# The Great, Big List of $\LaTeX$ Symbols

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Table 1: If TeX 2
$$_{\varepsilon}$$
 Escapable "Special" Characters \\$ % \% \_ \\_ } \\$ \& \& # \# { \{

\$

Table 2: LaTeX  $2\varepsilon$  Commands Defined to Work in Both Math and Text Mode

\$	\\$		_	\_	‡	\ddag	{	\{
$\P$	<b>\</b> P	(c)	(C)	\copyright		\dots	}	\}
§	\S		†	\dag	£	\pounds		

(Where two symbols are present, the left one is the "faked" symbol that LaTeX  $2\varepsilon$  provides by default, and the right one is the "true" symbol that textcomp makes available.)

Table 3: Non-ASCII Letters (Excluding Accented Letters)

$ {a}$	\aa	Ð	\DH *	Ł	\L	Ø	\0	ß	\ss
Å	\AA	ð	$\dh^*$	ł	\1	Ø	\0	SS	\SS
Æ	\AE	Ð	\DJ *	$\mathcal{D}$	\NG *	Œ	\0E	Þ	\TH *
æ	\ae	đ	\dj*	η	$\ng^*$	œ	\oe	b	$\mathbb{h}^*$

<sup>\* =</sup> Not available in the OT1 font encoding. Use the fontenc package to select an alternate font encoding, such as T1.

Table 4: Greek Letters

$\alpha$	\alpha	$\theta$	\theta	o	0	au	\tau
$\beta$	\beta	$\vartheta$	$\$ vartheta	$\pi$	\pi	v	$\upsilon$
$\gamma$	\gamma	$\iota$	\iota	$\overline{\omega}$	\varpi	$\phi$	\phi
$\delta$	\delta	$\kappa$	\kappa	$\rho$	\rho	$\varphi$	\varphi
$\epsilon$	\epsilon	$\lambda$	\lambda	$\varrho$	\varrho	$\chi$	\chi
$\varepsilon$	\varepsilon	$\mu$	\mu	$\sigma$	\sigma	$\psi$	\psi
$\zeta$	\zeta	$\nu$	\nu	ς	\varsigma	$\omega$	\omega
$\eta$	\eta	ξ	\xi				
$\Gamma$	\Gamma	$\Lambda$	\Lambda	$\sum$	\Sigma	$\Psi$	\Psi
$\Delta$	\Delta	Ξ	\Xi	Υ	$\Upsilon$	$\Omega$	\Omega
Θ	\Theta	П	\Pi	Φ	\Phi		

(The remaining Greek majuscules can be produced with ordinary Latin letters. The symbol "M", for instance, is used for both an uppercase "m" and an uppercase " $\mu$ ".)

#### Table 5: Punctuation Marks Not Found in OT1

(To get these symbols, use the fontenc package to select an alternate font encoding, such as T1.)

Table 6: Predefined LATEX  $2\varepsilon$  Text-Mode Commands

	^				A
		\textasciicircum		<	\textless
	~	\textasciitilde	a	$\underline{\mathbf{a}}$	\textordfeminine
	*	\textasteriskcentered	О	Ō	\textordmasculine
	\	\textbackslash		$\P$	\textparagraph
		\textbar			\textperiodcentered
	{	\textbraceleft		i	$\$ textquestiondown
	}	\textbraceright		"	$\texttt{ar{t}extquotedblleft}$
	•	\textbullet		"	$ ag{textquotedblright}$
(c)	(C)	\textcopyright		4	\textquoteleft
	†	\textdagger		,	$\$ $\$ $\$ $\$ $\$ $\$ $\$ $\$ $\$ $\$
	‡ \$	\textdaggerdbl	R	$^{\odot}$	\textregistered
	\$	\textdollar		§	\textsection
		\textellipsis		£	\textsterling
	—	\textemdash	TM	TM	$\$ $\$ $\$ $\$ $\$ $\$ $\$ $\$ $\$ $\$
	_	\textendash		_	\textunderscore
	i	\textexclamdown		u	\textvisiblespace
	>	\textgreater			

(Where two symbols are present, the left one is the "faked" symbol that  $\LaTeX$   $2\varepsilon$  provides by default, and the right one is the "true" symbol that textcomp makes available.)

Table 7: Binary Operation Symbols

$\pm$	\pm	$\cap$	\cap	$\Diamond$	\diamond	$\oplus$	\oplus
Ŧ	\mp	$\cup$	\cup	Δ	\bigtriangleup	$\ominus$	\ominus
×	\times	$\forall$	\uplus	$\nabla$	\bigtriangledown	$\otimes$	\otimes
÷	\div	П	\sqcap	$\triangleleft$	$\triangleleft$	$\oslash$	\oslash
*	\ast	$\sqcup$	\sqcup	$\triangleright$	$\triangleright$	$\odot$	\odot
*	\star	$\vee$	\vee	$\triangleleft$	$\backslash \mathtt{lhd}^*$	$\bigcirc$	\bigcirc
0	\circ	$\wedge$	\wedge	$\triangleright$	$\rhd^*$	†	\dagger
•	\bullet	\	\setminus	$\leq$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	‡	\ddagger
•	\cdot	}	\wr	$\geq$	$\unrhd^*$	П	$\aggreen$ amalg
	_		_				

<sup>\*</sup> Not predefined in LATEX  $2_{\mathcal{E}}$ . Use one of the packages latexsym, amsfonts, amssymb, or wasysym.

Table 8: Relation Symbols

$\leq$	\leq	$\geq$	\geq	$\equiv$	\equiv	=	\models
$\prec$	\prec	$\succ$	\succ	$\sim$	\sim	$\perp$	\perp
$\preceq$	\preceq	$\succeq$	\succeq	$\simeq$	\simeq		\mid
$\ll$	\11	$\gg$	\gg	$\asymp$	$\asymp$		\parallel
$\subset$	\subset	$\supset$	\supset	$\approx$	\approx	$\bowtie$	\bowtie
$\subseteq$	\subseteq	$\supseteq$	\supseteq	$\cong$	\cong	$\bowtie$	$\Join^*$
	\sqsubset*		$\sqsupset^*$	$\neq$	\neq	$\overline{}$	\smile
	\sqsubseteq	$\supseteq$	\sqsupseteq	÷	\doteq	$\overline{}$	\frown
$\in$	\in	$\ni$	\ni	$\propto$	\propto	=	=
$\vdash$	\vdash	$\dashv$	\dashv	<	<	>	>
	•						

<sup>\*</sup> Not predefined in LATEX  $2_{\mathcal{E}}$ . Use one of the packages latexsym, amsfonts, amssymb, or wasysym.

