Part II

F A S T E X

LaTeX Shortcuts

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1 Basic Formatting

1.1 Setting up a document

tebd	1/5	`\documentstyle{article}`	template to begin document;
tebdf	1/5	`\documentstyle[epsf]{article}`	template for documents using article and epsf style files
tebdv	1/5	`\documentstyle[verbatim]{article}`	template for documents using
tebdvf	1/5	`\documentstyle[verbatim,epsf]{article}`	template for documents using
te2bd	1/3	`\documentclass{article}`	template to begin document latex2e;
te2bdv	1/4	`\documentclass{article}`	template for documents using
te2bdvf	1/4	`\documentclass{article}`	template for documents using
temar	1/5	`\textwidth␣6.5␣truein`	template insert for changing margin size
temag1			template insert, changing margin size, magstep1 (not in LaTeX)
teaut	1/13	`\title{Title␣of␣paper}`	template insert for title and author
teabs	1/3	`\begin{abstract}`	template insert for abstracts
teack	1/1	`\noindent{\bf␣Acknowledgments}␣We␣thank␣...`	template insert for acknowldegments
teref	1/4	`\section*{References}`	template insert for references
tebib	1/3	`\begin{thebibliography}{}`	template insert for the bibliography
bdo	1/1	`\begin{document}`	begin text of document
ed	1/1	`\end{document}`	end text of document
edo	1/1	`\end{document}`	end text of document
dsu	1/1	`\documentstyle{`	document style universal
dsart	1/1	`\documentstyle{article}`	document style article
dsartv	1/1	`\documentstyle[verbatim]{article}`	document style article
dslet	1/1	`\documentstyle{letter}`	document style letter
dsrep	1/1	`\documentstyle{report}`	document style report
dsbook	1/1	`\documentstyle{book}`	document style article

1.1.1 new definitions

defu	1/1	`\newcommand{...}{...}`	define a new command macro
ncmdu	1/1	`\newcommand{...}{...}`	define a new command macro
rcmdu	1/1	`\renewcommand{...}{...}`	redefine a command macro
rdefu	1/1	`\renewcommand{...}{...}`	redefine a command macro
setlnu	1/1	`\setlength{...}{...}`	set length variables universal

1.1.2 new definitions (amstex)

magu			magnification magstep universal (not in LaTeX)

mag1			magnification magstep 1 (not in LaTeX)
nrh	1/1	`\pagestyle{empty}`	no running heads
npgno	1/1	`\pagestyle{empty}`	no page numbers
nlg			no AmSTeX logo (not in LaTeX)
nbb			hide line overflow black boxes (not in LaTeX)
pgno			set page number (not in LaTeX)
lhtxt			leftheadtext (not in LaTeX)
rhtxt			rightheadtext (not in LaTeX)
egraf			endparagraph (not in LaTeX)
chhdl			change headlines to be justified (not in LaTeX)
tgsol			tags for equations on left (not in LaTeX)
tgsor			tagst for equations on right (not in LaTeX)

1.2 Format

sn	1/1	`\section{`	start a numbered section
sns	1/1	`\section*{`	start an unnumbered section
ssn	1/1	`\subsection{`	start a numbered subsection
ssns	1/1	`\subsection*{`	start an unnumbered subsection
bec	1/1	`\begin{center}`	begin center
ec	1/1	`\end{center}`	end center
eec	1/1	`\end{center}`	begin center
cl	1/1	`\centerline{`	centerline
hfi	1/1	`\hfill`	hfill
bfll	1/1	`\begin{flushleft}`	begin flush left
bflr	1/1	`\begin{flushright}`	begin flush right
efll	1/1	`\end{flushleft}`	end flush left
eflr	1/1	`\end{flushright}`	begin flush right
bqt	1/1	`\begin{quotation}`	begin quotation
eqt	1/1	`\end{quotation}`	end quotation
noi	1/1	`\noindent`	no indent
nl	1/1	`\\`	newline (double backslashes)
np	1/1	`\newpage`	newpage
pt	1/1	`%`	percent
vfi	1/1	`\vfill`	vfill
lbrk	1/1	`\linebreak`	linebreak
nlin	1/1	`\newline`	newline
rlin	1/1	`\rightline{...}`	rightline
clin	1/1	`\centerline{...}`	centerline

llin	1/1	`\leftline{...}`	leftline
lin	1/1	`\line{...}`	line
blskp	1/1	`\baselineskip`	reset baselineskip

1.2.1 added

bmpg	1/1	`\begin{minipage}{\textwidth}`	begin minipage
empg	1/1	`\end{minipage}`	end minipage
cp	1/1	`\clearpage`	clear page
bblk	1/1	`\begin{quotation}`	begin block/quotation
eblk	1/1	`\end{quotation}`	end block/quotation
prind	1/1	`\setlength{\parindent}{0em}`	set parindent
prskp	1/1	`\setlength{\parskip1.5ex␣plus␣0.5ex␣minus␣0.5ex}`	set parskip
blstr	1/1	`\renewcommand{\baselinestretch}{1.5}`	reset baselinestretch

1.3 Basic Braces and Parentheses

ob	1/1	`{`	open (left) brace
eb	1/1	`}`	end (right) brace
eit	1/1	`\/}`	end italic space and (right) brace
op	1/1	`(`	open (left) parenthesis
ep	1/1	`)`	end (right) parenthesis
obk	1/1	`[`	open (left) bracket
ebk	1/1	`]`	end (right) bracket
llb	1/1	`\{`	left literal brace
rlb	1/1	`\}`	right literal brace
bqm	1/1	``` `` ```	begin (left) quotation marks
eqm	1/1	`''`	end (right) quotation marks
lle	1/1	`\langle`	left angle bracket
rle	1/1	`\rangle`	right angle bracket

1.4 Lists and Tables

ros	1/1	`\begin{enumerate}`	begin roster; enumerate
bros	1/1	`\begin{enumerate}`	begin roster; enumerate
eros	1/1	`\end{enumerate}`	end roster; enumerate
ben	1/1	`\begin{enumerate}`	begin enumerate
ee	1/1	`\end{enumerate}`	end enumerate
een	1/1	`\end{enumerate}`	end enumerate

bitm	1/1	`\begin{itemize}`	begin itemize
eitm	1/1	`\end{itemize}`	end itemize
bds	1/1	`\begin{description}`	begin description
eds	1/1	`\end{description}`	end description
itm	1/1	`\item`	item
itmu	1/1	`\item[`	item entry universal
setc	1/1	`\setcounter{enumi}{`	set counter enumi
setcu	1/1	`\setcounter{...}{...}`	set counter universal
btb	1/1	`\begin{tabbing}`	begin tabbing
etb	1/1	`\end{tabbing}`	end tabbing
tb	1/1	`\>`	tab stop
btr	1/1	`\begin{tabular}{|c|c|}`	begin tabular with vertical lines
etr	1/1	`\end{tabular}`	end tabular
hlin	1/1	`\hline`	horizontal line
hrl	1/1	`\hline`	horizontal rule; line
ad	1/1	`&`	ampersand

1.5 Labels, References and Bibliography

ftn	1/1	`\footnote{`	footnote
citu	1/1	`\cite{`	to cite a reference universal
cit	1/1	`\cite{␣}`	to cite a reference
citp	1/1	`(\cite{␣})`	to cite a reference inside parentheses
lbl	1/1	`\label{`	to label an equation, theorem, etc.
refr	1/1	`\ref{`	to cross reference an equation, theorem, etc.
refp	1/1	`(\ref{})`	to cross reference (put cursor between the {} by hand)
biba	1/3	`\item␣Author␣[year]`	item description for articles
bibb	1/3	`\item␣Author␣[year]`	item description for books
bibia	1/4	`\bibitem[]{}`	bibitem for articles
bibib	1/4	`\bibitem[]{}`	bibitem for books
idu	1/1	`\index{`	use for index entries

1.6 Foreign Accents

ae	1/1	`\'{e}`	é	(acute e
ge	1/1	`\‘{e}`	è	grave e
ua	1/1	`\"{a}`	ä	umlaut a
uo	1/1	`\"{o}`	ö	umlaut o
uu	1/1	`\"{u}`	ü	umlaut u

ace	1/1	`\'{E}`	É acute E
gce	1/1	`\‘{E}`	È grave E
uca	1/1	`\"{A}`	Ä umlaut A
uco	1/1	`\"{O}`	Ö umlaut O
ucu	1/1	`\"{U}`	Ü umlaut U

1.7 Miscellaneous

ats	1/1	`@`	at symbol
cprt	1/1	`\copyright`	© copyright symbol
para	1/1	`\P`	¶ paragraph symbol
sect	1/1	`\S`	§ section symbol
gss	1/1	`\ss`	ß german s

1.8 Spaces

csp	1/1	`\quad`	single character space (width em)
dsp	1/1	`\qquad`	double space
ssp	1/1	`\,`	small space
msp	1/1	`\:`	medium space; only in math mode
tsp	1/1	`\;`	thick space
nsp	1/1	`\!`	negative space; only in math mode
ndsp	1/1	`\!␣\!`	negative double space; only in math mode

1.8.1 (new tex/latex/amslatex–amsmath/amstex)

qd	1/1	`\quad`	quad space (width em)
qqd	1/1	`\qquad`	double quad space
bskp	1/1	`\bigskip`	big skip
mskp	1/1	`\medskip`	medium skip
sskp	1/1	`\smallskip`	small skip
hskp	1/1	`\hskip␣2in`	horizontal skip
vskp	1/1	`\vskip␣12pt`	vertical skip
tskp	1/1	`\topskip␣24pt`	topskip
vglu	1/1	`\vglue␣␣2in`	vglue
nll	1/1	`\null`	null

2 Basic Mathematical Formatting

dsz	1/1	`\displaystyle`	display size
dszu	1/1	`{\displaystyle`	display size universal
tsz			text size (not in LaTeX)
tszu			text size universal (not in LaTeX)
tfu			text size fraction universal (not in LaTeX)

2.1 Equation Commands

sd	1/1	`d`	small letter d
d	1/1	`$`	dollar symbol; starts and terminates text in math mode
dlr	1/2	`$$`	double dollar
bdp	1/1	`\[`	begin display math: one line formula, unnumbered
edp	1/1	`\]`	end display math: one line formula, unnumbered
beq	1/1	`\begin{equation}`	begin display math: one line formula, numbered
beql	1/1	`\begin{equation}\label{`	begin display math: one line formula, numbered, with label
eeq	1/1	`\end{equation}`	end display math: one line formula, numbered
bqa	1/1	`\begin{eqnarray}`	begin multiline aligned display math array, numbered
bqal	1/1	`\begin{eqnarray}\label{`	begin multiline aligned display math array, numbered with label
eqa	1/1	`\end{eqnarray}`	end multiline aligned display math array, numbered
bqas	1/1	`\begin{eqnarray*}`	begin multiline aligned display math array star, unnumbered
eqas	1/1	`\end{eqnarray*}`	end multiline aligned display math array star, unnumbered
bea	1/1	`\begin{array}{ccc}`	begin display alignedat 3 places; see also Section 5.3
ea	1/1	`\end{array}`	end display alignedat
eea	1/1	`\end{array}`	end display alignedat
ad	1/1	`&`	ampersand
ada	1/1	`&␣=␣&`	for aligning = signs in some displays
nonu	1/1	`\nonumber`	supress numbering on equation
mbe	1/1	`\mbox{}`	empty box, use at the beginning/end of a line
boxu	1/1	`\quad␣\mbox{␣␣}␣\quad`	use to put roman text within math
boxa	1/1	`\quad␣\mbox{and}␣\quad`	add text "and" within math formula
txt	1/1	`\quad␣\mbox{␣␣}␣\quad`	use to put roman text with quad spaces within math
txta	1/1	`\quad␣\text{and}␣\quad`	add text "and" with quad spaces within math
lequ	1/4	`\begin{eqnarray}`	numbered equation split over two lines,
lequs	1/4	`\begin{eqnarray*}`	unnumbered equation split over two lines,

2.1.1 More Equation Commands with AMS Math

tg	1/1	`\tag{}`	tag equation; label in parentheses
tgs	1/1	`\tag*{}`	tag equation; label not in parentheses
ntg	1/1	`\notag`	no tag

2.2 Basic Displayed Equations—Examples

bdpex 1/3 `\[` display math equation unnumbered example

$$F(b) - F(a) = \int_a^b f(x)\,dx$$

beqex 1/3 `\begin{equation}` display math equation numbered example

$$F(b) - F(a) = \int_a^b f(x)\,dx \tag{1}$$

eqtx 1/5 `\[` display math equation with text

$$\sum_{i=1}^{n} x_i^2 + y_i^2 \geq 0 \quad \text{for all real numbers } x_i \text{ and } y_i$$

bqasex 1/4 `\begin{eqnarray*}` align equation star example, unnumbered

$$\begin{aligned} x^2 &= y + 1 \\ x^2 + 1 &= u + v \end{aligned}$$

bqaex 1/4 `\begin{eqnarray}` align equation example, numbered

$$x^2 = y + 1 \tag{2}$$
$$x^2 + 1 = u + v \tag{3}$$

eqng 1/6 `\begin{eqnarray}` aligned equations left justified; numbered as a group

$$\begin{aligned} a &= b + c \\ d &= e + f + g \end{aligned} \tag{4}$$

eqsp 1/4 `\begin{eqnarray*}` equation split star, unnumbered

$$\begin{aligned} a &= b + c + (c + d) \\ &\quad - e + f \end{aligned}$$

2.3 Specialized Displayed Equations—Examples

eqbrl 1/8 `\begin{equation}` equation array example

$$\left.\begin{aligned} x &= y \\ a &= b^2 + b + 1 \end{aligned}\right\} \tag{5}$$

eqbrc 1/8 `\begin{equation}` equation array example

$$\left.\begin{aligned} x &= y \\ a &= b^2 + b + 1 \end{aligned}\right\} \tag{6}$$

eqbox 1/3 `\begin{equation}` equation displayed in a box

$$\boxed{\frac{x^2+1}{5}=y} \tag{7}$$

eval 1/4 `\[` evaluation of expression

$$f\left(\frac{t}{2}\right)\Big|_{t=0}$$

lequex 1/4 `\begin{eqnarray}` left equation array example

$$\begin{aligned} & ax^2+2bxy+cy^2+dx+ey+f \\ = \quad & \alpha u+\beta v+\gamma w+\delta \end{aligned} \tag{8}$$

eabb 1/12 `\begin{eqnarray*}` equation array with big brackets

$$\begin{aligned} \hat{H}_c(\Delta\omega): \quad &= \int_D \Big[\frac{1}{2}\Delta\omega(-\nabla^2)^{-1}\Delta\omega+\Phi(\omega_e+\Delta\omega)-\Phi(\omega_e) \\ &\quad -\Phi'(\omega_e)\Delta\omega\Big]\,dx\,dy \end{aligned}$$

eabr 1/10 `\begin{eqnarray*}` equation array with big braces

$$\begin{aligned} H_0^s(TM) \quad = \quad & \Big\{X\in H^s(TM)\Big|\text{there exists an } H^s\text{-extension} \\ & \tilde{X}\in H^s(\tilde{T}M) \text{ with } X \text{ zero on } \tilde{M}\backslash M\Big\}. \end{aligned}$$

2.4 Theorem Like Environments

mcor	1/1	`\newtheorem{cor}{Corollary}`	to make a new series of Corollaries
mdfn	1/1	`\newtheorem{dfn}{Definition}`	to make a new series of Definitions
mlem	1/1	`\newtheorem{lem}{Lemma}`	to make a new series of Lemmas
mprop	1/1	`\newtheorem{prop}{Proposition}`	to make a new series of Propositions
mthm	1/1	`\newtheorem{thm}{Theorem}`	to make a new series of Theorems
bcor	1/1	`\begin{cor}`	to begin a Corollary environement
ecor	1/1	`\end{cor}`	to end a Corollary environement
blem	1/1	`\begin{lem}`	to begin a Lemma environement
elem	1/1	`\end{lem}`	to end a Lemma environement
bprop	1/1	`\begin{prop}`	to begin a Proposition environement
eprop	1/1	`\end{prop}`	to end a Proposition environement
bthm	1/1	`\begin{thm}`	to begin a Theorem environement
bthmt	1/1	`\begin{thm}[Gauss'␣Theorem]`	to begin a Theorem, with title, environement
ethm	1/1	`\end{thm}`	to end a Theorem environement
bdfn	1/1	`\begin{dfn}`	to begin a Definition environement
bdfn	1/1	`\begin{definition}`	begin definition environment;
edfn	1/1	`\end{dfn}`	to end a Definition environement
edfn	1/1	`\end{definition}`	end definition environment;
exa	1/1	`\noindent{\large␣\bf␣Example\,}`	Example (title in large bold)
rmk	1/1	`\noindent{\large␣\bf␣Remarks\,}`	Remarks (title in bold)
prf	1/1	`\noindent{\bf␣Proof\,}`	Proof (title in bold)
sol	1/1	`\noindent{\bf␣Solution\,}`	Solution (title in bold)

