

# 1 Capsule summary of commands

This section contains one-line descriptions of the primitive T<sub>E</sub>X commands and the T<sub>E</sub>X commands defined in plain T<sub>E</sub>X. These include both control sequences and special characters. We’ve omitted those commands that are only intended for internal use in the plain T<sub>E</sub>X definition (Appendix B of *The T<sub>E</sub>Xbook*). Note that ordinary characters such as ‘a’ or ‘6’ are also commands, and indeed the most common ones (see “character”, p. ‘character’).

To keep the descriptions brief, we’ve adopted certain conventions:

- An asterisk in front of a command indicates that the command is primitive, i.e., built into the T<sub>E</sub>X computer program (see “primitive”, p. ‘primitive’).
- The words “music”, “punctuation”, “function”, “symbol”, “relation”, “delimiter”, or “operator” in a command description imply that the command is only legal in math modes.
- The verb “display” applies to information that T<sub>E</sub>X sends to the log file, unless otherwise indicated. If `\tracingonline` is positive, T<sub>E</sub>X also sends that output to the terminal. We use the noun “display” to refer to math displays (see p. ‘display+math’), i.e., material between `$$`’s.
- The phrase “produce *x*” indicates that the command will typeset *x* and put the result in a box. We sometimes omit “produce” when the omission is unlikely to cause confusion. For example, we describe `\alpha` as “math Greek letter  $\alpha$ ”, not “produce the math Greek letter  $\alpha$ ”.

\*\\_ interword space (p. ‘\@space’)

\! negative thin space for math (p. ‘\@shriek’)

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`\"` umlaut accent for text, as in ö (p. ‘`\@quote`’)  
`#` introduce a macro parameter, or indicate where the text of an entry goes in an alignment preamble (p. ‘`@msharp`’, p. ‘`@asharp`’)  
`\#` produce # character from current font (p. ‘`\@pound`’)  
`$` begin or end a math formula (p. ‘`mathform`’)  
`\$` produce \$ character from current font (p. ‘`\@bucks`’)  
`*%` begin a comment (p. ‘`comments`’)  
`\%` produce % character from current font (p. ‘`\@percent`’)  
`&` separate templates and entries in an alignment (p. ‘`@and`’)  
`\&` produce & character from current font (p. ‘`\@and`’)  
`'` prime symbol for math, as in  $p'$  (p. ‘`@prime`’)  
`\'` acute accent for text, as in é (p. ‘`\@prime`’)  
`\*` multiplication symbol that allows a line break (p. ‘`\@star`’)  
`\+` begin tabbed line (p. ‘`\@plus`’)  
`\,` thin space for math (p. ‘`\@comma`’)  
`*\-` specify a legal hyphenation point (p. ‘`\@minus`’)  
`\.` dot accent for text, as in ñ (p. ‘`\@dot`’)  
`*\/` italic correction for the previous character (p. ‘`\@slash`’)  
`\;` thick space for math (p. ‘`\@semi`’)  
`\=` macron accent for text, as in  $\bar{r}$  (p. ‘`\@equal`’)  
`*\` begin a control sequence (p. ‘`@backslash`’)  
`\>` medium space for math (p. ‘`\@greater`’)  
`^` produce a specified subformula as a superscript (p. ‘`@hat`’)  
`\^` circumflex accent for text, as in ô (p. ‘`\@hat`’)  
`^^L` equivalent to the `\par` primitive (p. ‘`\@par`’)  
`*^^M` an end-of-line (p. ‘`@newline`’)  
`_` produce a specified subformula as a subscript (p. ‘`@underscore`’)  
`\_` underscore: `_` (p. ‘`\@underscore`’)  
`\‘` grave accent for text, as in è (p. ‘`\@lquote`’)  
`{` start a group (p. ‘`@lbrace`’)  
`\{` left brace delimiter for math: `{` (p. ‘`\@lbrace`’)  
`\|` parallel lines for math: `||` (p. ‘`\@bar`’)  
`}` end a group (p. ‘`@rbrace`’)  
`\}` right brace delimiter for math: `}` (p. ‘`\@rbrace`’)  
`~` interword space at which a line will not break (p. ‘`@not`’)  
`\~` tilde accent for text, as in ã (p. ‘`\@not`’)  
`\aa` Scandinavian letter: å (p. ‘`\aa`’)  
`\AA` Scandinavian letter: Å (p. ‘`\AA`’)  
`*\above` produce a fraction with a bar of specified thickness (p. ‘`\above`’)



`*\atopwithdelims` produce a fraction without a fraction bar and surrounded by specified delimiters (p. ‘`\atopwithdelims`’)  
`\b` bar-under accent for math, as in  $\underline{x}$  (p. ‘`\b`’)  
`\backslash` backslash symbol:  $\backslash$  (p. ‘`\backslash`’)  
`*\badness` the badness of the glue setting in the last box made (p. ‘`\badness`’)  
`\bar` bar accent for math, as in  $\bar{x}$  (p. ‘`\bar`’)  
`*\baselineskip` glue for the normal vertical distance from one baseline to the next, by default 12 pt (p. ‘`\baselineskip`’)  
`*\batchmode` don’t stop at errors and don’t output to terminal (p. ‘`\batchmode`’)  
`*\begingroup` start a group to be ended by `\endgroup` (p. ‘`\begingroup`’)  
`\beginsection` begin a major subdivision of a document (p. ‘`@beginsection`’)  
`*\belowdisplayshortskip` glue T<sub>E</sub>X inserts after a display when the previous line fits in the display’s indentation, by default 7 pt plus 0.3 pt minus 4 pt (p. ‘`\belowdisplayshortskip`’)  
`*\belowdisplayskip` glue T<sub>E</sub>X inserts after a display when the previous line doesn’t fit in the display’s indentation, by default 12 pt plus 3 pt minus 9 pt (p. ‘`\belowdisplayskip`’)  
`\beta` math Greek letter  $\beta$  (p. ‘`\beta`’)  
`\bf` use boldface, i.e., do `\tenbf\fam=\bffam` (p. ‘`\bf`’)  
`\bffam` boldface family for math (p. ‘`\bffam`’)  
`\bgroup` implicit beginning-of-group character (p. ‘`\bgroup`’)  
`\big` make the specified delimiter larger than an ordinary one, but still small enough for text (p. ‘`\big`’)  
`\Big` make the specified delimiter about 11.5 pt tall (p. ‘`\Big`’)  
`\bigbreak` indicate desirable page break with `\penalty-200` and produce `\bigskipamount` glue (p. ‘`\bigbreak`’)  
`\bigcap` large cap operator (no, it doesn’t produce a large capital letter!):  $\bigcap$  (p. ‘`\bigcap`’)  
`\bigcirc` large circle operator:  $\bigcirc$  (p. ‘`\bigcirc`’)  
`\bigcup` large cup operator:  $\bigcup$  (p. ‘`\bigcup`’)  
`\bigg` make the specified delimiter about 14.5 pt tall (p. ‘`\bigg`’)  
`\Bigg` make specified delimiter about 17.5 pt tall (p. ‘`\Bigg`’)  
`\biggl` sized like `\bigg`, but spaced as an opening (p. ‘`\biggl`’)  
`\Biggl` sized like `\Bigg`, but spaced as an opening (p. ‘`\Biggl`’)  
`\biggm` sized like `\bigg`, but spaced as a relation (p. ‘`\biggm`’)  
`\Biggm` sized like `\Bigg`, but spaced as a relation (p. ‘`\Biggm`’)  
`\biggr` sized like `\bigg`, but spaced as a closing (p. ‘`\biggr`’)  
`\Biggr` sized like `\Bigg`, but spaced as a closing (p. ‘`\Biggr`’)  
`\bigl` sized like `\big`, but spaced as an opening (p. ‘`\bigl`’)

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`\Bigl` sized like `\Big`, but spaced as an opening (p. ‘`\Bigl`’)  
`\bigm` sized like `\big`, but spaced as a relation (p. ‘`\bigm`’)  
`\Bigm` sized like `\Big`, but spaced as a relation (p. ‘`\Bigm`’)  
`\bigodot` large circled dot operator:  $\odot$  (p. ‘`\bigodot`’)  
`\bigoplus` large circled plus operator:  $\oplus$  (p. ‘`\bigoplus`’)  
`\bigotimes` large circled times operator:  $\otimes$  (p. ‘`\bigotimes`’)  
`\bigr` sized like `\big`, but spaced as a closing (p. ‘`\bigr`’)  
`\Bigr` sized like `\Big`, but spaced as a closing (p. ‘`\Bigr`’)  
`\bigskip` produce `\bigskipamount` glue (p. ‘`\bigskip`’)  
`\bigskipamount` glue for a big vertical skip, by default 12 pt plus 4 pt minus 4 pt (p. ‘`\bigskipamount`’)  
`\bigsqcup` large square cup operator:  $\sqcup$  (p. ‘`\bigsqcup`’)  
`\bigtriangledown` triangle operator pointing downward:  $\nabla$  (p. ‘`\bigtriangledown`’)  
`\bigtriangleup` triangle operator pointing upward:  $\triangle$  (p. ‘`\bigtriangleup`’)  
`\biguplus` large cupped plus operator:  $\uplus$  (p. ‘`\biguplus`’)  
`\bigvee` large logical “or” operator:  $\vee$  (p. ‘`\bigvee`’)  
`\bigwedge` large logical “and” operator:  $\wedge$  (p. ‘`\bigwedge`’)  
`*\binoppenalty` additional penalty for breaking after a binary math operator, by default 700 (p. ‘`\binoppenalty`’)  
`\bmod` modulus operator, as in  $n \bmod 2$  (p. ‘`\bmod`’)  
`\bordermatrix` produce matrix with labelled rows and columns (p. ‘`\bordermatrix`’)  
`\bot` lattice bottom symbol:  $\perp$  (p. ‘`\bot`’)  
`*\botmark` the last mark item on the page just boxed (p. ‘`\botmark`’)  
`\bowtie` bowtie relation:  $\bowtie$  (p. ‘`\bowtie`’)  
`*\box` append the box in a specified box register to the current list, and void the register (p. ‘`\box`’)  
`*\boxmaxdepth` maximum depth of vboxes, by default `\maxdimen` (p. ‘`\boxmaxdepth`’)  
`\brace`  $\$n\brace k\$$  produces braced notation:  $\{^n_k\}$  (p. ‘`\brace`’)  
`\bracevert` vertical portion of extensible large brace (p. ‘`\bracevert`’)  
`\brack`  $\$n\brack k\$$  produces bracketed notation:  $[^n_k]$  (p. ‘`\brack`’)  
`\break` do `\penalty-10000`, i.e., force a line or page break (p. ‘`\hbreak`’, p. ‘`\vbreak`’)  
`\breve` breve accent for math, as in  $\breve{x}$  (p. ‘`\breve`’)  
`*\brokenpenalty` penalty for line break at a discretionary item, by default 100 (p. ‘`\brokenpenalty`’)  
`\buildrel` produce specified formula over the specified relation (p. ‘`\buildrel`’)  
`\bullet` bullet operation:  $\bullet$  (p. ‘`\bullet`’)