Table 9: Punctuation Symbols

, , ; ; : \colon . \ldotp · \cdotp

### Table 10: Arrow Symbols

$\leftarrow$	\leftarrow	$\leftarrow$	$\label{longleftarrow}$	$\uparrow$	\uparrow
$\Leftarrow$	\Leftarrow	$ \leftarrow $	\Longleftarrow	$\uparrow$	\Uparrow
$\rightarrow$	\rightarrow	$\longrightarrow$	$\label{longright} \$	$\downarrow$	\downarrow
>	\Rightarrow	=>	$\Longrightarrow$	$\Downarrow$	\Downarrow
$\longleftrightarrow$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$\longleftrightarrow$	\longleftrightarrow	$\uparrow$	\updownarrow
$\Leftrightarrow$	$\Leftrightarrow$	$\Leftarrow>$	\Longleftrightarrow	1	\Updownarrow
$\mapsto$	\mapsto	$\longmapsto$	$\label{longmapsto}$	7	\nearrow
$\leftarrow$	\hookleftarrow	$\hookrightarrow$	\hookrightarrow		\searrow
_	\leftharpoonup	$\rightarrow$	\rightharpoonup	/	\swarrow
$\overline{}$	\leftharpoondown	$\rightarrow$	\rightharpoondown		\nwarrow
$\rightleftharpoons$	\rightleftharpoons	$\sim$	$\label{leadsto} \$		

<sup>\*</sup> Not predefined in LATEX  $2_{\mathcal{E}}$ . Use one of the packages latexsym, amsfonts, amssymb, or wasysym.

Table 11: Miscellaneous Symbols

	\ldots		\cdots	:	\vdots	٠.	\ddots
×	\aleph	1	\prime	$\forall$	\forall	$\infty$	\infty
$\hbar$	\hbar	Ø	\emptyset	$\exists$	\exists		$\Box^*$
$\imath$	$\$ imath	$\nabla$	\nabla	$\neg$	\neg	$\Diamond$	$\Diamond^*$
J	$\$ jmath		\surd	b	\flat	$\triangle$	\triangle
$\ell$	\ell	Ť	\top	Ц	\natural	*	\clubsuit
Ø	\wp	$\perp$	\bot	#	\sharp	$\Diamond$	\diamondsuit
$\Re$	\Re		\1	\	\backslash	$\Diamond$	\heartsuit
$\Im$	\Im	_	\angle	$\partial$	\partial	•	\spadesuit
Ω	$\mbox{\mbo}^*$				1		

<sup>\*</sup> Not predefined in LATEX  $2_{\mathcal{E}}$ . Use one of the packages latexsym, amsfonts, amssymb, or wasysym.

Table 12: Variable-sized Symbols

$\sum$	\sum	$\cap$	\bigcap	$\odot$	\bigodot
Π	\prod	U	\bigcup	$\otimes$	\bigotimes
$\coprod$	\coprod		\bigsqcup	$\oplus$	\bigoplus
$\overline{\int}$	$\$ int	V	\bigvee	+	\biguplus
φ	\oint	Λ	\bigwedge	_	

Table 13: Log-like Symbols

\arccos	\cos	\csc	\exp	\ker	$\label{limsup}$	\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 14: Delimiters

	Table 15: Large Delimiters											
	\rmoust	ach vert	ne	ust	ache ) ert	\r <sub>{</sub>	group	(	\lgroup			
$\hat{a}$			\acute{a}	$\bar{a}$		à	\dot{a}					
ă	\check{a}	à	\grave{a}	$\vec{a}$	\vec{a}	ä	\ddot{a}	$\tilde{a}$	\tilde{a}			

Table 17: Some Other Constructions

$\frac{\widetilde{abc}}{\widetilde{abc}}$ $\frac{abc}{abc}$	<pre>\widetilde{abc} \overleftarrow{abc} \overline{abc}</pre>	$ \begin{array}{c} \widehat{abc} \\ \widehat{abc} \\ \underline{abc} \end{array} $	<pre>\widehat{abc} \overrightarrow{abc} \underline{abc}</pre>
$\widehat{abc}$	\overbrace{abc}	$\underbrace{abc}$	\underbrace{abc}
$\frac{\sqrt{abc}}{f'}$	\sqrt{abc} f'	$\sqrt[n]{abc}$ $\frac{abc}{xyz}$	\sqrt[n]{abc} \frac{abc}{xyz}

Table 18: textcomp  $Symbols^1$ 

"	\textacutedbl	{	$\text{\textlquill}$
	\textascendercompwordmark	Ø	\textmarried
,	\textasciiacute	Ω	\textmho
Ų	\textasciibreve	_	\textminus
~	\textasciicaron	μ	\textmu
••	\textasciidieresis	•\	\textmusicalnote
`	\textasciigrave	$\mathbb{N}$	\textnaira
_	\textasciimacron	9	\textnineoldstyle
*	\textasteriskcentered	$N_{\overline{0}}$	\textnumero
₿	\textbaht	$\Omega$	\textohm
	\textbardbl	$\frac{1}{2}$	\textonehalf
$\bigcirc$	\textbigcircle	1	\textoneoldstyle
Ъ	\textblank	$\frac{1}{4}$	\textonequarter
*	\textborn	1	\textonesuperior
	\textbrokenbar	0	\textopenbullet

(continued on next page)

<sup>&</sup>lt;sup>1</sup>These symbols are also available in math mode through the use of the mathcomp package. See the mathcomp documentation for usage information.

