\usepackage{amsmath,amsthm,newtxmath,newtxtext}

a	
\aleph	$\aleph$
\alpha	α
\alphaup	$\upalpha$
\amalg	$\amalg$
\And	$\&$
\angle	$\angle$
\approx	$\approx$
\arccos	$\arccos$
\arcsin	$\arcsin$
\arctan	$\arctan$
\arg	$\arg$
\ast	$\ast$
\asymp	$\asymp$

b	
\backprime	$\backprime$
\backslash	$\backslash$
\barwedge	$\barwedge$
\Bbbk	$\Bbbk$
\beta	β
\betaup	$\upbeta$
\beth	$\beth$
\bigcap	$\bigcap$
\bigcirc	$\bigcirc$
\bigcup	$\bigcup$
\biggl(	$\biggl($
\Biggl(	$\Biggl($
\biggl[	$\biggl[$
\Biggl[	$\Biggl[$
\biggl\{	$\biggl\{$
\Biggl\{	$\Biggl\{$
\biggr)	$\biggr)$
\Biggr)	$\Biggr)$
\biggr]	$\biggr]$
\Biggr]	$\Biggr]$
\biggr\}	$\biggr\}$
\Biggr\}	$\Biggr\}$
\bigl(	$\bigl($
\Bigl(	$\Bigl($
\bigl[	$\bigl[$
\Bigl[	$\Bigl[$
\bigl\{	$\bigl\{$
\Bigl\{	$\Bigl\{$
\bignplus	$\bigplus$
\bigodot	$\bigodot$
\bigoplus	$\bigoplus$
\bigotimes	$\bigotimes$
\bigr)	$\bigr)$
\Bigr)	$\Bigr)$
\bigr]	$\bigr]$
\Bigr]	$\Bigr]$
\bigr\}	$\bigr\}$
\Bigr\}	$\Bigr\}$
\bigsqcap	$\bigsqcap$
\bigsqcap	$\bigsqcap$
\bigsqcapplus	$\bigsqcapplus$
\bigsqcup	$\bigsqcup$
\bigsqcupplus	$\bigsqcupplus$
\bigstar	$\bigstar$
\bigtriangledown	$\bigtriangledown$
\bigtriangleup	$\bigtriangleup$
\biguplus	$\biguplus$
\bigvee	$\bigvee$
\bigwedge	$\bigwedge$
\big\Arrowvert	$\big\Arrowvert$
\big\arrowvert	$\big\arrowvert$
\big\bracevert	$\big\bracevert$
\big\lgroup	$\big\lgroup$
\big\lmoustache	$\big\lmoustache$
\big\rgroup	$\big\rgroup$
\big\rmoustache	$\big\rmoustache$
\blacklozenge	$\blacklozenge$
\blacksquare	$\blacksquare$
\blacktriangle	$\blacktriangle$
\blacktriangledown	$\blacktriangledown$
\bmod	$\bmod$
\Bot	$\Bot$
\bot	$\bot$

\bowtie	$\bowtie$
\Box	$\square$
\boxast	$\boxast$
\boxbar	$\boxbar$
\boxbslash	$\boxbslash$
\boxdot	$\boxdot$
\boxdotleft	$\leftarrow\!\!\boxdot$
\boxdotLeft	$\Leftarrow\!\!\boxdot$
\boxdotright	$\boxdot\!\!\rightarrow$
\boxdotRight	$\boxdot\!\!\Rightarrow$
\boxLeft	$\Leftarrow\!\!\square$
\boxleft	$\leftarrow\!\!\square$
\boxminus	$\boxminus$
\boxplus	$\boxplus$
\boxRight	$\square\!\!\Rightarrow$
\boxright	$\square\!\!\rightarrow$
\boxslash	$\boxslash$
\boxtimes	$\boxtimes$
\bullet	$\bullet$

