\(</p>

### \LaTeX{} Command Summary

Lloyd Botway and Chris Biemesderfer  
Space Telescope Science Institute  
Baltimore, MD 21218  
February 15, 2019

This listing contains short descriptions of the control sequences that are likely to be handy for users of \LaTeX{} v2.09 layered on \TeX{} v2.0. Some of these commands are \LaTeX{} macros, while others belong to plain \TeX{}; no attempt to differentiate them is made. We would appreciate hearing about errors in the list.

\[\text{— ordinary space after period.}\]
\[\text{! — negative thin space = } \frac{1}{6} \text{ quad; } xx\!\!x \text{ yields } xxx \text{ (math mode).}\]
\[\text{“ makes an umlaut, as ö.}\]
\[\# \text{ prints a pound sign: #.}\]
\[\$ \text{ prints a dollar sign: $}.\]
\[\% \text{ prints a percent sign: %}.\]
\[\& \text{ prints an ampersand: &.}\]
\[\text{‘ in tabbing environment moves current column to the right of the previous column. Elsewhere, acute accent, as ó.}\]
\[\langle — \text{ start math mode. Same as } \\text{begin{math} or}$].\]
\[\rangle — \text{ end math mode. Same as } \text{end{math} or $}.\]
\[\* \text{ is a discretionary multiplication sign, at which a line break is allowed.}\]
\[\text{+ moves left margin to the right by one tab stop. Begin tabbed line.}\]
\[\text{, — thin space = } \frac{1}{5} \text{ quad; } xx, x \text{ yields } xx x. \text{ It is not restricted to math mode.}\]
\[\text{— in tabbing environment, moves left margin to the left by one tab stop. Elsewhere, optional hyphenation.}\]
\[\text{. puts a dot accent over a letter, as ó.}\]
\[\text{- inserts italics adjustment space.}\]
\[\text{— medium space = } \frac{2}{3} \text{ quad; } xx::x \text{ yields } xx x \text{ (math mode).}\]
\[\text{— thick space = } \frac{5}{18} \text{ quad; } xx;x \text{ yields } xx x \text{ (math mode).}\]
\[\text{< in tabbing environment, puts text to left of local left margin.}\]
\[\text{= in tabbing environment, sets a tab stop. Elsewhere, makes a macron accent, as ó.}\]
\[\text{\textgreater in tabbing environment is a forward tab. Otherwise, medium space = } \frac{4}{9} \text{ quad (math mode).}\]
\[\\text{ declares that the period that follows to be a sentence-ending period.}\]
\[\text{[ — same as } \text{begin{displaymath} or $$}.\]
\[\text{\text{ terminates a line.}\]
\[\text{\* terminates a line, but disallows a pagebreak.}\]
\[\text{\| (math mode).}\]
\[\text{\text{ prints a curly right brace: }.}\]
\[\text{\text{ makes a tilde, as ñ.}\]
\[\text{\text{ makes an acute accent in tabbing environment, as ó.}\]
\[\text{\text{ makes a grave accent in tabbing environment, as ó.}\]
\[\text{\text{ makes a macron accent in tabbing environment, as ó.}\]
\[\text{\text{ is á. \text{\AA} is Á.}\]
\[\text{\text{ makes an acute accent: á (math mode).}\]
\[\text{\text{ adds the command } \text{contentsline{section}{name} to the .toc file.}\]
\[\text{\text{ declares the return address in the letter document style.}\]
\[\text{\text{ writes text to the .toc file.}\]
\[\text{\text{ adds amount to counter name.}\]
\[\text{\text{ adds length to length command \text{\n}. See also \text{setlength}, \text{newlength}, \text{set towidth}.}\]
\[\text{\text{ is æ. \text{\AE} is É.}\]
\[\text{\text{ prints counter as lower-case letters. \text{\Alph{counter} prints upper-case letters.}\]
\[\text{\text{ is α (math mode).}\]
\[\text{\text{ is II (math mode).}\]
\[\text{\text{ separates multiple authors for the \text{\maketitle} command.}\]
\[\text{\text{ is } \mathcal{Z} (math mode).}\]
\begin{itemize} \item \begin{description} \item \begin{enumerate} \item \begin{quote} \begin{abstract} \begin{itemize} \item \begin{center} \begin{table} \begin{eqnarray*} \end{eqnarray*} \end{figure} \end{itemize} \end{abstract} \end{itemize} \end{center} \end{table} \end{figure} \end{figure*} \end{center} \end{quote} \end{abstract} \end{itemize} \end{description} \end{enumerate} \end{itemize}
at pos (see positions on page 8). Document styles report and article use the default \tbp.
\begin{table*}[pos] begins a two-column-wide table. See \begin{tabular}.
\begin{tabular}{arg} starts an array environment which can be used in or out of math mode. arg contains column text positioning commands r, l, c, @{\ldots}, p{length} (see \begin{tabular}.
\begin{verbatim} draws a horizontal line across columns.
\end{verbatim}
\begin{verbatim} repeats that entry 7 times.
\end{verbatim}
\begin{verbatim} produces a reference, in square brackets, to a bibliographic item created with \bibitem\ref. \end{verbatim}
\begin{verbatim} can be inserted in the entry.
\end{verbatim}
\begin{verbatim} makes a breve accent: ˘ (math mode).
\end{verbatim}
\begin{verbatim} is like \begin{center}
\end{verbatim} (math mode).
\begin{verbatim} is like \begin{center}
\end{verbatim} (math mode).
\begin{verbatim} is like \begin{center}
\end{verbatim} (math mode).
\begin{verbatim} makes a breve accent: ȧ (math mode).
\end{verbatim}
\begin{verbatim} makes three dots centered on the line: \ldots (math mode).
\end{verbatim}
\clubsuit is ♠ (math mode).
\columnsep — distance between columns in two-column text.
\columnseprule — width of the rule between columns on two-column pages.
\columnwidth — width of the current column.
  Equals \textwidth in single-column text.
\coprod is \coprod (math mode).
\copyright is ©.
\cos is \cos (math mode).
\cosh is \cosh (math mode).
\cot is \cot (math mode).
\coth is \coth (math mode).
\csc is \csc (math mode).
\cup is ∪ (math mode).
\d makes a “dot under” accent, as o...
\dag is †.
\dagger is † (math mode).
\dashbox{dwidth}(width,height)[pos]{text}
  creates a dashed rectangle around text in a picture environment. Dashes are dwidth units wide; dimensions of rectangle are width and height; text is positioned at optional pos (see positions on page 8).
\dashv is ⊣ (math mode).
\date{adate} declares the date for the \maketitle command. The default is \today.
\day — current day of the month.
\dblfloatpagefraction — minimum fraction of a float page that must be occupied by floats, for two-column float pages.
\dblfloatsep — distance between floats at the top or bottom of a two-column float page.
\dbltexfloatsep — distance between double-width floats at the top or bottom of a two-column page and the text on that page.
\dtopfraction — maximum fraction at the top of a two-column page that may be occupied by floats.
\ddag is ‡.
\dagger is ‡ (math mode).
\ddot makes a dieresis over a letter: ˙a (math mode).
\ddots produces a diagonal ellipsis ... (math mode).
\deg is \deg (math mode).
\delta is δ. \Delta is ∆ (math mode).
\det is \det (math mode).
\diamond is ◇. \Diamond is ◊ (both math mode).
\diamondsuit is ♦ (math mode).
\dim is \dim (math mode).
\displaystyle switches to displaymath or equation environment typesetting (math mode).
\div is ÷ (math mode).
\documentstyle[substy]{sty} determines default font, headings, etc. for document of style \sty (and optional substyle substy) Styles: article, book, letter, report, slides. Substyles: 1ipt, 12pt, acm, draft, fleqn, leqno, twocolumn, twoside.
\dot makes a dot over a letter: ȧ (math mode).
\doteq is ≐ (math mode).
\dotfill expands to fill horizontal space with row of dots.
\doublerrulesep — horizontal distance between vertical rules created by || in tabular or array environment.
\dowarrow is ↓. \Downarrow is ⇓ (math mode).
\ell is ℓ (math mode).
\em toggles between roman and italic fonts for emphasis.
\emptyset is ∅ (math mode).
\encl{text} declares a list of enclosures for letter document style.
\end{environment} ends an environment begun by \begin{environment} (q.v.).
\epsilon is ϵ (math mode).
\equiv is ≡ (math mode).
\eta is η (math mode).
\evensidemargin — distance between left side of page and text’s normal left margin, for even-numbered pages in two-sided printing.
\exists is ∃ (math mode).
\exp is \exp (math mode).
\fbox{text} makes a framed box around text.
\fboxrule — thickness of ruled frame for \fbox and \framebox.
\fboxsep — space between frame and text for \fbox and \framebox.
\fill — rubber length (glue) that can stretch to arbitrary length. Usually used to justify text a particular way.
\flat is ♭ (math mode).
\textbf{\textbackslash floatpagefraction} — minimum fraction of a float page occupied by floats.