(continued from previous page)

	•	\textbullet	a	$\underline{\mathbf{a}}$	\textordfeminine
		\textcapitalcompwordmark	О	Ō	\textordmasculine
	$^{\circ}\mathrm{C}$	\textcelsius		$\P$	\textparagraph
	¢	\textcent			\textperiodcentered
	¢	\textcentoldstyle		%	\textpertenthousand
	P	\textcircledP		‰	\textperthousand
	$\overset{\smile}{\mathbb{C}}$	\textcolonmonetary		₽	\textpeso
	(D)	\textcopyleft		$\P$	\textpilcrow
(c)	$\overset{\smile}{\mathbb{C}}$	\textcopyright		±	\textpm
	ä	\textcurrency		1	\textquotesingle
	†	\textdagger		,	\textquotestraightbase
	į.	\textdaggerdbl			\textquotestraightdblbase
	=	\textdblhyphen		>	\textrangle
	=	\textdblhyphenchar		ĺ	\textrbrackdbl
	•	\textdegree		$ m_R$	\textrecipe
	†	\textdied		*	\textreferencemark
	%	\textdiscount	$\widehat{\mathbf{R}}$	$^{ m (R)}$	\textregistered
	÷	\textdiv		$\stackrel{\smile}{ o}$	\textrightarrow
	0 0	\textdivorced		}	\textrquill
	\$	\textdollar		Ś	\textsection
	\$	\textdollaroldstyle		SM	\textservicemark
	$\underline{\mathbf{d}}$	\textdong		7	\textsevenoldstyle
	$\downarrow$	\textdownarrow		6	\textsixoldstyle
	8	\texteightoldstyle		£	\textsterling
	е	\textestimated		$\sqrt{}$	\textsurd
	€	\texteuro		3	\textthreeoldstyle
	5	$ ag{textfive}$ oldstyle		$\frac{3}{4}$	\textthreequarters
	f	\textflorin		_	$\$ $\$ $\$ $\$ $\$ $\$ $\$ $\$ $\$ $\$
	4	$ ag{textfouroldstyle}$		3	$\$ textthreesuperior
	/	$\$ textfractionsolidus		~	\texttildelow
	<b>.</b>	\textgravedbl		×	\texttimes
	$\mathbb{G}$	\textguarani	TM	TM	\texttrademark
	?	$ ag{textinterrobang}$		_	\texttwelveudash
	i	$\$ textinterrobangdown		2	$ ag{texttwooldstyle}$
	(	\textlangle		2	\texttwosuperior
		\textlbrackdbl		$\uparrow$	\textuparrow
	Ø	\textleaf		₩	\textwon
	$\leftarrow$	\textleftarrow		¥	\textyen
	£	\textlira		0	\textzerooldstyle
	$\neg$	\textlnot			

(Where two symbols are present, the left one is the "faked" symbol that  $\LaTeX$   $2\varepsilon$  provides by default, and the right one is the "true" symbol that textcomp makes available.)

### Table 19: AMS Delimiters

「 \ulcorner ¬ \ur	corner L \l	lcorner _ \	lrcorner
-------------------	-------------	-------------	----------

### Table 20: AMS Arrows

<b></b> →	$\d$ ashrightarrow	<b>←</b>	\dashleftarrow	$\rightleftharpoons$	\leftleftarrows	$\stackrel{\longleftarrow}{\longrightarrow}$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
$\Leftarrow$	\Lleftarrow	<del>&lt;</del>	\twoheadleftarrow	$\longleftrightarrow$	\leftarrowtail	$\leftarrow$ P	$\label{looparrowleft}$
$\leftrightharpoons$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$ \leftarrow $	\curvearrowleft	Q	\circlearrowleft	↰	\Lsh
$\uparrow\uparrow$	\upuparrows	1	\upharpoonleft	1	\downharpoonleft	_0	$\mbox{multimap}$
<del>~~~</del>	\leftrightsquigarrow	$\Rightarrow$	\rightrightarrows	$\stackrel{\longrightarrow}{\longleftarrow}$	\rightleftarrows	$\Rightarrow$	\rightrightarrows
$\stackrel{\longrightarrow}{\longleftrightarrow}$	\rightleftarrows	$\longrightarrow$	$\t$ twoheadrightarrow	$\rightarrowtail$	\rightarrowtail	$  \hookrightarrow $	$\label{looparrowright}$
$\rightleftharpoons$	$\$ rightleftharpoons	$\bigcirc$	\curvearrowright	$\bigcirc$	\circlearrowright	ightharpoons	\Rsh
$\downarrow\downarrow$	\downdownarrows	1	$\upharpoonright$	l	$\downharpoonright$	$\rightsquigarrow$	$\rightsquigarrow$

### Table 21: AMS Negated Arrows

$\leftarrow\!$	\nleftarrow	$\rightarrow \rightarrow$	\nrightarrow	#	\nLeftarrow	$\Rightarrow$	\nRightarrow
$\leftrightarrow \rightarrow$	\nleftrightarrow	<b>#</b>	\nLeftrightarrow				

### Table 22: AMS Greek

 $\digamma$  \digamma arkappa \varkappa

### Table 23: AMS Hebrew

 $\beth$  \beth  $\lnot$  \daleth  $\gimel$  \gimel

### Table 24: AMS Miscellaneous

$\hbar$	\hbar	$\hbar$	\hslash	Δ	\vartriangle	$\nabla$	\triangledown
	\square	$\Diamond$	\lozenge	$\odot$	\circledS	_	\angle
4	\measuredangle	∄	\nexists	Ω	\mho	Ь	\Finv
G	\Game	k	\Bbbk	1	\backprime	Ø	\varnothing
$\blacktriangle$	\blacktriangle	$\blacksquare$	\blacktriangledown		\blacksquare	<b>♦</b>	\blacklozenge
*	\bigstar	⋖	\sphericalangle	С	\complement	ð	\eth
/	\diagup		\diagdown				

Table 25: AMS Commands Defined to Work in Both Math and Text Mode

 $\checkmark$  \checkmark @ \circledR  $\clubsuit$  \maltese

### Table 26: AMS Binary Operators

$\dot{+}$	\dotplus	\	\smallsetminus	$ \  \   \bigcap$	\Cap	$\bigcup$	\Cup
$\overline{\wedge}$	\barwedge	$\underline{\vee}$	\veebar	$\overline{\wedge}$	\doublebarwedge	$\Box$	\boxminus
$\boxtimes$	\boxtimes	•	\boxdot	$\blacksquare$	\boxplus	*	\divideontimes
$\bowtie$	\ltimes	$\rtimes$	\rtimes	$\geq$	\leftthreetimes	$\angle$	\rightthreetimes
人	\curlywedge	Υ	\curlyvee	$\ominus$	\circleddash	*	\circledast
0	\circledcirc		\centerdot	Т	\intercal		

