$\ldotp$	\ldotp	$\cdotp$	\cdotp

Table 4: Punctuation Symbols

$\leftarrow$	\leftarrow	$\longleftarrow$	\longleftarrow	$\uparrow$	\uparrow
$\Leftarrow$	\Leftarrow	$\Longleftarrow$	\Longleftarrow	$\Uparrow$	\Uparrow
$\rightarrow$	\rightarrow	$\longrightarrow$	\longrightarrow	$\downarrow$	\downarrow
$\Rightarrow$	\Rightarrow	$\Longrightarrow$	\Longrightarrow	$\Downarrow$	\Downarrow
$\leftrightarrow$	\leftrightarrow	$\longleftrightarrow$	\longleftrightarrow	$\updownarrow$	\updownarrow
$\Leftrightarrow$	\Leftrightarrow	$\Longleftrightarrow$	\Longleftrightarrow	$\Updownarrow$	\Updownarrow
$\mapsto$	\mapsto	$\longmapsto$	\longmapsto	$\nearrow$	\nearrow
$\hookleftarrow$	\hookleftarrow	$\hookrightarrow$	\hookrightarrow	$\searrow$	\searrow
$\leftharpoonup$	\leftharpoonup	$\rightharpoonup$	\rightharpoonup	$\swarrow$	\swarrow
$\leftharpoondown$	\leftharpoondown	$\rightharpoondown$	\rightharpoondown	$\nwarrow$	\nwarrow
$\rightleftharpoons$	\rightleftharpoons	$\leadsto$	\leadsto*		

* Not predefined in LaTeX 2_ε. Use one of the packages latexsym, amsfonts or amssymb.

Table 5: Arrow Symbols

$\ldots$	\ldots	$\cdots$	\cdots	$\vdots$	\vdots	$\ddots$	\ddots
$\aleph$	\aleph	$\prime$	\prime	$\forall$	\forall	∞	\infty
$\hbar$	\hbar	$\emptyset$	\emptyset	$\exists$	\exists	$\Box$	\Box*
$\imath$	\imath	∇	\nabla	$\neg$	\neg	$\Diamond$	\Diamond*
$\jmath$	\jmath	$\surd$	\surd	$\flat$	\flat	$\triangle$	\triangle
ℓ	\ell	$\top$	\top	$\natural$	\natural	$\clubsuit$	\clubsuit
$\wp$	\wp	$\bot$	\bot	$\sharp$	\sharp	$\diamondsuit$	\diamondsuit
$\Re$	\Re	$\Vert$	\\|	$\backslash$	\backslash	$\heartsuit$	\heartsuit
$\Im$	\Im	$\angle$	\angle	∂	\partial	$\spadesuit$	\spadesuit
$\mho$	\mho*	.	.	$\vert$	|		

* Not predefined in LaTeX 2_ε. Use one of the packages latexsym, amsfonts or amssymb.

Table 6: Miscellaneous Symbols

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

Table 7: Variable-sized Symbols

\arccos	\cos	\csc	\exp	\ker	\limsup	\min	\sinh
\arcsin	\cosh	\deg	\gcd	\lg	\ln	\Pr	\sup
\arctan	\cot	\det	\hom	\lim	\log	\sec	\tan
\arg	\coth	\dim	\inf	\liminf	\max	\sin	\tanh

Table 8: Log-like Symbols

$($	(	$)$	)	$\uparrow$	\uparrow	$\Uparrow$	\Uparrow
$[$	[	$]$	]	$\downarrow$	\downarrow	$\Downarrow$	\Downarrow
$\{$	\{	$\}$	\}	$\updownarrow$	\updownarrow	$\Updownarrow$	\Updownarrow
$\lfloor$	\lfloor	$\rfloor$	\rfloor	$\lceil$	\lceil	$\rceil$	\rceil
$\langle$	\langle	$\rangle$	\rangle	$/$	/	$\backslash$	\backslash
$\vert$	|	$\Vert$	\\|				