\textbf{\textbackslash floatsep} — distance between floats that appear at the top or bottom of a text page.

\textbf{\textbackslash flushbottom} causes pages to be stretched to \textbf{\textbackslash textheight}.

\textbf{\textbackslash fnsymbol{counter}} prints counter as one of the set of “footnote symbols”. counter must be less than 10.

\textbf{\textbackslash footheight} — height of box at bottom of page that holds page number.

\textbf{\textbackslash footnote{text}} creates a footnote of text.

\textbf{\textbackslash footnotemark} puts a footnote number into the text.

\textbf{\textbackslash footnotesep} — vertical distance between bottom of last line of text and bottom of page footing.

\textbf{\textbackslash footnotetext{text}} specifies the text for a footnote which was indicated by a \textbf{\textbackslash footnotemark}.

\textbf{\forall} is ∀ (math mode).

\textbf{\textbackslash frac{numerator}{denominator}} produces a fraction in math environments.

\textbf{\textbackslash frame{text}} makes a framed (outlined) box around text, with no margin between the text and the frame.

\textbf{\textbackslash framebox[size][pos]{text}} produces a framed box of dimension size containing text, optionally positioned l or r.

In picture environment, \textbf{\textbackslash framebox(width,height)[pos]{text}} creates a rectangle around text; dimensions of rectangle are width and height; text is positioned at optional pos (see positions on page 8).

\textbf{\textbackslash frown} is ↢ (math mode).

\textbf{\textbackslash fancy} is the default declaration for the line-breaking algorithm (cf. \textbackslash sloppy).

\textbf{\textbackslash gamma} is γ. \textbf{\textbackslash Gamma} is Γ (math mode).

\textbf{\textbackslash gcd} is gcd (math mode).

\textbf{\textbackslash ge} is ≥ (math mode).

\textbf{\textbackslash geq} is ≥ (math mode).

\textbf{\textbackslash gets} is ← (math mode).

\textbf{\textbackslash gg} is ≫ (math mode).

\textbf{\textbackslash glossary{text}} appends text to the .glo file by writing a \textbf{\textbackslash glossaryentry{text}{ref}} command.

\textbf{\textbackslash glossaryentry{text}{ref}} is written to the .glo file for \textbf{\textbackslash glossary{text}} occuring at reference ref.

\textbf{\textbackslash grave} makes a grave accent: à (math mode).

\textbf{\textbackslash H} prints a long Hungarian umlaut, as õ.

\textbf{\textbackslash hat} makes a circumflex: â (math mode).

\textbf{\textbackslash hbar} is ¯ (math mode).

\textbf{\textbackslash headheight} — height of box at top of page that holds running head.

\textbf{\textbackslash headsep} — vertical distance between bottom of head and top of text.

\textbf{\textbackslash heartsuit} is ♥ (math mode).

\textbf{\textbackslash hfill} is \hspace{\fill} (cf. \textbackslash fill).

\textbf{\textbackslash hline} draws a horizontal line across all columns of a \textbf{\textbackslash tabular} or \textbf{\textbackslash array} environment.

\textbf{\textbackslash hom} is hom (math mode).

\textbf{\textbackslash hookleftarrow} is ← (math mode).