2.4.1 AMS Math Environment Commands

bdmu			to begin demo environement (not in LaTeX)
edmu			to end demo universal environement (not in LaTeX)
bprf	1/1	`\noindent{\bf␣Proof\,}`	to begin a Proof environement
eprf			to end a Proof environement (not in LaTeX)
bpf	1/1	`\noindent{\bf␣Proof\,}`	to begin a Proof environement
epf			to end a Proof environement (not in LaTeX)
thmsty	1/6	`\newtheorem{thm}{Theorem}[section]`	theoremstyle commands with abbreviated names
balg	1/1	`\begin{algorithm}`	begin algorithm environment;

ealg	1/1	`\end{algorithm}`	end algorithm environment;
bcnj	1/1	`\begin{conjecture}`	begin conjecture environment;
ecnj	1/1	`ecnj`	end conjecture environment;
bcrit	1/1	`\begin{criterion}`	begin criterion environment;
ecrit	1/1	`\end{criterion}`	end criterion environment;
bqst	1/1	`\begin{question}`	begin question environment;
eqst	1/1	`\end{question}`	end question environment;
bcnd	1/1	`\begin{condition}`	begin condition environment;
ecnd	1/1	`\end{condition}␣`	end condition environment;
bprob	1/1	`\begin{problem}`	begin problem environment;
eprob	1/1	`\end{problem}`	end problem environment;
brmk	1/1	`\begin{Remark}␣`	begin remark environment;
ermk	1/1	`\end{Remark}␣`	end remark environment;
bnote	1/1	`\begin{note}`	begin note environment;
enote	1/1	`\end{note}␣`	end note environment;
bnota	1/1	`\begin{notation}`	begin notation environment;
enota	1/1	`\end{notation}`	end notation environment;
bcase	1/1	`\begin{case}`	begin case environment;
ecase	1/1	`\end{case}`	end case environment;
bclm	1/1	`\begin{claim}`	begin claim environment;
eclm	1/1	`\end{claim}`	end algorithm environment;
bsum	1/1	`\begin{summary}`	begin summary environment;
esum	1/1	`\end{summary}`	end summary environment;
bcncl	1/1	`\begin{conclusion}`	begin conclusion environment;
ecncl	1/1	`\end{conclusion}`	end conclusion environment;
bac	1/1	`\begin{acknowledgment}`	begin acknowledgment environment;
eac	1/1	`\end{acknowledgment}`	end acknowledgment environment;
bsol	1/1	`\begin{solution}`	begin solution environment;
esol	1/1	`\end{solution}`	end solution environment;
bpf	1/1	`\noindent{\bf␣Proof\,}`	to begin a Proof environement
epf			to end a Proof environement (not in LaTeX)
bxca			begin Exercise—body of text; (not in LaTeX)
exca			end Exercise in body of text; (not in LaTeX)
bxcb			begin Exercises—end chpt. monographs; (not in LaTeX)
excb			end Exercises—end chpt. monographs; (not in LaTeX)

2.5 End of Proofs, etc.

blackl	1/1	`\quad␣\blacklozenge`	⧫ black lozenge (math mode)

dblackl	1/1	`\quad␣$\blacklozenge$`	⧫	dollar black lozenge (text mode)
epr	1/1	`\quad␣\blacksquare`	■	black square/end proof (math mode)
dep	1/1	`\quad␣$\blacksquare$`	■	dollar black square/end proof (text mode)
esq	1/1	`\quad␣\square`	□	empty square (math mode)
desq	1/1	`\quad␣$\square$`	□	dollar empty square (text mode)
etd	1/1	`\quad␣\bigtriangledown`	▽	empty triangle down (math mode)
detd	1/1	`\quad␣$\bigtriangledown$`	▽	dollar empty triangle down (text mode)
btd	1/1	`\quad␣\blacktriangledown`	▼	black triangle down (math mode)
dbtd	1/1	`\quad␣$\blacktriangledown$`	▼	dollar black triangle down (text mode)

2.5.1 (qed symbol)

qed	1/1	`\quad␣\square`	□	qed symbol or empty square (math mode)
rqed	1/1	`\null\hfill$\square$`	□	right justified qed symbol

2.6 Operator Names

The following abbreviated names should be considered as "operator names" (See $\mathcal{A}\mathcal{M}\mathcal{S}$-TEX, and $\mathcal{A}\mathcal{M}\mathcal{S}$-LATEX).

seh	1/1	`\mbox{\rm␣sech}`	sech	sech (in roman)
so3	1/1	`\mbox{\rm␣so(3)}`	so(3)	so(3) (in roman)
dso3	1/1	`$\mbox{\rm␣so(3)}$`	so(3)	so(3) (in roman) with dollar signs around
cso3	1/1	`\mbox{\rm␣SO(3)}`	SO(3)	SO(3) (in roman)
dcso3	1/1	`$\mbox{\rm␣SO(3)}$`	SO(3)	SO(3) (in roman) with dollar signs around
divg	1/1	`\mbox{\rm␣div}\,`	div	divergence, div (in roman)
au	1/1	`\mbox{\rm␣Aut}(`	Aut(	Automorphism universal (in roman)
difu	1/1	`\mbox{\rm␣Diff}(`	Diff(	Diffeomorphism universal (in roman)
imu	1/1	`\mbox{\rm␣Im}(`	Im(	imaginary part universal
imz	1/1	`\mbox{\rm␣Im}(z)`	Im(z)	imaginary part of z
reu	1/1	`\mbox{\rm␣Re}(`	Re(	real part universal
rez	1/1	`\mbox{\rm␣Re}(z)`	Re(z)	real part of z

2.6.1 new

rom	1/1	`\mbox{\rm␣}`		make text roman
romu	1/1	`\mbox{\rm␣`		make text roman

txtu	1/1	`\mbox{\rm␣`		text inside math mode
intxtu	1/1	`\mbox{\rm␣`		interline text
fldtu				folded text inside math (not in LaTeX)
tfldtu				top folded text inside math (not in LaTeX)
opndef	1/1	`\newcommand{\...}{\mbox{\rm␣...}}`		operatorname macro definition
opnu	1/1	`\mbox{\rm`		operatorname universal
opad	1/1	`\mbox{\rm␣ad}`	ad	operatorname ad
opcaut	1/1	`\mbox{\rm␣Aut}`	Aut	operatorname Aut
opccard	1/1	`\mbox{\rm␣Card}`	Card	operatorname Card
opchar	1/1	`\mbox{\rm␣char}`	char	operatorname char
opccorr	1/1	`\mbox{\rm␣Corr}`	Corr	operatorname Corr
opcext	1/1	`\mbox{\rm␣Ext}`	Ext	operatorname Ext
opcfcl	1/1	`\mbox{\rm␣FL}`	FL	operatorname FL
opcgcl	1/1	`\mbox{\rm␣GL}`	GL	operatorname GL
opchom	1/1	`\mbox{\rm␣Hom}`	Hom	operatorname Hom
opcjac	1/1	`\mbox{\rm␣Jac}`	Jac	operatorname Jac
opclie	1/1	`\mbox{\rm␣Lie}`	Lie	operatorname LIe
opcnm	1/1	`\mbox{\rm␣Nm}`	Nm	operatorname Nm
opcpcgcl	1/1	`\mbox{\rm␣PGL}`	PGL	operatorname PGL
opcpic	1/1	`\mbox{\rm␣Pic}`	Pic	operatorname Pic
opcprym	1/1	`\mbox{\rm␣Prym}`	Prym	operatorname Prym
opcram	1/1	`\mbox{\rm␣Ram}`	Ram	operatorname Ram
opcrank	1/1	`\mbox{\rm␣Rank}`	Rank	operatorname Rank
oprank	1/1	`\mbox{\rm␣rank}`	rank	operatorname rank
opreg	1/1	`\mbox{\rm␣reg}`	reg	operatorname reg
opcres	1/1	`\mbox{\rm␣Res}`	Res	operatorname Res
opres	1/1	`\mbox{\rm␣res}`	res	operatorname res
opsl	1/1	`\mbox{\rm␣sl}`	sl	operatorname sl
opcscl	1/1	`\mbox{\rm␣SL}`	SL	operatorname SL
opcsco	1/1	`\mbox{\rm␣SO}`	SO	operatorname SO
opcscp	1/1	`\mbox{\rm␣SP}`	SP	operatorname SP
opcsp	1/1	`\mbox{\rm␣Sp}`	Sp	operatorname Sp
opsq	1/1	`\mbox{\rm␣sq}`	sq	operatorname sq
opcscu	1/1	`\mbox{\rm␣SU}`	SU	operatorname SU
opcsym	1/1	`\mbox{\rm␣Sym}`	Sym	operatorname Sym
opctr	1/1	`\mbox{\rm␣Tr}`	Tr	operatorname Tr

3 Alphabets and Fonts

3.1 The letter d

sd	1/1	`d`		small letter d
cd	1/1	`D`		capital D

3.2 Greek Letters

xa	1/1	`\alpha`	α	greek alpha
xb	1/1	`\beta`	β	greek beta
xc	1/1	`\chi`	χ	greek chi
xcd	1/1	`\Delta`	Δ	greek Delta
xcg	1/1	`\Gamma`	Γ	greek Gamma
xcl	1/1	`\Lambda`	Λ	greek Lambda
xco	1/1	`\Omega`	Ω	greek Omega
xcp	1/1	`\Pi`	Π	greek Pi
xcph	1/1	`\Phi`	Φ	greek Phi
xcps	1/1	`\Psi`	Ψ	greek Psi
xcs	1/1	`\Sigma`	Σ	greek Sigma
xcth	1/1	`\Theta`	Θ	greek Theta
xcu	1/1	`\Upsilon`	Υ	greek Upsilon
xcx	1/1	`\Xi`	Ξ	greek Xi
xd	1/1	`\delta`	δ	greek delta
xe	1/1	`\epsilon`	ϵ	greek epsilon
xet	1/1	`\eta`	η	greek eta
xg	1/1	`\gamma`	γ	greek gamma
xi	1/1	`\iota`	ι	greek iota
xk	1/1	`\kappa`	κ	greek kappa
xl	1/1	`\lambda`	λ	greek lambda
xm	1/1	`\mu`	μ	greek mu
xn	1/1	`\nu`	ν	greek nu
xo	1/1	`\omega`	ω	greek omega
xp	1/1	`\pi`	π	greek pi
xph	1/1	`\phi`	ϕ	greek phi
xps	1/1	`\psi`	ψ	greek psi
xr	1/1	`\rho`	ρ	greek rho
xs	1/1	`\sigma`	σ	greek sigma

xt	1/1	`\tau`	τ	greek tau
xth	1/1	`\theta`	θ	greek theta
xu	1/1	`\upsilon`	υ	greek upsilon
xve	1/1	`\varepsilon`	ε	greek varepsilon
xvp	1/1	`\varpi`	ϖ	greek varpi
xvph	1/1	`\varphi`	φ	greek varphi
xvr	1/1	`\varrho`	ϱ	greek varrho
xvs	1/1	`\varsigma`	ς	greek varsigma
xvth	1/1	`\vartheta`	ϑ	greek vartheta
xx	1/1	`\xi`	ξ	greek xi
xz	1/1	`\zeta`	ζ	greek zeta
dxa	1/1	`$\alpha$`	α	dollar greek alpha
dxb	1/1	`$\beta$`	β	dollar greek beta
dxc	1/1	`$\chi$`	χ	dollar greek chi
dxcd	1/1	`$\Delta$`	Δ	dollar greek Delta
dxcg	1/1	`$\Gamma$`	Γ	dollar greek Gamma
dxcl	1/1	`$\Lambda$`	Λ	dollar greek Lambda
dxco	1/1	`$\Omega$`	Ω	dollar greek Omega
dxcp	1/1	`$\Pi$`	Π	dollar greek Pi
dxcph	1/1	`$\Phi$`	Φ	dollar greek Phi
dxcps	1/1	`$\Psi$`	Ψ	dollar greek Psi
dxcs	1/1	`$\Sigma$`	Σ	dollar greek Sigma
dxcth	1/1	`$\Theta$`	Θ	dollar greek Theta
dxcu	1/1	`$\Upsilon$`	Υ	dollar greek Upsilon
dxcx	1/1	`$\Xi$`	Ξ	dollar greek Xi
dxd	1/1	`$\delta$`	δ	dollar greek delta
dxe	1/1	`$\epsilon$`	ϵ	dollar greek epsilon
dxet	1/1	`$\eta$`	η	dollar greek eta
dxg	1/1	`$\gamma$`	γ	dollar greek gamma
dxio	1/1	`$\iota$`	ι	dollar greek iota
dxk	1/1	`$\kappa$`	κ	dollar greek kappa
dxl	1/1	`$\lambda$`	λ	dollar greek lambda
dxm	1/1	`$\mu$`	μ	dollar greek mu
dxn	1/1	`$\nu$`	ν	dollar greek nu
dxo	1/1	`$\omega$`	ω	dollar greek omega
dxp	1/1	`$\pi$`	π	dollar greek pi
dxph	1/1	`$\phi$`	ϕ	dollar greek phi
dxps	1/1	`$\psi$`	ψ	dollar greek psi
dxr	1/1	`$\rho$`	ρ	dollar greek rho

dxs	1/1	`$\sigma$`	σ	dollar greek sigma
dxt	1/1	`$\tau$`	τ	dollar greek tau
dxth	1/1	`$\theta$`	θ	dollar greek theta
dxu	1/1	`$\upsilon$`	υ	dollar greek upsilon
dxve	1/1	`$\varepsilon$`	ε	dollar greek varesilon
dxvp	1/1	`$\varpi$`	ϖ	dollar greek varpi
dxvph	1/1	`$\varphi$`	φ	dollar greek varphi
dxvr	1/1	`$\varrho$`	ϱ	dollar greek varrho
dxvs	1/1	`$\varsigma$`	ς	dollar greek varsigma
dxvth	1/1	`$\vartheta$`	ϑ	dollar greek vartheta
dxx	1/1	`$\xi$`	ξ	dollar greek xi
dxz	1/1	`$\zeta$`	ζ	dollar greek zeta

3.3 Font Definition, Italics, Bold, etc.

nfntu	1/1	`\newfont{\...}{\...}`	new font definition
nfnttbi	1/1	`\newfont{\tenbi}{cmbxti10}`	new font ten point bold italic

itu	1/1	`{\it`	*Example*	start *italic* type; "eit" to finish
biu	1/1	`{\tenbi`	***Example***	start ***bold italic*** type; "eit" to finish
rmu	1/1	`{\rm`	Example	roman type
bfu	1/1	`{\bf`	**Example**	**boldface** type
slu	1/1	`{\sl`	*Example*	*slanted type* "eit" to finish
ttu	1/1	`{\tt`	`Example`	`typewriter` type
emu	1/1	`{\em`	*Example*	start emphasized type; "eb" to finish
scu	1/1	`{\sc`	Example	start Small Caps type; "eb" to finish
sfu	1/1	`{\sf`	Example	start sans serif type; "eb" to finish
bxu	1/1	`\mbox{\boldmath$␣␣␣$}`	ψ	boldmath universal
cau	1/1	`{\cal`	$\mathcal{A}$	calligraphic univeral; math mode, capital letters only
gmu	1/1	`\frak␣`	$\mathfrak{g}$	german universal; only in math mode
opu	1/1	`{\Bbb␣`	$\mathbb{R}$	open letter universal
bbu	1/1	`{\Bbb␣`	$\mathbb{C}$	blackboard bold universal

3.4 Boldface Letters

b0	1/1	`{\bf␣0}`	**0**	bold 0
b1	1/1	`{\bf␣1}`	**1**	bold 1
b10	1/1	`{\bf␣10}`	**10**	bold 10

b2	1/1	`{\bf␣2}`
b3	1/1	`{\bf␣3}`
b4	1/1	`{\bf␣4}`
b5	1/1	`{\bf␣5}`
b6	1/1	`{\bf␣6}`
b7	1/1	`{\bf␣7}`
b8	1/1	`{\bf␣8}`
b9	1/1	`{\bf␣9}`
ba	1/1	`{\bf␣a}`
bb	1/1	`{\bf␣b}`
bc	1/1	`{\bf␣c}`
bca	1/1	`{\bf␣A}`
bcb	1/1	`{\bf␣B}`
bcc	1/1	`{\bf␣C}`
bcd	1/1	`{\bf␣D}`
bce	1/1	`{\bf␣E}`
bcf	1/1	`{\bf␣F}`
bcg	1/1	`{\bf␣G}`
bch	1/1	`{\bf␣H}`
bci	1/1	`{\bf␣I}`
bcj	1/1	`{\bf␣J}`
bck	1/1	`{\bf␣K}`
bcl	1/1	`{\bf␣L}`
bcm	1/1	`{\bf␣M}`
bcn	1/1	`{\bf␣N}`
bco	1/1	`{\bf␣O}`
bcp	1/1	`{\bf␣P}`
bcq	1/1	`{\bf␣Q}`
bcr	1/1	`{\bf␣R}`
bcs	1/1	`{\bf␣S}`
bct	1/1	`{\bf␣T}`
bcu	1/1	`{\bf␣U}`
bcv	1/1	`{\bf␣V}`
bcw	1/1	`{\bf␣W}`
bcx	1/1	`{\bf␣X}`
bcy	1/1	`{\bf␣Y}`
bcz	1/1	`{\bf␣Z}`
bd	1/1	`{\bf␣d}`
bee	1/1	`{\bf␣e}`

2	bold 2
3	bold 3
4	bold 4
5	bold 5
6	bold 6
7	bold 7
8	bold 8
9	bold 9
a	bold a
b	bold b
c	bold c
A	bold A
B	bold B
C	bold C
D	bold D
E	bold E
F	bold F
G	bold G
H	bold H
I	bold I
J	bold J
K	bold K
L	bold L
M	bold M
N	bold N
O	bold O
P	bold P
Q	bold Q
R	bold R
S	bold S
T	bold T
U	bold U
V	bold V
W	bold W
X	bold X
Y	bold Y
Z	bold Z
d	bold d
e	bold e; (note the extra e)

bel1	1/1	{\bf␣e}_1	$\mathbf{e}_1$ bold e subscript 1
bel2	1/1	{\bf␣e}_2	$\mathbf{e}_2$ bold e subscript 2
bel3	1/1	{\bf␣e}_3	$\mathbf{e}_3$ bold e subscript 3
beln	1/1	{\bf␣e}_n	$\mathbf{e}_n$ bold e subscript n
bff	1/1	{\bf␣f}	**f** bold f; (note the extra f)
bg	1/1	{\bf␣g}	**g** bold g
bh	1/1	{\bf␣h}	**h** bold h
bi	1/1	{\bf␣i}	**i** bold i
bj	1/1	{\bf␣j}	**j** bold j
bk	1/1	{\bf␣k}	**k** bold k
bl	1/1	{\bf␣l}	**l** bold l
bm	1/1	{\bf␣m}	**m** bold m
bn	1/1	{\bf␣n}	**n** bold n
bo	1/1	{\bf␣o}	**o** bold o
bp	1/1	{\bf␣p}	**p** bold p
bq	1/1	{\bf␣q}	**q** bold q
br	1/1	{\bf␣r}	**r** bold r
bs	1/1	{\bf␣s}	**s** bold s
bt	1/1	{\bf␣t}	**t** bold t
bu	1/1	{\bf␣u}	**u** bold u
bv	1/1	{\bf␣v}	**v** bold v
bw	1/1	{\bf␣w}	**w** bold w
bx	1/1	{\bf␣x}	**x** bold x
byy	1/1	{\bf␣y}	**y** bold y; (note the extra y)
bz	1/1	{\bf␣z}	**z** bold z