### TABLE 27: AMS Binary Relations

$\leq$	\leqq	$\leq$	\leqslant	<	\eqslantless	$\lesssim$	\lesssim
≲	\lessapprox	$\approxeq$	\approxeq	<	\lessdot	<b>///</b>	\111
$\leq$	\lessgtr	$\leq$	\lesseqgtr	$\leq$	\lesseqqgtr	÷	\doteqdot
≓	\risingdotseq	=	\fallingdotseq	$\sim$	\backsim	$\leq$	\backsimeq
$\subseteq$	\subseteqq	€	\Subset		\sqsubset	$\preccurlyeq$	\preccurlyeq
$\Rightarrow$	\curlyeqprec	$\preceq$	\precsim	$\approx$	\precapprox	$\triangleleft$	\vartriangleleft
$\leq$	\trianglelefteq	F	\vDash	III	\Vvdash	$\smile$	\smallsmile
$\overline{}$	\smallfrown	<u>~</u>	\bumpeq	≎	\Bumpeq	$\geq$	\geqq
$\geqslant$	\geqslant	≽	\eqslantgtr	$\gtrsim$	\gtrsim	$\gtrapprox$	\gtrapprox
>	\gtrdot	<b>&gt;&gt;&gt;</b>	\ggg	$\geq$	\gtrless	\   \&\ \\⊴	\gtreqless
$\geq$	\gtreqqless	<del></del>	\eqcirc	<u>•</u>	\circeq	$\triangleq$	$\triangleq$
~	\thicksim	$\approx$	\thickapprox	$\supseteq$	\supseteqq	∋	\Supset
	\sqsupset	$\succcurlyeq$	\succcurlyeq	$\not\simeq$	\curlyeqsucc	$\sim$	\succsim
≳	\succapprox	$\triangleright$	$\vartriangleright$	$\trianglerighteq$	$\trianglerighteq$	⊩	\Vdash
I	\shortmid	П	\shortparallel	Ŏ	\between	ф	\pitchfork
$\propto$	\varpropto	◀	$\blue{blacktriangleleft}$	··.	\therefore	Э	\backepsilon
<b>•</b>	\blacktriangleright	• •	\because				

THEEL 20. HIVE TYCKWOOD DITTOUT I TOTALLOTTE	Table 28:	AMS	Negated	Binary	Relations
--	-----------	-----	---------	--------	-----------

*	\nless	≰	\nleq	≰	$\nleqslant$	≰	\nleqq
≤	\lneq	≨	\lneqq	$\leq$	$lem:lemma_lemma$	, ≲	$\label{lnsim}$
≨.	\lnapprox	X	\nprec	$\npreceq$	\npreceq	Ž	\precnsim
€	\precnapprox	~	\nsim	ł	\nshortmid	ł	\nmid
¥	\nvdash	¥	\nvDash		$\n$	⊉	$\n$
⊈	\nsubseteq	$\subsetneq$	\subsetneq	$\subseteq$	$\varsubsetneq$	$\subseteq$	\subsetneqq
$\neq$	\varsubsetneqq	$\not >$	\ngtr	≱	\ngeq	¥	$\ngeqslant$
≱	\ngeqq	$\geq$	\gneq	$\geq$	\gneqq	$\geq$	\gvertneqq
⊋	\gnsim	⋧	\gnapprox	$\not\succ$	\nsucc	$\not\succeq$	\nsucceq
$\not\succeq$	\nsucceq		\succnsim	,	\succnapprox	$\ncong$	\ncong
Ħ	\nshortparallel	$ \downarrow $	\nparallel	¥	\nvDash	¥	\nVDash
$\not\!$	$\ntriangleright$	⊭	$\n$	⊉	$\nsupseteq$	$\not\supseteq$	\nsupseteqq
$\supseteq$	\supsetneq	$\supseteq$	$\varsupsetneq$	$\supseteq$	\supsetneqq	$\supseteq$	\varsupsetneqq

### Table 29: stmaryrd Delimiters

2	\Lbag	S	\Rbag	2	\lbag	S	\rbag
	\llceil	$\prod$	\rrceil		\llfloor		\rrfloor
	\llbracket		\rrbracket				

### Table 30: stmaryrd Arrows

$\iff$	$\Longmapsfrom$	$\vDash>$	$\L$ ongmapsto	$\Leftrightarrow$	$\Mapsfrom$	1>	\Mapsto
1	\nnearrow	1	\nnwarrow	1	\ssearrow	1	\sswarrow
$\downarrow$	\shortdownarrow	$\uparrow$	\shortuparrow	$\leftarrow$	\shortleftarrow	$\rightarrow$	\shortrightarrow
$\longleftarrow$	$\label{longmapsfrom} \$	$\leftarrow$	$\mbox{mapsfrom}$	<	\leftarrowtriangle	$\rightarrow$	\rightarrowtriangle
4	\lightning	)	\rrparenthesis	$\Leftrightarrow$	\leftrightarroweq	$\Diamond\!$	\leftrightarrowtriangle

Note that wasysym also defines a **\lightning** symbol. The difference—other than "7" vs. "\frac{1}{2}"—is that the stmaryrd version (above) is limited to math mode.

Table 31: stmaryrd Extension Characters

```
/ \Arrownot + \Mapsfromchar + \Mapstochar / \arrownot + \mapsfromchar
```