\textbf{\textbackslash hookrightarrow} is → (math mode).

\textbf{\textbackslash hrulefill} expands to fill horizontal space with horizontal rule.

\textbf{\textbackslash hspace{len}} leaves a horizontal space of dimension len.

\textbf{\textbackslash hspace*{len}} is like \textbf{\textbackslash hspace{len}} but space is not removed at the beginning or end of a line.

\textbf{\textbackslash huge} switches to a very large typeface. \textbf{\textbackslash Huge} is even bigger.

\textbf{\textbackslash hyphenation{wordlist}} declares hyphenation as indicated; wordlist contains words separated by spaces, with hyphens indicated (e.g. “aard-vark cal-i-bra-tion”).

\textbf{\textbackslash i} is i.

\textbf{\textbackslash iff} is ⇐⇒ (math mode).

\textbf{\textbackslash Im} is ℑ (math mode).

\textbf{\textbackslash imath} is ı (math mode).

\textbf{\textbackslash in} is ∈ (math mode).

\textbf{\textbackslash index{filename}} brings in filename text at that point.

\textbf{\textbackslash includeonly{file1,file2,...}} limits recognition of \textbackslash include files.

\textbf{\textbackslash indexentry{text}} appends text to the .idx file by writing an \textbf{\textbackslash indexentry{text}} command.

\textbf{\textbackslash indexentry{text}{ref}} is written to the .idx file for \textbf{\textbackslash index{text}} occuring at reference ref.

\textbf{\textbackslash indexspace} puts blank space before first index entry starting with a new letter.

\textbf{\textbackslash inf} is inf (math mode).

\textbf{\textbackslash infty} is ∞ (math mode).
\texttt{\textbackslash input\{file\}} brings in text from \texttt{file.tex} at that point.

\texttt{\textbackslash int} is \( \int \) (math mode).

\texttt{\textbackslash intextsep} — vertical space placed above and below float in middle of text.

\texttt{\textbackslash iota} is \( \iota \) (math mode).

\texttt{\textbackslash it} switches to Italic type.

\texttt{\textbackslash item\{text\}} indicates a list entry. \textit{text} is optional, used in \texttt{description} environment.

\texttt{\textbackslash itemindent} — extra indentation before label in list item. Default is 0mm.

\texttt{\textbackslash itemsep} — vertical space between successive list items.

\texttt{\textbackslash j} is \( \jmath \).

\texttt{\textbackslash jmath} is \( \jmath \) (math mode).

\texttt{\textbackslash Join} is \( \Join \) (math mode).

\texttt{\textbackslash kapp{\it{a}}} is \( \kappa \) (math mode).

\texttt{\textbackslash ker} is ker (math mode).

\texttt{\textbackslash kill} — in a \texttt{tabbing} environment, deletes previous line so tabs can be set without outputting text.

\texttt{\textbackslash l} is \( l \). \texttt{\textbackslash L} is \( L \).

\texttt{\textbackslash label\{text\}} provides a reference point that is accessed with \texttt{\textbackslash ref\{text\}} or \texttt{\textbackslash pagereref\{text\}}.

\texttt{\textbackslash labelwidth} — width of box containing list item label.

\texttt{\textbackslash labelsep} — vertical space between successive list items.

\texttt{\textbackslash lambda} is \( \lambda \). \texttt{\textbackslash Lambda} is \( \Lambda \) (math mode).

\texttt{\textbackslash land} is \( \land \) (math mode).

\texttt{\textbackslash langle} (math mode).

\texttt{\textbackslash large}, \texttt{\textbackslash Large}, and \texttt{\textbackslash LARGE} switch to successively larger than \texttt{\textbackslash normalsize} type sizes.

\LaTeX produces the \LaTeX logo.

\texttt{\textbackslash brace} is \{ (math mode).

\texttt{\textbackslash lbrace} is \{ (math mode).

\texttt{\textbackslash lceil} is \( \lceil \) (math mode).

\texttt{\textbackslash lfloor} is \( \lfloor \) (math mode).

\texttt{\textbackslash lbrace} is \( \lbrack \) (math mode).

\texttt{\textbackslash lbrack} is \( \lbrack \) (math mode).

\texttt{\textbackslash ldots} makes three dots at the base of the line: \ldots (cf. \texttt{\textbackslash cdots}).

\texttt{\textbackslash le} is \( \le \) (math mode).

\texttt{\textbackslash leadsto} is \( \leadsto \) (math mode).

\texttt{\textbackslash left^{}} (where ^ is a delimiter) must be paired with \texttt{\textbackslash right^{}} (not necessarily using the same delimiter). ‘^’ acts as a null delimiter (math mode).

\texttt{\textbackslash leftarrow} is \( \leftarrow \). \texttt{\textbackslash Leftarrow} is \( \Leftrightarrow \) (math mode).

\texttt{\textbackslash leftbrace} is \( \leftbrace \).

\texttt{\textbackslash leftangle} is \( \leftangle \).

\texttt{\textbackslash leftmapsto} is \( \mapsto \).

\texttt{\textbackslash longleftangle} is \( \longleftangle \).

\texttt{\textbackslash longleftarrow} is \( \longleftarrow \).

\texttt{\textbackslash longleftarrow} is \( \Longleftarrow \) (math mode).

\texttt{\textbackslash longmapsto} is \( \mapsto \) (math mode).

\texttt{\textbackslash longrightarrow} is \( \longrightarrow \).

\texttt{\textbackslash Longrightarrow} is \( \Longrightarrow \) (math mode).

\texttt{\textbackslash leq} is \( \leq \) (math mode).

\texttt{\textbackslash leqno} is \( \leq \) (math mode).

\texttt{\textbackslash lg} is \( \lg \) (math mode).

\texttt{\textbackslash lhd} is \( \lhd \) (math mode).

\texttt{\textbackslash lim} is \( \lim \) (math mode).

\texttt{\textbackslash liminf} is \( \liminf \) (math mode).

\texttt{\textbackslash limsup} is \( \limsup \) (math mode).

\texttt{\textbackslash linethickness\{dimen\}} sets the thickness for all \texttt{\textbackslash line} lines in a \texttt{\textbackslash picture} environment.