3.5 Boldmath Symbols

bxu	1/1	\mbox{\boldmath$␣␣␣$}	ψ boldmath universal
bxo	1/1	\mbox{\boldmath$\omega$}	$\boldsymbol{\omega}$ boldmath omega
bxx	1/1	\mbox{\boldmath$\xi$}	$\boldsymbol{\xi}$ boldmath xi

3.6 Calligraphic Letters

cau	1/1	{\cal	$\mathcal{A}$ calligraphic univeral; math mode, capital letters only
cca	1/1	{\cal␣A}	$\mathcal{A}$ calligraphic A
ccb	1/1	{\cal␣B}	$\mathcal{B}$ calligraphic B

ccc	1/1	`{\cal␣C}`
ccd	1/1	`{\cal␣D}`
cce	1/1	`{\cal␣E}`
ccf	1/1	`{\cal␣F}`
ccg	1/1	`{\cal␣G}`
cch	1/1	`{\cal␣H}`
cci	1/1	`{\cal␣I}`
ccj	1/1	`{\cal␣J}`
cck	1/1	`{\cal␣K}`
ccl	1/1	`{\cal␣L}`
ccm	1/1	`{\cal␣M}`
ccn	1/1	`{\cal␣N}`
cco	1/1	`{\cal␣O}`
ccp	1/1	`{\cal␣P}`
ccq	1/1	`{\cal␣Q}`
ccr	1/1	`{\cal␣R}`
ccs	1/1	`{\cal␣S}`
cct	1/1	`{\cal␣T}`
ccu	1/1	`{\cal␣U}`
ccv	1/1	`{\cal␣V}`
ccw	1/1	`{\cal␣W}`
ccx	1/1	`{\cal␣X}`
ccy	1/1	`{\cal␣Y}`
ccz	1/1	`{\cal␣Z}`
dcca	1/1	`${\cal␣A}$`
dccb	1/1	`${\cal␣B}$`
dccc	1/1	`${\cal␣C}$`
dccd	1/1	`${\cal␣D}$`
dcce	1/1	`${\cal␣E}$`
dccf	1/1	`${\cal␣F}$`
dccg	1/1	`${\cal␣G}$`
dcch	1/1	`${\cal␣H}$`
dcci	1/1	`${\cal␣I}$`
dccj	1/1	`${\cal␣J}$`
dcck	1/1	`${\cal␣K}$`
dccl	1/1	`${\cal␣L}$`
dccm	1/1	`${\cal␣M}$`
dccn	1/1	`${\cal␣N}$`
dcco	1/1	`${\cal␣O}$`

$\mathcal{C}$	calligraphic C
$\mathcal{D}$	calligraphic D
$\mathcal{E}$	calligraphic E
$\mathcal{F}$	calligraphic F
$\mathcal{G}$	calligraphic G
$\mathcal{H}$	calligraphic H
$\mathcal{I}$	calligraphic I
$\mathcal{J}$	calligraphic J
$\mathcal{K}$	calligraphic K
$\mathcal{L}$	calligraphic L
$\mathcal{M}$	calligraphic M
$\mathcal{N}$	calligraphic N
$\mathcal{O}$	calligraphic O
$\mathcal{P}$	calligraphic P
$\mathcal{Q}$	calligraphic Q
$\mathcal{R}$	calligraphic R
$\mathcal{S}$	calligraphic S
$\mathcal{T}$	calligraphic T
$\mathcal{U}$	calligraphic U
$\mathcal{V}$	calligraphic V
$\mathcal{W}$	calligraphic W
$\mathcal{X}$	calligraphic X
$\mathcal{Y}$	calligraphic Y
$\mathcal{Z}$	calligraphic Z
$\mathcal{A}$	dollar calligraphic A
$\mathcal{B}$	dollar calligraphic B
$\mathcal{C}$	dollar calligraphic C
$\mathcal{D}$	dollar calligraphic D
$\mathcal{E}$	dollar calligraphic E
$\mathcal{F}$	dollar calligraphic F
$\mathcal{G}$	dollar calligraphic G
$\mathcal{H}$	dollar calligraphic H
$\mathcal{I}$	dollar calligraphic I
$\mathcal{J}$	dollar calligraphic J
$\mathcal{K}$	dollar calligraphic K
$\mathcal{L}$	dollar calligraphic L
$\mathcal{M}$	dollar calligraphic M
$\mathcal{N}$	dollar calligraphic N
$\mathcal{O}$	dollar calligraphic O

dccp	1/1	`${\cal␣P}$`	$\mathcal{P}$ dollar calligraphic P
dccq	1/1	`${\cal␣Q}$`	$\mathcal{Q}$ dollar calligraphic Q
dccr	1/1	`${\cal␣R}$`	$\mathcal{R}$ dollar calligraphic R
dccs	1/1	`${\cal␣S}$`	$\mathcal{S}$ dollar calligraphic S
dcct	1/1	`${\cal␣T}$`	$\mathcal{T}$ dollar calligraphic T
dccu	1/1	`${\cal␣U}$`	$\mathcal{U}$ dollar calligraphic U
dccv	1/1	`${\cal␣V}$`	$\mathcal{V}$ dollar calligraphic V
dccw	1/1	`${\cal␣W}$`	$\mathcal{W}$ dollar calligraphic W
dccx	1/1	`${\cal␣X}$`	$\mathcal{X}$ dollar calligraphic X
dccy	1/1	`${\cal␣Y}$`	$\mathcal{Y}$ dollar calligraphic Y
dccz	1/1	`${\cal␣Z}$`	$\mathcal{Z}$ dollar calligraphic Z

3.7 German (Fraktur) Letters

gmu	1/1	`\frak␣`	$\mathfrak{}$ german universal; only in math mode
gmb	1/1	`\frak␣b`	$\mathfrak{b}$ german b
gmg	1/1	`\frak␣g`	$\mathfrak{g}$ german g
gmh	1/1	`\frak␣h`	$\mathfrak{h}$ german h
gmk	1/1	`\frak␣k`	$\mathfrak{k}$ german k
gmp	1/1	`\frak␣p`	$\mathfrak{p}$ german p
gmt	1/1	`\frak␣t`	$\mathfrak{t}$ german t
gmca	1/1	`\frak␣A`	$\mathfrak{A}$ german A
gmcg	1/1	`\frak␣G`	$\mathfrak{G}$ german G
gmch	1/1	`\frak␣H`	$\mathfrak{H}$ H
gmck	1/1	`\frak␣K`	$\mathfrak{K}$ german K
gmct	1/1	`\frak␣T`	$\mathfrak{T}$ german T
gmcx	1/1	`\frak␣X`	$\mathfrak{X}$ german X
gmgs	1/1	`\frak␣g␣^{\ast}`	$\mathfrak{g}^{*}$ german g star
gmhs	1/1	`\frak␣h␣^{\ast}`	$\mathfrak{h}^{*}$ german h star
gmks	1/1	`\frak␣k␣^{\ast}`	$\mathfrak{k}^{*}$ german k star
gmso3	1/1	`\frak{so}(3)`	$\mathfrak{so}(3)$ german so(3)
dgmca	1/1	`$\frak␣A$`	$\mathfrak{A}$ dollar german A
dgmcg	1/1	`$\frak␣G$`	$\mathfrak{G}$ dollar german G
dgmch	1/1	`$\frak␣H$`	$\mathfrak{H}$ dollar german H
dgmck	1/1	`$\frak␣K$`	$\mathfrak{K}$ dollar german K
dgmct	1/1	`$\frak␣T$`	$\mathfrak{T}$ dollar german T
dgmcx	1/1	`$\frak␣X$`	$\mathfrak{X}$ dollar german X
dgmu	1/1	`$\frak␣␣$`	$\mathfrak{}$ dollar german universal; only in text mode

dgmb	1/1	`$\frak␣b$`	𝔟	dollar german b
dgmg	1/1	`$\frak␣g$`	𝔤	dollar german g
dgmh	1/1	`$\frak␣h$`	𝔥	dollar german h
dgmk	1/1	`$\frak␣k$`	𝔨	dollar german k
dgmp	1/1	`$\frak␣p$`	𝔭	dollar german p
dgmt	1/1	`$\frak␣t$`	𝔱	dollar german t
dgmgs	1/1	`$\frak␣g␣^{\ast}$`	$\mathfrak{g}^*$	dollar german g star
dgmhs	1/1	`$\frak␣h␣^{\ast}$`	$\mathfrak{h}^*$	dollar german h star
dgmks	1/1	`$\frak␣k␣^{\ast}$`	$\mathfrak{k}^*$	dollar german k star

3.8 Open/Blackboard Bold Letters

bbu	1/1	`{\Bbb␣`	$\mathbb{R}$	blackboard bold universal
bbca	1/1	`\Bbb␣A`	$\mathbb{A}$	blackboard bold A
bbcb	1/1	`\Bbb␣B`	$\mathbb{B}$	blackboard bold B
bbcc	1/1	`\Bbb␣C`	$\mathbb{C}$	blackboard bold C
bbcd	1/1	`\Bbb␣D`	$\mathbb{D}$	blackboard bold D
bbce	1/1	`\Bbb␣E`	$\mathbb{E}$	blackboard bold E
bbcf	1/1	`\Bbb␣F`	$\mathbb{F}$	blackboard bold F
bbcg	1/1	`\Bbb␣G`	$\mathbb{G}$	blackboard bold G
bbch	1/1	`\Bbb␣H`	$\mathbb{H}$	blackboard bold H
bbci	1/1	`\Bbb␣I`	$\mathbb{I}$	blackboard bold I
bbcj	1/1	`\Bbb␣J`	$\mathbb{J}$	blackboard bold J
bbck	1/1	`\Bbb␣K`	$\mathbb{K}$	blackboard bold K
bbcl	1/1	`\Bbb␣L`	$\mathbb{L}$	blackboard bold L
bbcm	1/1	`\Bbb␣M`	$\mathbb{M}$	blackboard bold M
bbcn	1/1	`\Bbb␣N`	$\mathbb{N}$	blackboard bold N
bbco	1/1	`\Bbb␣O`	$\mathbb{O}$	blackboard bold O
bbcp	1/1	`\Bbb␣P`	$\mathbb{P}$	blackboard bold P
bbcq	1/1	`\Bbb␣Q`	$\mathbb{Q}$	blackboard bold Q
bbcr	1/1	`\Bbb␣R`	$\mathbb{R}$	blackboard bold R
bbcs	1/1	`\Bbb␣S`	$\mathbb{S}$	blackboard bold S
bbct	1/1	`\Bbb␣T`	$\mathbb{T}$	blackboard bold T
bbcu	1/1	`\Bbb␣U`	$\mathbb{U}$	blackboard bold U
bbcv	1/1	`\Bbb␣V`	$\mathbb{V}$	blackboard bold V
bbcw	1/1	`\Bbb␣W`	$\mathbb{W}$	blackboard bold W
bbcx	1/1	`\Bbb␣X`	$\mathbb{X}$	blackboard bold X
bbcy	1/1	`\Bbb␣Y`	$\mathbb{Y}$	blackboard bold Y

bbcz	1/1	`\Bbb␣Z`	$\mathbb{Z}$	blackboard bold Z
bbcr1	1/1	`{\Bbb␣R}^1`	$\mathbb{R}^1$	blackboard bold R to power 1
bbcr2	1/1	`{\Bbb␣R}^2`	$\mathbb{R}^2$	blackboard bold R to power 2
bbcr3	1/1	`{\Bbb␣R}^3`	$\mathbb{R}^3$	blackboard bold R to power 3
bbcrm	1/1	`{\Bbb␣R}^m`	$\mathbb{R}^m$	blackboard bold R to power m
bbcrn	1/1	`{\Bbb␣R}^n`	$\mathbb{R}^n$	blackboard bold R to power n
dbbcr1	1/1	`${\Bbb␣R}^1$`	$\mathbb{R}^1$	dollar blackboard bold R to power 1
dbbcr2	1/1	`${\Bbb␣R}^2$`	$\mathbb{R}^2$	dollar blackboard bold R to power 2
dbbcr3	1/1	`${\Bbb␣R}^3$`	$\mathbb{R}^3$	dollar blackboard bold R to power 3
dbbcrm	1/1	`${\Bbb␣R}^m$`	$\mathbb{R}^m$	dollar blackboard bold R to power m
dbbcrn	1/1	`${\Bbb␣R}^n$`	$\mathbb{R}^n$	dollar blackboard bold R to power n
opu	1/1	`{\Bbb␣`	$\mathbb{Z}$	open letter universal
opcc	1/1	`{\Bbb␣C}`	$\mathbb{C}$	open letter C
opci	1/1	`{\Bbb␣I}`	$\mathbb{I}$	open letter I
opcr	1/1	`{\Bbb␣R}`	$\mathbb{R}$	open letter R
opct	1/1	`{\Bbb␣T}`	$\mathbb{T}$	open letter T
opcz	1/1	`{\Bbb␣Z}`	$\mathbb{Z}$	open letter Z
opcr1	1/1	`{\Bbb␣R}^1`	$\mathbb{R}^1$	open letter R to power 1
opcr2	1/1	`{\Bbb␣R}^2`	$\mathbb{R}^2$	open letter R to power 2
opcr3	1/1	`{\Bbb␣R}^3`	$\mathbb{R}^3$	open letter R to power 3
opcrm	1/1	`{\Bbb␣R}^m`	$\mathbb{R}^m$	open letter R to power m
opcrn	1/1	`{\Bbb␣R}^n`	$\mathbb{R}^n$	open letter R to power n
dopcc	1/1	`${\Bbb␣C}$`	$\mathbb{C}$	dollar open letter C
dopci	1/1	`${\Bbb␣I}$`	$\mathbb{I}$	dollar open letter I
dopcr	1/1	`${\Bbb␣R}$`	$\mathbb{R}$	dollar open letter R
dopct	1/1	`${\Bbb␣T}$`	$\mathbb{T}$	dollar open letter T
dopcz	1/1	`${\Bbb␣Z}$`	$\mathbb{Z}$	dollar open letter Z
dopcr1	1/1	`${\Bbb␣R}^1$`	$\mathbb{R}^1$	dollar open letter R to power 1
dopcr2	1/1	`${\Bbb␣R}^2$`	$\mathbb{R}^2$	dollar open letter R to power 2
dopcr3	1/1	`${\Bbb␣R}^3$`	$\mathbb{R}^3$	dollar open letter R to power 3
dopcrm	1/1	`${\Bbb␣R}^m$`	$\mathbb{R}^m$	dollar open letter R to power m
dopcrn	1/1	`${\Bbb␣R}^n$`	$\mathbb{R}^n$	dollar open letter R to power n
ir3	1/1	`\int_{{\Bbb␣R}^3}`	$\int_{\mathbb{R}^3}$	integral R to power 3

4 ALPHABETS AND FONTS

4.1 Universal Operations

fu	1/1	`\frac{`		start fraction
fof	1/1	`}{`		function of; "fu fof eb" gives `\frac{}{}`
squ	1/1	`\sqrt{`	$\sqrt{}$	square root universal
hu	1/1	`^{`		superscript universal
lu	1/1	`_{`		subscript universal
limu	1/1	`\lim{`	$\lim\{$	limit universal
ovu	1/1	`\vec{`	$\vec{a}$	over vector universal
olu	1/1	`\overline{`	$\overline{a}$	overline universal
obu	1/1	`\bar{`	$\bar{a}$	overbar universal
ocu	1/1	`\check{`	$\check{a}$	over check universal
odu	1/1	`\dot{`	$\dot{a}$	over dot universal
oddu	1/1	`\ddot{`	$\ddot{a}$	over double dot universal
ohu	1/1	`\hat{`	$\hat{a}$	over hat universal
otu	1/1	`\tilde{`	$\tilde{a}$	over tilde universal
setu	1/1	`\{␣␣␣␣\mid␣␣␣␣\}`	$\{\|\}$	in-line set universal
setlu	1/2	`\left\{␣\left.␣␣\!\right|`	$\{\|\}$	sized set ; for large displays
disu	1/1	`{\displaystyle`		display style; for larger math mode forumlas

4.2 Single Symbols included in $ Signs

d0	1/1	`$0$`	0	dollar 0
d1	1/1	`$1$`	1	dollar 1
d10	1/1	`$10$`	10	dollar 10
d2	1/1	`$2$`	2	dollar 2
d3	1/1	`$3$`	3	dollar 3
d4	1/1	`$4$`	4	dollar 4
d5	1/1	`$5$`	5	dollar 5
d6	1/1	`$6$`	6	dollar 6
d7	1/1	`$7$`	7	dollar 7
d8	1/1	`$8$`	8	dollar 8
d9	1/1	`$9$`	9	dollar 9
dca	1/1	`$A$`	A	dollar A
dcb	1/1	`$B$`	B	dollar B

dcc	1/1	`$C$`
dcd	1/1	`$D$`
dce	1/1	`$E$`
dcf	1/1	`$F$`
dcg	1/1	`$G$`
dch	1/1	`$H$`
dci	1/1	`$I$`
dcj	1/1	`$J$`
dck	1/1	`$K$`
dcl	1/1	`$L$`
dcm	1/1	`$M$`
dcn	1/1	`$N$`
dco	1/1	`$O$`
dcp	1/1	`$P$`
dcq	1/1	`$Q$`
dcr	1/1	`$R$`
dcs	1/1	`$S$`
dct	1/1	`$T$`
dcu	1/1	`$U$`
dcv	1/1	`$V$`
dcw	1/1	`$W$`
dcx	1/1	`$X$`
dcy	1/1	`$Y$`
dcz	1/1	`$Z$`
da	1/1	`$a$`
db	1/1	`$b$`
dc	1/1	`$c$`
dd	1/1	`$d$`
de	1/1	`$e$`
df	1/1	`$f$`
dg	1/1	`$g$`
dh	1/1	`$h$`
di	1/1	`$i$`
dj	1/1	`$j$`
dk	1/1	`$k$`
dl	1/1	`$l$`
dm	1/1	`$m$`
dn	1/1	`$n$`
doo	1/1	`$o$`