`\bye` `\vfill` the last page with blank space, `\supereject` it, and `\end` the job (p. ‘`\@bye`’)  
`\c` cedilla accent for text, as in ç (p. ‘`\c`’)  
`\cal` use calligraphic font for uppercase letters in math, as in  $\mathcal{XYZ}$  (p. ‘`\cal`’)  
`\cap` cap operator:  $\cap$  (p. ‘`\cap`’)  
`\cases` produce cases for math, as in  $\{ \dots \}$  (p. ‘`\cases`’)  
`*\catcode` the category code of a specified character (p. ‘`\catcode`’)  
`\cdot` centered dot operator:  $\cdot$  (p. ‘`\cdot`’)  
`\cdotp` centered dot punctuation:  $\cdot$  (p. ‘`\cdotp`’)  
`\cdots` centered dots for math:  $\dots$  (p. ‘`\cdots`’)  
`\centerline` produce line with its text centered (p. ‘`\centerline`’)  
`*\char` produce the character from the current font with the specified code (p. ‘`\char`’)  
`*\chardef` define a specified control sequence to be a character’s code, a number between 0 and 255 (p. ‘`\chardef`’)  
`\check` check accent for math, as in  $\check{x}$  (p. ‘`\check`’)  
`\chi` math Greek letter  $\chi$  (p. ‘`\chi`’)  
`\choose`  $\$n\choose k\$$  produces combinatorial notation:  $\binom{n}{k}$  (p. ‘`\choose`’)  
`\circ` circle operation:  $\circ$  (p. ‘`\circ`’)  
`*\cleaders` produce leaders with half of leftover space before the first box, and half after the last (p. ‘`\cleaders`’)  
`\cleartabs` clear all the tabs for tabbing alignments (p. ‘`\cleartabs`’)  
`*\closein` close a specified input stream (p. ‘`\closein`’)  
`*\closeout` close a specified output stream (p. ‘`\closeout`’)  
`*\clubpenalty` additional penalty for a single line remaining before a page break, by default 150 (p. ‘`\clubpenalty`’)  
`\clubsuit` club suit symbol:  $\clubsuit$  (p. ‘`\clubsuit`’)  
`\colon` colon punctuation symbol for math:  $:$  (p. ‘`\colon`’)  
`\cong` congruence relation:  $\cong$  (p. ‘`\cong`’)  
`\coprod` coproduct operator:  $\coprod$  (p. ‘`\coprod`’)  
`*\copy` like `\box`, but don’t void the register (p. ‘`\copy`’)  
`\copyright` copyright mark:  $\copyright$  (p. ‘`\copyright`’)  
`\cos` cosine function:  $\cos$  (p. ‘`\cos`’)  
`\cosh` hyperbolic cosine function:  $\cosh$  (p. ‘`\cosh`’)  
`\cot` cotangent function:  $\cot$  (p. ‘`\cot`’)  
`\coth` hyperbolic cotangent function:  $\coth$  (p. ‘`\coth`’)  
`*\count` the specified integer register (p. ‘`\count`’)  
`*\countdef` define a specified control sequence to be a number corresponding to a `\count` register (p. ‘`\countdef`’)  
`*\cr` end a row (or column) within an alignment (p. ‘`\cr`’)

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`*\crrc` does nothing if the last command was `\cr` or `\noalign`;  
 otherwise, equivalent to `\cr` (p. ‘`\crrc`’)  
`\csc` cosecant function:  $\csc$  (p. ‘`\csc`’)  
`*\csname` start a control sequence name to be ended by `\endcsname`  
 (p. ‘`\csname`’)  
`\cup` cup operator:  $\cup$  (p. ‘`\cup`’)  
`\d` underdot accent for text, as in  $\dot{\text{r}}$  (p. ‘`\d`’)  
`\dag` dagger symbol for text:  $\dagger$  (p. ‘`\dag`’)  
`\dagger` dagger operator for math:  $\dagger$  (p. ‘`\dagger`’)  
`\dashv` right turnstile relation:  $\dashv$  (p. ‘`\dashv`’)  
`*\day` current day of the month, as a number (p. ‘`\day`’)  
`\ddag` double dagger symbol for text:  $\ddagger$  (p. ‘`\ddag`’)  
`\ddagger` double dagger operator for math:  $\ddagger$  (p. ‘`\ddagger`’)  
`\ddot` double dot accent for math:  $\ddot{x}$  (p. ‘`\ddot`’)  
`\ddots` diagonal dots for math:  $\ddots$  (p. ‘`\ddots`’)  
`*\deadcycles` number of `\output` initiations since the last `\shipout`  
 (p. ‘`\deadcycles`’)  
`*\def` define a control sequence to be a macro (p. ‘`\def`’)  
`*\defaultshyphenchar` default hyphenation character code  
 (p. ‘`\defaultshyphenchar`’)  
`*\defaultskewchar` default accent skewing character code  
 (p. ‘`\defaultskewchar`’)  
`\deg` degree function:  $\deg$  (p. ‘`\deg`’)  
`*\delcode` the delimiter code of a specified character (p. ‘`\delcode`’)  
`*\delimiter` produce a specified delimiter (p. ‘`\delimiter`’)  
`*\delimiterfactor` 1000 times the ratio of the minimum size of a  
 delimiter to the size that would completely cover the formula, by  
 default 901 (p. ‘`\delimiterfactor`’)  
`*\delimitershortfall` minimum difference between formula height  
 and delimiter height, by default 5 pt (p. ‘`\delimitershortfall`’)  
`\delta` math Greek letter  $\delta$  (p. ‘`\delta`’)  
`\Delta` math Greek letter  $\Delta$  (p. ‘`\Delta`’)  
`\det` determinant function:  $\det$  (p. ‘`\det`’)  
`\diamond` diamond operator:  $\diamond$  (p. ‘`\diamond`’)  
`\diamondsuit` diamond suit symbol:  $\diamondsuit$  (p. ‘`\diamondsuit`’)  
`\dim` dimension function:  $\dim$  (p. ‘`\dim`’)  
`*\dimen` the specified dimension register (p. ‘`\dimen`’)  
`*\dimendef` define a specified control sequence to be a number  
 corresponding to a `\dimen` register (p. ‘`\dimendef`’)  
`*\discretionary` specify three texts, the first two for before and after  
 a line break, the third for no line break (p. ‘`\discretionary`’)

`*\displayindent` T<sub>E</sub>X sets this to the indentation of a display  
 (p. ‘`\displayindent`’)  
`*\displaylimits` place limits above and below operators only in display  
 styles (p. ‘`\displaylimits`’)  
`\displaylines` produce specified multiline display with each line  
 centered (p. ‘`\displaylines`’)  
`*\displaystyle` use `displaystyle` size in a formula (p. ‘`\displaystyle`’)  
`*\displaywidowpenalty` penalty for a single line beginning a page just  
 before a display, by default 50 (p. ‘`\displaywidowpenalty`’)  
`*\displaywidth` T<sub>E</sub>X sets this to the width of a display  
 (p. ‘`\displaywidth`’)  
`\div` division operator:  $\div$  (p. ‘`\div`’)  
`*\divide` divide a specified `\count` register by a specified integer  
 (p. ‘`\divide`’)  
`\dot` dot accent for math, as in  $\dot{x}$  (p. ‘`\dot`’)  
`\doteq` dotted equality relation:  $\doteq$  (p. ‘`\doteq`’)  
`\dotfill` fill enclosing horizontal space with dots (p. ‘`\dotfill`’)  
`\dots` ellipsis for sequences:  $x_1, \dots, x_n$  (p. ‘`\dots`’)  
`*\doublehyphendemerits` demerits for two consecutive lines ending  
 with hyphens, by default 10000 (p. ‘`\doublehyphendemerits`’)  
`\downarrow` relation:  $\downarrow$  (p. ‘`\downarrow`’)  
`\Downarrow` relation:  $\Downarrow$  (p. ‘`\Downarrow`’)  
`\downbracefill` fill enclosing hbox with a downwards facing brace:  
 $\downbracefill$  (p. ‘`\downbracefill`’)  
`*\dp` the depth of the box in a specified box register (p. ‘`\dp`’)  
`*\dump` end the job and produce a format file (p. ‘`\dump`’)  
`*\edef` define a control sequence to be a macro, immediately expanding  
 the replacement text (p. ‘`\edef`’)  
`\egroup` implicit end-of-group character (p. ‘`\egroup`’)  
`\eject` end current paragraph and force a page break, stretching out  
 current page (p. ‘`\eject`’)  
`\ell` script letter for math:  $\ell$  (p. ‘`\ell`’)  
`*\else` false or default case alternative for a conditional (p. ‘`\@else`’)  
`*\emergencystretch` additional stretch added to every line if  
`\tolerance` is not satisfied (p. ‘`\emergencystretch`’)  
`\empty` macro that expands to nothing (p. ‘`\empty`’)  
`\emptyset` empty set symbol:  $\emptyset$  (p. ‘`\emptyset`’)  
`*\end` \output the last page and end the job (p. ‘`\end`’)  
`*\endcsname` end a control sequence name started by `\csname`  
 (p. ‘`\endcsname`’)  
`\endgraf` equivalent to the `\par` primitive (p. ‘`\endgraf`’)  
`*\endgroup` end a group started by `\begingroup` (p. ‘`\endgroup`’)  
`*\endinput` terminate input from the current file (p. ‘`\endinput`’)