c

\cap	$\cap$
\Cap	$\Cap$
\cdot	$\cdot$
\cdots	$\cdots$
\centerdot	$\centerdot$
\chi	χ
\chiup	$\chiup$
\circ	$\circ$
\circlearrowleft	$\circlearrowleft$
\circlearrowright	$\circlearrowright$
\circledast	$\circledast$
\circledbar	$\circledbar$
\circledbslash	$\circledbslash$
\circledcirc	$\circledcirc$
\circleddash	$\circleddash$
\circleddotleft	$\leftarrow\!\!\odot$
\circleddotright	$\odot\!\!\rightarrow$
\circledgtr	$\circledgtr$
\circledless	$\circledless$
\circledS	$\circledS$
\circledvee	$\circledvee$
\circledwedge	$\circledwedge$
\circleleft	$\leftarrow\!\!\bigcirc$
\circleright	$\bigcirc\!\!\rightarrow$
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\Colonapprox	$::\approx$
\colonapprox	$:\approx$
\coloneq	$:=$
\Coloneq	$::=$
\Coloneqq	$::=$
\Colonsim	$::\sim$
\colonsim	$:\sim$
\complement	$\complement$
\cong	$\cong$
\cong	$\cong$
\coprod	$\coprod$
\copyright	$\copyright$
\cos	$\cos$
\cosh	$\cosh$
\cot	$\cot$
\csc	$\csc$
\cup	$\cup$
\Cup	$\Cup$
\curlyvee	$\curlyvee$
\curlywedge	$\curlywedge$
\curvearrowleft	$\curvearrowleft$
\curvearrowright	$\curvearrowright$
\coprod	$\coprod$
\copyright	$\copyright$
\cos	$\cos$
\cosh	$\cosh$
\cot	$\cot$
\csc	$\csc$
\cup	$\cup$
\Cup	$\Cup$
\curlyvee	$\curlyvee$
\curlywedge	$\curlywedge$
\curvearrowleft	$\curvearrowleft$
\curvearrowright	$\curvearrowright$

d

\dag	$\dagger$

\dagger	$\dagger$
\daleth	$\daleth$
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\dashleftarrow	$\dashleftarrow$
\dashrightarrow	$\dashrightarrow$
\dashv	$\dashv$
\ddag	$\ddagger$
\ddagger	$\ddagger$
\ddots	$\ddots$
\deg	$\deg$
\Delta	Δ
\delta	δ
\deltaup	$\mathrm{\delta}$
\det	$\det$
\diagdown	$\diagdown$
\diagup	$\diagup$
\diamond	$\diamond$
\Diamond	$\Diamond$
\Diamond	$\Diamond$
\Diamondblack	$\blacklozenge$
\Diamonddot	$\diamondplus$
\Diamonddotleft	$\leftarrow\!\!\diamondplus$
\DiamonddotLeft	$\Leftarrow\!\!\diamondplus$
\Diamonddotright	$\diamondplus\!\!\rightarrow$
\DiamonddotRight	$\diamondplus\!\!\Rightarrow$
\Diamondleft	$\leftarrow\!\!\Diamond$
\DiamondLeft	$\Leftarrow\!\!\Diamond$

\Diamondright	$\Diamond\!\!\rightarrow$
\DiamondRight	$\Diamond\!\!\Rightarrow$
\diamondsuit	$\diamondsuit$
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\dim	$\dim$
\div	$\div$
\divideontimes	$\divideontimes$
\doteq	$\doteq$
\doteq	$\doteq$
\dotplus	$\dotplus$
\dots	$\dots$
\doublebarwedge	$\Barwedge$
\downarrow	$\downarrow$
\Downarrow	$\Downarrow$
\downdownarrows	$\downdownarrows$
\downharpoonleft	$\downharpoonleft$
\downharpoonright	$\downharpoonright$

e

\ell	ℓ
\emptyset	$\emptyset$
\epsilon	ϵ
\epsilonup	$\mathrm{\epsilon}$
\eqcolon	$\eqcolon$
\Eqcolon	$\Eqcolon$
\Eqqcolon	$\Eqqcolon$
\equiv	$\equiv$
\eta	η