C	dollar C
D	dollar D
E	dollar E
F	dollar F
G	dollar G
H	dollar H
I	dollar I
J	dollar J
K	dollar K
L	dollar L
M	dollar M
N	dollar N
O	dollar O
P	dollar P
Q	dollar Q
R	dollar R
S	dollar S
T	dollar T
U	dollar U
V	dollar V
W	dollar W
X	dollar X
Y	dollar Y
Z	dollar Z
a	dollar a
b	dollar b
c	dollar c
d	dollar d
e	dollar e
f	dollar f
g	dollar g
h	dollar h
i	dollar i
j	dollar j
k	dollar k
l	dollar l
m	dollar m
n	dollar n
o	dollar o

dp	1/1	`$p$`	p	dollar p
dq	1/1	`$q$`	q	dollar q
dr	1/1	`$r$`	r	dollar r
ds	1/1	`$s$`	s	dollar s
dt	1/1	`$t$`	t	dollar t
du	1/1	`$u$`	u	dollar u
dv	1/1	`$v$`	v	dollar v
dw	1/1	`$w$`	w	dollar w
dx	1/1	`$x$`	x	dollar x
dy	1/1	`$y$`	y	dollar y
dz	1/1	`$z$`	z	dollar z
db0	1/1	`${\bf␣0}$`	$\mathbf{0}$	dollar bold 0; use in text mode
db1	1/1	`${\bf␣1}$`	$\mathbf{1}$	dollar bold 1; use in text mode
db10	1/1	`${\bf␣10}$`	$\mathbf{10}$	dollar bold 10; use in text mode
db2	1/1	`${\bf␣2}$`	$\mathbf{2}$	dollar bold 2; use in text mode
db3	1/1	`${\bf␣3}$`	$\mathbf{3}$	dollar bold 3; use in text mode
db4	1/1	`${\bf␣4}$`	$\mathbf{4}$	dollar bold 4; use in text mode
db5	1/1	`${\bf␣5}$`	$\mathbf{5}$	dollar bold 5; use in text mode
db6	1/1	`${\bf␣6}$`	$\mathbf{6}$	dollar bold 6; use in text mode
db7	1/1	`${\bf␣7}$`	$\mathbf{7}$	dollar bold 7; use in text mode
db8	1/1	`${\bf␣8}$`	$\mathbf{8}$	dollar bold 8; use in text mode
db9	1/1	`${\bf␣9}$`	$\mathbf{9}$	dollar bold 9; use in text mode
dbca	1/1	`${\bf␣A}$`	$\mathbf{A}$	dollar bold A; use in text mode
dbcb	1/1	`${\bf␣B}$`	$\mathbf{B}$	dollar bold B; use in text mode
dbcc	1/1	`${\bf␣C}$`	$\mathbf{C}$	dollar bold C; use in text mode
dbcd	1/1	`${\bf␣D}$`	$\mathbf{D}$	dollar bold D; use in text mode
dbce	1/1	`${\bf␣E}$`	$\mathbf{E}$	dollar bold E; use in text mode
dbcf	1/1	`${\bf␣F}$`	$\mathbf{F}$	dollar bold F; use in text mode
dbcg	1/1	`${\bf␣G}$`	$\mathbf{G}$	dollar bold G; use in text mode
dbch	1/1	`${\bf␣H}$`	$\mathbf{H}$	dollar bold H; use in text mode
dbci	1/1	`${\bf␣I}$`	$\mathbf{I}$	dollar bold I; use in text mode
dbcj	1/1	`${\bf␣J}$`	$\mathbf{J}$	dollar bold J; use in text mode
dbck	1/1	`${\bf␣K}$`	$\mathbf{K}$	dollar bold K; use in text mode
dbcl	1/1	`${\bf␣L}$`	$\mathbf{L}$	dollar bold L; use in text mode
dbcm	1/1	`${\bf␣M}$`	$\mathbf{M}$	dollar bold M; use in text mode
dbcn	1/1	`${\bf␣N}$`	$\mathbf{N}$	dollar bold N; use in text mode
dbco	1/1	`${\bf␣O}$`	$\mathbf{O}$	dollar bold O; use in text mode
dbcp	1/1	`${\bf␣P}$`	$\mathbf{P}$	dollar bold P; use in text mode
dbcq	1/1	`${\bf␣Q}$`	$\mathbf{Q}$	dollar bold Q; use in text mode

dbcr	1/1	`${\bf␣R}$`	**R**	dollar bold R; use in text mode
dbcs	1/1	`${\bf␣S}$`	**S**	dollar bold S; use in text mode
dbct	1/1	`${\bf␣T}$`	**T**	dollar bold T; use in text mode
dbcu	1/1	`${\bf␣U}$`	**U**	dollar bold U; use in text mode
dbcv	1/1	`${\bf␣V}$`	**V**	dollar bold V; use in text mode
dbcw	1/1	`${\bf␣W}$`	**W**	dollar bold S
dbcx	1/1	`${\bf␣X}$`	**X**	dollar bold W; use in text mode
dbcy	1/1	`${\bf␣Y}$`	**Y**	dollar bold X; use in text mode
dbcz	1/1	`${\bf␣Z}$`	**Z**	dollar bold Y; use in text mode
dba	1/1	`${\bf␣a}$`	**a**	dollar bold a; use in text mode
dbb	1/1	`${\bf␣b}$`	**b**	dollar bold b; use in text mode
dbc	1/1	`${\bf␣c}$`	**c**	dollar bold c; use in text mode
dbd	1/1	`${\bf␣d}$`	**d**	dollar bold Z; use in text mode
dbe	1/1	`${\bf␣e}$`	**e**	dollar bold e; use in text mode
dbf	1/1	`${\bf␣f}$`	**f**	dollar bold f; use in text mode
dbg	1/1	`${\bf␣g}$`	**g**	dollar bold g; use in text mode
dbh	1/1	`${\bf␣h}$`	**h**	dollar bold h; use in text mode
dbi	1/1	`${\bf␣i}$`	**i**	dollar bold i; use in text mode
dbj	1/1	`${\bf␣j}$`	**j**	dollar bold j; use in text mode
dbk	1/1	`${\bf␣k}$`	**k**	dollar bold k; use in text mode
dbl	1/1	`${\bf␣l}$`	**l**	dollar bold l; use in text mode
dbm	1/1	`${\bf␣m}$`	**m**	dollar bold m; use in text mode
dbn	1/1	`${\bf␣n}$`	**n**	dollar bold n; use in text mode
dbo	1/1	`${\bf␣o}$`	**o**	dollar bold o; use in text mode
dbp	1/1	`${\bf␣p}$`	**p**	dollar bold p; use in text mode
dbq	1/1	`${\bf␣q}$`	**q**	dollar bold q; use in text mode
dbr	1/1	`${\bf␣r}$`	**r**	dollar bold r; use in text mode
dbs	1/1	`${\bf␣s}$`	**s**	dollar bold s; use in text mode
dbt	1/1	`${\bf␣t}$`	**t**	dollar bold t; use in text mode
dbu	1/1	`${\bf␣u}$`	**u**	dollar bold u; use in text mode
dbv	1/1	`${\bf␣v}$`	**v**	dollar bold v; use in text mode
dbw	1/1	`${\bf␣w}$`	**w**	dollar bold w; use in text mode
dbx	1/1	`${\bf␣x}$`	**x**	dollar bold x; use in text mode
dby	1/1	`${\bf␣y}$`	**y**	dollar bold y; use in text mode
dbz	1/1	`${\bf␣z}$`	**z**	dollar bold z; use in text mode

4.3 Roots

sq10	1/1	`\sqrt{10}`	$\sqrt{10}$	square root of 10

sq2	1/1	`\sqrt{2}`	$\sqrt{2}$ square root of 2
sq3	1/1	`\sqrt{3}`	$\sqrt{3}$ 3
sq5	1/1	`\sqrt{5}`	$\sqrt{5}$ square root of 5
sq7	1/1	`\sqrt{7}`	$\sqrt{7}$ square root of 7
squ	1/1	`\sqrt{`	$\sqrt{}$ square root universal
sqxp	1/1	`\sqrt{\pi}`	$\sqrt{\pi}$ square root of greek pi
cr2	1/1	`\sqrt[3]{2}`	$\sqrt[3]{2}$ third root of 2
nr2	1/1	`\sqrt[n]{2}`	$\sqrt[n]{2}$ nth root of 2

4.4 Specific Fractions

haf	1/1	`\frac{1}{2}`	$\frac{1}{2}$ fraction half
f12	1/1	`\frac{1}{2}`	$\frac{1}{2}$ fraction half
f13	1/1	`\frac{1}{3}`	$\frac{1}{3}$ fraction 1 over 3
f14	1/1	`\frac{1}{4}`	$\frac{1}{4}$ fraction 1 over 4
fddt	1/1	`\frac{d}{dt}`	$\frac{d}{dt}$ fraction d over dt
fdudt	1/1	`\frac{du}{dt}`	$\frac{du}{dt}$ fraction du over dt
fdxdt	1/1	`\frac{dx}{dt}`	$\frac{dx}{dt}$ fraction dx over dt
fdydt	1/1	`\frac{dy}{dt}`	$\frac{dy}{dt}$ fraction dy over dt
fdzdt	1/1	`\frac{dz}{dt}`	$\frac{dz}{dt}$ fraction dz over dt
fpx	1/1	`\frac{\partial}{\partial␣x}`	$\frac{\partial}{\partial x}$ fraction partial over partial x
fpy	1/1	`\frac{\partial}{\partial␣y}`	$\frac{\partial}{\partial y}$ fraction partial over partial y
fpzx	1/1	`\frac{\partial␣z}{\partial␣x}`	$\frac{\partial z}{\partial x}$ fraction partial z over partial x
fps	1/2	`\frac{\partial^2}`	$\frac{\partial^2}{\partial x \partial y}$ fraction partial squared over partial x partial y
fpt	1/2	`\frac{\partial^3}`	$\frac{\partial^3}{\partial x \partial y \partial z}$ fraction partial squared over partial x partial y partial z

4.5 Superscripts

ha	1/1	`^a`	^{a} superscript (higher) a
hb	1/1	`^b`	^{b} superscript (higher) b
hc	1/1	`^c`	^{c} superscript (higher) c
hd	1/1	`^d`	^{d} superscript (higher) d
hee	1/1	`^e`	^{e} superscript (higher) e
hf	1/1	`^f`	^{f} superscript (higher) f

hg	1/1	`^g`
hh	1/1	`^h`
hi	1/1	`^i`
hj	1/1	`^j`
hk	1/1	`^k`
hl	1/1	`^l`
hm	1/1	`^m`
hn	1/1	`^n`
ho	1/1	`^o`
hp	1/1	`^p`
hq	1/1	`^q`
hr	1/1	`^r`
hs	1/1	`^s`
ht	1/1	`^t`
huu	1/1	`^u`
hv	1/1	`^v`
hw	1/1	`^w`
hx	1/1	`^x`
hy	1/1	`^y`
hz	1/1	`^z`
hca	1/1	`^A`
hcb	1/1	`^B`
hcc	1/1	`^C`
hcd	1/1	`^D`
hce	1/1	`^E`
hcf	1/1	`^F`
hcg	1/1	`^G`
hch	1/1	`^H`
hci	1/1	`^I`
hcj	1/1	`^J`
hck	1/1	`^K`
hcl	1/1	`^L`
hcm	1/1	`^M`
hcn	1/1	`^N`
hco	1/1	`^O`
hcp	1/1	`^P`
hcq	1/1	`^Q`

^{g}	superscript (higher) g
^{h}	superscript (higher) h
^{i}	superscript (higher) i
^{j}	superscript (higher) j
^{k}	superscript (higher) k
^{l}	superscript (higher) l
^{m}	superscript (higher) m
^{n}	superscript (higher) n
^{o}	superscript (higher) o
^{p}	superscript (higher) p
^{q}	superscript (higher) q
^{r}	superscript (higher) r
^{s}	superscript (higher) s
^{t}	superscript (higher) t
^{u}	superscript (higher) u
^{v}	superscript (higher) v
^{w}	superscript (higher) w
^{x}	superscript (higher) x
^{y}	superscript (higher) y
^{z}	superscript (higher) z
^{A}	superscript (higher) A
^{B}	superscript (higher) B
^{C}	superscript (higher) C
^{D}	superscript (higher) D
^{E}	superscript (higher) E
^{F}	superscript (higher) F
^{G}	superscript (higher) G
^{H}	superscript (higher) H
^{I}	superscript (higher) I
^{J}	superscript (higher) J
^{K}	superscript (higher) K
^{L}	superscript (higher) L
^{M}	superscript (higher) M
^{N}	superscript (higher) N
^{O}	superscript (higher) O
^{P}	superscript (higher) P
^{Q}	superscript (higher) Q

hcr	1/1	`^R`
hcs	1/1	`^S`
hct	1/1	`^T`
hcu	1/1	`^U`
hcv	1/1	`^V`
hcw	1/1	`^W`
hcx	1/1	`^X`
hcy	1/1	`^Y`
hcz	1/1	`^Z`
h0	1/1	`^0`
h1	1/1	`^1`
h10	1/1	`^{10}`
h2	1/1	`^2`
h3	1/1	`^3`
h4	1/1	`^4`
h5	1/1	`^5`
h6	1/1	`^6`
h7	1/1	`^7`
h8	1/1	`^8`
h9	1/1	`^9`
sq	1/1	`^2`
cu	1/1	`^3`
xq	1/1	`x^2`
yq	1/1	`y^2`
zq	1/1	`z^2`
hmo	1/1	`^{-1}`
hij	1/1	`^{ij}`
hijk	1/1	`^{ijk}`
hjk	1/1	`^{jk}`
hdg	1/1	`^\dagger`
hflt	1/1	`^\flat`
hpr	1/1	`^\prime`
hprp	1/1	`^\perp`
hshp	1/1	`^\sharp`
hst	1/1	`^\ast`
hvst	1/1	`^\star`
hxa	1/1	`^\alpha`

^{R}	superscript (higher) R
^{S}	superscript (higher) S
^{T}	superscript (higher) T
^{U}	superscript (higher) U
^{V}	superscript (higher) V
^{W}	superscript (higher) W
^{X}	superscript (higher) X
^{Y}	superscript (higher) Y
^{Z}	superscript (higher) Z
^{0}	superscript (higher) 0
^{1}	superscript (higher) 1
^{10}	superscript (higher) 10
^{2}	superscript (higher) 2
^{3}	superscript (higher) 2
^{4}	superscript (higher) 4
^{5}	superscript (higher) 5
^{6}	superscript (higher) 6
^{7}	superscript (higher) 7
^{8}	superscript (higher) 8
^{9}	superscript (higher) 9
^{2}	squared
^{3}	cubed
x^2	x squared
y^2	y squared
z^2	z squared
$^{-1}$	superscript (higher) -1
^{ij}	superscript (higher) ij
^{ijk}	superscript (higher) ijk
^{jk}	superscript (higher) jk
†	superscript (higher) dagger
$^\flat$	superscript (higher) flat
$^\prime$	superscript (higher) prime
$^\perp$	superscript (higher) perp
$^\sharp$	superscript (higher) sharp
*	superscript (higher) asterisk
*	superscript (higher) star
$^\alpha$	superscript (higher) greek alpha

hxb	1/1	`^\beta`	$^{\beta}$	superscript (higher) greek beta
hxc	1/1	`^\chi`	$^{\chi}$	superscript (higher) greek chi
hxcd	1/1	`^\Delta`	$^{\Delta}$	superscript (higher) greek Delta
hxcg	1/1	`^\Gamma`	$^{\Gamma}$	superscript (higher) greek Gamma
hxcl	1/1	`^\Lambda`	$^{\Lambda}$	superscript (higher) greek Lambda
hxco	1/1	`^\Omega`	$^{\Omega}$	superscript (higher) greek Omega
hxcp	1/1	`^\Pi`	$^{\Pi}$	superscript (higher) greek Pi
hxcph	1/1	`^\Phi`	$^{\Phi}$	superscript (higher) greek Phi
hxcps	1/1	`^\Psi`	$^{\Psi}$	superscript (higher) greek Psi
hxcs	1/1	`^\Sigma`	$^{\Sigma}$	superscript (higher) greek Sigma
hxcth	1/1	`^\Theta`	$^{\Theta}$	superscript (higher) greek Theta
hxcu	1/1	`^\Upsilon`	$^{\Upsilon}$	superscript (higher) greek Upsilon
hxcx	1/1	`^\Xi`	$^{\Xi}$	superscript (higher) greek Xi
hxd	1/1	`^\delta`	$^{\delta}$	superscript (higher) greek delta
hxe	1/1	`^\epsilon`	$^{\epsilon}$	superscript (higher) greek epsilon
hxet	1/1	`^\eta`	$^{\eta}$	superscript (higher) greek eta
hxg	1/1	`^\gamma`	$^{\gamma}$	superscript (higher) greek gamma
hxio	1/1	`^\iota`	$^{\iota}$	superscript (higher) greek iota
hxk	1/1	`^\kappa`	$^{\kappa}$	superscript (higher) greek kappa
hxl	1/1	`^\lambda`	$^{\lambda}$	superscript (higher) greek lambda
hxm	1/1	`^\mu`	$^{\mu}$	superscript (higher) greek mu
hxn	1/1	`^\nu`	$^{\nu}$	superscript (higher) greek nu
hxo	1/1	`^\omega`	$^{\omega}$	superscript (higher) greek omega
hxp	1/1	`^\pi`	$^{\pi}$	superscript (higher) greek pi
hxph	1/1	`^\phi`	$^{\phi}$	superscript (higher) greek phi
hxps	1/1	`^\psi`	$^{\psi}$	superscript (higher) greek pis
hxr	1/1	`^\rho`	$^{\rho}$	superscript (higher) greek rho
hxs	1/1	`^\sigma`	$^{\sigma}$	superscript (higher) greek sigma
hxt	1/1	`^\tau`	$^{\tau}$	superscript (higher) greek tau
hxth	1/1	`^\theta`	$^{\theta}$	superscript (higher) greek theta
hxu	1/1	`^\upsilon`	$^{\upsilon}$	superscript (higher) greek upsilon
hxve	1/1	`^\varepsilon`	$^{\varepsilon}$	superscript (higher) greek varepsilon
hxvp	1/1	`^\varpi`	$^{\varpi}$	superscript (higher) greek varpi
hxvph	1/1	`^\varphi`	$^{\varphi}$	superscript (higher) greek varphi
hxvr	1/1	`^\varrho`	$^{\varrho}$	superscript (higher) greek varrho
hxvs	1/1	`^\varsigma`	$^{\varsigma}$	superscript (higher) greek varsigma
hxvth	1/1	`^\vartheta`	$^{\vartheta}$	superscript (higher) greek vartheta

hxx	1/1	`^\xi`	ξ superscript (higher) greek xi
hxz	1/1	`^\zeta`	ζ superscript (higher) greek zeta