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`\endinsert` end insertion (p. ‘`\endinsert`’)  
`\endline` equivalent to the `\cr` primitive (p. ‘`\endline`’)  
`*\endlinechar` character T<sub>E</sub>X inserts at the end of each input line, by default  $\sim$ M (p. ‘`\endlinechar`’)  
`\enskip` horizontal glue with width  $\frac{1}{2}$ em (p. ‘`\enskip`’)  
`\enspace` kern  $\frac{1}{2}$ em (p. ‘`\enspace`’)  
`\epsilon` math Greek letter  $\epsilon$  (p. ‘`\epsilon`’)  
`\eqalign` produce specified multiline display whose indicated parts are vertically aligned (p. ‘`\eqalign`’)  
`\eqalignno` produce specified multiline display with equation numbers whose indicated parts are vertically aligned (p. ‘`\eqalignno`’)  
`*\eqno` put a specified equation number on the right of a display (p. ‘`\eqno`’)  
`\equiv` equivalence relation:  $\equiv$  (p. ‘`\equiv`’)  
`*\errhelp` token list whose expansion T<sub>E</sub>X displays when the user asks for help in response to an `\errmessage` (p. ‘`\errhelp`’)  
`*\errmessage` give specified error message (p. ‘`\errmessage`’)  
`*\errorcontextlines` the number of lines of context T<sub>E</sub>X displays at an error, by default 5 (p. ‘`\errorcontextlines`’)  
`*\errorstopmode` stop for interaction at error messages (p. ‘`\errorstopmode`’)  
`*\escapechar` character with which T<sub>E</sub>X precedes control sequence names that are displayed (p. ‘`\escapechar`’)  
`\eta` math Greek letter  $\eta$  (p. ‘`\eta`’)  
`*\everycr` token list T<sub>E</sub>X expands after a `\cr`, or a `\crcr` not following `\cr` or `\noalign` (p. ‘`\everycr`’)  
`*\everydisplay` token list T<sub>E</sub>X expands when a math display begins (p. ‘`\everydisplay`’)  
`*\everyhbox` token list T<sub>E</sub>X expands when an hbox begins (p. ‘`\everyhbox`’)  
`*\everyjob` token list T<sub>E</sub>X expands when a job begins (p. ‘`\everyjob`’)  
`*\everymath` token list T<sub>E</sub>X expands when text math mode begins (p. ‘`\everymath`’)  
`*\everypar` token list T<sub>E</sub>X expands when a paragraph begins (p. ‘`\everypar`’)  
`*\everyvbox` token list T<sub>E</sub>X expands when a vbox begins (p. ‘`\everyvbox`’)  
`*\exhyphenpenalty` additional penalty for a line break after an explicit hyphen, by default 50 (p. ‘`\exhyphenpenalty`’)  
`\exists` “there exists” symbol:  $\exists$  (p. ‘`\exists`’)  
`\exp` exponential function: exp (p. ‘`\exp`’)  
`*\expandafter` expand the next token only after expanding the token following it (p. ‘`\expandafter`’)

`*\fam` font family T<sub>E</sub>X uses for characters with class seven (i.e., variables) in math (p. ‘`\fam`’)  
`*\fi` end a conditional (p. ‘`\@fi`’)  
`\filbreak` force a page break unless the text up to another `\filbreak` also fits on the page (p. ‘`\filbreak`’)  
`*\finalhyphendemerits` penalty for the second to last line breaking at a hyphen, by default 5000 (p. ‘`\finalhyphendemerits`’)  
`*\firstmark` first mark item on the page just boxed (p. ‘`\firstmark`’)  
`\fivebf` use 5-point bold font, `cmbx5` (p. ‘`\fivebf`’)  
`\fivei` use 5-point math italic font, `cmi5` (p. ‘`\fivei`’)  
`\fiverm` use 5-point roman font, `cmr5` (p. ‘`\fiverm`’)  
`\fivesy` use 5-point symbol font, `cmsy5` (p. ‘`\fivesy`’)  
`\flat` flat symbol for music:  $\flat$  (p. ‘`\flat`’)  
`*\floatingpenalty` penalty for insertions that are split across pages, by default 0 (p. ‘`\floatingpenalty`’)  
`\fmtname` name of the current format (p. ‘`\fmtname`’)  
`\fmtversion` version number of the current format (p. ‘`\fmtversion`’)  
`\folio` produce `\pageno` as characters; in roman numerals if it’s negative (p. ‘`\folio`’)  
`*\font` define a specified control sequence to select a font (p. ‘`\font`’)  
`*\fontdimen` a specified parameter of a specified font (p. ‘`\fontdimen`’)  
`*\fontname` produce the filename of a specified font as characters (p. ‘`\fontname`’)  
`\footline` token list that produces line at the bottom of each page (p. ‘`\footline`’)  
`\footnote` produce a specified footnote with a specified reference mark (p. ‘`\footnote`’)  
`\forall` “for all” symbol:  $\forall$  (p. ‘`\forall`’)  
`\frenchspacing` make interword spacing independent of punctuation (p. ‘`\frenchspacing`’)  
`\frown` frown relation:  $\frown$  (p. ‘`\frown`’)  
`*\futurelet` assign the third following token to a specified control sequence, then expand the second following token (p. ‘`\futurelet`’)  
`\gamma` math Greek letter  $\gamma$  (p. ‘`\gamma`’)  
`\Gamma` math Greek letter  $\Gamma$  (p. ‘`\Gamma`’)  
`\gcd` greatest common denominator function: `gcd` (p. ‘`\gcd`’)  
`*\gdef` equivalent to `\global\def`, i.e., globally define a macro (p. ‘`\gdef`’)  
`\ge` greater than or equal relation:  $\geq$  (p. ‘`\ge`’)  
`\geq` equivalent to `\ge` (p. ‘`\geq`’)  
`\gets` gets relation:  $\leftarrow$  (p. ‘`\gets`’)  
`\gg` much greater than relation:  $\gg$  (p. ‘`\gg`’)

*Capsule summary of commands*

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`*\global` make the following definition global (p. ‘`\global`’)  
`*\globaldefs` overrides `\global` prefixes on assignments (p. ‘`\globaldefs`’)  
`\goodbreak` indicate desirable page break with `\penalty-500` (p. ‘`\goodbreak`’)  
`\grave` grave accent for math, as in  $\hat{x}$  (p. ‘`\grave`’)  
`\H` Hungarian umlaut accent for text, as in  $\ddot{o}$  (p. ‘`\H`’)  
`*\halign` align text in columns (p. ‘`\halign`’)  
`\hang` indent the current paragraph by `\parindent` (p. ‘`\hang`’)  
`*\hangafter` starting line number for hanging indentation (p. ‘`\hangafter`’)  
`*\hangindent` space for hanging indentation (p. ‘`\hangindent`’)  
`\hat` hat accent for math, as in  $\hat{x}$  (p. ‘`\hat`’)  
`*\hbadness` badness threshold for reporting underfull or overfull hboxes, by default 1000 (p. ‘`\hbadness`’)  
`\hbar` math symbol:  $\hbar$  (p. ‘`\hbar`’)  
`*\hbox` produce a specified hbox (p. ‘`\hbox`’)  
`\headline` token list that produces the line at the top of every page (p. ‘`\headline`’)  
`\heartsuit` heart suit symbol:  $\heartsuit$  (p. ‘`\heartsuit`’)  
`*\hfil` produce infinitely stretchable horizontal glue (p. ‘`\hfil`’)  
`*\hfill` produce horizontal glue even more infinitely stretchable than that produced by `\hfil` (p. ‘`\hfill`’)  
`*\hfilneg` produce infinitely negative stretchable horizontal glue (p. ‘`\hfilneg`’)  
`*\hfuzz` space threshold for reporting overfull hboxes, by default 0.1pt (p. ‘`\hfuzz`’)  
`\hglue` produce horizontal glue that doesn’t disappear at line breaks (p. ‘`\hglue`’)  
`\hidewidth` ignore width of an entry in an alignment, so that it extends out from its box in the direction of the `\hidewidth` (p. ‘`\hidewidth`’)  
`*\hoffset` page offset relative to one inch from the paper’s left edge (p. ‘`\hoffset`’)  
`*\holdinginserts` if positive, do not remove insertions from the current page (p. ‘`\holdinginserts`’)  
`\hom` homology function:  $\text{hom}$  (p. ‘`\hom`’)  
`\hookleftarrow` relation:  $\hookleftarrow$  (p. ‘`\hookleftarrow`’)  
`\hookrightarrow` relation:  $\hookrightarrow$  (p. ‘`\hookrightarrow`’)  
`\hphantom` produce an invisible formula with zero height and depth but natural width (p. ‘`\hphantom`’)  
`*\hrule` produce a horizontal rule; legal only in vertical modes (p. ‘`\hrule`’)  
`\hrulefill` fill enclosing space with a horizontal rule (p. ‘`\hrulefill`’)