\texttt{\textbackslash linebreak\{n\}} forces a line to break exactly at this point, and adjusts line just terminated (cf. \texttt{\textbackslash newline}). \texttt{n} is optional: 0 is an optional break, 4 is a mandatory break, 1, 2 and 3 are intermediate levels of insistency.

\texttt{\textbackslash linewidth} is the width of the current line in a paragraph.

\texttt{\textbackslash listoffigures} begins a list of figures with heading.

\texttt{\textbackslash listoftables} begins a list of tables with heading.

\texttt{\textbackslash listparindent} — extra indentation added to first line of every paragraph of an item after the first, in \texttt{\textbackslash list} environment.

\texttt{\textbackslash ll} is \( \ll \) (math mode).

\texttt{\textbackslash in} is \( \ln \) (math mode).

\texttt{\textbackslash lnot} is \( \lnot \) (math mode).

\texttt{\textbackslash log} is \( \log \) (math mode).

\texttt{\textbackslash longleftarrow} is \( \Longleftarrow \) (math mode).

\texttt{\textbackslash longleftarrow} is \( \longleftarrow \).

\texttt{\textbackslash longleftarrow} is \( \Longrightarrow \) (math mode).

\texttt{\textbackslash longrightarrow} is \( \longrightarrow \). \texttt{\textbackslash Longrightarrow} is \( \Longrightarrow \) (math mode).
\lor \text{ is } \vee \text{ (math mode).} \\
\lq \text{ is a left-quote: ‘.} \\
\makesize[size][pos]{text} \text{ creates a box of dimension size containing text at optional pos.} \\
\makebox[width][pos]{text} \text{ puts text in a box; dimensions of box are width and height; text is positioned at optional pos (see positions on page 8).} \\
\makeglossary \text{ enables writing of } \\
glossaryentry \text{ commands to a .glo file.} \\
\makeindex \text{ enables writing of \indexentry commands to a .idx file.} \\
\maketitle \text{ produces a title with \title, \author, and, optionally, \date.} \\
\mapsto \text{ is } \mapsto \text{ (math mode).} \\
\marginpar{text} \text{ puts text in the margin as a note.} \\
\marginparpush \text{ — minimum amount of vertical space between two marginal notes.} \\
\marginparsep \text{ — horizontal space between margin and marginal note.} \\
\marginparwidth \text{ — width of a marginal note.} \\
\markboth{lhd}{rhd} \text{ defines the left-hand heading lhd and the right-hand heading rhd for the headings and myheadings page styles.} \\
\markright{rhd} \text{ defines the right-hand heading rhd for the headings and myheadings page styles.} \\
\max \text{ is } \max \text{ (math mode).} \\
\mbox{text} \text{ places text into a horizontal box.} \\
\medskip \text{ — standard “medium” vertical skip.} \\
\medskipamount \text{ — default length for \medskip.} \\
\mho \text{ is } \Omega \text{ (math mode).} \\
\mid \text{ is } | \text{ (math mode).} \\
\min \text{ is min (math mode).} \\
\mit \text{ is “math italic” as in } II \text{ (math mode).} \\
\models \text{ is } \models \text{ (math mode).} \\
\month \text{ — current month of the year.} \\
\mp \text{ is } \mp \text{ (math mode).} \\
\mu \text{ is } \mu \text{ (math mode).} \\
\multicolumn{noc}{fmt}{text} \text{ in tabular environment puts text across noc columns using positioning format fmt (c, r, l, and/or 1).} \\
\multicolumn{noc}{fmt}{text} \text{ in tabular environment puts text across noc columns using positioning format fmt (c, r, l, and/or 1).} \\
\multinumput{x, y} \{\Delta x, \Delta y\} \{n\}{obj} \text{ is } \\
\put{x, y\}{obj} \\
\put{x + \Delta x, y + \Delta y\}{obj} \\
\ldots \\
\put{x + (n - 1)\Delta x, y + (n - 1)\Delta y\}{obj}. \\
\nabla \text{ is } \nabla \text{ (math mode).} \\
\natural \text{ is } \natural \text{ (math mode).} \\
\ne \text{ is } \ne \text{ (math mode).} \\
\nearrow \text{ is } \nearrow \text{ (math mode).} \\
\neg \text{ is } \neg \text{ (math mode).} \\
\newcommand{cs}[narg]{def} \text{ defines a new control sequence } \cs \text{ with definition def.} \\
\newcounter{counter}[name] \text{ defines a counter optionally to be zeroed whenever the name counter is incremented.} \\
\newenvironment{env}{env2}{label}[sectyp] \text{ defines a new environment, optionally with some number of arguments env. def1 is executed when the environment in entered and def2 is executed when it is exited.} \\
\newfont{cs}{name} \text{ defines a control sequence } \cs \text{ that chooses the font name.} \\
\newlength{\nl} \text{ sets up } \nl \text{ as a length of 0in.} \\
\newlength{\nl} \text{ sets up } \nl \text{ as a length of 0in.} \\
\newlength{\nl} \text{ sets up } \nl \text{ as a length of 0in.} \\
\newpage \text{ ends a page where it appears. (cf. \clearpage).} \\
\newsavebox{binname} \text{ declares a new bin to hold a \savebox.} \\
\newtheorem{env}{env2}{label}[sectyp] \text{ defines a new theorem environment env (optionally with the same numbering scheme as environment env2) with labels label.} \\
\n \text{Optionally, theorem numbers can be related to document section sectyp.} \\
\ni \text{ is } \ni \text{ (math mode).} \\
\nofiles \text{ suppresses writing of auxiliary files .idx, .toc, etc.} \\
\noindent \text{ suppresses indentation of first line of paragraph.} \\
\nlinebreak[n] \text{ prevents a line break at that point (cf. \linebreak on page 6).} \\
\nonumber \text{ is used in an eqnarray environment to suppress equation numbering.} \\
\nopagebreak[n] \text{ prevents a page break at that point (cf. \linebreak on page 6).} \\
\normalmarginarith \text{ is default declaration for placement of marginal notes (cf. \reversemarginarith).} \\
\normalsize \text{ is the default type size for the document.}
\texttt{\not} puts a slash through a relational operator: \texttt{\not=} is \neq (math mode).
\texttt{\notin} is \notin (math mode).
\texttt{\nu} is \nu (math mode).
\texttt{\narrow} is \neg (math mode).
\texttt{\o} is \o (math mode).
\texttt{\obeycr} makes embedded carriage returns act like line terminators.
\texttt{\oddsidemargin} — distance between left side of page and text's normal left margin.
\texttt{\odot} is \odot (math mode).
\texttt{\oe} is œ.
\texttt{\OE} is Œ.
\texttt{\oint} is \oint (math mode).
\texttt{\omega} is \omega.
\texttt{\Omega} is \Omega (math mode).
\texttt{\ominus} is \ominus (math mode).
\texttt{\onecolumn} sets text in single column (default) (cf. \texttt{\twocolumn}.
\texttt{\opening} declares an opening for letter document style.
\texttt{\oplus} is \oplus (math mode).
\texttt{\oslash} is \oslash (math mode).
\texttt{\otimes} is \otimes (math mode).
\texttt{\oval(x,y)} as an argument to \texttt{\put} draws an oval x units wide and y units high.
\texttt{\overbrace} gives \overbrace (math mode).
\texttt{\overline} gives \overline (math mode).
\texttt{\owns} is \owns (math mode).
\texttt{\parbox}[pos]{size}{text} is a box created in paragraph mode. Text is positioned optionally at pos (see positions on page 8). Width is size.
\texttt{\parindent} — horizontal indentation added at beginning of paragraph.
\texttt{\parsep} — extra vertical space between paragraphs within a list item.
\texttt{\parskip} — extra vertical space between paragraphs, normally.
\texttt{\part[toctitle]{text}} begins a new part, automatically headed and numbered. Optional toctitle contains entry for the table of contents if different from text.
\texttt{\part*{text}} begins a part and prints a title, but doesn’t include a number or make a table of contents entry.
\texttt{\partial} is \partial (math mode).
\texttt{\parbox} undoes the previous \texttt{\pushtabs} command (restore prior tab settings).
\texttt{\pounds} is £.
\texttt{\Pr} is Pr (math mode).
\texttt{\prec} is \prec (math mode).
\texttt{\preceq} is \preceq (math mode).
\texttt{\prime} is ′ (math mode).
\texttt{\prod} is \prod (math mode).
\texttt{\pmod{modulus}} is “parenthesized” modulo expression \( u \pmod{2^e - 1} \) (math mode).
\texttt{\poptabs} undoes the previous \texttt{\pushtabs} command (restore prior tab settings).
\texttt{\positions}, for boxing commands: \texttt{t=top}, \texttt{b=bottom}, \texttt{h=here}, \texttt{l=left}, \texttt{c=center}, \texttt{r=right}, \texttt{p=new page (figure environment)}, \texttt{p=parbox (tabular environment)}.
\texttt{\pounds} is £.
\texttt{\Pr} is Pr (math mode).
\texttt{\prec} is \prec (math mode).
\texttt{\preceq} is \preceq (math mode).
\texttt{\prime} is ′ (math mode).
\texttt{\prod} is \prod (math mode).
\texttt{\propto} is \propto (math mode).
\texttt{\protect} permits the use of “dangerous” commands in \@-expressions, or in sectioning command and \texttt{\caption} arguments.
\texttt{\ps} in \texttt{\letter} document style permits additional text after \texttt{\closing}.
\texttt{\psi} is \psi. \texttt{\Psi} is \Psi (math mode).
\texttt{\pushtabs} in \texttt{\tabbing} environment lets you stack tab stop definitions. Undo with \texttt{\poptabs}.
\put(x,y){stuff} is the basic picture-drawing command. (x,y) is the reference point, whose meaning varies for different stuff. stuff may be anything that goes in an \mbox.