4.6 Subscripts

la	1/1	`_a`	$_a$ subscript (lower) a
lb	1/1	`_b`	$_b$ subscript (lower) b
lc	1/1	`_c`	$_c$ subscript (lower) c
ld	1/1	`_d`	$_d$ subscript (lower) d
le	1/1	`_e`	$_e$ subscript (lower) e
lf	1/1	`_f`	$_f$ subscript (lower) f
lg	1/1	`_g`	$_g$ subscript (lower) g
lh	1/1	`_h`	$_h$ subscript (lower) h
li	1/1	`_i`	$_i$ subscript (lower) i
lj	1/1	`_j`	$_j$ subscript (lower) j
lk	1/1	`_k`	$_k$ subscript (lower) k
ll	1/1	`_l`	$_l$ subscript (lower) l
lm	1/1	`_m`	$_m$ subscript (lower) m
ln	1/1	`_n`	$_n$ subscript (lower) n
lo	1/1	`_o`	$_o$ subscript (lower) o
lp	1/1	`_p`	$_p$ subscript (lower) p
lq	1/1	`_q`	$_q$ subscript (lower) q
lr	1/1	`_r`	$_r$ subscript (lower) r
ls	1/1	`_s`	$_s$ subscript (lower) s
lt	1/1	`_t`	$_t$ subscript (lower) t
luu	1/1	`_u`	$_u$ subscript (lower) u
lv	1/1	`_v`	$_v$ subscript (lower) v
lw	1/1	`_w`	$_w$ subscript (lower) w
lx	1/1	`_x`	$_x$ subscript (lower) x
ly	1/1	`_y`	$_y$ subscript (lower) y
lz	1/1	`_z`	$_z$ subscript (lower) z
lca	1/1	`_A`	$_A$ subscript (lower) A
lcb	1/1	`_B`	$_B$ subscript (lower) B
lcc	1/1	`_C`	$_C$ subscript (lower) C
lcd	1/1	`_D`	$_D$ subscript (lower) D
lce	1/1	`_E`	$_E$ subscript (lower) E
lcf	1/1	`_F`	$_F$ subscript (lower) F
lcg	1/1	`_G`	$_G$ subscript (lower) G

lch	1/1	`_H`	$_H$	subscript (lower) H
lci	1/1	`_I`	$_I$	subscript (lower) I
lcj	1/1	`_J`	$_J$	subscript (lower) J
lck	1/1	`_K`	$_K$	subscript (lower) K
lcl	1/1	`_L`	$_L$	subscript (lower) L
lcm	1/1	`_M`	$_M$	subscript (lower) M
lcn	1/1	`_N`	$_N$	subscript (lower) N
lco	1/1	`_O`	$_O$	subscript (lower) O
lcp	1/1	`_P`	$_P$	subscript (lower) P
lcq	1/1	`_Q`	$_Q$	subscript (lower) Q
lcr	1/1	`_R`	$_R$	subscript (lower) R
lcs	1/1	`_S`	$_S$	subscript (lower) S
lct	1/1	`_T`	$_T$	subscript (lower) T
lcu	1/1	`_U`	$_U$	subscript (lower) U
lcv	1/1	`_V`	$_V$	subscript (lower) V
lcw	1/1	`_W`	$_W$	subscript (lower) W
lcx	1/1	`_X`	$_X$	subscript (lower) X
lcy	1/1	`_Y`	$_Y$	subscript (lower) Y
lcz	1/1	`_Z`	$_Z$	subscript (lower) Z
l0	1/1	`_0`	$_0$	subscript (lower) 0
l1	1/1	`_1`	$_1$	subscript (lower) 1
l10	1/1	`_{10}`	$_{10}$	subscript (lower) 10
l2	1/1	`_2`	$_2$	subscript (lower) 2
l3	1/1	`_3`	$_3$	subscript (lower) 3
l4	1/1	`_4`	$_4$	subscript (lower) 4
l5	1/1	`_5`	$_5$	subscript (lower) 5
l6	1/1	`_6`	$_6$	subscript (lower) 6
l7	1/1	`_7`	$_7$	subscript (lower) 7
l8	1/1	`_8`	$_8$	subscript (lower) 8
l9	1/1	`_9`	$_9$	subscript (lower) 9
lij	1/1	`_{ij}`	$_{ij}$	subscript (lower) ij
lijk	1/1	`_{ijk}`	$_{ijk}$	subscript (lower) ijk
ljk	1/1	`_{jk}`	$_{jk}$	subscript (lower) jk
gij	1/1	`g_{ij}`	g_{ij}	g subscript (lower) ij
lxa	1/1	`_\alpha`	$_\alpha$	subscript (lower) greek alpha
lxb	1/1	`_\beta`	$_\beta$	subscript (lower) greek beta
lxc	1/1	`_\chi`	$_\chi$	subscript (lower) greek chi
lxcd	1/1	`_\Delta`	$_\Delta$	subscript (lower) greek Delta
lxcg	1/1	`_\Gamma`	$_\Gamma$	subscript (lower) greek Gamma

lxcl	1/1	`_\Lambda`	Λ	subscript (lower) greek Lambda
lxco	1/1	`_\Omega`	Ω	subscript (lower) greek Omega
lxcp	1/1	`_\Pi`	Π	subscript (lower) greek Pi
lxcph	1/1	`_\Phi`	Φ	subscript (lower) greek Phi
lxcps	1/1	`_\Psi`	Ψ	subscript (lower) greek Psi
lxcs	1/1	`_\Sigma`	Σ	subscript (lower) greek Sigma
lxcth	1/1	`_\Theta`	Θ	subscript (lower) greek Theta
lxcu	1/1	`_\Upsilon`	Υ	subscript (lower) greek Upsilon
lxcx	1/1	`_\Xi`	Ξ	subscript (lower) greek Xi
lxd	1/1	`_\delta`	δ	subscript (lower) greek delta
lxe	1/1	`_\epsilon`	ϵ	subscript (lower) greek epsilon
lxet	1/1	`_\eta`	η	subscript (lower) greek eta
lxg	1/1	`_\gamma`	γ	subscript (lower) greek gamma
lxio	1/1	`_\iota`	ι	subscript (lower) greek iota
lxk	1/1	`_\kappa`	κ	subscript (lower) greek kappa
lxl	1/1	`_\lambda`	λ	subscript (lower) greek lambda
lxm	1/1	`_\mu`	μ	subscript (lower) greek mu
lxn	1/1	`_\nu`	ν	subscript (lower) greek nu
lxo	1/1	`_\omega`	ω	subscript (lower) greek omega
lxp	1/1	`_\pi`	π	subscript (lower) greek pi
lxph	1/1	`_\phi`	ϕ	subscript (lower) greek phi
lxps	1/1	`_\psi`	ψ	subscript (lower) greek psi
lxr	1/1	`_\rho`	ρ	subscript (lower) greek rho
lxs	1/1	`_\sigma`	σ	subscript (lower) greek sigma
lxt	1/1	`_\tau`	τ	subscript (lower) greek tau
lxth	1/1	`_\theta`	θ	subscript (lower) greek theta
lxu	1/1	`_\upsilon`	υ	subscript (lower) greek upsilon
lxve	1/1	`_\varepsilon`	ε	subscript (lower) greek varepsilon
lxvp	1/1	`_\varpi`	ϖ	subscript (lower) greek varpi
lxvph	1/1	`_\varphi`	φ	subscript (lower) greek varphi
lxvr	1/1	`_\varrho`	ϱ	subscript (lower) greek varrho
lxvs	1/1	`_\varsigma`	ς	subscript (lower) greek varsigma
lxvth	1/1	`_\vartheta`	ϑ	subscript (lower) greek vartheta
lxx	1/1	`_\xi`	ξ	subscript (lower) greek xi
lxz	1/1	`_\zeta`	ζ	subscript (lower) greek zeta
xln	1/1	`x_n`	x_n	x subscript (lower) n
yln	1/1	`y_n`	y_n	y subscript (lower) n
zln	1/1	`z_n`	z_n	z subscript (lower) n
lst	1/1	`_\ast`	$*$	subscript (lower) asterisk?

lvst	1/1	`_\star`	$_\star$	subscript (lower) star

4.7 Overcharacters

obp	1/1	`\bar{p}`	$\bar{p}$	over bar p
obq	1/1	`\bar{q}`	$\bar{q}$	over bar q
obr	1/1	`\bar{r}`	$\bar{r}$	over bar r
obs	1/1	`\bar{s}`	$\bar{s}$	over bar s
obx	1/1	`\bar{x}`	$\bar{x}$	over bar x
oby	1/1	`\bar{y}`	$\bar{y}$	over bar y
obz	1/1	`\bar{z}`	$\bar{z}$	over bar z
obxa	1/1	`\bar{\alpha}`	$\bar{\alpha}$	over bar greek alpha
obxb	1/1	`\bar{\beta}`	$\bar{\beta}$	over bar greek beta
obxg	1/1	`\bar{\gamma}`	$\bar{\gamma}$	over bar greek gamma
odp	1/1	`\dot{p}`	$\dot{p}$	over dot p
odq	1/1	`\dot{q}`	$\dot{q}$	over dot q
odr	1/1	`\dot{r}`	$\dot{r}$	over dot r
ods	1/1	`\dot{s}`	$\dot{s}$	over dot s
odx	1/1	`\dot{x}`	$\dot{x}$	over dot x
ody	1/1	`\dot{y}`	$\dot{y}$	over dot y
odz	1/1	`\dot{z}`	$\dot{z}$	over dot z
odxa	1/1	`\dot{\alpha}`	$\dot{\alpha}$	over dot greek alpha
odxb	1/1	`\dot{\beta}`	$\dot{\beta}$	over dot greek beta
odxg	1/1	`\dot{\gamma}`	$\dot{\gamma}$	over dot greek gamma
oddp	1/1	`\ddot{p}`	$\ddot{p}$	over double dot p
oddq	1/1	`\ddot{q}`	$\ddot{q}$	over double dot q
oddr	1/1	`\ddot{r}`	$\ddot{r}$	over double dot 4
odds	1/1	`\ddot{s}`	$\ddot{s}$	over double dot s
oddx	1/1	`\ddot{x}`	$\ddot{x}$	over double dot x
oddy	1/1	`\ddot{y}`	$\ddot{y}$	over double dot y
oddz	1/1	`\ddot{z}`	$\ddot{z}$	over double dot z
oddxa	1/1	`\ddot{\alpha}`	$\ddot{\alpha}$	over double dot greek alpha
oddxb	1/1	`\ddot{\beta}`	$\ddot{\beta}$	over double dot greek beta
oddxg	1/1	`\ddot{\gamma}`	$\ddot{\gamma}$	over double dot greek gamma
olp	1/1	`\overline{p}`	$\overline{p}$	over line p
olq	1/1	`\overline{q}`	$\overline{q}$	over line q
olr	1/1	`\overline{r}`	$\overline{r}$	over line r
ols	1/1	`\overline{s}`	$\overline{s}$	over line s

olx	1/1	`\overline{x}`	$\overline{x}$	over line x
oly	1/1	`\overline{y}`	$\overline{y}$	over line y
olz	1/1	`\overline{z}`	$\overline{z}$	over line z
olxa	1/1	`\overline{\alpha}`	$\overline{\alpha}$	over line greek alpha
olxb	1/1	`\overline{\beta}`	$\overline{\beta}$	over line greek beta
olxg	1/1	`\overline{\gamma}`	$\overline{\gamma}$	over line greek gamma
ohp	1/1	`\hat{p}`	$\hat{p}$	over hat p
ohq	1/1	`\hat{q}`	$\hat{q}$	over hat q
ohr	1/1	`\hat{r}`	$\hat{r}$	over hat r
ohs	1/1	`\hat{s}`	$\hat{s}$	over hat s
ohx	1/1	`\hat{x}`	$\hat{x}$	over hat x
ohy	1/1	`\hat{y}`	$\hat{y}$	over hat y
ohz	1/1	`\hat{z}`	$\hat{z}$	over hat z
ohxa	1/1	`\hat{\alpha}`	$\hat{\alpha}$	over hat greek alpha
ohxb	1/1	`\hat{\beta}`	$\hat{\beta}$	over hat greek beta
ohxg	1/1	`\hat{\gamma}`	$\hat{\gamma}$	over hat greek gamma
ova	1/1	`\vec{a}`	$\vec{a}$	over vector a
ovb	1/1	`\vec{b}`	$\vec{b}$	over vector b
ovc	1/1	`\vec{c}`	$\vec{c}$	over vector c
ovv	1/1	`\vec{v}`	$\vec{v}$	over vector v
ovw	1/1	`\vec{w}`	$\vec{w}$	over vector w
vcpp	1/2	`\stackrel{\textstyle`	$\stackrel{\textstyle\rightarrow}{\mathrm{PP}}$	vector arrow above PP (math mode)
vcpq	1/2	`\stackrel{\textstyle`	$\stackrel{\textstyle\rightarrow}{\mathrm{PQ}}$	vector arrow above PQ (math mode)
dvcpp	1/2	`$\stackrel{\textstyle`	$\stackrel{\textstyle\rightarrow}{\mathrm{PP}}$	vector arrow above PP with dollar signs (text mode)
dvcpq	1/2	`$\stackrel{\textstyle`	$\stackrel{\textstyle\rightarrow}{\mathrm{PQ}}$	vector arrow above PQ with dollar signs (text mode)

4.8 Binary Operations and Relations

pl	1/1	`+`	$+$	plus
mi	1/1	`-`	$-$	minus
plm	1/1	`\pm`	$\pm$	plus-minus
mip	1/1	`\mp`	$\mp$	minus-plus
divi	1/1	`\div`	$\div$	divide
cir	1/1	`\circ`	$\circ$	composite (small circle)
blt	1/1	`\bullet`	$\bullet$	bullet

opl	1/1	`\oplus`	$\oplus$	oplus: direct sum
omi	1/1	`\ominus`	$\ominus$	ominus: direct difference
ti	1/1	`\times`	$\times$	times
oti	1/1	`\otimes`	$\otimes$	otimes
sdp	1/1	`\,\circledS\,`	$\,\circledS\,$	semi direct product: (circled S)
wed	1/1	`\wedge`	$\wedge$	wedge product
eq	1/1	`=`	$=$	equals
ez	1/1	`=␣0`	$=0$	equals zero
gte	1/1	`\geq`	$\geq$	greater than or equal
lte	1/1	`\leq`	$\leq$	less than or equal
ne	1/1	`\neq`	$\neq$	not equal
iso	1/1	`\cong`	$\cong$	isomorphic; conjugate
eqv	1/1	`\equiv`	$\equiv$	equivalent
mlt	1/1	`\ll`	$\ll$	much less than
mgt	1/1	`\gg`	$\gg$	much greater than
apx	1/1	`\approx`	$\approx$	approximately

4.9 Sized Parentheses

lep	1/1	`\left(`	$($	left parenthesis
rip	1/1	`\right)`	$)$	right parenthesis
lebk	1/1	`\left[`	$[$	left bracket
ribk	1/1	`\right]`	$]$	right bracket
lebr	1/1	`\left\{`	$\{$	left brace
ribr	1/1	`\right\}`	$\}$	right brace
lel	1/1	`\left\langle`	$\left\langle\right.$	large left-angle
lld	1/1	`\left\langle␣\!␣\left\langle`	$\left\langle\!\left\langle\right.\right.$	large left angle doubled
rir	1/1	`\right\rangle`	$\left.\right\rangle$	large right-angle
rrd	1/1	`\right\rangle␣\!␣\right\rangle`	$\left.\right\rangle\!\right\rangle$	large right-angle doubled
ldo	1/1	`\left.`		left followed by dot
rdo	1/1	`\right.`		right followed by dot

4.10 Single Mathematical Symbols

ale	1/1	`\aleph`	$\aleph$	aleph
hba	1/1	`\hbar`	$\hbar$	Planck's constant; hbar
prm	1/1	`\prime`	$\prime$	prime; use "hpr" for superscript
flt	1/1	`\flat`	$\flat$	flat; use "hpr" for superscript

shp	1/1	`\sharp`	$\sharp$	sharp; use "hfs" for superscript
sh	1/1	`\heartsuit`	$\heartsuit$	(sweet)heart suit
ppt	1/1	`\propto`	$\propto$	proportional to
nrm	1/1	`\\|`	$\|$	norm; double vertical bars
lied	1/1	`\pounds`	$\pounds$	Lie derivative; pounds
trv	1/1	`\pitchfork`	$\pitchfork$	transversal; pitchfork
scl	1/1	`\ell`	ℓ	script l
na	1/1	`\nabla`	∇	nabla
pd	1/1	`\partial`	∂	partial derivative
infi	1/1	`\infty`	∞	infinity
wpf	1/1	`\wp`	$\wp$	Weierstrass p-function
rea	1/1	`\Re`	$\Re$	real part alternative
ima	1/1	`\Im`	$\Im$	imaginary part alternative
angl	1/1	`\angle`	$\angle$	angle