\etaup	$\mathrm{\eta}$
\eth	$\eth$
\exists	$\exists$
\exp	$\exp$

f

\fint	$\fint$
\Finv	$\Finv$
\flat	$\flat$
\forall	$\forall$
\frown	$\frown$

g

\Game	$\Game$
\Gamma	Γ
\gamma	γ
\gammaup	$\mathrm{\gamma}$
\gcd	$\gcd$
\ge	$\ge$
\geq	$\geq$
\gets	$\gets$
\gg	$\gg$
\gimel	$\gimel$
\gnapprox	$\gnapprox$
\gneq	$\gneq$
\gneqq	$\gneqq$
\gnsim	$\gnsim$
\gtrless	$\gtrless$
\gvertneqq	$\gvertneqq$

h	
\hbar	$\hbar$
\heartsuit	$\heartsuit$
\hom	$\hom$
\hookleftarrow	$\hookleftarrow$
\hookrightarrow	$\hookrightarrow$
\hslash	$\hslash$

i	
\i	$\imath$
\idotsint	$\int\cdots\int$
\iff	$\iff$
\iiiint	$\iiiint$
\iiiint	$\iiiint$
\iiint	$\iiint$
\iiint	$\iiint$
\iint	$\iint$
\iint	$\iint$
\Im	$\Im$
\imath	$\imath$
\in	$\in$
\inf	$\inf$
\infty	∞
\int	$\int$
\intercal	$\intercal$
\iota	ι
\iotaup	ι

j	
\j	$\jmath$
\jmath	$\jmath$
\Join	$\Join$
\Join	$\Join$

k	
\kappa	κ
\kappaup	κ
\ker	$\ker$

l	
\L	L
\l	l
\Lambda	Λ
\lambda	λ
\lambdabar	$\lambda\!\!\!^{-}$
\lambdaslash	$\lambda\!\!\!/$
\lambdaup	λ
\land	$\land$
\langle	$\langle$
\LaTeX	LaTeX
\lbag	$\lbag$
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\leadstoext	$\leadstoext$
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\leftharpoonup	$\leftharpoonup$
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\leftrightarrow	$\leftrightarrow$
\leftrightarrows	$\leftrightarrows$
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\leftrightsquigarrow	$\leftrightsquigarrow$
\leftthreetimes	$\leftthreetimes$
\leq	$\leq$
\lessgtr	$\lessgtr$
\lfloor	$\lfloor$
\lg	$\lg$
\lhd	$\lhd$
\lim	$\lim$
\liminf	$\liminf$
\limsup	$\limsup$
\lJoin	$\lJoin$
\ll	$\ll$
\llbracket	$\llbracket$
\llcorner	$\llcorner$
\Lleftarrow	$\Lleftarrow$
\ln	$\ln$
\lnapprox	$\lnapprox$
\lneq	$\lneq$
\lneqq	$\lneqq$

\lnsim	⋦
\log	log
\longleftarrow	⟵
\Longleftarrow	⟸
\longleftrightarrow	⟷
\Longleftrightarrow	⟺
\longmappedfrom	⟻
\Longmappedfrom	⟽
\Longmapsto	⟾
\longmapsto	⟼
\longmmappedfrom	$\longmmappedfrom$
\Longmmappedfrom	$\Longmmappedfrom$
\Longmmapsto	$\Longmmapsto$
\longmmapsto	$\longmmapsto$
\longrightarrow	⟶
\Longrightarrow	⟹
\looparrowleft	↫
\looparrowright	↬
\lor	∨
\lozenge	◊
\lrcorner	⌟
\lrJoin	⋈
\lrtimes	⋈
\Lsh	↰
\ltimes	⋉
\lvertneqq	≨