			TABLE 02. Stille	i yi di 1	onary operators		
Υ	\Ydown	$\prec$	\Yleft	>-	\Yright	人	\Yup
Φ	\baro	//	\bbslash	&	\binampersand	8	\bindnasrepma
*	\boxast		\boxbar		\boxbox		\boxbslash
0	\boxcircle	_ _	\boxdot		\boxempty		\boxslash
Y	\curlyveedownarro	w $\overline{\gamma}$	\curlyveeuparrow	$\sqrt{}$	\curlywedgedownarrow	т <u> </u>	\curlywedgeuparrow
Ĭ.	\fatbslash	9	\fatsemi		\fatslash	$\widehat{\parallel}$	\interleave
$\triangleleft$	\leftslice	M	\merge	<i>□</i>	\minuso	±	\moo
$\oplus$	\nplus	Ф	\obar		\oblong	0	\obslash
$\Diamond$	\ogreaterthan	6	\olessthan	$\bigcirc$	\ovee	$\bigcirc$	\owedge
$\triangleright$	\rightslice	//	\sslash	Ĩ	\talloblong	Õ	\varbigcirc
Υ	\varcurlyvee	<u>//</u>	\varcurlywedge	*	\varoast	Ф	\varobar
$\Diamond$	\varobslash	∧	\varocircle	$\odot$	\varodot	9	\varogreaterthan
0	\varolessthan	$\Theta$	\varominus	$\oplus$	\varoplus	0	\varoslash
8	\varotimes	∅	\varovee	$\bigcirc$	\varowedge	X	\vartimes
0	(Varoumos	•	(1410100	0	(1410110450	, ,	(var ormob
			TABLE 33: stmarvro	d Larg	ge Binary Operators		
			•		- · · ·		
	_	\bigbo		gcurl		•	_
	<u></u>			gnplu	01		
	П	\bigsq	cap $\nabla$ \big	gtria	$ ext{ngledown}  ext{ }  ext{$ ext{$\triangle$}}  ext{ }  ext{$ ext{$V$}}$	iangle	up
			TABLE 24. stms	المستعد	Dinamy Dalations		
			TABLE 34: Stma	aryra 1	Binary Relations		
	$\in$ \inplus	→ \n:	iplus ∉ \	subse	etplus $\subseteq$	\subse	etpluseq
		<u> </u>	$_{ ext{ipsetpluseq}}^{ ext{-}}$	triar	nglelefteqslant 🗦	\trian	nglerighteqslant
			Table 35: stmaryrd	Nega	ted Binary Relations		
		∮ \n†	trianglelefteqslan	+ 1/2	\ntrianglerighteqs	lan+	
		₹ \II	ri rangierer cedsian	U F	/Inci rangier igniceds	Tant	
			TABLE 36: wasve	m M	ath-Mode Symbols		
		\Box	≲ \apprle	$\otimes$	\logof ⊴ \unl		
	$\Diamond$	\Diama	000	0	\ocircle ⊵ \unr		
	$\bowtie$	\Join	∬ \iint	∯	\oiint ∫ \var		
	◀	\LHD		$\triangleright$	J	oint	
	<b>&gt;</b>	\RHD	$\sim$ \leadsto			ypropt	50
	≳	\appre	ge < \lhd		\sqsupset		

		r	ΓABLE 37: wasys	sym G	General Symbols		
▼ \	Bowtie DOWNarrow LEFTarrow RIGHTarrow UParrow agem0 ataribox bell	• ; ¢ ; • ¤ ¤ Ø Q	\blacksmiley \brokenvert \cent \checked \clock \currency \diameter \female	© \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	\frownie \invdiameter \kreuz \lightning \male \permil \phone \pointer	Q <sup>(()</sup> <sup>()</sup> <sup></sup>	<pre>\recorder \smiley \sun \varangle \wasylozenge \wasytherefore</pre>
	•		_				—other than "\(\x'\)" vs. nly in text mode.
	$T_{\Lambda}$	DIE:	28: wasveym Flo	etrico	l and Physical Sy	mbo	le.
			VHF $\sim\!\!\!\sim$		, , ,	, 11150. 	
		Т	ABLE 39: wasysy	m Po	lygons and Stars		
Ø □ ⊠	\CheckedBo \Square \XBox	x \$	\hexagon	r (		*	\varhexstar
			TABLE 40: was	ysym	Musical Notes		
♪ \ei	ghthnote J	\ha	lfnote 🎝 \	twono	otes 。 \full	note	J \quarternote
			Table 41:	wasys	ym Circles		
• •	\CIRCLE \Circle \LEFTCIRCLE		\LEFTcircle \Leftcircle \RIGHTCIRCL	D	\Rightcircl	-	rightturn
		7	TABLE 42: wasvs	vm P	honetic Symbols		
		Ē	•	\dh	· ·		
		Ī	•	\in			

Table 43: wasysym Astrological and Zodiacal Symbols

$\Omega$	\ascnode	4	$\jupiter$		\newmoon	9	\venus
$\odot$	\astrosun	$\mathbb{C}$	\leftmoon	В	\pluto	$\Upsilon$	\vernal
S	\descnode	♂	\mars	$\mathbb{D}$	\rightmoon		
đ	\earth	Ϋ́	\mercury	ħ	\saturn		
$\circ$	\fullmoon	8	\neptune	ð	\uranus		

#### Table 44: wasysym APL Symbols

	\APLbox	÷	\APLinv	*	\APLstar
ρ	\APLcomment	$\leftarrow$	$\APLleftarrowbox$	Δ	\APLup
$\nabla$	\APLdown	$\otimes$	\APLlog	$\Box$	\APLuparrowbox
$\Box$	$\APLdownarrowbox$	_	\APLminus	+	$\n$
	\APLinput	$\rightarrow$	\APLrightarrowbox	+	\notslash