`*\hsize` line length, by default 6.5in (p. ‘`\hsize`’)  
`*\hskip` produce specified horizontal glue (p. ‘`\hskip`’)  
`*\hss` produce horizontal glue that is infinitely stretchable and infinitely shrinkable (p. ‘`\hss`’)  
`*\ht` the height of the box in a specified box register (p. ‘`\ht`’)  
`*\hyphenation` add specified words to the hyphenation exception dictionary (p. ‘`\hyphenation`’)  
`*\hyphenchar` the hyphenation character in a specified font (p. ‘`\hyphenchar`’)  
`*\hyphenpenalty` additional penalty for a line break at a hyphen, by default 50 (p. ‘`\hyphenpenalty`’)  
`\i` dotless letter ‘i’ for use with accents (p. ‘`\i`’)  
`\ialign` start an `\halign` with the `\tabskip` glue zero and `\everycr` empty (p. ‘`\ialign`’)  
`*\if` test if two specified tokens have the same character code (p. ‘`\@if`’)  
`*\ifcase` expand case  $n$  for specified value  $n$  (p. ‘`\@ifcase`’)  
`*\ifcat` test if two specified tokens have the same category code (p. ‘`\@ifcat`’)  
`*\ifdim` test for a specified relationship between two specified dimensions (p. ‘`\@ifdim`’)  
`*\ifeof` test for being at the end of a specified file (p. ‘`\@ifeof`’)  
`\iff` if and only if relation:  $\iff$  (p. ‘`\iff`’)  
`*\iffalse` test that is always false (p. ‘`\@iffalse`’)  
`*\ifhbox` test if a specified box register contains an hbox (p. ‘`\@ifhbox`’)  
`*\ifhmode` test if T<sub>E</sub>X is in a horizontal mode (p. ‘`\@ifhmode`’)  
`*\ifinner` test if T<sub>E</sub>X is in an internal mode (p. ‘`\@ifinner`’)  
`*\ifmmode` test if T<sub>E</sub>X is in a math mode (p. ‘`\@ifmmode`’)  
`*\ifnum` test for a specified relationship between two specified numbers (p. ‘`\@ifnum`’)  
`*\ifodd` test if a specified number is odd (p. ‘`\@ifodd`’)  
`*\iftrue` test that is always true (p. ‘`\@iftrue`’)  
`*\ifvbox` test if a specified box register contains a vbox (p. ‘`\@ifvbox`’)  
`*\ifvmode` test if T<sub>E</sub>X is in a vertical mode (p. ‘`\@ifvmode`’)  
`*\ifvoid` test if a specified box register is void (p. ‘`\@ifvoid`’)  
`*\ifx` test if two tokens are the same, or if two macros have the same top-level definition (p. ‘`\@ifx`’)  
`*\ignorespaces` ignore any following space tokens (p. ‘`\ignorespaces`’)  
`\Im` complex imaginary part symbol:  $\Im$  (p. ‘`\Im`’)  
`\imath` dotless letter ‘i’ for use with math accents (p. ‘`\imath`’)  
`*\immediate` perform the specified file operation without delay (p. ‘`\immediate`’)  
`\in` containment relation:  $\in$  (p. ‘`\in`’)

*Capsule summary of commands*

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`*\indent` produce an empty box of width `\parindent` and enter horizontal mode (p. ‘`\indent`’)  
`\inf` inferior function:  $\inf$  (p. ‘`\inf`’)  
`\infty` infinity symbol:  $\infty$  (p. ‘`\infty`’)  
`*\input` begin to read from a specified file (p. ‘`\input`’)  
`*\inputlineno` the current line number of the current input file (p. ‘`\inputlineno`’)  
`*\insert` produce an insertion of a specified class (p. ‘`\insert`’)  
`*\insertpenalties` sum of penalties due to insertions (p. ‘`\insertpenalties`’)  
`\int` integral symbol:  $\int$  (p. ‘`\int`’)  
`*\interlinepenalty` additional penalty for a page break between lines of a paragraph, by default 0 (p. ‘`\interlinepenalty`’)  
`\iota` math Greek letter  $\iota$  (p. ‘`\iota`’)  
`\it` use italics, i.e., do `\tenit\fam=\itfam` (p. ‘`\it`’)  
`\item` begin a paragraph with hanging indentation of `\parindent` and preceded by a specified label (p. ‘`\item`’)  
`\itemitem` like `\item`, but with indentation of `2\parindent` (p. ‘`\itemitem`’)  
`\itfam` italic family for math (p. ‘`\itfam`’)  
`\j` dotless letter ‘j’, for use with accents (p. ‘`\j`’)  
`\jmath` dotless letter ‘j’ for use with math accents (p. ‘`\jmath`’)  
`*\jobname` base name of the file with which T<sub>E</sub>X was invoked (p. ‘`\jobname`’)  
`\jot` unit of measure for opening up displays (p. ‘`\jot`’)  
`\kappa` math Greek letter  $\kappa$  (p. ‘`\kappa`’)  
`\ker` kernel function:  $\ker$  (p. ‘`\ker`’)  
`*\kern` produce a specified amount of space at which a break is not allowed (p. ‘`\kern`’)  
`\l` Polish letter:  $\text{ł}$  (p. ‘`\l`’)  
`\L` Polish letter:  $\text{Ł}$  (p. ‘`\L`’)  
`\lambda` math Greek letter  $\lambda$  (p. ‘`\lambda`’)  
`\Lambda` math Greek letter  $\Lambda$  (p. ‘`\Lambda`’)  
`\land` logical “and” operator:  $\wedge$  (p. ‘`\land`’)  
`\angle` left angle delimiter:  $\angle$  (p. ‘`\angle`’)  
`*\language` the current set of hyphenation patterns (p. ‘`\language`’)  
`*\lastbox` retrieve and remove the last item from the current list, if it’s a box (p. ‘`\lastbox`’)  
`*\lastkern` retrieve the last item from the current list, if it’s a kern (p. ‘`\lastkern`’)  
`*\lastpenalty` retrieve the last item from the current list, if it’s a penalty (p. ‘`\lastpenalty`’)

`*\lastskip` retrieve the last item from the current list, if it's glue  
 (p. '`\lastskip`')  
`\lbrace` left brace delimiter: { (p. '`\lbrace`')  
`\lbrack` left bracket delimiter: [ (p. '`\lbrack`')  
`*\lccode` the character code for the lowercase form of a letter  
 (p. '`\lccode`')  
`\lceil` left ceiling delimiter: ⌈ (p. '`\lceil`')  
`\ldotp` dot on baseline as punctuation: . (p. '`\ldotp`')  
`\ldots` dots on baseline for math: ... (p. '`\ldots`')  
`\le` less than or equal relation: ≤ (p. '`\le`')  
`*\leaders` fill a specified horizontal or vertical space by repeating a  
 specified box or rule (p. '`\leaders`')  
`*\left` produce the specified delimiter, sizing it to cover the following  
 subformula ended by `\right` (p. '`\left`')  
`\leftarrow` relation: ← (p. '`\leftarrow`')  
`\Leftarrow` relation: ⇐ (p. '`\Leftarrow`')  
`\leftarrowfill` fill enclosing hbox with a `\leftarrow`: ←———  
 (p. '`\leftarrowfill`')  
`\leftharpoondown` relation: ⇩ (p. '`\leftharpoondown`')  
`\leftharpoonup` relation: ⇨ (p. '`\leftharpoonup`')  
`*\lefthyphenmin` size of the smallest word fragment T<sub>E</sub>X allows  
 before a hyphen at the beginning of a word, by default 2  
 (p. '`\lefthyphenmin`')  
`\leftline` produce line with its text pushed to left margin  
 (p. '`\leftline`')  
`\leftrightarrow` relation: ↔ (p. '`\leftrightarrow`')  
`\Leftrightarrow` relation: ⇔ (p. '`\Leftrightarrow`')  
`*\leftskip` glue T<sub>E</sub>X inserts at the left of each line (p. '`\leftskip`')  
`\leq` equivalent to `\le` (p. '`\leq`')  
`\leqalignno` produce specified multiline display with equation  
 numbers on the left whose indicated parts are vertically aligned  
 (p. '`\leqalignno`')  
`*\leqno` put a specified equation number on the left of a display  
 (p. '`\leqno`')  
`*\let` define a control sequence to be the next token (p. '`\let`')  
`\lfloor` left floor delimiter: ⌊ (p. '`\lfloor`')  
`\lg` logarithm function: lg (p. '`\lg`')  
`\lgroup` left group delimiter (the smallest size is shown here): {  
 (p. '`\lgroup`')  
`\lim` limit function: lim (p. '`\lim`')  
`\liminf` inferior limit function: lim inf (p. '`\liminf`')

*Capsule summary of commands*

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`*\limits` place superscript above and subscript below a large operator  
 (p. ‘\limits’)  
`\limsup` superior limit function:  $\limsup$  (p. ‘\limsup’)  
`\line` produce a justified line of type (p. ‘\line’)  
`*\linepenalty` penalty for line breaking added to each line, by  
 default 10 (p. ‘\linepenalty’)  
`*\lineskip` vertical glue from one baseline to the next if the lines  
 are closer together than `\lineskiplimit`, by default 1pt  
 (p. ‘\lineskip’)  
`*\lineskiplimit` threshold for using `\lineskip` instead of `\baselineskip`,  
 by default 0pt (p. ‘\lineskiplimit’)  
`\ll` much less than relation:  $\ll$  (p. ‘\ll’)  
`\llap` produce text (with no width) extending to the left of the current  
 position (p. ‘\llap’)  
`\lmoustache` top half of a large brace:  $\int$  (p. ‘\lmoustache’)  
`\ln` natural logarithm function:  $\ln$  (p. ‘\ln’)  
`\lnot` logical “not” symbol:  $\neg$  (p. ‘\lnot’)  
`\log` logarithm function:  $\log$  (p. ‘\log’)  
`*\long` allow `\par` tokens in the argument(s) of the following definition  
 (p. ‘\long’)  
`\longleftarrow` relation:  $\longleftarrow$  (p. ‘\longleftarrow’)  
`\Longleftarrow` relation:  $\Longleftarrow$  (p. ‘\Longleftarrow’)  
`\longlefttrightarrow` relation:  $\longleftrightarrow$  (p. ‘\longlefttrightarrow’)  
`\Longlefttrightarrow` relation:  $\Longleftrightarrow$  (p. ‘\Longlefttrightarrow’)  
`\longmapsto` relation:  $\mapsto$  (p. ‘\longmapsto’)  
`\longrightarrow` relation:  $\longrightarrow$  (p. ‘\longrightarrow’)  
`\Longrightarrow` relation:  $\Longrightarrow$  (p. ‘\Longrightarrow’)  
`\loop` start a loop to be ended by `\repeat` (p. ‘\loop’)  
`*\looseness` difference between the number of lines you want a  
 paragraph to be relative to the optimal number (p. ‘\looseness’)  
`\lor` logical “or” operator:  $\vee$  (p. ‘\lor’)  
`*\lower` lower a specified box by a specified amount (p. ‘\lower’)  
`*\lowercase` convert uppercase letters in the specified text to lowercase  
 (p. ‘\lowercase’)  
`\lq` left quote character for text: ‘ (p. ‘\lq’)  
`*\mag` 1000 times the ratio for enlarging all dimensions (p. ‘\mag’)  
`\magnification` like `\mag`, but don’t enlarge the page size  
 (p. ‘\magnification’)  
`\magstep`  $1000 \cdot 1.2^n$  for a specified  $n$  (p. ‘\magstep’)  
`\magstephalf`  $1000 \cdot \sqrt{1.2}$  (p. ‘\magstephalf’)  
`\mapsto` relation:  $\mapsto$  (p. ‘\mapsto’)  
`*\mark` produce a mark item with a specified text (p. ‘\mark’)