4.11 Set Theoretic Symbols

imp	1/1	`\Rightarrow`	$\Rightarrow$	implies; long Right arrow
impb	1/1	`\Leftarrow`	$\Leftarrow$	implied by; long Left arrow
olra	1/1	`\Leftrightarrow`	$\Leftrightarrow$	open Left-right arrow; equivalent to
eqvt	1/1	`\Leftrightarrow`	$\Leftrightarrow$	equivalent to; open Left-right arrow
emp	1/1	`\varnothing`	$\varnothing$	empty set; varnothing
empa	1/1	`\emptyset`	$\emptyset$	empty set alternative; emptyset
eo	1/1	`\in`	$\in$	element of
neo	1/1	`\not\in`	$\notin$	not an element of
reo	1/1	`\ni`	$\ni$	reverse element of
setm	1/1	`\setminus`	$\setminus$	set difference; set-minus
subs	1/1	`\subset`	$\subset$	susbset
sube	1/1	`\subseteq`	$\subseteq$	subet or equals
sups	1/1	`\supset`	$\supset$	superset
supe	1/1	`\supseteq`	$\supseteq$	superset of equals
ints	1/1	`\cap`	$\cap$	intersection
bints	1/1	`\bigcap`	$\bigcap$	big intersection; cap
uni	1/1	`\cup`	$\cup$	union
buni	1/1	`\bigcup`	$\bigcup$	big intersection; cup
vbar	1/1	`\mid`	$\mid$	vertical bar with spacing
te	1/1	`\exists`	$\exists$	there exists
fa	1/1	`\forall`	$\forall$	for all

4.12 Arrows and Dots

artl	1/1	`\mapsto`	$\mapsto$	arrow with tail; maps to
ra	1/1	`\rightarrow`	$\rightarrow$	right arrow
lora	1/1	`\longrightarrow`	$\longrightarrow$	longrightarrow
lra	1/1	`\leftrightarrow`	$\leftrightarrow$	leftrightarrow
lea	1/1	`\leftarrow`	$\leftarrow$	uparrow
upa	1/1	`\uparrow`	$\uparrow$	uparrow
uhr	1/1	`\upharpoonright`	$\upharpoonright$	upharpoonright
sur	1/1	`\nearrow`	$\nearrow$	slanted up right arrow; northeast arrow
sdr	1/1	`\searrow`	$\searrow$	slanteddown right arrow; southeast arrow
cdo	1/1	`\cdot`	$\cdot$	centered dot
cds	1/1	`\cdots`	$\cdots$	centered dots
dds	1/1	`\ddots`	$\ddots$	diagonal dots
lds	1/1	`\ldots`	$\ldots$	lower dots
vds	1/1	`\vdots`	$\vdots$	vertical dots

4.13 Trig Functions

co	1/1	`\cos`	cos	cosine
coh	1/1	`\cosh`	cosh	hyperbolic cosine
coq	1/1	`\cos^2`	$\cos^2$	cosine squared
coth	1/1	`\cos␣\theta`	$\cos\theta$	cosine of theta
coph	1/1	`\cos␣\phi`	$\cos\phi$	cosine of phi
si	1/1	`\sin`	sin	sine
sih	1/1	`\sinh`	sinh	hyperbolic sine
siq	1/1	`\sin^2`	$\sin^2$	sine squared
sith	1/1	`\sin␣\theta`	$\sin\theta$	sine of theta
siph	1/1	`\sin␣\phi`	$\sin\phi$	sine of phi
tn	1/1	`\tan`	tan	tanent
tnh	1/1	`\tanh`	tanh	hyperbolic tangent

4.14 Log-like Symbols

ex	1/1	`\exp`	exp	exponential
logg	1/1	`\log`	log	logarithm

lgn	1/1	`\ln`	ln	natural logarithm
supr	1/1	`\sup`	sup	supremum
infm	1/1	`\inf`	inf	infimum
mx	1/1	`\max`	max	maximum
mn	1/1	`\min`	min	minimum
limu	1/12	`\lim{`	lim {	lim
limm	1/1	`\lim`	lim	limit
limi	1/1	`\liminf`	lim inf	limit inferior
lims	1/1	`\limsup`	lim sup	limit superior
dtt	1/1	`\det`	det	determinant
kr	1/1	`\ker`	ker	kernel
dmn	1/1	`\dim`	dim	dimension
ag	1/1	`\arg`	arg	arument
gc	1/1	`\gcd`	gcd	greatest common denominator

4.15 Combinations of Mathematical Symbols

mo	1/1	`-1`	-1	minus 1
ava	1/1	`|a|`	$\|a\|$	absolute value of a
avb	1/1	`|b|`	$\|b\|$	absolute value of b
avc	1/1	`|c|`	$\|c\|$	absolute value of c
avx	1/1	`|x|`	$\|x\|$	absolute value of x
avy	1/1	`|y|`	$\|y\|$	absolute value of y
avz	1/1	`|z|`	$\|z\|$	absolute value of z
shl	1/1	`A^i_{\;a}`	$A^i_{\;a}$	staggered high and low (superscript subscript-group)
lam	1/1	`L_A{}^\mu`	$L_A{}^\mu$	staggered varation 1; (subscript-group superscript)
van	1/1	`v^A{}_\nu`	$v^A{}_\nu$	staggered variation 2; (superscript-group subscript)
tsq	1/1	`T^\ast␣Q`	T^*Q	T superscript-asterisk Q
tsqq	1/1	`T^{\ast}_{q}␣Q`	T^*_qQ	T superscript-asterisk subscript-q Q
dtsq	1/1	`$T^\ast␣Q$`	T^*Q	dollar T superscript-asterisk Q
dtsqq	1/1	`$T^{\ast}_{q}␣Q$`	T^*_qQ	dollar T superscript-asterisk subscript-q Q
00p	1/1	`(0,0)`	$(0,0)$	0,0 in parentheses
03p	1/1	`(0,␣0,␣0)`	$(0,0,0)$	0,0,0 in parentheses
0p	1/1	`(0)`	(0)	0 in parentheses
d00p	1/1	`$(0,0)$`	$(0,0)$	dollar 0,0 in parentheses
d03p	1/1	`$(0,␣0,␣0)$`	$(0,0,0)$	dollar 0,0,0 in parentheses
d0p	1/1	`$(0)$`	(0)	dollar 0 in parentheses
triap	1/1	`(a_1,␣a_2,␣a_3)`	(a_1,a_2,a_3)	triad in parentheses

dtriap	1/1	`$(a_1,␣a_2,␣a_3)$`	(a_1, a_2, a_3)	dollar triad in parentheses;
xyp	1/1	`(x,␣y)`	(x, y)	x,y in parentheses
xyzp	1/1	`(x,␣y,␣z)`	(x, y, z)	x,y,z in parentheses
xpyq	1/1	`x^2␣+␣y^2`	$x^2 + y^2$	x squared + y squared
dxyp	1/1	`$(x,␣y)$`	(x, y)	dollar x,y in parentheses
dxyzp	1/1	`$(x,␣y,␣z)$`	(x, y, z)	dollar x,y,z in parentheses
dxpyq	1/1	`$x^2␣+␣y^2$`	$x^2 + y^2$	dollar x squared + y squared
dxdy	1/1	`\,dx\,dy`	$dx\,dy$	derivatives x y
dxdydz	1/1	`\,dx\,dy\,dz`	$dx\,dy\,dz$	derivatives x y z
dxdt	1/1	`dx/dt`	dx/dt	derivatives x over t
dydt	1/1	`dy/dt`	dy/dt	derivatives y over t
dzdt	1/1	`dz/dt`	dz/dt	derivatives z over t
pdzy	1/1	`\partial␣z/\partial␣y`	$\partial z/\partial y$	partial derivatives z over y
dpdzy	1/1	`$\partial␣z/\partial␣y$`	$\partial z/\partial y$	dollar partial derivatives z over y
o0	1/1	`(0)`	(0)	of 0
o1	1/1	`(1)`	(1)	of 1
o2	1/1	`(2)`	(2)	of 2
o3	1/1	`(3)`	(3)	of 3
o4	1/1	`(4)`	(4)	of 4
o5	1/1	`(5)`	(5)	of 5
o6	1/1	`(6)`	(6)	of 6
o7	1/1	`(7)`	(7)	of 7
o8	1/1	`(8)`	(8)	of 8
o9	1/1	`(9)`	(9)	of 9
oa	1/1	`(a)`	(a)	of a
oeb	1/1	`(b)`	(b)	of b
oc	1/1	`(c)`	(c)	of c
od	1/1	`(d)`	(d)	of d
oe	1/1	`(e)`	(e)	e
oef	1/1	`(f)`	(f)	of f (note: ef)
og	1/1	`(g)`	(g)	of g
oh	1/1	`(h)`	(h)	of h
oi	1/1	`(i)`	(i)	of i
oj	1/1	`(j)`	(j)	of j
ok	1/1	`(k)`	(k)	of k
ol	1/1	`(l)`	(l)	of l
om	1/1	`(m)`	(m)	of m
oen	1/1	`(n)`	(n)	of n (note: en)
oo	1/1	`(o)`	(o)	of o

oep	1/1	(p)	(p)	of p (note: ep)
oq	1/1	(q)	(q)	of q
oer	1/1	(r)	(r)	of r (note: er)
os	1/1	(s)	(s)	of s
ot	1/1	(t)	(t)	of t
ou	1/1	(u)	(u)	of u
ov	1/1	(v)	(v)	of v
ow	1/1	(w)	(w)	of w
ox	1/1	(x)	(x)	of x
oy	1/1	(y)	(y)	of y
oz	1/1	(z)	(z)	of z
oca	1/1	(A)	(A)	of A
ocb	1/1	(B)	(B)	of B
occ	1/1	(C)	(C)	of C
ocd	1/1	(D)	(D)	of D
oce	1/1	(E)	(E)	of E
ocf	1/1	(F)	(F)	of F
ocg	1/1	(G)	(G)	of G
och	1/1	(H)	(H)	of H
oci	1/1	(I)	(I)	of I
ocj	1/1	(J)	(J)	of J
ock	1/1	(K)	(K)	of K
ocl	1/1	(L)	(L)	of L
ocm	1/1	(M)	(M)	of M
ocn	1/1	(N)	(N)	of N
oco	1/1	(O)	(O)	of O
ocp	1/1	(P)	(P)	of P
ocq	1/1	(Q)	(Q)	of Q
ocr	1/1	(R)	(R)	of R
ocs	1/1	(S)	(S)	of S
oct	1/1	(T)	(T)	of T
ocuu	1/1	(U)	(U)	of u (note: ocuu)
ocv	1/1	(V)	(V)	of V
ocw	1/1	(W)	(W)	of W
ocx	1/1	(X)	(X)	of X
ocy	1/1	(Y)	(Y)	of Y
ocz	1/1	(Z)	(Z)	of Z

nrbu	1/1	`|{\bf␣u}|`	$\|\mathbf{u}\|$	norm bold u
aplb	1/1	`{\bf␣a}␣+␣{\bf␣b}`	$\mathbf{a} + \mathbf{b}$	bold a plus bold b
atib	1/1	`{\bf␣a}␣\times␣{\bf␣b}`	$\mathbf{a} \times \mathbf{b}$	bold a times bold b
atibp	1/1	`({\bf␣a}␣\times␣{\bf␣b})`	$(\mathbf{a} \times \mathbf{b})$	(bold a times bold b)

5 INTEGRALS, SUMS, PRODUCTS, AND MATRICES

5.1 Integrals

intu	1/1	`\int`	$\int$	integral universal; add limits with "hu", "lu"
intd	1/1	`\int␣\!\!\!␣\int`	$\iint$	double integral
intt	1/1	`\int␣\!\!\!␣\int␣\!\!\!␣\int`	$\iiint$	triple integral
intc	1/1	`\oint`	$\oint$	contour integral
i10	1/1	`\int^1_0`	$\int_0^1$	integral superscript 1 subscript 0
iba	1/1	`\int^b_a`	$\int_a^b$	integral superscript b subscript a
ilcd	1/1	`\int_D`	$\int_D$	integral lower capital D (subscript D)
iinf	1/1	`\int^\infty_{-␣\infty}`	$\int_{-\infty}^{\infty}$	integral infinity: superscript (+infinity) subscript (-infin
i2xp0	1/1	`\int^{2␣\pi}_0`	$\int_0^{2\pi}$	integral superscript (2 pi) subscript 0

5.1.1 Derivatives

sds	1/1	`\,ds`	ds	spave derivative s
sdt	1/1	`\,dt`	dt	space derivative t
sdu	1/1	`\,du`	du	space derivative u
sdv	1/1	`\,dv`	dv	space derivative v
sdw	1/1	`\,dw`	dw	space derivative w
sdx	1/1	`\,dx`	dx	space derivative x
sdy	1/1	`\,dy`	dy	space derivative y
sdz	1/1	`\,dz`	dz	space derivative z

5.2 Sums, Limits, etc.

sumu	1/1	`\sum`	$\sum$	sum universal
sni1	1/1	`\sum^{n}_{i␣=␣1}`	$\sum_{i=1}^{n}$	sum superscript n subscript i=1
pni1	1/1	`\prod^{n}_{i␣=␣1}`	$\prod_{i=1}^{n}$	product superscript n subscript i=1
ini1	1/1	`\bigcap^{n}_{i␣=␣1}`	$\bigcap_{i=1}^{n}$	intersection superscript n subscript i=1
uni1	1/1	`\bigcup^{n}_{i␣=␣1}`	$\bigcup_{i=1}^{n}$	union superscript n subscript i=1
li00	1/1	`\lim_{(x,y)␣\rightarrow␣(0,0)}`	$\lim_{(x,y)\rightarrow(0,0)}$	limit subscript (x,y) to (0,0)
liai	1/1	`\lim_{a␣\rightarrow␣\infty}`	$\lim_{a\rightarrow\infty}$	limit subscript a to infinity
lixl0	1/1	`\lim_{x␣\rightarrow␣x_0}`	$\lim_{x\rightarrow x_0}$	limit subscript x to x subscript 0

5.3 Sample Matrices

mxc	1/5	`\left(␣\begin{array}{c}`	matrix column
mxcb	1/4	`\left[␣\begin{array}{c}`	matrix column alternate (with square brackets)
mx2p	1/4	`\left(␣\begin{array}{cc}`	matrix 2x2 with parentheses
mx2i	1/4	`\left[␣\begin{array}{cc}`	matrix 2x2 identity
mx2b	1/4	`\left[␣\begin{array}{cc}`	matrix 2x2 with brackets
mx2s	1/4	`\left[␣\begin{array}{cc}`	matrix 2x2 symplectic
mx3i	1/5	`\left(␣\begin{array}{ccc}`	matrix 3x3 identity
mx3d	1/5	`\left|␣\begin{array}{ccc}`	matrix 3x3 determinant
mx3p	1/5	`\left(␣\begin{array}{ccc}`	matrix 3x3
mx3b	1/5	`\left[␣\begin{array}{ccc}`	matrix 3x3 with square brackets

$$\left(\begin{array}{c} x_1 \\ x_2 \\ x_3 \end{array} \right)$$

$$\left[\begin{array}{c} x \\ y \end{array} \right]$$

$$\left(\begin{array}{cc} a & b \\ c & d \end{array} \right)$$

$$\left[\begin{array}{cc} 1 & 0 \\ 0 & 1 \end{array} \right]$$

$$\left[\begin{array}{cc} a & b \\ c & d \end{array} \right]$$

$$\left[\begin{array}{cc} 0 & 1 \\ -1 & 0 \end{array} \right]$$

$$\left(\begin{array}{ccc} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{array} \right)$$

$$\left| \begin{array}{ccc} a & b & c \\ d & e & f \\ g & h & i \end{array} \right|$$

$$\left(\begin{array}{ccc} a & b & c \\ d & e & f \\ g & h & i \end{array} \right)$$

$$\left[\begin{array}{ccc} a & b & c \\ d & e & f \\ g & h & i \end{array} \right]$$

mx3b35pt	1/5	`\left[␣\begin{array}{ccc}`	$\left[\begin{array}{ccc} a & b & c \\ d & e & f \\ g & h & i \end{array}\right.$	matrix 3x3 with square brackets

5.3.1 AMS Math Matrices Universal

mxu	1/4	`\begin{array}{cc}`	$\begin{array}{cc} \cdots & \cdots \\ \cdots & \cdots \end{array}$	matrix 2x2 universal–no delimiters
mxpu	1/6	`\left(`	$\left(\begin{array}{cc} \cdots & \cdots \\ \cdots & \cdots \end{array}\right.$	matrix 2x2 universal–with parentheses
mxbu	1/6	`\left[`	$\left[\begin{array}{cc} \cdots & \cdots \\ \cdots & \cdots \end{array}\right.$	matrix 2x2 universal–with brackets
mxvu	1/6	`\left|`	$\left\|\begin{array}{cc} \cdots & \cdots \\ \cdots & \cdots \end{array}\right.$	matrix 2x2 universal–single vertical bar
mxcvu	1/6	`\left\Vert`	$\left\Vert\begin{array}{cc} \cdots & \cdots \\ \cdots & \cdots \end{array}\right.$	matrix 2x2 universal–double vertical bars
mxsu	1/5	`\small`	$\begin{smallmatrix} \cdots & \cdots \\ \cdots & \cdots \end{smallmatrix}$	small matrix 2x2 matrix universal–no delimiters
mxspu	1/6	`\small\left(`	$\left(\begin{smallmatrix} \cdots & \cdots \\ \cdots & \cdots \end{smallmatrix}\right.$	small matrix 2x2 universal–with parentheses
mxsbu	1/6	`\small\left[`	$\left[\begin{smallmatrix} \cdots & \cdots \\ \cdots & \cdots \end{smallmatrix}\right.$	small matrix 2x2 universal–with brackets

6 BOXES, TABBING AND TABULAR ENVIRONMENT SAMPLES

6.1 Boxes

frboxn 1/1 `\fbox{\parbox{2.0in}{{\large␣\bf␣Note:␣\,}␣text␣}}` framed box note with in line text; edit its size

Note: text

frbox 1/1 `\fbox{\parbox{2.0in}{\centerline{\large␣\bf␣type␣header}␣text␣}}` framed box with header and text; edit its size

type header
text

dfrbox 1/2 `\fbox{\fbox{\parbox{2.0in}{` double framed box with header and text; edit its size

type header
text

frboxt framed box with header, topfolded text (not in LaTeX)