\raggedbottom causes pages to assume natural height.

\raggedleft declares all text that follows is to be flush against the right margin (cf. \begin{flushright}).

\raggedright declares all text that follows is to be flush against the left margin (cf. \begin{flushleft}).

\raisebox{dim}{	ext} moves text up by dim (which may be negative). Optional \text extends \text above the baseline (and optionally \text below it).

\rangle is \rangle (math mode).

\rbrace is \} (math mode).

\rbrack is \] (math mode).

\rceil is ⌈ (math mode).

\Re is ℜ (math mode).

\ref{text} is the section number in which \label{text} occurs.

\renewcommand{\cs}[narg]{def} redefines an old control sequence \cs with definition def. Optionally, narg is the number of arguments, indicated in def as #1, #2, etc.

\renewenvironment{envname}[narg]{def1}{def2} redefines an old new environment. See \newenvironment.

\restorecr undoes the \obeycr command (makes carriage return a space-producing character).

\reversemarginpar causes opposite margin to be used for marginal notes (e.g., left margin on odd-numbered pages).

\rfloor is ] (math mode).

\rhd is \rhd (math mode).

\rho is ρ (math mode).

\right* (where * is a delimiter) must be paired with \left* (not necessarily using the same delimiter). \text acts as a null delimiter (math mode).

\rightarrow is \rightarrow. \Rightarrow is \Rightarrow (math mode).

\rightharpoondown is \rightarrow (math mode).

\rightharpoonup is \rightarrow (math mode).

\rightleftharpoons is \Rightarrow \Leftarrow (math mode).

\rightmargin — in list environment, horizontal distance between right margin of enclosing environment and right margin of list. Default 0in.

\rm switches to Roman type.

\roman{counter} prints counter in lower-case roman numerals. \Roman{counter} prints upper-case roman numerals.

\rq is a right-quote: ‘.

\rule{height}{length}{width} makes a rectangular blob of ink length long, width wide, with optional height above baseline.

\S is §.

\savebox{\binname}[width]{pos}{text} is exactly like \makebox (q.v.), but saves box definition in bin \binname. Access with \usebox{\binname}.

\setcounter{counter}{value} resets the value of counter.