Table 45: wasysym APL Modifiers

 $\circ \APLcirc{} \sim \APLnot{} \ | \ APLvert{}$ 

Table 46: pifont Commands for Using Zapf Dingbats

```
\displaystyle \{33\}
                                                      \displaystyle \begin{cases} 71 \end{cases}
                                                                                                    \ding{109}
                                                                                                                                                                                                \ding{219}
                                                                                                                                                  \ding{181}
                                                                                         0
≫
           \displaystyle \begin{cases} 34 \end{cases}
                                           \star
                                                      \displaystyle \begin{cases} 12 \end{cases}
                                                                                                   \displaystyle \begin{cases} 110 \end{cases}
                                                                                                                                                  \displaystyle \begin{cases} 182 \end{cases}
                                                                                                                                                                                    →
                                                                                                                                                                                                \ding{220}
                                                      \displaystyle \begin{cases} 73 \end{cases}
                                                                                                   \displaystyle \begin{cases} 111 \end{cases}
                                                                                                                                      2
7
           \displaystyle \begin{cases} 35 \end{cases}
                                           ☆
                                                                                        \displaystyle \begin{cases} 183 \end{cases}
                                                                                                                                                                                                \ding{221}
≫
           \displaystyle \begin{cases} 36 \end{cases}
                                          0
                                                      \displaystyle \begin{cases} 74 \end{cases}
                                                                                        \displaystyle \prod \{112\}
                                                                                                                                      ❸
                                                                                                                                                  \displaystyle \begin{cases} 184 \end{cases}
                                                                                                                                                                                                \ding{222}
4
           \displaystyle \{37\}
                                           ⋆
                                                      \displaystyle \begin{array}{l} \text{\ding} \{75\} \end{array}
                                                                                                    \ding{113}
                                                                                                                                      4
                                                                                                                                                  \ding{185}
                                                                                                                                                                                                \ding{223}
C
           \displaystyle \{38\}
                                                      \displaystyle \begin{cases} 76 \end{cases}
                                                                                                   \displaystyle \begin{cases} 114 \end{cases}
                                                                                                                                                  \ding{186}
                                                                                                                                                                                                \ding{224}
                                                                                         6
T
           \displaystyle \{39\}
                                           ✮
                                                      \displaystyle \begin{cases} 77 \end{cases}
                                                                                                   \displaystyle \begin{cases} 115 \end{cases}
                                                                                                                                      0
                                                                                                                                                  \displaystyle \begin{cases} 187 \end{cases}
                                                                                                                                                                                                \ding{225}
Z.
           \displaystyle \{40\}
                                           \bigstar
                                                      \displaystyle \begin{cases} 78 \end{cases}
                                                                                                    \displaystyle \prod \{116\}
                                                                                                                                      Ø
                                                                                                                                                  \displaystyle \prod \{188\}
                                                                                                                                                                                                \displaystyle \begin{cases} 226 \end{cases}
\blacksquare
            \displaystyle \begin{cases} 41 \end{cases}
                                           女
                                                      \displaystyle \begin{cases} 19 \end{cases}
                                                                                                   \displaystyle \begin{cases} 117 \end{cases}
                                                                                                                                      0
                                                                                                                                                  \ding{189}
                                                                                                                                                                                                \ding{227}
           \displaystyle \begin{cases} 42 \end{cases}
                                          \stackrel{\wedge}{\sim}
                                                      \displaystyle \begin{cases} ding\{80\} \end{cases}
                                                                                         *
                                                                                                   \displaystyle \prod \{118\}
                                                                                                                                      9
                                                                                                                                                  \ding{190}
                                                                                                                                                                                                \ding{228}
           \displaystyle \{43\}
                                                      4
                                          \star
                                                                                                   \displaystyle \prod \{119\}
                                                                                                                                      •
                                                                                                                                                  \ding{191}
                                                                                                                                                                                                \ding{229}
M
            \displaystyle \begin{cases} 44 \end{cases}
                                                      \displaystyle \begin{cases} ding\{82\} \end{cases}
                                                                                                    \ding{120}
                                                                                                                                                  \ding{192}
                                                                                                                                                                                                \ding{230}
           \displaystyle \{45\}
                                                                                                    \ding{121}
                                                                                                                                                  \ding{193}
                                                                                                                                                                                                \ding{231}
                                                      \displaystyle \begin{cases} 83 \end{cases}
                                                                                        2
\displaystyle \begin{cases} 46 \end{cases}
                                                      \displaystyle \begin{cases} 44 \end{cases}
                                                                                                    \displaystyle \begin{cases} 122 \end{cases}
                                                                                                                                      3
                                                                                                                                                  \displaystyle \begin{cases} 194 \end{cases}
                                                                                                                                                                                                \displaystyle \begin{cases} 232 \end{cases}
           \displaystyle \begin{cases} 47 \end{cases}
                                                      \displaystyle \begin{cases} ding\{85\} \end{cases}
                                                                                                    \displaystyle \prod \{123\}
                                                                                                                                      4
                                                                                                                                                  \displaystyle \begin{cases} 195 \end{cases}
                                                                                                                                                                                    □
                                                                                                                                                                                                \displaystyle \begin{cases} 233 \end{cases}
            \displaystyle \begin{cases} 48 \end{cases}
                                                      \displaystyle \begin{cases} ding\{86\} \end{cases}
                                                                                                    \ding{124}
                                                                                                                                      ⑤
                                                                                                                                                  \ding{196}
                                                                                                                                                                                    ┎;
                                                                                                                                                                                                \ding{234}
                                                                                                                                                                                    ₽
           \displaystyle \{49\}
                                                      \displaystyle \begin{cases} 87 \end{cases}
                                                                                                   \displaystyle \begin{cases} 125 \end{cases}
                                                                                                                                      6
                                                                                                                                                                                                \ding{235}
                                                                                                                                                  \ding{197}
                                                                                                                                                  \ding{198}
           \displaystyle \{50\}
                                                      \displaystyle \begin{cases} 38 \end{cases}
                                                                                                   \ding{126}
                                                                                                                                      7
                                                                                                                                                                                    \ding{236}
```

(continued on next page)