6.2 Tabbing

tbex 1/5 `\begin{tabbing}` tabbing example

items for row one
items for row two

6.3 Tabular

tabex1 1/13 `\begin{center}` tabular example 1 (5 columns)

$$\text{Partials exist and are continuous} \implies \text{Differentiable} \underset{\text{Definition of derivative}}{\implies} \text{Partials exist}$$

tabex2 1/26 `\begin{center}` tabular example 2 (2 columns within a frame)

Box 2.1.1 Summary of Important Formulas for §2.1

Velocity

$V = \dfrac{\partial \phi}{\partial t}$	$V^a = \dfrac{\partial \phi^a}{\partial t}$
$v_t = V_t \circ \phi_t^{-1}$	$v_t^a = V_t^a \circ \phi_t^{-1}$

Covariant Derivative

$\mathbf{D}v \cdot w = \nabla_w v$	$(\nabla_w v)^a = \dfrac{\partial v^a}{\partial x^b} w^b + \gamma^a_{bc} w^b v^c$

tabex3 1/39 `\begin{center}` tabular example 3 (3 columns without a frame)

Classical Tensor Analysis		*Tensor Analysis on Manifolds*
$\{x^a\}$	Coordinates	$\{x^a\}$
$e_a = \dfrac{\partial z^i}{\partial x^a} \vec{i}_i$	coordinate basis vectors	$\dfrac{\partial}{\partial x^a} = e_a$
$\left.\begin{array}{l} \bar{e}_a = \dfrac{\partial x^b}{\partial \bar{x}^a} e_b \\ \bar{e}^a = \dfrac{\partial \bar{x}^a}{\partial \bar{x}^b} e^b \end{array}\right\}$	change of coordinates	$\left\{\begin{array}{l} \dfrac{\partial}{\partial \bar{x}^a} = \dfrac{\partial x^b}{\partial \bar{x}^a}\dfrac{\partial}{\partial x^b} \\ d\bar{x}^a = \dfrac{\partial \bar{x}^a}{\partial x^b} dx^b \end{array}\right.$

tabex4 1/23 `\begin{center}` tabular example 4 (2 columns with lines)

Classical Mechanics	**Quantum Mechanics**
immersed Lagrangian manifold $\Lambda \to (T^*Q, \Omega)$	element of $L^2(Q)$ or $\mathcal{D}'(Q)$
Λ = graph of $\mathbf{d}S$	$\psi = \exp(iS/\hbar)$
T^*Q	Hilbertspace
Lagrangian manifold $\Omega \subset (T^*Q, \Omega_Q) \times (T^*R, -\Omega_R)$	(possibly unbounded) $L^2(R)$ to $L^2(Q)$
composition of canonical relations	composition of operators

tabex5 1/22 `\begin{center}` tabular example 5 (2 columns with lines within a framed box)

Classical Mechanics	**Quantum Mechanics**
immersed Lagrangian manifold $\Lambda \to (T^*Q, \Omega)$	element of $L^2(Q)$ or $\mathcal{D}'(Q)$
$\Lambda =$ graph of $\mathbf{d}S$	$\psi = \exp(iS/\hbar)$
T^*Q	Hilbertspace
Lagrangian manifold $\Omega \subset (T^*Q, \Omega_Q) \times (T^*R, -\Omega_R)$	(possibly unbounded) $L^2(R)$ to $L^2(Q)$
composition of canonical relations	composition of operators

tabex6 1/25 `\begin{center}` tabular example 6 (3 columns with lines)

Case	Conditions	Connection
Unconstrained	$\mathcal{D}_q = T_qQ$	$\mathcal{A}^{\text{sym}}(\dot{q}) = \mathbb{I}^{-1}J(\dot{q})$
Purely Kinematic	$\mathcal{D}_q \cap T_q(\text{Orb}(q)) = \{0\}$	$\mathcal{A}^{\text{kin}}(\dot{q}) = 0$
Horizontal symmetries	$\mathcal{D}_q \cap T_q(\text{Orb}(q))_G = T_q(\text{Orb}(q))_H$	$\mathcal{A}^{\text{sym}}(\dot{q}) + \mathcal{A}^{\text{kin}}(\dot{q}) = \mathbb{I}^{-1}J_H(\dot{q})$
General principal bundle case	$\mathcal{D}_q + T_q(\text{Orb}(q)) = T_qQ$	$\mathcal{A}^{\text{sym}}(\dot{q}) + \mathcal{A}^{\text{kin}}(\dot{q}) = \mathbb{I}^{-1}J^{\text{nhc}}(\dot{q})$

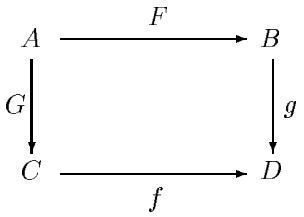
7 PICTURES, DIAGRAMS, TABLES, AND FIGURES

7.1 Pictures

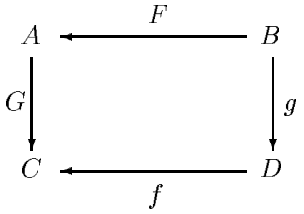
fig	1/4	`\begin{figure}`	general figure space allocation;
pict	1/6	`\begin{figure}`	special picture: mac
illus	1/6	`\begin{figure}`	special illustration: mac

7.2 Commutative Diagrams

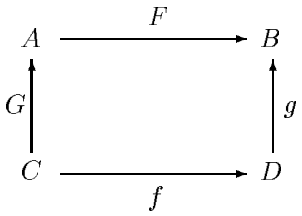
scd1 1/17 `\begin{picture}(150,100)(-70,0)` square commutative diagram 1



scd2 1/16 `\begin{picture}(150,100)(-70,0)` square commutative diagram 2

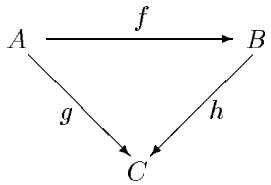


scd3 1/16 `\begin{picture}(150,100)(-70,0)` square commutative diagram 3

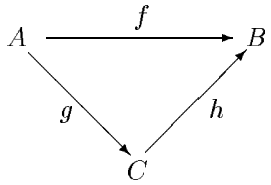


scdw — rectangular CD (same as scd2 with variable width; not in LaTeX)

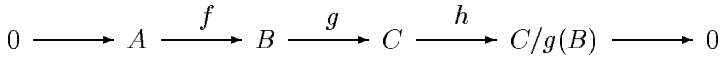
tcd1 1/13 `\begin{picture}(150,100)(-70,0)` — triangular commutative diagram 1



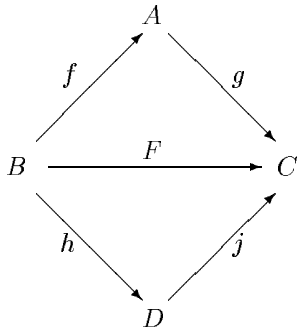
tcd2 1/13 `\begin{picture}(150,100)(-70,0)` — triangular commutative diagram 2



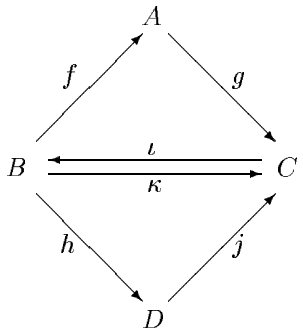
ecd1 1/18 `\begin{picture}(150,60)(5,50)` exact commuative diagram 1



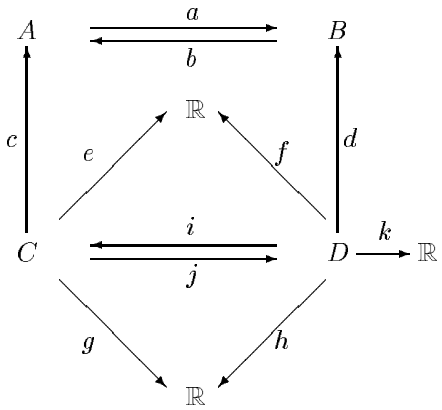
dcd1 1/19 `\begin{picture}(150,160)(-80,5)` double commutative diagram 1



dcd2 1/21 `\begin{picture}(150,160)(-80,5)` double commutative diagram 2



cxcd1 1/35 `\begin{picture}(150,180)(-70,10)` complex commutative diagram 1



7.3 TABLE AND FIGURE ENVIRONMENTS

7.3.1 Tables

btab	1/1	`\begin{table}`	begin table environment
etab	1/1	`\end{table}`	end table environment
tabl	1/10	`\begin{table}[t]␣␣␣␣␣␣␣␣␣␣␣␣␣␣␣␣␣␣%optional␣[t,␣b␣or␣h];`	template for table environment

7.3.2 Figures

bfig	1/1	`\begin{figure}`	begin figure environment
efig	1/1	`\end{figure}`	end figure environment
tinf	1/1	`\begin{figure}[t]`	topinsert figure
minf	1/1	`\begin{figure}[h]`	midinsert figure
einf	1/1	`\end{figure}`	end insert figure
cap	1/1	`\caption{Text␣of␣Caption}`	caption
tcap	1/1	`\caption{Text␣of␣Caption}`	top caption
bcap	1/1	`\caption{Text␣of␣Caption}`	bottom caption
vsp	1/1	`\vspace{0.2in}`	vertical space
hsp	1/1	`\hspace{0.2in}`	horizontal space

7.3.3 Epsf

epsfv	1/1	`\epsfverbosetrue`	epsf verbose true command
epsff	1/9	`\begin{figure}[t]`	epsffile figure template
epsfb	1/9	`\begin{figure}[t]`	epsfbox figure template
epsfbb	1/9	`\begin{figure}[t]`	epsfbox(with bounding box) figure template
epsfbb2	1/12	`\begin{figure}[t]`	epsfbox two figure side by side template

8 TEXT

8.1 Word Vocabulary

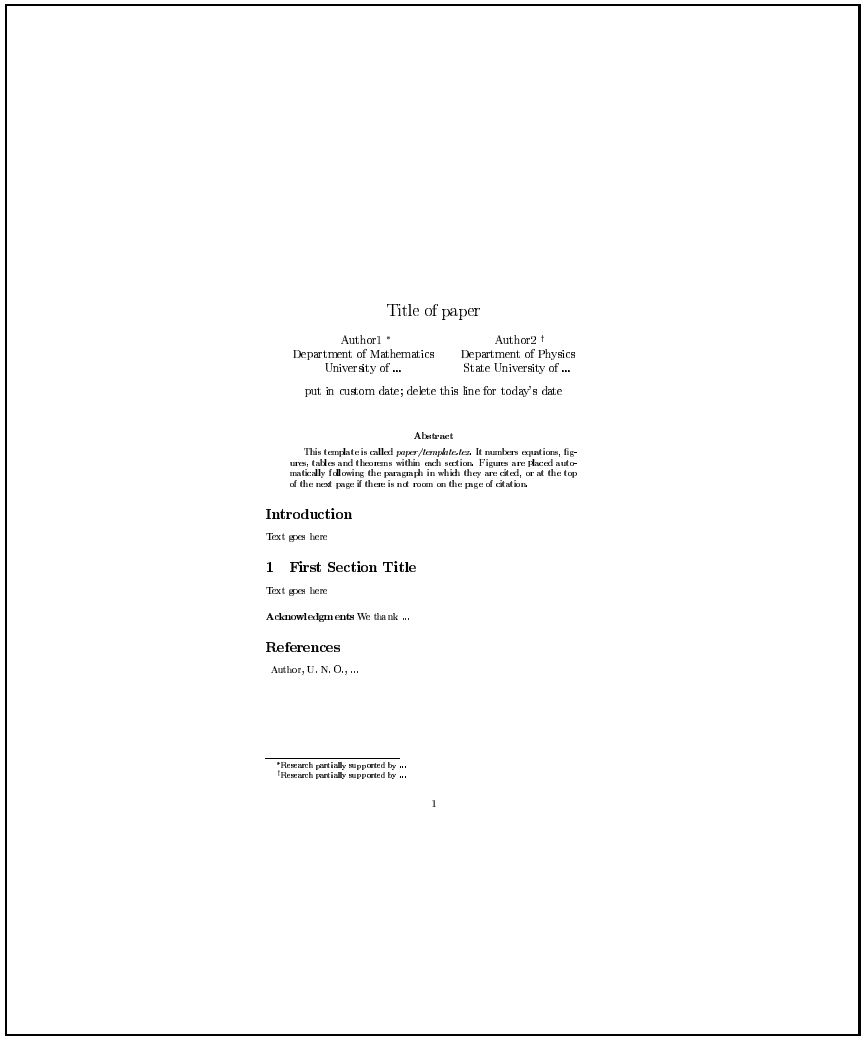
wace	1/1	accelerate
wacn	1/1	acceleration
wacs	1/1	accelerates
wcdm	1/1	Department␣of␣Mathematics
wcdp	1/1	Department␣of␣Physics
wcle	1/1	calculate
wcln	1/1	calculation
wcls	1/1	calculates
wder	1/1	derivative
wders	1/1	derivatives
wdm	1/1	department␣of␣mathematics
wdp	1/1	department␣of␣physics
wep	1/1	Euler-Poincar\'e
weqn	1/1	equation
weqns	1/1	equations
wex	1/1	example
wfun	1/1	function
wfuns	1/1	functions
wgm	1/1	geometry
wgmc	1/1	geometric
wie	1/1	i.e.,
wig	1/1	integral
wigb	1/1	integrable
wign	1/1	integration
wigs	1/1	integrals
wiie	1/1	{\it␣i.e.,\/}
wlig	1/1	line␣integral
wligs	1/1	line␣integrals
wmx	1/1	matrix
wneg	1/1	negative
wnl	1/1	nonlinear
wnly	1/1	nonlinearity
wpos	1/1	positive
wprp	1/1	perpendicular
wrel	1/1	relative
wrln	1/1	relation
wrtg	1/1	rotating
wrtn	1/1	rotation
wrtns	1/1	rotations
wsn	1/1	solution
wsns	1/1	solutions
wtm	1/1	theorem
wtms	1/1	theorems
wty	1/1	theory
wun	1/1	university
wve	1/1	vector
wvel	1/1	velocity
wvs	1/1	vectors

9 SAMPLE TEMPLATES

9.1 Paper Templates

9.1.1 Paper Template Basic (with resetting)

tepaper 1/64 `%&latex2.09␣␣␣␣␣tepaper` tepaper latex2.09 paper template



Title of paper

Author1 * Author2 †
Department of Mathematics Department of Physics
University of ... State University of ...

put in custom date; delete this line for today's date

Abstract

This template is called *paper/template.tex*. It numbers equations, figures, tables and theorems within each section. Figures are placed automatically following the paragraph in which they are cited, or at the top of the next page if there is not room on the page of citation.

Introduction

Text goes here

1 First Section Title

Text goes here

Acknowledgments We thank ...

References

Author, U. N. O., ...

*Research partially supported by ...
†Research partially supported by ...

1

Title of paper

Author1 *
Department of Mathematics
University of ...

Author2 †
Department of Physics
State University of ...

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Abstract

This template is called *paper/template.tex*. It numbers equations, figures, tables and theorems within each section. Figures are placed automatically following the paragraph in which they are cited, or at the top of the next page if there is not room on the page of citation.

Introduction

Text goes here

1 First Section Title

Text goes here

Acknowledgments We thank ...

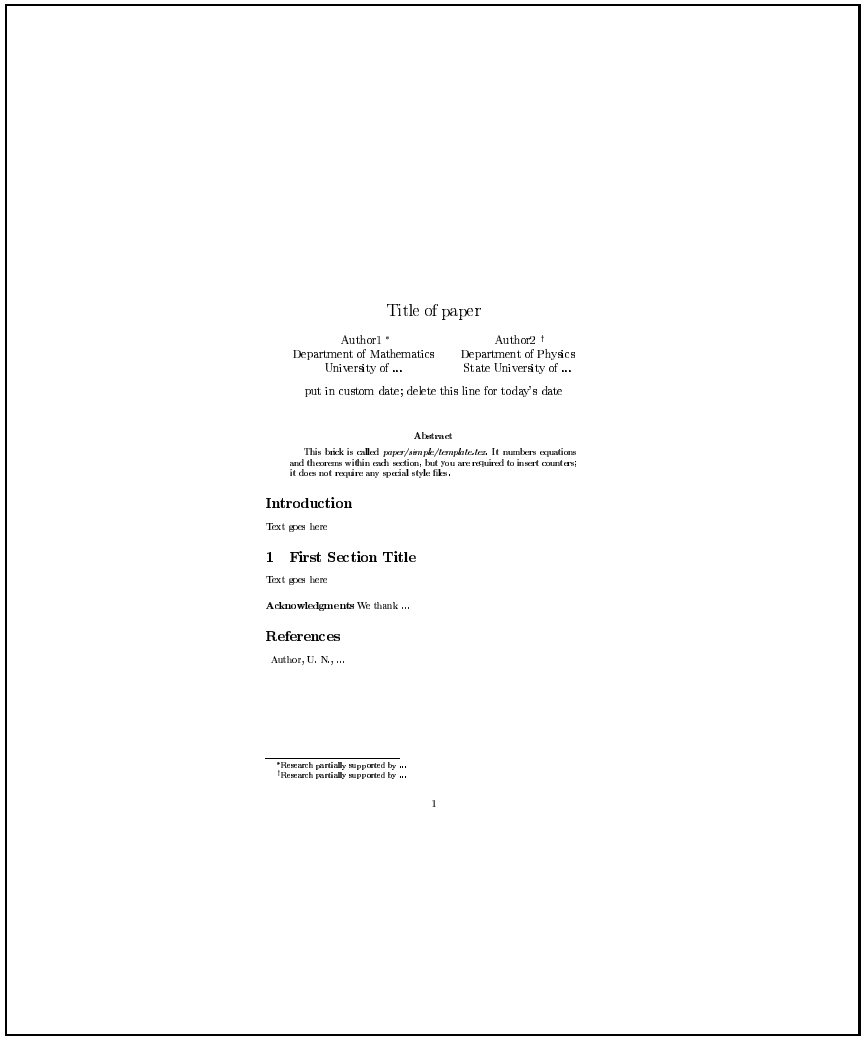
References

[]

*Research partially supported by ...
†Research partially supported by ...