\setlength{\nl}{length} sets value of length command \nl to length. See also \addtolength, \newlength, \settowidth.

\setminus is \\ (math mode).

\settowidth{\nl}{text} sets value of length command \nl to the width of text. See also \setlength, \newlength, \addtolength.

\sf switches to sans serif font.

\sharp is ♯ (math mode).

\shortstack[pos]{x\yy\zzz} yields \text{zzz}, a one-column tabular arrangement of its arguments. Optional pos can be 1 or r for text position.

\sigma is σ. \Sigma is Σ (math mode).
\signature{text} declares a signature for letter document style.
\sim is \sim (math mode).
\simeq is \simeq (math mode).
\sin is \sin (math mode).
\sinh is \sinh (math mode).
\sl switches to slanted typeface.
\sloppy relaxes the line-breaking algorithm to allow more or less distance between words. Default is \fussy.
\small switches to smaller than normalsize typeface.
\smallint is \int (math mode).
\smallskip is \smallskip (standard “small” vertical skip).
\smallskipamount is the default length for \smallskip.
\smallskipamount is \smallskipamount (default length for \smallskip).
\smile is \smile (math mode).
\spadesuit is \spadesuit (math mode).
\sqcap is \sqcap (math mode).
\sqcup is \sqcup (math mode).
\sqrt[3]{arg} is \sqrt[3]{arg} (root is optional).
\sqsubset is \sqsubset (math mode).
\sqsubseteq is \sqsubseteq (math mode).
\sqsupset is \sqsupset (math mode).
\sqsupseteq is \sqsupseteq (math mode).
\ss is ß.
\stackrel{stuff}{delim} puts stuff above the delim; \stackrel{f}{\longrightarrow} yields \stackrel{f}{\longrightarrow} (math mode).
\star is \star (math mode).
\stop — type this if \TeX stops with a * and no error message.
\subparagraph[toctitle]{text} begins a subparagraphs, automatically headed and numbered. Optional toctitle contains entry for the table of contents if different from text.
\subparagraph{text} begins a subparagraph and prints a title, but doesn’t include a number or make a table of contents entry.
\subsection[toctitle]{text}, \subsubsection[toctitle]{text}, \subparagraph[toctitle]{text}, \subparagraph{text}, \subsection{text}, \subsubsection{text} begin new subsections, automatically headed and numbered. Optional toctitle contains entry for the table of contents if different from text.
\subset is \subset (math mode).
\subseteq is \subseteq (math mode).
\succ is \succ (math mode).
\succeq is \succeq (math mode).
\sum is \sum (math mode).
\sup is \sup (math mode).
\supset is \supset (math mode).
\supseteq is \supseteq (math mode).
\surd is \sqrt (math mode).
\swarrow is \swarrow (math mode).
\symbol{cc} produces the symbol (glyph) character code cc in the current font.
\t prints a “tie-after” accent, as òo.
\tabbingsep — distance to left of a tab stop moved by \'.
\tabcolsep — half the width of the space between columns in \textbf{tabular} environment.
\tableofcontents produces a table of contents. A .toc file must have been generated during a previous \LaTeX run.
\tan is \tan (math mode).
\tanh is \tanh (math mode).
\tau is \tau (math mode).
\TeX produces the \TeX logo.
\textfloatsep — distance between floats at the top or bottom of a single-column page and the text on that page.
\textfraction — minimum fraction of a text page that must contain text.
\textwidth is the normal horizontal dimension of the body of the page.
\textstyle switches to \textbf{math} environment typesetting (math mode).
\textwidth is the normal horizontal dimension of the body of the page.
\thanks{footnote} adds an acknowledgement footnote to an author’s name used in a \maketitle command.
\theta is \theta. \Theta is \Theta (math mode).
\thicklines is an alternate line thickness for lines in a \textbf{picture} environment. See also linethickness.
\thicklines is the default declaration for line thicknesses in a \textbf{picture} environment. See \thicklines.
\thinspace is the proper space between single and double quotes, as in “”.
\thispagestyle{sty} determines characteristics of head and foot for the current page only. Used to override \pagestyle (q.v.) temporarily.
\tilde{a} makes a tilde, as: ˜a (math mode).
\times is \times (math mode).
\tiny switches to a very small typeface.
\title{text} declares a document title for the \maketitle command.
\to is \rightarrow (math mode).
\today generates today’s date.
\top is \top (math mode).
\topfraction — maximum fraction at the top of a single-column page that may be occupied by floats.
\topmargin — space between top of \TeX page (1 inch from top of paper) and top of header.
\topsep — extra vertical space added before first list item and after last list item.
\topskip — minimum distance between top of page body to bottom of first line of text.
\triangle is \triangle (math mode).
\triangleleft is \triangleleft (math mode).
\triangleright is \triangleright (math mode).
\tt switches to typewriter type.
\twocolumn[\text] declares a two-column page, with optional full-page width heading text.
\typein[\cs]{text} displays text on the screen and waits for you to enter stuff which will be put in the document at that point. Optional control sequence \cs can be assigned the value of your input, to be used later.
\typeout{text} displays text on the screen and writes it to the \lis file.
\v prints a háček, as ŏ.
\value{counter} produces the numeric value of counter.
\varepsilon is \varepsilon (math mode).
\varphi is \varphi (math mode).
\varpi is \varpi (math mode).
\varrho is \varrho (math mode).
\varsigma is \varsigma (math mode).
\vartheta is \vartheta (math mode).
\vdash is \vdash (math mode).
\vdots is \ldots (math mode).
\vec puts a vector over a letter: \vec{a} (math mode).
\vector(x,y){len} in picture environment, in \put command, draws vector from \put argument with length len and slope \(x,y\), with arrowhead.
\vee is \lor (math mode).
\verb/text/ creates a local verbatim environment for text, printed in typewriter font. Note that text is not in curly braces; it is between two identical delimiters, neither of which appears in text.
\verb*/text/ is like \verb/text/, but spaces print out as \(\text{ }\).
\vert is | (math mode).
\Vert is \Vert (math mode).
\vfill is \vspace{\fill} (cf. \fill).
\vspace{len} leaves a vertical space of dimension len.
\vspace*{len} is like \vspace{len} but space is not removed at the beginning or end of a page.
\wedge is \wedge (math mode).
\widehat{arg} is \hat{arg} (math mode).
\varpi is \varpi (math mode).
\wr is \wr (math mode).
\xi is \xi. \Xi is \Xi (math mode).
\year — current year (A.D.).
\zeta is \zeta (math mode).
### \LaTeX{} typefaces