m

\mappedfrom	↤
\Mappedfrom	⤆
\Mapsto	⤇
\mapsto	↦
\max	max
\measuredangle	∡
\medbullet	●
\medcirc	○
\mho	℧
\mid	∣
\min	min
\Mmappedfrom	$\Mmappedfrom$
\mmappedfrom	$\mmappedfrom$
\Mmapsto	$\Mmapsto$
\mmapsto	$\mmapsto$
\models	⊨
\mp	∓
\mu	μ
\multimap	⊸
\multimapboth	⧟
\multimapbothvert	$\multimapbothvert$
\multimapdot	$\multimapdot$
\multimapdotboth	$\multimapdotboth$
\multimapdotbothA	⊶
\multimapdotbothAvert	$\multimapdotbothAvert$
\multimapdotbothB	⊷
\multimapdotbothBvert	$\multimapdotbothBvert$
\multimapdotbothvert	$\multimapdotbothvert$
\multimapdotinv	$\multimapdotinv$
\multimapinv	⟜
\muup	µ

n

\nabla	∇
\napprox	≉
\napproxeq	≊̸
\nasymp	≭
\natural	♮
\nbacksim	∽̸
\nbacksimeq	⋍̸
\nBumpeq	≎̸
\nbumpeq	≏̸
\ncong	≇
\ne	≠
\nearrow	↗
\Nearrow	⇗
\neg	¬
\neq	≠
\neq	≠
\nequiv	≢
\nexists	∄
\ngeq	≱
\ngeqq	≧̸
\ngeqslant	⩾̸

\ngg	$\ngg$
\ngtr	$\ngtr$
\ngtrapprox	$\ngtrapprox$
\ngtrless	$\ngtrless$
\ngtrsim	$\ngtrsim$
\ni	$\ni$
\nleftarrow	$\nleftarrow$
\nLeftarrow	$\nLeftarrow$
\nleftrightarrow	$\nleftrightarrow$
\nLeftrightarrow	$\nLeftrightarrow$
\nleq	$\nleq$
\nleqq	$\nleqq$
\nleqslant	$\nleqslant$
\nless	$\nless$
\nlessapprox	$\nlessapprox$
\nlessgtr	$\nlessgtr$
\nlesssim	$\nlesssim$
\nll	$\nll$
\nmid	$\nmid$
\not:	$\not:$
\not<	$\not<$
\not=	$\not=$
\not>	$\not>$
\not\approx	$\not\approx$
\not\asymp	$\not\asymp$
\not\bowtie	$\not\bowtie$
\not\cong	$\not\cong$
\not\dashv	$\not\dashv$
\not\doteq	$\not\doteq$
\not\equiv	$\not\equiv$
\not\frown	$\not\frown$
\not\ge	$\not\ge$
\not\geq	$\not\geq$
\not\gg	$\not\gg$
\not\gtrless	$\not\gtrless$
\not\in	$\not\in$
\not\Join	$\not\Join$
\not\le	$\not\le$
\not\leq	$\not\leq$
\not\lessgtr	$\not\lessgtr$
\not\ll	$\not\ll$
\not\mid	$\not\mid$
\not\models	$\not\models$
\not\ne	$\not\ne$
\not\neq	$\not\neq$
\not\ni	$\not\ni$
\not\owns	$\not\owns$
\not\parallel	$\not\parallel$
\not\perp	$\not\perp$
\not\prec	$\not\prec$
\not\preceq	$\not\preceq$
\not\propto	$\not\propto$
\not\sim	$\not\sim$
\not\simeq	$\not\simeq$
\not\smile	$\not\smile$
\not\sqsubseteq	$\not\sqsubseteq$
\not\sqsupseteq	$\not\sqsupseteq$
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\not\subseteq	$\not\subseteq$
\not\succ	$\not\succ$
\not\succeq	$\not\succeq$
\not\supset	$\not\supset$
\not\supseteq	$\not\supseteq$
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\notin	$\notin$
\notni	$\notni$
\notowns	$\notowns$
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\nplus	$\nplus$
\nprec	$\nprec$
\nprecapprox	$\nprecapprox$
\npreccurlyeq	$\npreccurlyeq$
\npreceq	$\npreceq$
\npreceqq	$\npreceqq$
\nprecsim	$\nprecsim$
\nrightarrow	$\nrightarrow$
\nRightarrow	$\nRightarrow$
\nshortmid	$\nshortmid$
\nshortparallel	$\nshortparallel$
\nsim	$\nsim$