Table 9: Delimiters

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

Table 10: Large Delimiters

$\hat{a}$	`\hat{a}`	$\acute{a}$	`\acute{a}`	$\bar{a}$	`\bar{a}`	$\dot{a}$	`\dot{a}`	$\breve{a}$	`\breve{a}`
$\check{a}$	`\check{a}`	$\grave{a}$	`\grave{a}`	$\vec{a}$	`\vec{a}`	$\ddot{a}$	`\ddot{a}`	$\tilde{a}$	`\tilde{a}`

Table 11: Math mode accents

$\widetilde{abc}$	`\widetilde{abc}`	$\widehat{abc}$	`\widehat{abc}`
$\overleftarrow{abc}$	`\overleftarrow{abc}`	$\overrightarrow{abc}$	`\overrightarrow{abc}`
$\overline{abc}$	`\overline{abc}`	$\underline{abc}$	`\underline{abc}`
$\overbrace{abc}$	`\overbrace{abc}`	$\underbrace{abc}$	`\underbrace{abc}`
$\sqrt{abc}$	`\sqrt{abc}`	$\sqrt[n]{abc}$	`\sqrt[n]{abc}`
f'	`f'`	$\frac{abc}{xyz}$	`\frac{abc}{xyz}`

Table 12: Some other constructions

$\ulcorner$	`\ulcorner`	$\urcorner$	`\urcorner`	$\llcorner$	`\llcorner`	$\lrcorner$	`\lrcorner`

Table 13: AMS Delimiters

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

Table 14: AMS Arrows

$\nleftarrow$	`\nleftarrow`	$\nrightarrow$	`\nrightarrow`	$\nLeftarrow$	`\nLeftarrow`	$\nRightarrow$	`\nRightarrow`
$\nleftrightarrow$	`\nleftrightarrow`	$\nLeftrightarrow$	`\nLeftrightarrow`				

Table 15: AMS Negated Arrows

$\digamma$	`\digamma`	$\varkappa$	`\varkappa`

Table 16: AMS Greek

$\beth$	`\beth`	$\daleth$	`\daleth`	$\gimel$	`\gimel`

Table 17: AMS Hebrew

$\hbar$	\hbar	$\hslash$	\hslash	$\vartriangle$	\vartriangle	$\triangledown$	\triangledown
$\square$	\square	$\lozenge$	\lozenge	$\circledS$	\circledS	$\angle$	\angle
$\measuredangle$	\measuredangle	$\nexists$	\nexists	$\mho$	\mho	$\Finv$	\Finv
$\Game$	\Game	$\Bbbk$	\Bbbk	$\backprime$	\backprime	$\varnothing$	\varnothing
$\blacktriangle$	\blacktriangle	$\blacktriangledown$	\blacktriangledown	$\blacksquare$	\blacksquare	$\blacklozenge$	\blacklozenge
$\bigstar$	\bigstar	$\sphericalangle$	\sphericalangle	$\complement$	\complement	$\eth$	\eth
$\diagup$	\diagup	$\diagdown$	\diagdown				

Table 18: AMS Miscellaneous

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

Table 19: AMS Binary Operators

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

Table 20: AMS Binary Relations

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

Table 21: AMS Negated Binary Relations

		Required package
ABCdef	`\mathrm{ABCdef}`	
ABCdef	`\mathit{ABCdef}`	
$ABCdef$	`\mathnormal{ABCdef}`	
$\mathcal{ABC}$	`\mathcal{ABC}`	
$\mathcal{ABC}$	`\mathcal{ABC}`	euscript with option: mathcal
	`\mathscr{ABC}`	euscript with option: mathcr
$\mathfrak{ABCdef}$	`\mathfrak{ABCdef}`	eufrak
$\mathbb{ABC}$	`\mathbb{ABC}`	amsfonts or amssymb

Table 22: Math Alphabets