`*\mathaccent` put specified math accent over the next character  
 (p. ‘`\mathaccent`’)  
`*\mathbin` space a specified subformula as a binary operator  
 (p. ‘`\mathbin`’)  
`*\mathchar` produce the math character with the specified mathcode  
 (p. ‘`\mathchar`’)  
`*\mathchardef` define a specified control sequence to be a mathcode, a  
 number between 0 and  $2^{15} - 1$  (p. ‘`\mathchardef`’)  
`*\mathchoice` select one of four specified math subformulas depending  
 on the current style (p. ‘`\mathchoice`’)  
`*\mathclose` space a specified subformula as a closing delimiter  
 (p. ‘`\mathclose`’)  
`*\mathcode` the mathcode of a specified character (p. ‘`\mathcode`’)  
`*\mathinner` space a specified subformula as an inner formula, e.g., a  
 fraction (p. ‘`\mathinner`’)  
`*\mathop` space a specified subformula as a large math operator  
 (p. ‘`\mathop`’)  
`*\mathopen` space a specified subformula as an opening delimiter  
 (p. ‘`\mathopen`’)  
`*\mathord` space a specified subformula as an ordinary character  
 (p. ‘`\mathord`’)  
`\mathpalette` produce a `\mathchoice` which expands a specified  
 control sequence depending on the current style (p. ‘`\mathpalette`’)  
`*\mathpunct` space a specified subformula as punctuation  
 (p. ‘`\mathpunct`’)  
`*\mathrel` space a specified subformula as a relation (p. ‘`\mathrel`’)  
`\mathstrut` produce an invisible box with the height and depth of a  
 left parenthesis and no width (p. ‘`\mathstrut`’)  
`*\mathsurround` space T<sub>E</sub>X kerns before and after math in text  
 (p. ‘`\mathsurround`’)  
`\matrix` produce a specified matrix (p. ‘`\matrix`’)  
`\max` maximum function: max (p. ‘`\max`’)  
`*\maxdeadcycles` value of `\deadcycles` at which T<sub>E</sub>X com-  
 plains, and then uses its own output routine, by default 25  
 (p. ‘`\maxdeadcycles`’)  
`*\maxdepth` maximum depth of the bottom box on a page, by default  
 4pt (p. ‘`\maxdepth`’)  
`\maxdimen` largest dimension acceptable to T<sub>E</sub>X (p. ‘`\maxdimen`’)  
`*\meaning` produce the human-understandable meaning of a specified  
 token as characters (p. ‘`\meaning`’)  
`\medbreak` indicate desirable page break with `\penalty-100` and  
 produce `\medskipamount` glue (p. ‘`\medbreak`’)  
`*\medmuskip` glue for a medium math space, by default 4 mu plus 2 mu  
 minus 4 mu (p. ‘`\medmuskip`’)



*Capsule summary of commands*

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`\medskip` produce `\medskipamount` glue (p. ‘`\medskip`’)  
`\medskipamount` glue for a medium vertical skip, by default 6 pt plus  
 2 pt minus 2 pt (p. ‘`\medskipamount`’)  
`*\message` show expansion of the specified text on the terminal  
 (p. ‘`\message`’)  
`\mid` middle relation:  $\mid$  (p. ‘`\mid`’)  
`\midinsert` produce the specified text at the current position if  
 possible, otherwise at the top of the next page (p. ‘`\midinsert`’)  
`\min` minimum function:  $\min$  (p. ‘`\min`’)  
`\mit` use math italics, i.e., do `\fam=1` (p. ‘`\mit`’)  
`*\mkern` produce a specified kern in units of  $\mu$  for math (p. ‘`\mkern`’)  
`\models` models relation:  $\models$  (p. ‘`\models`’)  
`*\month` current month, as a number (p. ‘`\month`’)  
`*\moveleft` move a specified box left by a specified space; legal only in  
 vertical modes (p. ‘`\moveleft`’)  
`*\moveright` move a specified box right by a specified space; legal only  
 in vertical modes (p. ‘`\moveright`’)  
`\mp` minus and plus operator:  $\mp$  (p. ‘`\mp`’)  
`*\mskip` produce specified glue in units of  $\mu$  for math (p. ‘`\mskip`’)  
`\mu` math Greek letter  $\mu$  (p. ‘`\mu`’)  
`*\multiply` multiply a specified `\count` register by a specified integer  
 (p. ‘`\multiply`’)  
`\multispan` make next alignment entry span a specified number of  
 columns (or rows) (p. ‘`\multispan`’)  
`*\muskip` the specified `\muskip` register (p. ‘`\muskip`’)  
`*\muskipdef` define a specified control sequence to be a number  
 corresponding to a `\muskip` register (p. ‘`\muskipdef`’)  
`\nabla` backwards difference symbol:  $\nabla$  (p. ‘`\nabla`’)  
`\narrower` make both left and right margins narrower by `\parindent`  
 (p. ‘`\narrower`’)  
`\natural` natural symbol for music:  $\natural$  (p. ‘`\natural`’)  
`\nearrow` northeast arrow relation:  $\nearrow$  (p. ‘`\nearrow`’)  
`\ne` not equal relation:  $\neq$  (p. ‘`\ne`’)  
`\neg` logical “not” symbol:  $\neg$  (p. ‘`\neg`’)  
`\negthinspace` kern  $-1/6$  em (p. ‘`\negthinspace`’)  
`\neq` not equal relation:  $\neq$  (p. ‘`\neq`’)  
`\newbox` reserve and name a `\box` register (p. ‘`\@newbox`’)  
`\newcount` reserve and name a `\count` register (p. ‘`\@newcount`’)  
`\newdimen` reserve and name a `\dimen` register (p. ‘`\@newdimen`’)  
`\newfam` reserve and name a math family (p. ‘`\@newfam`’)  
`\newhelp` name a specified help message (p. ‘`\@newhelp`’)  
`\newif` define a new conditional with the specified name (p. ‘`\@newif`’)

`\newinsert` name an insertion class, and reserve a corresponding `\box`,  
`\count`, `\dimen`, and `\skip` registers (p. ‘`\@newinsert`’)  
`\newlanguage` reserve and name a `\language` (p. ‘`\@newlanguage`’)  
`*\newlinechar` end-of-line character for `\write`, etc. (p. ‘`\newlinechar`’)  
`\newmuskip` reserve and name a `\muskip` register (p. ‘`\@newmuskip`’)  
`\newread` reserve and name an input stream (p. ‘`\@newread`’)  
`\newskip` reserve and name a `\skip` register (p. ‘`\@newskip`’)  
`\newtoks` reserve and name a `\toks` register (p. ‘`\@newtoks`’)  
`\newwrite` reserve and name an output stream (p. ‘`\@newwrite`’)  
`\ni` “reverse in” relation:  $\ni$  (p. ‘`\ni`’)  
`*\noalign` insert material between rows (or columns) of an alignment  
(p. ‘`\noalign`’)  
`*\noboundary` inhibit ligatures or kerns involving the current font’s  
`boundarychar` (p. ‘`\noboundary`’)  
`\nobreak` do `\penalty10000`, i.e., inhibit a line or page break  
(p. ‘`\hnobreak`’, p. ‘`\vnobreak`’)  
`*\noexpand` suppress expansion of the next token (p. ‘`\noexpand`’)  
`*\noindent` enter horizontal mode without indenting the paragraph  
(p. ‘`\noindent`’)  
`\nointerlineskip` inhibit interline glue before the next line  
(p. ‘`\nointerlineskip`’)  
`*\nolimits` place superscript and subscript after large operators  
(p. ‘`\nolimits`’)  
`\nonfrenchspacing` make interword spacing depend on punctuation  
(p. ‘`\nonfrenchspacing`’)  
`*\nonscript` inhibit any following glue or kern when in script and  
scriptscript styles (p. ‘`\nonscript`’)  
`*\nonstopmode` don’t stop at errors, even those about missing files  
(p. ‘`\nonstopmode`’)  
`\nopagenumbers` inhibit printing of page numbers, i.e., do `\footline`  
`= \hfil` (p. ‘`\nopagenumbers`’)  
`\normalbaselines` set `\baselineskip`, `\lineskip`, and `\line-`  
`skiplimit` to the normal values for the current type size  
(p. ‘`\normalbaselines`’)  
`\normalbaselineskip` value of `\baselineskip` for the current type  
size (p. ‘`\normalbaselineskip`’)  
`\normalbottom` make the bottom margin be the same from page to  
page (p. ‘`\normalbottom`’)  
`\normallineskip` value of `\lineskip` for the current type size  
(p. ‘`\normallineskip`’)  
`\normallineskiplimit` value of `\lineskiplimit` for the current type  
size (p. ‘`\normallineskiplimit`’)  
`\not` a slash with zero width for constructing negations of math  
relations, as in  $\neq$  (p. ‘`\not`’)

*Capsule summary of commands*

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`\notin` noninclusion relation:  $\notin$  (p. ‘`\notin`’)  
`\nu` math Greek letter  $\nu$  (p. ‘`\nu`’)  
`\null` expands to an empty hbox (p. ‘`\null`’)  
`*\nulldelimiterspace` space produced by a null delimiter, by default 1.2pt (p. ‘`\nulldelimiterspace`’)  
`*\nullfont` primitive font with no characters in it (p. ‘`\nullfont`’)  
`*\number` produce a specified number as characters (p. ‘`\number`’)  
`\narrow` northwest arrow relation:  $\nwarrow$  (p. ‘`\narrow`’)  
`\o` Danish letter:  $\emptyset$  (p. ‘`\o`’)  
`\O` Danish letter:  $\emptyset$  (p. ‘`\O`’)  
`\obeylines` make each end-of-line in the input file equivalent to `\par` (p. ‘`\obeylines`’)  
`\obeyspaces` produce space in the output for each space character in the input (p. ‘`\obeyspaces`’)  
`\odot` centered dot operation:  $\odot$  (p. ‘`\odot`’)  
`\oe`  $\text{œ}$  ligature (p. ‘`\oe`’)  
`\OE`  $\text{Œ}$  ligature (p. ‘`\OE`’)  
`\offinterlineskip` inhibit interline glue from now on (p. ‘`\offinterlineskip`’)  
`\oint` contour integral operator:  $\oint$  (p. ‘`\oint`’)  
`\oldstyle` use old style digits: 1234567890 (p. ‘`\oldstyle`’)  
`\omega` math Greek letter  $\omega$  (p. ‘`\omega`’)  
`\Omega` math Greek letter  $\Omega$  (p. ‘`\Omega`’)  
`\ominus` circled minus operator:  $\ominus$  (p. ‘`\ominus`’)  
`*\omit` skip a column’s (or row’s) template in an alignment (p. ‘`\omit`’)  
`*\openin` prepare a specified input stream to read from a file (p. ‘`\openin`’)  
`*\openout` prepare a specified output stream to write to a file (p. ‘`\openout`’)  
`\openup` increase `\baselineskip`, `\lineskip`, and `\lineskiplimit` by a specified amount (p. ‘`\openup`’)  
`\oplus` circled plus operator:  $\oplus$  (p. ‘`\oplus`’)  
`*\or` separate the cases of an `\ifcase` (p. ‘`\@or`’)  
`\oslash` circled slash operator:  $\oslash$  (p. ‘`\oslash`’)  
`\otimes` circled times operator:  $\otimes$  (p. ‘`\otimes`’)  
`*\outer` make the following macro definition illegal in contexts in which tokens are absorbed at high speed (p. ‘`\outer`’)  
`*\output` token list T<sub>E</sub>X expands when it finds a page break (p. ‘`\output`’)  
`*\outputpenalty` if the page break occurred at a penalty, the value of that penalty; otherwise zero (p. ‘`\outputpenalty`’)  
`*\over` produce a fraction with a bar of default thickness (p. ‘`\over`’)