\nsim	$\nsim$
\nsimeq	$\nsimeq$
\nsqsubset	$\nsqsubset$
\nsqsubseteq	$\nsqsubseteq$
\nsqsupset	$\nsqsupset$
\nsqsupseteq	$\nsqsupseteq$
\nsubset	$\nsubset$
\nSubset	$\nSubset$
\nsubseteq	$\nsubseteq$
\nsubseteqq	$\nsubseteqq$
\nsucc	$\nsucc$
\nsuccapprox	$\nsuccapprox$
\nsucccurlyeq	$\nsucccurlyeq$
\nsucceq	$\nsucceq$
\nsucceqq	$\nsucceqq$
\nsuccsim	$\nsuccsim$
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\nSupset	$\nSupset$
\nsupseteq	$\nsupseteq$
\nsupseteqq	$\nsupseteqq$
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\ntrianglelefteq	$\ntrianglelefteq$
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\ntrianglerighteq	$\ntrianglerighteq$
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\ntwoheadrightarrow	$\ntwoheadrightarrow$

\nu	ν
\nuup	ν
\nvarparallel	$\nvarparallel$
\nvarparallelinv	$\nvarparallelinv$
\nvdash	$\nvdash$
\nvDash	$\nvDash$
\nVdash	$\nVdash$
\nVDash	$\nVDash$
\nwarrow	$\nwarrow$
\Nwarrow	$\Nwarrow$

o

\odot	$\odot$
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\oiint	$\oiint$
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\ointctrclockwise	$\ointctrclockwise$
\Omega	Ω
\omega	ω
\omegaup	ω
\ominus	$\ominus$
\openJoin	$\openJoin$
\opentimes	$\opentimes$
\oplus	$\oplus$
\oslash	$\oslash$
\otimes	$\otimes$
\owns	$\owns$

p

\P	$\P$
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\partial	∂
\perp	$\perp$
\Perp	$\Perp$
\Phi	Φ
\phi	ϕ
\phiup	ϕ
\Pi	Π
\pi	π
\piup	π
\pm	$\pm$
\pmod	$\pmod{}$
\Pr	$\Pr$
\prec	$\prec$
\preceq	$\preceq$
\preceqq	$\preceqq$
\precnapprox	$\precnapprox$
\precneqq	$\precneqq$
\precnsim	$\precnsim$
\prime	$\prime$
\prod	$\prod$
\propto	$\propto$
\Psi	Ψ
\psi	ψ
\psiup	ψ

r	
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\rbag	$\wr$
\rceil	$\rceil$
\Re	$\Re$
\rfloor	$\rfloor$
\rhd	$\triangleright$
\rho	ρ
\rhoup	$\mathrm{\rho}$
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\Rightarrow	$\Rightarrow$
\rightarrowtail	$\rightarrowtail$
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\rightharpoonup	$\rightharpoonup$
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\rightleftharpoons	$\rightleftharpoons$
\rightrightarrows	$\rightrightarrows$
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\rrbracket	$\rrbracket$
\Rrightarrow	$\Rrightarrow$
\rtimes	$\rtimes$

s	
\S	$\S$
\searrow	$\searrow$
\Searrow	$\Searrow$
\sec	$\sec$
\setminus	$\setminus$
\sharp	$\sharp$
\Sigma	Σ
\sigma	σ
\sigmaup	$\mathrm{\sigma}$
\sim	$\sim$
\simeq	$\simeq$
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\sinh	$\sinh$
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\smallsetminus	$\smallsetminus$
\smile	$\smile$
\spadesuit	$\spadesuit$
\sphericalangle	$\sphericalangle$
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\sqcapplus	$\sqcapplus$
\sqcupplus	$\sqcupplus$
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\sqsupseteq	$\sqsupseteq$
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\strictiff	$\strictiff$
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\subsetneq	$\subsetneq$
\subsetneqq	$\subsetneqq$
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\succeq	$\succeq$
\succeqq	$\succeqq$
\succnapprox	$\succnapprox$
\succneqq	$\succneqq$
\succnsim	$\succnsim$
\sum	$\sum$
\sup	$\sup$
\supset	$\supset$
\supseteq	$\supseteq$
\supsetneq	$\supsetneq$
\supsetneqq	$\supsetneqq$
\surd	$\surd$
\swarrow	$\swarrow$
\Swarrow	$\Swarrow$