<table>
<thead>
<tr>
<th>Command</th>
<th>Font Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{\textit{rm}}</td>
<td>Roman</td>
</tr>
<tr>
<td>\texttt{\textit{it}}</td>
<td>Italic</td>
</tr>
<tr>
<td>\texttt{\textbf{bf}}</td>
<td>Boldface</td>
</tr>
<tr>
<td>\texttt{\textit{sl}}</td>
<td>Slanted</td>
</tr>
<tr>
<td>\texttt{\textit{sf}}</td>
<td>Sans serif</td>
</tr>
<tr>
<td>\texttt{\textit{sc}}</td>
<td>SMALL CAPS</td>
</tr>
<tr>
<td>\texttt{\textit{tt}}</td>
<td>Typewriter</td>
</tr>
</tbody>
</table>

### \LaTeX{} environments

<table>
<thead>
<tr>
<th>Command</th>
<th>Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{abstract}</td>
<td>abstract</td>
</tr>
<tr>
<td>\texttt{array}</td>
<td>array</td>
</tr>
<tr>
<td>\texttt{center}</td>
<td>center</td>
</tr>
<tr>
<td>\texttt{description}</td>
<td>description</td>
</tr>
<tr>
<td>\texttt{displaymath}</td>
<td>displaymath</td>
</tr>
<tr>
<td>\texttt{enumerate}</td>
<td>enumerate</td>
</tr>
<tr>
<td>\texttt{equarray}</td>
<td>equarray</td>
</tr>
<tr>
<td>\texttt{equation}</td>
<td>equation</td>
</tr>
<tr>
<td>\texttt{figure}</td>
<td>figure</td>
</tr>
<tr>
<td>\texttt{flushleft}</td>
<td>flushleft</td>
</tr>
<tr>
<td>\texttt{flushright}</td>
<td>flushright</td>
</tr>
<tr>
<td>\texttt{itemize}</td>
<td>itemize</td>
</tr>
<tr>
<td>\texttt{list}</td>
<td>list</td>
</tr>
<tr>
<td>\texttt{math}</td>
<td>math</td>
</tr>
<tr>
<td>\texttt{minipage}</td>
<td>minipage</td>
</tr>
<tr>
<td>\texttt{picture}</td>
<td>picture</td>
</tr>
<tr>
<td>\texttt{quotation}</td>
<td>quotation</td>
</tr>
<tr>
<td>\texttt{quote}</td>
<td>quote</td>
</tr>
<tr>
<td>\texttt{tabbing}</td>
<td>tabbing</td>
</tr>
<tr>
<td>\texttt{table}</td>
<td>table</td>
</tr>
<tr>
<td>\texttt{tabular}</td>
<td>tabular</td>
</tr>
<tr>
<td>\texttt{theoreml}</td>
<td>theorem</td>
</tr>
<tr>
<td>\texttt{titlepage}</td>
<td>titlepage</td>
</tr>
<tr>
<td>\texttt{verbatim}</td>
<td>verbatim</td>
</tr>
<tr>
<td>\texttt{verse}</td>
<td>verse</td>
</tr>
</tbody>
</table>

### Dimensions or lengths

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{pt}</td>
<td>point (72.27 pt/in)</td>
</tr>
<tr>
<td>\texttt{pc}</td>
<td>pica (12 pt/pc)</td>
</tr>
<tr>
<td>\texttt{in}</td>
<td>inch</td>
</tr>
<tr>
<td>\texttt{bp}</td>
<td>big point (72 bp/in)</td>
</tr>
<tr>
<td>\texttt{cm}</td>
<td>centimeter (2.54 cm/in)</td>
</tr>
<tr>
<td>\texttt{mm}</td>
<td>millimeter (10 mm/cm)</td>
</tr>
<tr>
<td>\texttt{dd}</td>
<td>didot point (1157 dd = 1238 pt)</td>
</tr>
<tr>
<td>\texttt{cc}</td>
<td>cicer (12 dd/cc)</td>
</tr>
<tr>
<td>\texttt{sp}</td>
<td>scaled point (65536 sp/pt)</td>
</tr>
<tr>
<td>\texttt{em}</td>
<td>font-dependent; “quad” width</td>
</tr>
<tr>
<td>\texttt{ex}</td>
<td>font-dependent; “x”-height</td>
</tr>
</tbody>
</table>

### Text-mode accents

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{ö}</td>
<td>\texttt{'{o}}</td>
</tr>
<tr>
<td>\texttt{ö}</td>
<td>\texttt{{o}}</td>
</tr>
<tr>
<td>\texttt{ö}</td>
<td>\texttt{={o}}</td>
</tr>
<tr>
<td>\texttt{ö}</td>
<td>\texttt{.{o}}</td>
</tr>
<tr>
<td>\texttt{ö}</td>
<td>\texttt{\c{o}}</td>
</tr>
<tr>
<td>\texttt{ö}</td>
<td>\texttt{^{o}}</td>
</tr>
<tr>
<td>\texttt{ö}</td>
<td>\texttt{\v{o}}</td>
</tr>
</tbody>
</table>

### Math-mode accents

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{\hat{a}}</td>
<td>\texttt{\hat{a}}</td>
</tr>
<tr>
<td>\texttt{\dot{a}}</td>
<td>\texttt{\dot{a}}</td>
</tr>
<tr>
<td>\texttt{\check{a}}</td>
<td>\texttt{\check{a}}</td>
</tr>
<tr>
<td>\texttt{\breve{a}}</td>
<td>\texttt{\breve{a}}</td>
</tr>
<tr>
<td>\texttt{\acute{a}}</td>
<td>\texttt{\acute{a}}</td>
</tr>
<tr>
<td>\texttt{\bar{a}}</td>
<td>\texttt{\bar{a}}</td>
</tr>
<tr>
<td>\texttt{\vec{a}}</td>
<td>\texttt{\vec{a}}</td>
</tr>
</tbody>
</table>