- `\overbrace` produce a brace covering the top of a formula, as in  $\overbrace{h+w}$   
(p. ‘`\overbrace`’)
- `*\overfullrule` width of the rule appended to an overfull box  
(p. ‘`\overfullrule`’)
- `\overleftarrow` produce a left arrow covering the top of a formula, as  
in  $\overleftarrow{r+a}$  (p. ‘`\overleftarrow`’)
- `*\overline` produce a line covering the top of a formula, as in  $\overline{2b}$   
(p. ‘`\overline`’)
- `\overrightarrow` produce a right arrow covering the top of a formula,  
as in  $\overrightarrow{i+t}$  (p. ‘`\overrightarrow`’)
- `*\overwithdelims` produce a fraction with a bar of the default thickness  
and surrounded by specified delimiters (p. ‘`\overwithdelims`’)
- `\owns` owns relation:  $\ni$  (p. ‘`\owns`’)
- `\P` paragraph character for text: ¶ (p. ‘`\P`’)
- `*\pagedepth` T<sub>E</sub>X sets this to the current depth of the current page  
(p. ‘`\pagedepth`’)
- `*\pagefilllstretch` T<sub>E</sub>X sets this to the amount of filll stretch on  
the current page (p. ‘`\pagefilllstretch`’)
- `*\pagefillstretch` T<sub>E</sub>X sets this to the amount of fill stretch on the  
current page (p. ‘`\pagefillstretch`’)
- `*\pagefilstretch` T<sub>E</sub>X sets this to the amount of fil stretch on the  
current page (p. ‘`\pagefilstretch`’)
- `*\pagegoal` T<sub>E</sub>X sets this to the desired height for the current page (i.e.,  
`\vsize` when the first box is put on the page) (p. ‘`\pagegoal`’)
- `\pageinsert` produce the specified text on the following page, and use  
up the full page (p. ‘`\pageinsert`’)
- `\pageno` the register `\count0`, which contains the (possibly negative)  
page number (p. ‘`\pageno`’)
- `*\pageshrink` T<sub>E</sub>X sets this to the total amount of shrinkability on the  
current page (p. ‘`\pageshrink`’)
- `*\pagestretch` T<sub>E</sub>X sets this to the total amount of stretchability on  
the current page (p. ‘`\pagestretch`’)
- `*\pagetotal` T<sub>E</sub>X sets this to the natural height of the current page  
(p. ‘`\pagetotal`’)
- `*\par` finish paragraph and terminate horizontal mode (p. ‘`\@par`’)
- `\parallel` parallel relation:  $\parallel$  (p. ‘`\parallel`’)
- `*\parfillskip` horizontal glue T<sub>E</sub>X inserts at the end of a paragraph  
(p. ‘`\parfillskip`’)
- `*\parindent` horizontal space T<sub>E</sub>X inserts at the start of a paragraph  
(p. ‘`\parindent`’)
- `*\parshape` specify the width and length of each line in the next  
paragraph (p. ‘`\parshape`’)
- `*\parskip` vertical glue T<sub>E</sub>X inserts before a paragraph (p. ‘`\parskip`’)
- `\partial` partial derivative symbol:  $\partial$  (p. ‘`\partial`’)

*Capsule summary of commands*

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- `*\pausing` if positive, stop after reading each line of input for a possible replacement (p. ‘`\pausing`’)
- `*\penalty` produce penalty (or bonus, if negative) for breaking line or page here (p. ‘`hpenalty`’, p. ‘`vpenalty`’)
- `\perp` perpendicular relation:  $\perp$  (p. ‘`\perp`’)
- `\phantom` produce an invisible formula with the dimensions of a specified subformula (p. ‘`\phantom`’)
- `\phi` math Greek letter  $\phi$  (p. ‘`\phi`’)
- `\Phi` math Greek letter  $\Phi$  (p. ‘`\Phi`’)
- `\pi` math Greek letter  $\pi$  (p. ‘`\pi`’)
- `\Pi` math Greek letter  $\Pi$  (p. ‘`\Pi`’)
- `\plainoutput` plain T<sub>E</sub>X’s `\output` routine (p. ‘`\plainoutput`’)
- `\pm` plus and minus operator:  $\pm$  (p. ‘`\pm`’)
- `\pmatrix` produce a parenthesized matrix (p. ‘`\pmatrix`’)
- `\pmod` parenthesized modulus notation to put at the end of a formula, as in  $x \equiv y + 1 \pmod{2}$  (p. ‘`\pmod`’)
- `*\postdisplaypenalty` additional penalty for a line break just after a display, by default 0 (p. ‘`\postdisplaypenalty`’)
- `\Pr` probability function: Pr (p. ‘`\Pr`’)
- `\prec` precedes relation:  $\prec$  (p. ‘`\prec`’)
- `\preceq` precedes or equals relation:  $\preceq$  (p. ‘`\preceq`’)
- `*\predisplaypenalty` additional penalty for a line break just before a display, by default 0 (p. ‘`\predisplaypenalty`’)
- `*\preplaysize` T<sub>E</sub>X sets this to the width of the line preceding a display (p. ‘`\preplaysize`’)
- `*\pretolerance` badness tolerance for line breaks without hyphenation, by default 100 (p. ‘`\pretolerance`’)
- `*\prevdepth` depth of the last nonrule box on the current vertical list (p. ‘`\prevdepth`’)
- `*\prevgraf` T<sub>E</sub>X sets this to the number of lines in the paragraph so far (in horizontal mode) or in the previous paragraph (in vertical mode) (p. ‘`\prevgraf`’)
- `\prime` prime math symbol, as in  $r'$  (p. ‘`\prime`’)
- `\proclaim` begin a theorem, lemma, hypothesis, ... (p. ‘`\@proclaim`’)
- `\prod` large product operator:  $\prod$  (p. ‘`\prod`’)
- `\propto` proportional to relation:  $\propto$  (p. ‘`\propto`’)
- `\psi` math Greek letter  $\psi$  (p. ‘`\psi`’)
- `\Psi` math Greek letter  $\Psi$  (p. ‘`\Psi`’)
- `\qquad` produce horizontal glue with width 2em (p. ‘`\qquad`’)
- `\quad` produce horizontal glue with width 1em (p. ‘`\quad`’)
- `*\radical` produce a specified radical symbol (p. ‘`\radical`’)
- `\raggedbottom` allow the bottom margin to vary from page to page (p. ‘`\raggedbottom`’)

`\raggedright` allow the right margin to vary from line to line  
 (p. ‘`\raggedright`’)  
`*\raise` raise a specified box by a specified amount (p. ‘`\raise`’)  
`\rangle` right angle delimiter:  $\rangle$  (p. ‘`\rangle`’)  
`\rbrace` right brace delimiter:  $\}$  (p. ‘`\rbrace`’)  
`\rbrack` right bracket delimiter:  $\}$  (p. ‘`\rbrack`’)  
`\rceil` right ceiling delimiter:  $\rceil$  (p. ‘`\rceil`’)  
`\Re` complex real part symbol:  $\Re$  (p. ‘`\Re`’)  
`*\read` read a line from a specified input stream (p. ‘`\read`’)  
`*\relax` do nothing (p. ‘`\relax`’)  
`*\relpenalty` additional penalty for breaking after a relation, by  
 default 500 (p. ‘`\relpenalty`’)  
`\repeat` end a loop started with `\loop` (p. ‘`\@repeat`’)  
`\rfloor` right floor delimiter:  $\rfloor$  (p. ‘`\rfloor`’)  
`\rgroup` right group delimiter (the smallest size is shown here):  $\}$   
 (p. ‘`\rgroup`’)  
`\rho` math Greek letter  $\rho$  (p. ‘`\rho`’)  
`*\right` produce the specified delimiter at the right end of a subformula  
 started with `\left` (p. ‘`\right`’)  
`\rightarrow` relation:  $\rightarrow$  (p. ‘`\rightarrow`’)  
`\Rightarrow` relation:  $\Rightarrow$  (p. ‘`\Rightarrow`’)  
`\rightarrowfill` fill enclosing hbox with a `\rightarrow`:  $\longrightarrow$   
 (p. ‘`\rightarrowfill`’)  
`\rightharpoondown` relation:  $\rightharpoondown$  (p. ‘`\rightharpoondown`’)  
`\rightharpoonup` relation:  $\rightharpoonup$  (p. ‘`\rightharpoonup`’)  
`\rightleftharpoons` relation:  $\rightleftharpoons$  (p. ‘`\rightleftharpoons`’)  
`\rightline` produce line with its text pushed to right margin  
 (p. ‘`\rightline`’)  
`*\rightskip` glue T<sub>E</sub>X inserts at the right of each line (p. ‘`\rightskip`’)  
`*\righthyphenmin` size of the smallest word fragment T<sub>E</sub>X allows after  
 a hyphen at the end of a word, by default 3 (p. ‘`\righthyphenmin`’)  
`\rlap` produce text (with no width) extending to the right of the  
 current position (p. ‘`\rlap`’)  
`\rm` use roman type, i.e., do `\tenrm\fam=0` (p. ‘`\rm`’)  
`\rmoustache` bottom half of a large brace:  $\}$  (p. ‘`\rmoustache`’)  
`\romannumeral` produce the lowercase roman numeral representation  
 of a specified number as characters (p. ‘`\romannumeral`’)  
`\root` produce a specified root of a specified subformula, as in  $\sqrt[3]{2}$   
 (p. ‘`\root`’)  
`\rq` right quote character for text:  $\text{'}\text{'}$  (p. ‘`\rq`’)  
`\S` section character for text:  $\S$  (p. ‘`\S`’)