t	
\tan	$\tan$
\tanh	$\tanh$
\tau	τ
\tauup	$\mathrm{\tau}$
\textasciicircum	^
\textasciitilde	~
\textbackslash	\
\textbar	|

\textbraceleft	{
\textbraceright	}
\textbullet	•
\textcopyright	©
\textdagger	†
\textdaggerdbl	‡
\textdollar	$
\textellipsis	...
\textemdash	—
\textendash	–
\textexclamdown	¡
\textgreater	>
\textless	<
\textordfeminine	ª
\textordmasculine	º
\textparagraph	¶
\textperiodcentered	·
\textquestiondown	¿
\textquotedblleft	“
\textquotedblright	”
\textquoteleft	‘
\textquoteright	’
\textregistered	®
\textsection	§
\textsterling	£
\texttrademark	™
\textunderscore	_
\textvisiblespace	␣
\Theta	Θ
\theta	θ
\thetaup	$\mathrm{\theta}$
\times	$\times$
\to	$\to$
\top	$\top$
\Top	$\Top$
\triangle	$\triangle$
\triangledown	$\triangledown$
\triangleleft	$\triangleleft$
\triangleright	$\triangleright$
\twoheadleftarrow	$\twoheadleftarrow$
\twoheadrightarrow	$\twoheadrightarrow$

u

\ulcorner	$\ulcorner$
\unlhd	$\unlhd$
\unrhd	$\unrhd$
\uparrow	$\uparrow$
\Uparrow	$\Uparrow$
\updownarrow	$\updownarrow$
\Updownarrow	$\Updownarrow$
\upharpoonleft	$\upharpoonleft$
\upharpoonright	$\upharpoonright$
\uplus	$\uplus$
\Upsilon	Υ
\upsilon	υ
\upsilonup	$\mathrm{\upsilon}$
\upuparrows	$\upuparrows$
\urcorner	$\urcorner$

v

\varclubsuit	$\varclubsuit$
\vardiamondsuit	$\vardiamondsuit$
\varepsilon	ε
\varepsilonup	$\mathrm{\varepsilon}$
\varheartsuit	$\varheartsuit$
\varkappa	$\varkappa$
\varliminf	$\varliminf$
\varlimsup	$\varlimsup$
\varnothing	$\varnothing$
\varointclockwise	$\varointclockwise$
\varparallel	$\varparallel$
\varparallelinv	$\varparallelinv$
\varphi	φ
\varphiup	$\mathrm{\varphi}$
\varpi	ϖ
\varpiup	$\mathrm{\varpi}$
\varprod	$\varprod$
\varrho	ϱ
\varrhoup	$\mathrm{\varrho}$
\varsigma	ς
\varsigmaup	$\mathrm{\varsigma}$
\varspadesuit	$\varspadesuit$
\varsupsetneq	$\varsupsetneq$

\varsupsetneqq	$\varsupsetneqq$
\vartheta	ϑ
\varthetaup	$\varthetaup$
\vartriangle	$\vartriangle$
\vdash	$\vdash$
\VDash	$\VDash$
\vdots	$\vdots$
\vee	$\vee$
\veebar	$\veebar$
\Vert	$\Vert$
\VvDash	$\VvDash$

w

\wedge	$\wedge$
\wp	$\wp$
\Wr	$\Wr$
\wr	$\wr$

x

\Xi	Ξ
\xi	ξ
\xiup	$\xiup$

z

\zeta	ζ
\zetaup	$\zetaup$

.....

xyoshiki[@]mac.com