### National symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{œ}</td>
<td>\texttt{\oe}</td>
</tr>
<tr>
<td>\texttt{™}</td>
<td>\texttt{\aa}</td>
</tr>
<tr>
<td>\texttt{ø}</td>
<td>\texttt{\oe}</td>
</tr>
<tr>
<td>\texttt{æ}</td>
<td>\texttt{\ae}</td>
</tr>
<tr>
<td>\texttt{ß}</td>
<td>\texttt{\ss}</td>
</tr>
<tr>
<td>\texttt{Œ}</td>
<td>\texttt{\OE}</td>
</tr>
<tr>
<td>\texttt{Œ}</td>
<td>\texttt{\AE}</td>
</tr>
</tbody>
</table>

### Miscellaneous symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{†}</td>
<td>\texttt{\dag}</td>
</tr>
<tr>
<td>\texttt{‡}</td>
<td>\texttt{\ddag}</td>
</tr>
<tr>
<td>\texttt{©}</td>
<td>\texttt{\copyright}</td>
</tr>
<tr>
<td>\texttt{£}</td>
<td>\texttt{\pounds}</td>
</tr>
</tbody>
</table>
Relations (math mode)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>LaTeX Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>$=$</td>
<td>\equiv</td>
</tr>
<tr>
<td>$\neq$</td>
<td>\doteq</td>
</tr>
<tr>
<td>$\leq$</td>
<td>\doteqdot</td>
</tr>
<tr>
<td>$\geq$</td>
<td>\fallingdoteq</td>
</tr>
<tr>
<td>$\sim$</td>
<td>\risingdoteq</td>
</tr>
<tr>
<td>$\nless$</td>
<td>\lesssim</td>
</tr>
<tr>
<td>$\nleq$</td>
<td>\lessdot</td>
</tr>
<tr>
<td>$\nleqnsim$</td>
<td>\gtrless</td>
</tr>
<tr>
<td>$\nsim$</td>
<td>\gtrsim</td>
</tr>
<tr>
<td>$\iff$</td>
<td>\iff</td>
</tr>
<tr>
<td>$\therefore$</td>
<td>\therefore</td>
</tr>
</tbody>
</table>

\[ L \]
### Function names (math mode)

<table>
<thead>
<tr>
<th>Function</th>
<th>Function</th>
<th>Function</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>\arccos</td>
<td>\coth</td>
<td>\ker</td>
<td>\min</td>
</tr>
<tr>
<td>\arcsin</td>
<td>\deg</td>
<td>\lg</td>
<td>\Pr</td>
</tr>
<tr>
<td>\arctan</td>
<td>\det</td>
<td>\lim</td>
<td>\sec</td>
</tr>
<tr>
<td>\arg</td>
<td>\dim</td>
<td>\liminf</td>
<td>\sin</td>
</tr>
<tr>
<td>\cos</td>
<td>\exp</td>
<td>\limsup</td>
<td>\sinh</td>
</tr>
<tr>
<td>\csc</td>
<td>\gcd</td>
<td>\ln</td>
<td>\sup</td>
</tr>
<tr>
<td>\cosh</td>
<td>\hom</td>
<td>\log</td>
<td>\tan</td>
</tr>
<tr>
<td>\cot</td>
<td>\inf</td>
<td>\max</td>
<td>\tanh</td>
</tr>
</tbody>
</table>

### Miscellaneous symbols (math mode)

- \$\aleph\$$
- \$\beth\$
- \$\gimel\$
- \$\daleth\$
- \$\hbar\$
- \$\hslash\$
- \$\prime\$
- \$\emptyset\$
- \$\varnothing\$
- \$\Box\$
- \$\square\$
- \$\blacktriangle\$
- \$\blacktriangledown\$
- \$\blacklozenge\$
- \$\bigstar\$
- \$\imath\$
- \$\ell\$
- \$\wp\$
- \$\nabla\$
- \$\surd\$
- \$\Re\$
- \$\Im\$
- \$\neg\$
- \$\exists\$
- \$\notin\$
- \$\top\$
- \$\bot\$
- \$\wedge\$
- \$\angle\$
- \$\clubsuit\$
- \$\diamondsuit\$
- \$\spadesuit\$
- \$\flat\$
- \$\natural\$
- \$\checkmark\$
- \$\maltese\$
- \$\circledR\$
- \$\yen\$
- \$\complement\$
- \$\backslash\$

### Arrows (math mode)

<table>
<thead>
<tr>
<th>Arrow</th>
<th>Arrow</th>
</tr>
</thead>
<tbody>
<tr>
<td>\leftarrow</td>
<td>\longleftarrow</td>
</tr>
<tr>
<td>\nleftarrow</td>
<td>\leftleftarrows</td>
</tr>
<tr>
<td>\Leftarrow</td>
<td>\Longrightarrow</td>
</tr>
<tr>
<td>\nRightarrow</td>
<td>\nLeftrightarrow</td>
</tr>
<tr>
<td>\mapsto</td>
<td>\longmapsto</td>
</tr>
<tr>
<td>\hookleftarrow</td>
<td>\hookrightarrow</td>
</tr>
<tr>
<td>\twoheadleftarrow</td>
<td>\twoheadrightarrow</td>
</tr>
<tr>
<td>\leftrightharpoons</td>
<td>\rightleftharpoons</td>
</tr>
<tr>
<td>\upharpoonleft</td>
<td>\upharpoonright</td>
</tr>
<tr>
<td>\uparrow</td>
<td>\downarrow</td>
</tr>
<tr>
<td>\Uparrow</td>
<td>\Downarrow</td>
</tr>
<tr>
<td>\leftrightarrow</td>
<td>\iff</td>
</tr>
<tr>
<td>\nleftrightarrow</td>
<td>\niff</td>
</tr>
<tr>
<td>\leadsto</td>
<td>\multimap</td>
</tr>
</tbody>
</table>