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`\sb` implicit subscript character (p. ‘`\sb`’)  
`*\scriptfont` the script style font in a specified math family (p. ‘`\scriptfont`’)  
`*\scriptscriptfont` the scriptscript style font in a specified math family (p. ‘`\scriptscriptfont`’)  
`*\scriptscriptstyle` use scriptscriptstyle size in a formula (p. ‘`\scriptscriptstyle`’)  
`*\scriptspace` additional space T<sub>E</sub>X kerns after a subscript or superscript, by default 0.5 pt (p. ‘`\scriptspace`’)  
`*\scriptstyle` use scriptstyle size in a formula (p. ‘`\scriptstyle`’)  
`*\scrollmode` don’t stop at most errors, but do stop at errors about missing files (p. ‘`\scrollmode`’)  
`\searrow` southeast arrow relation:  $\searrow$  (p. ‘`\searrow`’)  
`\sec` secant function:  $\sec$  (p. ‘`\sec`’)  
`*\setbox` define a specified box register to be a box (p. ‘`\setbox`’)  
`*\setlanguage` change to a specified set of hyphenation rules, but don’t change `\language` (p. ‘`\setlanguage`’)  
`\setminus` set difference operator:  $\setminus$  (p. ‘`\setminus`’)  
`\settab` define the tabs for a tabbing alignment (p. ‘`\settab`’)  
`\sevenbf` use 7-point bold font, `cmbx7` (p. ‘`\sevenbf`’)  
`\seveni` use 7-point math italic font, `cmmi5` (p. ‘`\seveni`’)  
`\sevenrm` use 7-point roman font, `cmr7` (p. ‘`\sevenrm`’)  
`\sevensy` use 7-point symbol font, `cmsy7` (p. ‘`\sevensy`’)  
`*\sfcode` the space factor code of a specified character (p. ‘`\sfcode`’)  
`\sharp` sharp symbol for music:  $\sharp$  (p. ‘`\sharp`’)  
`*\shipout` output a box to the `.dvi` file (p. ‘`\shipout`’)  
`*\show` show, in the log and on the terminal, the meaning of a specified token (p. ‘`\show`’)  
`*\showbox` display the contents of a specified box register (p. ‘`\showbox`’)  
`*\showboxbreadth` maximum number of items shown on each nesting level, by default 5 (p. ‘`\showboxbreadth`’)  
`*\showboxdepth` maximum nesting level shown, by default 3 (p. ‘`\showboxdepth`’)  
`\showhyphens` show, in the log and on the terminal, hyphenations in the specified text (p. ‘`\showhyphens`’)  
`*\showlists` display all lists being worked on (p. ‘`\showlists`’)  
`*\showthe` show, in the log and on the terminal, what `\the` would produce (p. ‘`\showthe`’)  
`\sigma` math Greek letter  $\sigma$  (p. ‘`\sigma`’)  
`\Sigma` math Greek letter  $\Sigma$  (p. ‘`\Sigma`’)  
`\sim` similarity relation:  $\sim$  (p. ‘`\sim`’)  
`\simeq` similar or equal relation:  $\simeq$  (p. ‘`\simeq`’)

`\sin` sine function:  $\sin$  (p. ‘`\sin`’)  
`\sinh` hyperbolic sine function:  $\sinh$  (p. ‘`\sinh`’)  
`\skew` shift a specified accent by a specified amount on a specified accented character (p. ‘`\skew`’)  
`*\skewchar` character in a specified font used for positioning accents (p. ‘`\skewchar`’)  
`*\skip` the specified glue register (p. ‘`\skip`’)  
`*\skipdef` define a specified control sequence to be a number corresponding to a `\skip` register (p. ‘`\skipdef`’)  
`\sl` use slanted type, i.e., do `\tensl\fam=\slfam` (p. ‘`\sl`’)  
`\slash` / character that allows a line break (p. ‘`\slash`’)  
`\slfam` slanted family for math (p. ‘`\slfam`’)  
`\smallbreak` indicate somewhat desirable page break with `\penalty-50` and produce `\smallskipamount` glue (p. ‘`\smallbreak`’)  
`\smallint` small integral symbol:  $\int$  (p. ‘`\smallint`’)  
`\smallskip` produce `\smallskipamount` glue (p. ‘`\smallskip`’)  
`\smallskipamount` glue for a small vertical skip, by default 3pt plus 1pt minus 1pt (p. ‘`\smallskipamount`’)  
`\smash` produce formula with zero height and depth (p. ‘`\smash`’)  
`\smile` smile relation:  $\smile$  (p. ‘`\smile`’)  
`\sp` implicit superscript character (p. ‘`\sp`’)  
`\space` produce normal interword glue (p. ‘`\space`’)  
`*\spacefactor` modifies stretch and shrink of interword glue if not 1000 (p. ‘`\spacefactor`’)  
`*\spaceskip` if nonzero and `\spacefactor < 2000`, overrides the normal interword glue (p. ‘`\spaceskip`’)  
`\spadesuit` spade suit symbol: ♠ (p. ‘`\spadesuit`’)  
`*\span` either combine entries in an alignment body or expand tokens in a preamble (p. ‘`\span`’)  
`*\special` write tokens to the .dvi file to be interpreted by a DVI-reading program (p. ‘`\special`’)  
`*\splitbotmark` last mark item in a box resulting from `\vsplit` (p. ‘`\splitbotmark`’)  
`*\splitfirstmark` first mark item in a box resulting from `\vsplit` (p. ‘`\splitfirstmark`’)  
`*\splitmaxdepth` maximum depth of a box resulting from `\vsplit` (p. ‘`\splitmaxdepth`’)  
`*\splittopskip` glue T<sub>E</sub>X inserts at the top of a box resulting from `\vsplit` (p. ‘`\splittopskip`’)  
`\sqcap` square cap operator:  $\sqcap$  (p. ‘`\sqcap`’)  
`\sqcup` square cup operator:  $\sqcup$  (p. ‘`\sqcup`’)  
`\sqrt` produce square root of a subformula, as in  $\sqrt{2}$  (p. ‘`\sqrt`’)  
`\sqsubseteq` square subset or equal relation:  $\sqsubseteq$  (p. ‘`\sqsubseteq`’)



*Capsule summary of commands*

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`\sqsupseteq` square superset or equal relation:  $\sqsupseteq$  (p. ‘`\sqsupseteq`’)  
`\ss` German letter: ß (p. ‘`\ss`’)  
`\star` star operator:  $\star$  (p. ‘`\star`’)  
`*\string` produce a specified token, most commonly a control sequence, as characters (p. ‘`\string`’)  
`\strut` box with zero width, but height and depth of a standard line, from baseline to baseline, in the current font (p. ‘`\strut`’)  
`\subset` subset relation:  $\subset$  (p. ‘`\subset`’)  
`\subseteq` subset or equal relation:  $\subseteq$  (p. ‘`\subseteq`’)  
`\succ` successor relation:  $\succ$  (p. ‘`\succ`’)  
`\succeq` successor or equal relation:  $\succeq$  (p. ‘`\succeq`’)  
`\sum` large summation operator:  $\sum$  (p. ‘`\sum`’)  
`\sup` superior function:  $\sup$  (p. ‘`\sup`’)  
`\supereject` force a page break, and output all insertions (p. ‘`\supereject`’)  
`\supset` superset relation:  $\supset$  (p. ‘`\supset`’)  
`\supseteq` superset or equal relation:  $\supseteq$  (p. ‘`\supseteq`’)  
`\surd` surd symbol:  $\sqrt{\phantom{x}}$  (p. ‘`\surd`’)  
`\swarrow` southwest arrow relation:  $\swarrow$  (p. ‘`\swarrow`’)  
`\t` tie-after accent for text, as in  $\hat{u}$  (p. ‘`\t`’)  
`\tabalign` equivalent to `\+`, except it’s not `\outer` (p. ‘`\tabalign`’)  
`*\tabskip` glue between columns (or rows) of an alignment (p. ‘`\tabskip`’)  
`\tan` tangent function:  $\tan$  (p. ‘`\tan`’)  
`\tanh` hyperbolic tangent function:  $\tanh$  (p. ‘`\tanh`’)  
`\tau` math Greek letter  $\tau$  (p. ‘`\tau`’)  
`\tenbf` use 10-point bold font, `cmbx10` (p. ‘`\tenbf`’)  
`\tenex` use 10-point math extension font, `cmex10` (p. ‘`\tenex`’)  
`\teni` use 10-point math italic font, `cmmi10` (p. ‘`\teni`’)  
`\tenit` use 10-point text italic font, `cmti10` (p. ‘`\tenit`’)  
`\tenrm` use 10-point roman text font, `cmr10` (p. ‘`\tenrm`’)  
`\tensl` use 10-point slanted roman font, `cmsl10` (p. ‘`\tensl`’)  
`\tensy` use 10-point math symbol font, `cmsy10` (p. ‘`\tensy`’)  
`\tentt` use 10-point typewriter font, `cmtt10` (p. ‘`\tentt`’)  
`\TeX` produce the T<sub>E</sub>X logo (p. ‘`\TeX`’)  
`*\textfont` the text style font in a specified math family (p. ‘`\textfont`’)  
`\textindent` like `\item`, but doesn’t do hanging indentation (p. ‘`\textindent`’)  
`*\textstyle` use textstyle size in a formula (p. ‘`\textstyle`’)  
`*\the` give the value of a specified token (p. ‘`\the`’)  
`\theta` math Greek letter  $\theta$  (p. ‘`\theta`’)