9.1.2 Paper Simple Template

tepapersimple 1/59 `%&latex2.09␣␣␣␣␣tepaper␣simple` tepapersimple



Title of paper

Author1 * Author2 †
Department of Mathematics Department of Physics
University of ... State University of ...

put in custom date; delete this line for today's date

Abstract

This brick is called *paper/simple/template.tex*. It numbers equations and theorems within each section, but you are required to insert counters; it does not require any special style files.

Introduction

Text goes here

1 First Section Title

Text goes here

Acknowledgments We thank ...

References

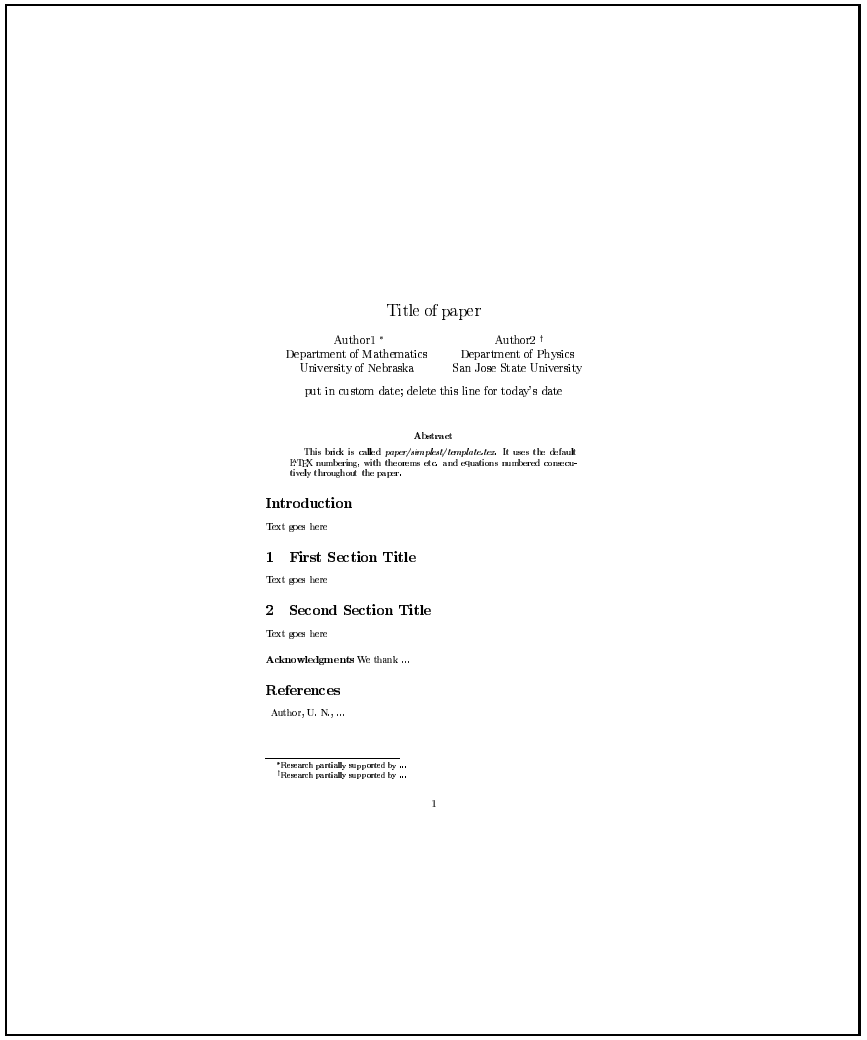
Author, U. N., ...

*Research partially supported by ...
†Research partially supported by ...

1

9.1.3 Paper Simplest Template

tepapersimplest 1/47 `%&latex209--tepaper␣simplest` tepapersimplest



Title of paper

Author1 * Author2 †
Department of Mathematics Department of Physics
University of Nebraska San Jose State University

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Abstract

This brick is called *paper/simplest/template.tex*. It uses the default LaTeX numbering, with theorems etc. and equations numbered consecutively throughout the paper.

Introduction

Text goes here

1 First Section Title

Text goes here

2 Second Section Title

Text goes here

Acknowledgments We thank ...

References

Author, U. N., ...

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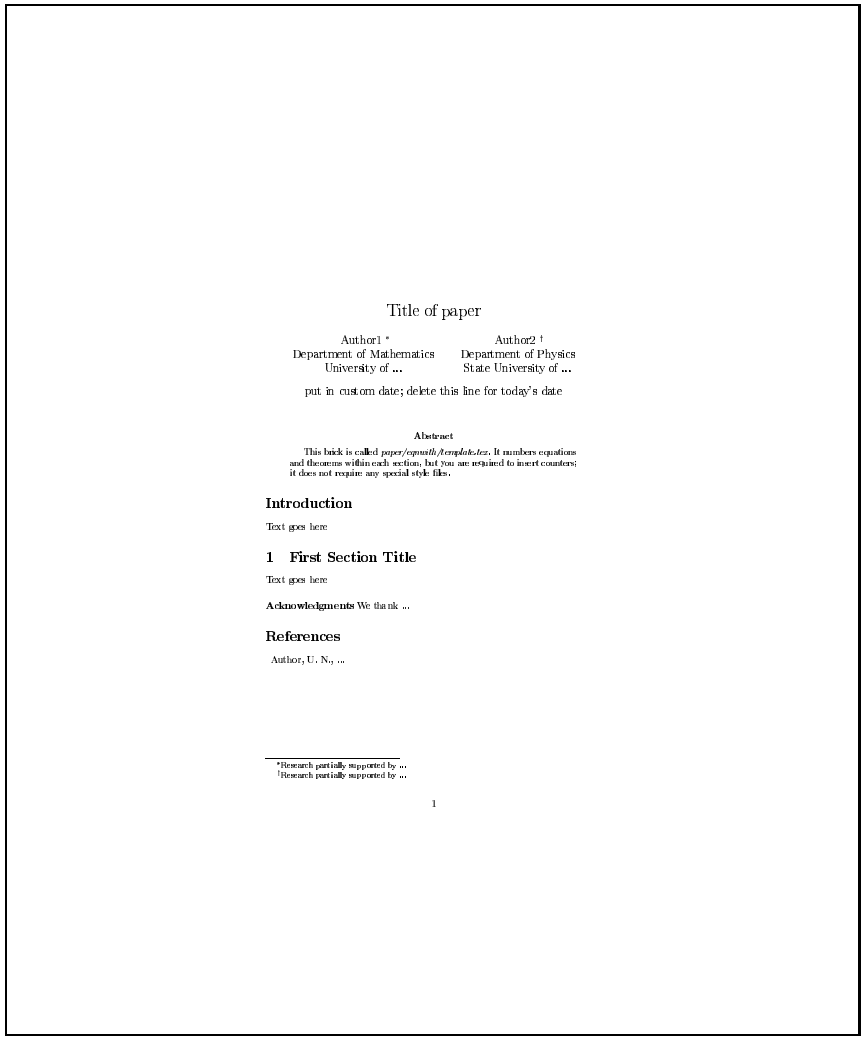
†Research partially supported by ...

1

9.1.4 Paper Simple Template with eqnwith Numbering

tepapereqnwith 1/67 `%&latex2.09--tepaper␣eqnwith` tepaper.eqnwith; paper simple numbering equations with theorems



Title of paper

Author1 * Author2 †
Department of Mathematics Department of Physics
University of ... State University of ...

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Abstract

This brick is called *paper/eqnwith/template.tex*. It numbers equations and theorems within each section, but you are required to insert counters; it does not require any special style files.

Introduction

Text goes here

1 First Section Title

Text goes here

Acknowledgments We thank ...

References

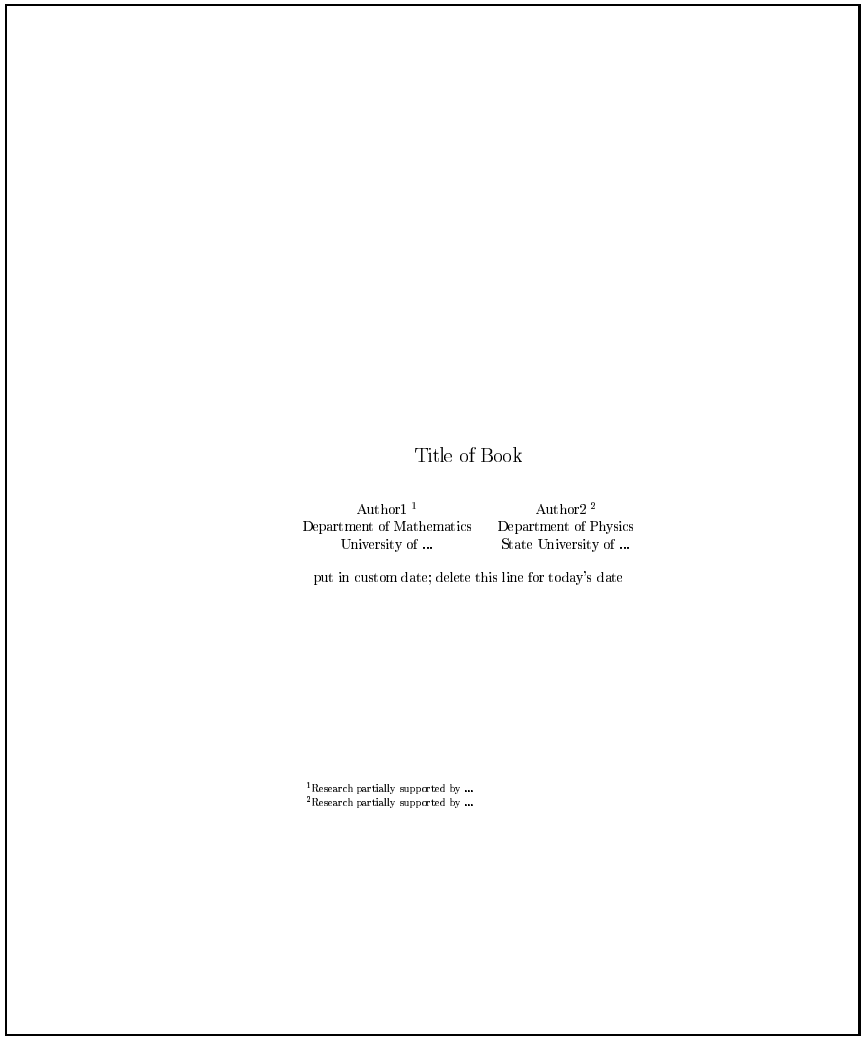
Author, U. N., ...

*Research partially supported by ...
†Research partially supported by ...

1

9.2 Book Templates

tebook 1/45 `%&latex2.09--tebook` tebook



Title of Book

Author1 [1]
Department of Mathematics
University of ...

Author2 [2]
Department of Physics
State University of ...

put in custom date; delete this line for today's date

[1]Research partially supported by ...
[2]Research partially supported by ...

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Department of Mathematics
University of ...

Author2 [2]
Department of Physics
State University of ...

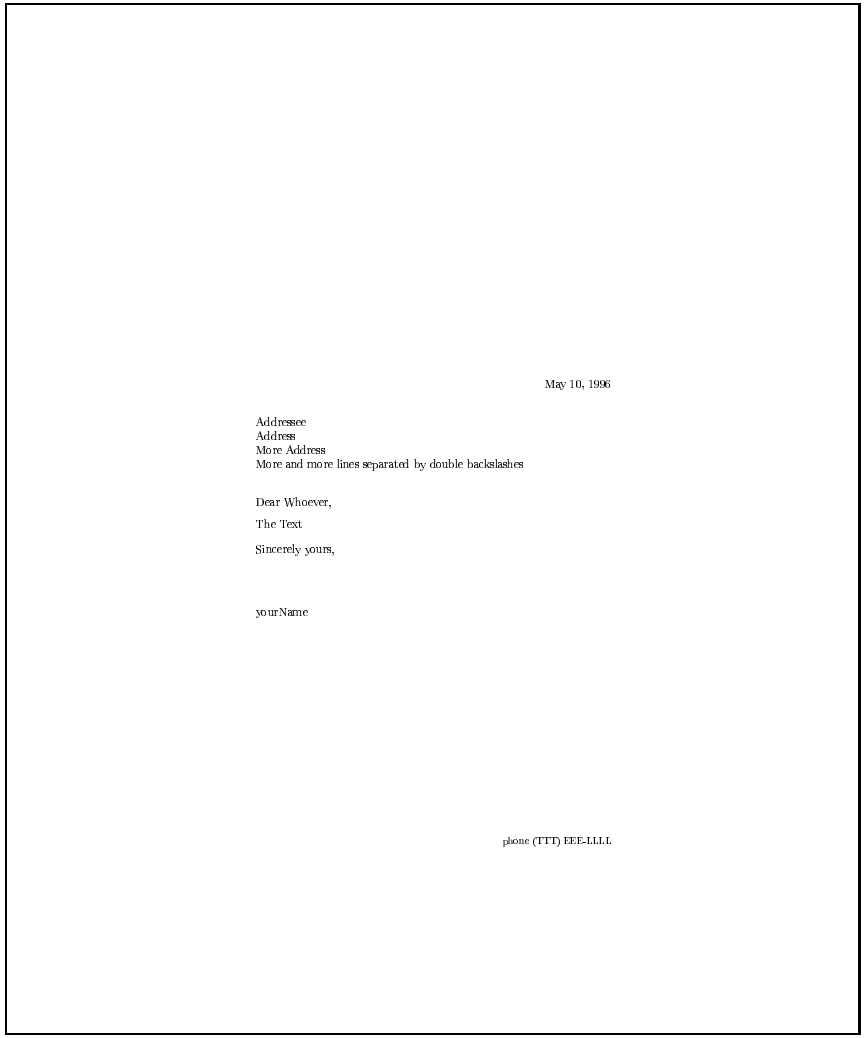
put in custom date; delete this line for today's date

[1]Research partially supported by ...
[2]Research partially supported by ...

9.3 Letters

9.3.1 Letter Template

teletter 1/18 `%&latex2.09␣␣␣␣␣teletter` teletter



May 10, 1996

Addressee
Address
More Address
More and more lines separated by double backslashes

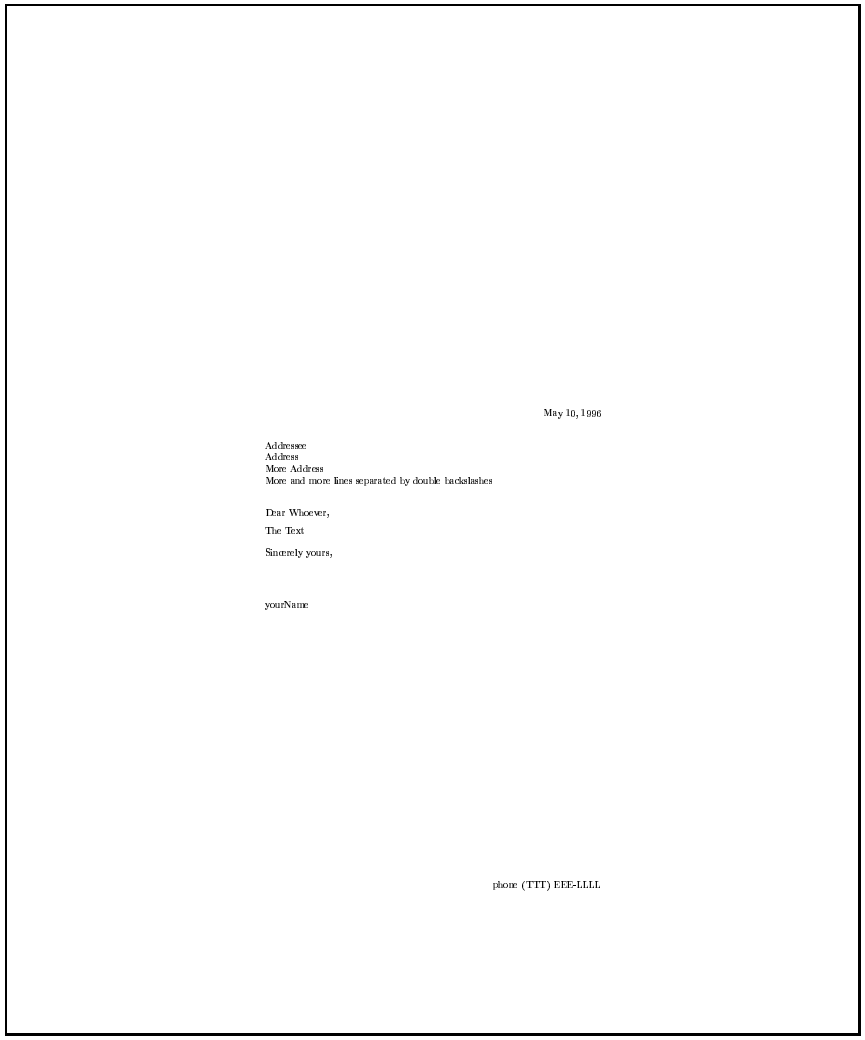
Dear Whoever,

The Text

Sincerely yours,

yourName

phone (TTT) EEE-LLLL


May 10, 1996
Addressee
Address
More Address
More and more lines separated by double backslashes
Dear Whoever,
The Text
Sincerely yours,
yourName
phone (TTT) EEE-LLLL

9.3.2 Letter.def Macro

letterdef		letter.def; macro for letters; undefined use std letter.sty

9.4 Miscellaneous

9.4.1 Verbatim

bcmnt	1/1	`\begin{comment}`	begin comment environment
ecmnt	1/1	`\end{comment}`	end commend enviornment
vrb	1/1	`\verb`	verbatim: usage \verb"phrase in tt font"
bvrb	1/1	`\begin{verbatim}`	begin the verbatim environment
evrb	1/1	`\end{verbatim}`	end the verbatim environment
vrbinp			verbatim input file (not in LaTeX)
verbatimdef			macro verbatim.def for AmSTeX (not in LaTeX)

9.4.2 Comments

cbx	1/4	`%==========================================%`
cld	1/2	`%------------------------------------------------------------------------`
cldd	1/2	`%========================================================================`
cpct	1/2	`%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%`
crlr	1/5	`%============================================================%`
csd	1/2	`%---------------------------`
csdd	1/2	`%===========================`

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