(continued from previous page)

```
\displaystyle \begin{cases} ding\{51\} \end{cases}
                                                          \displaystyle \begin{cases} ding\{89\} \end{cases}
                                                                                                           \ding{161}
                                                                                                                                                8
                                                                                                                                                             \ding{199}
                                                                                                                                                                                                              \ding{237}
            \displaystyle \begin{cases} 52 \end{cases}
                                                          \displaystyle \begin{cases} 0 \end{cases}
                                                                                                           \displaystyle \begin{cases} 162 \end{cases}
                                                                                                                                                9
                                                                                                                                                             \displaystyle \begin{cases} 200 \end{cases}
                                                                                                                                                                                                              \ding{238}
                                              *
                                                                                                                                                                                                 \Box
X
           \displaystyle \begin{cases} 53 \end{cases}
                                             *
                                                          \displaystyle \{91\}
                                                                                                           \displaystyle \begin{cases} 163 \end{cases}
                                                                                                                                                10
                                                                                                                                                             \ding{201}
                                                                                                                                                                                                  \Rightarrow
                                                                                                                                                                                                              \displaystyle \{239\}
            \displaystyle \{54\}
X
                                                          \displaystyle \begin{array}{l} \ding{92} \end{array}
                                                                                                           \displaystyle \begin{cases} 164 \end{cases}
                                                                                                                                                0
                                                                                                                                                             \ding{202}
                                                                                                                                                                                                  \Rightarrow
                                             *
                                                                                                                                                                                                              \displaystyle \begin{cases} 241 \end{cases}
X
            \displaystyle \{55\}
                                             *
                                                          >
                                                                                                           \displaystyle \begin{cases} 165 \end{cases}
                                                                                                                                                0
                                                                                                                                                             \ding{203}
                                                                                                                                                                                                  0
                                                                                                                                                                                                              \ding{242}
X
            \displaystyle \begin{cases} ding\{56\} \end{cases}
                                             鬱
                                                          \displaystyle \begin{cases} 4 \\ \end{cases}
                                                                                                           \ding{166}
                                                                                                                                                0
                                                                                                                                                             \displaystyle \begin{cases} 204 \end{cases}
                                                                                                                                                                                                  \rightarrowtail
                                                                                                                                                                                                              \displaystyle \begin{cases} 243 \end{cases}
╬
                                                                                                                                                             \ding{205}
                                                                                                                                                                                                              \ding{244}
            \displaystyle \{57\}
                                              \displaystyle \begin{array}{l} \text{\ding} \{95\} \end{array}
                                                                                               S۵۰
                                                                                                           \displaystyle \begin{cases} 167 \end{cases}
                                                                                                                                                4
                                                                                                                                                                                                  4
+
            \displaystyle \begin{cases} ding\{58\} \end{cases}
                                                          \displaystyle \begin{cases} ding\{96\} \end{cases}
                                                                                                           \displaystyle \prod \{168\}
                                                                                                                                                             \ding{206}
                                                                                                                                                                                                              \displaystyle \begin{cases} 245 \end{cases}
÷
            \displaystyle \{59\}
                                                          \displaystyle \begin{cases} 97 \end{cases}
                                                                                                           \displaystyle \begin{cases} 169 \end{cases}
                                                                                                                                                             \ding{207}
                                                                                                                                                                                                              \displaystyle \{246\}
                                             *
                                                                                                                                                0
۰
            \displaystyle \{60\}
                                             *
                                                          \displaystyle \begin{cases} ding\{98\} \end{cases}
                                                                                                           \displaystyle \begin{cases} 170 \end{cases}
                                                                                                                                                Ø
                                                                                                                                                             \displaystyle \{208\}
                                                                                                                                                                                                  ♣∡
                                                                                                                                                                                                              \displaystyle \begin{cases} 247 \end{cases}
            \displaystyle \{61\}
                                                          \displaystyle \begin{cases} 0 \end{cases}
t
                                             ❈
                                                                                                           \ding{171}
                                                                                                                                                0
                                                                                                                                                             \displaystyle \{209\}
                                                                                                                                                                                                  ≯→
                                                                                                                                                                                                              \displaystyle \begin{cases} 248 \end{cases}
f
            \displaystyle \begin{cases} 62 \end{cases}
                                                          \ding{100}
                                                                                                           \displaystyle \begin{cases} 172 \end{cases}
                                                                                                                                                0
                                                                                                                                                             \displaystyle \begin{cases} 210 \end{cases}
                                                                                                                                                                                                              \displaystyle \begin{cases} 249 \end{cases}
t
            \displaystyle \begin{cases} 63 \end{cases}
                                                          \ding{101}
                                                                                               2
                                                                                                           \displaystyle \begin{cases} 173 \end{cases}
                                                                                                                                                             \displaystyle \begin{cases} 211 \end{cases}
                                                                                                                                                                                                  \rightarrow
                                                                                                                                                                                                              \displaystyle \{250\}
                                             *
                                                                                                                                                0
H
            \displaystyle \begin{cases} 64 \end{cases}
                                                          \ding{102}
                                                                                               3
                                                                                                           \displaystyle \begin{cases} 174 \end{cases}
                                                                                                                                                →
                                                                                                                                                             \displaystyle \begin{cases} 212 \end{cases}
                                                                                                                                                                                                  ->
                                                                                                                                                                                                              \displaystyle \begin{cases} 251 \end{cases}
✡
            \displaystyle \begin{cases} 65 \end{cases}
                                                          \ding{103}
                                                                                               4
                                                                                                           \displaystyle \begin{cases} 175 \end{cases}
                                                                                                                                                             \displaystyle \begin{cases} 213 \end{cases}
                                                                                                                                                                                                              \displaystyle \begin{cases} 252 \end{cases}
                                                          \ding{104}
                                                                                                           \ding{176}
                                                                                                                                                                                                              \displaystyle \{253\}
÷
            \displaystyle \begin{cases} ding\{66\} \end{cases}
                                              *
                                                                                               (5)
                                                                                                                                                \leftrightarrow
                                                                                                                                                             \displaystyle \begin{cases} 214 \end{cases}
Ж
            \displaystyle \begin{cases} 67 \end{cases}
                                             *
                                                          \ding{105}
                                                                                               6
                                                                                                           \ding{177}
                                                                                                                                                             \ding{215}
                                                                                                                                                                                                              \displaystyle \begin{cases} 254 \end{cases}
88
            \displaystyle \begin{cases} ding\{68\} \end{cases}
                                             *
                                                          \displaystyle \begin{cases} 106 \end{cases}
                                                                                               7
                                                                                                           \displaystyle \begin{cases} 178 \end{cases}
                                                                                                                                                *
                                                                                                                                                             \ding{216}
*
                                                                                               8
                                                                                                           \displaystyle \{179\}
            \displaystyle \begin{cases} 69 \end{cases}
                                             *
                                                          \displaystyle \begin{cases} 107 \end{cases}
                                                                                                                                                             \displaystyle \begin{cases} 217 \end{cases}
                                                                                                                                                →
                                                          \ding{108}
                                                                                                                                                             \ding{218}
            \displaystyle \begin{cases} 70 \end{cases}
                                                                                                           \ding{180}
```

#### Table 47: marvosym Astrological and Zodiacal Symbols

O'	\Jupiter \Mars \Mercury	Ψ		5 <b>⊙</b> 8	\Saturn \Sun \Uranus	Ŷ	\Venus
ŏ	\Aries \Taurus \Gemini	Ų	•	M,	\Libra \Scorpio \Sagittarius	*	\Capricorn \Aquarius

Note that \Aries...\Pisces can also be specified with \Zodiac{1}...\Zodiac{12}.