`\Theta` math Greek letter  $\Theta$  (p. ‘`\Theta`’)  
`*\thickmuskip` glue for a thick math space, by default 5 mu plus 5 mu  
 (p. ‘`\thickmuskip`’)  
`*\thinmuskip` glue for a thin math space, by default 3 mu  
 (p. ‘`\thinmuskip`’)  
`\thinspace` kern  $\frac{1}{6}$  em (p. ‘`\thinspace`’)  
`\tilde` tilde accent for math, as in  $\tilde{x}$  (p. ‘`\tilde`’)  
`*\time` the time of day, in minutes since midnight (p. ‘`\time`’)  
`\times` times operator:  $\times$  (p. ‘`\times`’)  
`*\toks` the specified token register (p. ‘`\toks`’)  
`*\toksdef` define a specified control sequence to be a number  
 corresponding to a `\toks` register (p. ‘`\toksdef`’)  
`*\tolerance` badness tolerance for line breaks with hyphenation  
 (p. ‘`\tolerance`’)  
`\to` mapping relation:  $\rightarrow$  (p. ‘`\to`’)  
`\top` lattice top symbol:  $\top$  (p. ‘`\top`’)  
`\topglue` produce specified vertical glue at the top of a page  
 (p. ‘`\topglue`’)  
`\topinsert` produce the specified text at top of a page (p. ‘`\topinsert`’)  
`*\topmark` `\botmark` before the current page was boxed (p. ‘`\topmark`’)  
`*\topskip` glue between the headline and the first line of text on a page,  
 by default 10 pt (p. ‘`\topskip`’)  
`\tracingall` turn on maximal tracing (p. ‘`\tracingall`’)  
`*\tracingcommands` display execution of commands (p. ‘`\tracingcommands`’)  
`*\tracinglostchars` display characters that are asked for, but not  
 defined (p. ‘`\tracinglostchars`’)  
`*\tracingmacros` display macro expansions (p. ‘`\tracingmacros`’)  
`*\tracingonline` show diagnostic output on the terminal as well as in  
 the log file (p. ‘`\tracingonline`’)  
`*\tracingoutput` display contents of shipped-out boxes (p. ‘`\tracingoutput`’)  
`*\tracingpages` display page break calculations (p. ‘`\tracingpages`’)  
`*\tracingparagraphs` display line break calculations (p. ‘`\tracingparagraphs`’)  
`*\tracingrestores` display values restored at the end of a group  
 (p. ‘`\tracingrestores`’)  
`*\tracingstats` display memory usage statistics (p. ‘`\tracingstats`’)  
`\triangle` triangle symbol:  $\triangle$  (p. ‘`\triangle`’)  
`\triangleleft` left triangle operator:  $\triangleleft$  (p. ‘`\triangleleft`’)  
`\triangleright` right triangle operator:  $\triangleright$  (p. ‘`\triangleright`’)  
`\tt` use typewriter type, i.e., do `\tentt\fam=\ttfam` (p. ‘`\tt`’)  
`\ttfam` typewriter family for math (p. ‘`\ttfam`’)  
`\ttraggedright` use typewriter type and allow right margins of  
 paragraphs to vary from line to line (p. ‘`\ttraggedright`’)

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- `\u` breve accent for text, as in  $\check{r}$  (p. ‘`\u`’)
- `*\uccode` the character code for the uppercase form of a letter  
(p. ‘`\uccode`’)
- `*\uchyph` if positive, consider hyphenating words that start with a capital letter (p. ‘`\uchyph`’)
- `\underbar` underline the specified text without avoiding any descenders, as in  $\underline{fog}$  (p. ‘`\underbar`’)
- `\underbrace` produce a brace covering the bottom of a formula, as in  $\underbrace{x + x}$  (p. ‘`\underbrace`’)
- `*\underline` underline a math formula below the descenders, as in  $\underline{x + y}$  (p. ‘`\underline`’)
- `*\unhbox` append the contents of the box in a specified box register to the current list, and void the register; legal only in horizontal modes (p. ‘`\unhbox`’)
- `*\unhcopy` like `\unhbox`, but doesn’t void the register (p. ‘`\unhcopy`’)
- `*\unkern` if the last item on the current list is a kern, remove it (p. ‘`\unkern`’)
- `*\unpenalty` if the last item on the current list is a penalty, remove it (p. ‘`\unpenalty`’)
- `*\unskip` if the last item on the current list is glue, remove it (p. ‘`\unskip`’)
- `*\unvbox` append the contents of the box in a specified box register to the current list, and void the register; legal only in vertical modes (p. ‘`\unvbox`’)
- `*\unvcopy` like `\unvbox`, but doesn’t void the register (p. ‘`\unvcopy`’)
- `\uparrow` relation:  $\uparrow$  (p. ‘`\uparrow`’)
- `\Uparrow` relation:  $\Uparrow$  (p. ‘`\Uparrow`’)
- `\upbracefill` fill enclosing hbox with an upwards facing brace:  
 $\underbrace{\hspace{1cm}}$  (p. ‘`\upbracefill`’)
- `\updownarrow` relation:  $\updownarrow$  (p. ‘`\updownarrow`’)
- `\Updownarrow` relation:  $\Updownarrow$  (p. ‘`\Updownarrow`’)
- `\uplus` cupped plus operator:  $\uplus$  (p. ‘`\uplus`’)
- `*\uppercase` convert lowercase letters in the specified text to uppercase (p. ‘`\uppercase`’)
- `\upsilon` math Greek letter  $\upsilon$  (p. ‘`\upsilon`’)
- `\Upsilon` math Greek letter  $\Upsilon$  (p. ‘`\Upsilon`’)
- `\v` check accent for text, as in  $\check{o}$  (p. ‘`\v`’)
- `*\vadjust` produce vertical mode material after the current line (p. ‘`\vadjust`’)
- `*\valign` align text in rows (p. ‘`\valign`’)
- `\varepsilon` variant math Greek letter  $\varepsilon$  (p. ‘`\varepsilon`’)
- `\varphi` variant math Greek letter  $\varphi$  (p. ‘`\varphi`’)
- `\varpi` variant math Greek letter  $\varpi$  (p. ‘`\varpi`’)

`\varrho` variant math Greek letter  $\varrho$  (p. ‘`\varrho`’)  
`\varsigma` variant Greek letter  $\varsigma$  (p. ‘`\varsigma`’)  
`\vartheta` variant math Greek letter  $\vartheta$  (p. ‘`\vartheta`’)  
`*\vbadness` badness threshold for reporting underfull or overfull vboxes,  
by default 1000 (p. ‘`\vbadness`’)  
`*\vbox` produce a vbox whose baseline is that of the bottom box enclosed  
(p. ‘`\vbox`’)  
`*\vcenter` center the specified text on the math axis (p. ‘`\vcenter`’)  
`\vdash` left turnstile symbol:  $\vdash$  (p. ‘`\vdash`’)  
`\vdots` vertical dots for math:  $\vdots$  (p. ‘`\vdots`’)  
`\vec` vector accent for math, as in  $\vec{x}$  (p. ‘`\vec`’)  
`\vee` logical “or” operator:  $\vee$  (p. ‘`\vee`’)  
`\vert` bar relation:  $\mid$  (p. ‘`\vert`’)  
`\Vert` double bar relation:  $\parallel$  (p. ‘`\Vert`’)  
`*\vfil` produce infinitely stretchable vertical glue (p. ‘`\vfil`’)  
`*\vfill` produce even more infinitely stretchable vertical glue than that  
produced by `\vfil` (p. ‘`\vfill`’)  
`*\vfilneg` produce infinitely negative stretchable vertical glue  
(p. ‘`\vfilneg`’)  
`\vfootnote` produce a specified footnote with a specified reference mark,  
but don’t produce the reference mark in the text (p. ‘`\vfootnote`’)  
`*\vfuzz` space threshold for reporting overfull vboxes, by default 0.1 pt  
(p. ‘`\vfuzz`’)  
`\vglue` produce specified vertical glue that doesn’t disappear at page  
breaks (p. ‘`\vglue`’)  
`*\voffset` vertical offset relative to one inch from the paper’s top edge  
(p. ‘`\voffset`’)  
`\vphantom` produce an invisible formula with zero width but natural  
height and depth (p. ‘`\vphantom`’)  
`*\vrule` produce a vertical rule; legal only in horizontal modes  
(p. ‘`\vrule`’)  
`*\vsize` page height, by default 8.9 in (p. ‘`\vsize`’)  
`*\vskip` produce specified vertical glue (p. ‘`\vskip`’)  
`*\vsplit` break the contents of a specified box register to the specified  
height (p. ‘`\vsplit`’)  
`*\vss` produce vertical glue that is infinitely stretchable and infinitely  
shrinkable (p. ‘`\vss`’)  
`*\vtop` produce a vbox whose baseline is that of the top box enclosed  
(p. ‘`\vtop`’)  
`*\wd` the width of the box in a specified box register (p. ‘`\wd`’)  
`\wedge` logical “and” operator:  $\wedge$  (p. ‘`\wedge`’)  
`\widehat` math accent, as in  $\widehat{y+z}+a$  (p. ‘`\widehat`’)  
`\widetilde` math accent  $b+\widetilde{c}+d$  (p. ‘`\widetilde`’)

*Capsule summary of commands*

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- \***\widowpenalty** penalty for a single line beginning a page, by default 150 (p. ‘\widowpenalty’)
- \wlog** **\write** the specified token list in the log file (p. ‘\wlog’)
- \wp** Weierstraß ‘p’ symbol:  $\wp$  (p. ‘\wp’)
- \wr** wreath product operator:  $\wr$  (p. ‘\wr’)
- \***\write** write a line to a specified output stream (p. ‘\write’)
- \***\xdef** equivalent to **\global\edef**, i.e., globally define a macro, immediately expanding the replacement text (p. ‘\xdef’)
- \xi** math Greek letter  $\xi$  (p. ‘\xi’)
- \Xi** math Greek letter  $\Xi$  (p. ‘\Xi’)
- \***\xleaders** produce leaders with leftover space distributed equally between the leader boxes (p. ‘\xleaders’)
- \***\xspaceskip** if nonzero and **\spacefactor**  $\geq$  2000, overrides the normal interword glue (p. ‘\xspaceskip’)
- \***\year** the current year, as a number (p. ‘\year’)
- \zeta** math Greek letter  $\zeta$  (p. ‘\zeta’)