### Table 48: marvosym Digits

0	\MVZero	2	$\MVTwo$	4	\MVFour	6	\MVSix	8	$\MVEight$
1	\MVOne	3	\MVThree	5	\MVFive	7	\MVSeven	9	\MVNine

### Table 49: marvosym Euro Signs

### $\in$ \EUR $\in$ \EURcr $\in$ \EURhv $\in$ \EURtm

### Table 50: marvosym Miscellaneous

Ť	\Ankh	<b></b> ⊁<	\Cutright	Ç	\Lefttorque	)	\Righttorque
*	\Bat	FAX	\FAX	$\bowtie$	\Letter	©	\Smiley
	\Beam	FAX	\fax	Ź	\Lightning	*	\Snowflake
Å	\Bearing		\Faxmachine	$\overline{111}$	\Lineload	•	\Squaredot
<b>₩</b>	\Bicycle	탮	\FHB0logo	<u>Å</u>	\Loosebearing		\Squarepipe
<del>†</del>	\Celtcross	68	\FHBOLOGO	L	\Lsteel	<b>500</b>	\Stopsign
C€	\CEsign	٨	\Fixedbearing	1	\Manfront	8	\Telefon
abla	\Checkedbox	_	\Flatsteel	į	\Manside	Т	\Tsteel
<b>(a)</b>	\Circles	$\odot$	\Football		\Mobilefone	I	\TTsteel
0	\Circpipe	Ţ	\Force	Α	\MVA	<b>→</b>	\Vectorarrow
$\Theta$	\Clocklogo	8	\Frowny	@	\MVAt	<b>→</b>	\Vectorarrowhigh
₩	\Coffeecup	$\bigcirc$	\Heart	р	\MVp	0	\Womanface
$\triangleq$	\Corresponds		\Industry	Q	\Pickup	ŧ	\Womanfront
t	\Cross	i	\Info	ræ	\Pointinghand	ļ	\Womanside
X	\Crossedbox	Ð	\Kross		\Rectpipe	Ø	\Writinghand
>%	\Cutleft		\Kutline	$\rightarrow$	\Rightarrow	3	\Yingyang
	\Cutline	ズ	\Leftscissors	*	\Rightscissors		

Table 51: Math Alphabets

		Required package
ABCdef123	\mathrm{ABCdef123}	none
ABC def 123	\mathit{ABCdef123}	none
ABCdef123	\mathnormal{ABCdef123}	none
$\mathcal{ABC}$	\mathcal{ABC}	none
ABC	\mathscr{ABC}	mathrsfs
$\mathcal{ABC}$	\mathcal{ABC}	euscript with option: mathcal
or	\mathscr{ABC}	euscript with option: mather
ABCdef123	\mathpzc{ABCdef123}	none; manually defined*
$\mathbb{ABC}$	\mathbb{ABC}	amsfonts or amssymb
ABCdef123	\mathbb{ABCdef123}	bbold
$\mathbb{ABC}  ext{def12}$	\mathbbm{ABCdef12}	bbm
ABCdef12	\mathbbmss{ABCdef12}	bbm
ABCdef12	\mathbbmtt{ABCdef12}	bbm
$\mathbb{A}\mathbb{B}\mathbb{C}\mathbb{1}$	\mathds{ABC1}	dsfont
A\IB C 1	\mathds{ABC1}	dsfont with option: sans
ABCdef123	\mathfrak{ABCdef123}	eufrak
ABC def123	\textfrak{ABCdef123}	yfonts
UBCbef123	\textswab{ABCdef123}	yfonts

<sup>\*</sup> Put "\DeclareMathAlphabet{\mathpzc}{0T1}{pzc}{m}{it}" in your document's preamble to make \mathpzc typeset its argument in Zapf Chancery.

# $\mathbf{Index}$

If you're having trouble locating a symbol, try looking under "T" for "\text...". Many text-mode commands begin with that prefix.

Symbols	\APLdown 13	\Bat 15	\bot 5
<b>\#</b> 2	$\APL$ downarrowbox $13$	\Bbbk 8	\Bowtie $\dots 12$
<b>\\$</b> 2	\APLinput 13	bbm 16	\bowtie $\dots \dots 4$
\% 2	\APLinv 13	bbold 16	\Box 5, 11
<b>\&amp;</b> 2	$\APLleftarrowbox \dots 13$	\bbslash 11	\boxast 11
( 5	\APLlog 13	\Beam 15	\boxbar 11
) 5	\APLminus 13	\Bearing $\dots 15$	\boxbox 11
+ 3	\APLnot 13	\because 9	\boxbslash 11
<b>,</b> 4	$\APLrightarrowbox 13$	\bell 12	\boxcircle 11
3	\APLstar 13	\beta $\dots \dots 2$	\boxdot 9, 11
5	\APLup 13	\beth 8	\boxempty 11
/ 5	\APLuparrowbox 13	\between 9	\boxminus 9
: 4	\APLvert 13	\Bicycle $\dots 15$	\boxplus 9
; 4	\apprge 11	\bigbox 11	\boxslash 11
< 4	\apprle $11$	\bigcap $\dots \dots 5$	\boxtimes 9
[ 5	$\approx$ 4	\bigcirc $\dots 3$	\bracevert 6
] 5	$\approxed \dots 9$	\bigcup $\dots \dots 5$	\breve 6
\ 2	\Aquarius $14$	\bigcurlyvee $\dots$ 11	\brokenvert $12$
	$\arccos$ 5	\bigcurlywedge $\dots$ 11	\bullet 3
$\mathbf{A}$	\arcsin $5$	\biginterleave $11$	\Bumpeq 9
\AA 2	$\arctan$ 5	\bignplus $11$	\bumpeq 9
\aa 2	\arg $5$	\bigodot $\dots \dots 5$	
\AC 12	\Aries 14	\bigoplus $5$	$\mathbf{C}$
accents 6	\Arrownot 10	\bigotimes $5$	\Cancer 14
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\APLcirc 13	\baro 11	\blacktriangleleft 9	\circlearrowleft 8
\APLcomment 13	\barwedge 9	\blacktriangleright . $9$	$\circlearrowright \dots 8$

\circledast 9	\dashv 4	\eqcirc 9	\geqq 9
\circledcirc 9	\davidsstar 12	\eqslantgtr 9	\geqslant 9
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\cos 5	\diamond 3	\fatbslash 11	н
\cosh 5	\diamondsuit 5	\fatsemi 11	\halfnote 12
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