

Useful Parameters and Conversions

<code>\day, \month, \year</code>	the current day, month, year
<code>\jobname</code>	name of current job
<code>\rom numeral{number}</code>	convert to lower case roman nums.
<code>\uppercase{(token list)}</code>	convert to upper case
<code>\lowercase{(token list)}</code>	convert to lower case

Fills, Leaders and Ellipses

Text or Math:	...	<code>\dots</code>
Math:	...	<code>\ldots</code> <code>\cdots</code> <code>\vdots</code> <code>\ddots</code>

The following fill space with the indicated item.

`\hrulefill` `\rightarrowfill` `\leftarrowfill` `\dotfill`

The general format for constructing leaders is

`\leaders(box or rule)\hspace{glue}` repeat box or rule
`\leaders(box or rule)\hfill` fill space with box or rule

TeX Fonts and Magnification

`\rm` Roman `\bf` Bold `\tt` Typewriter
`\sl` Slant `\it` Italic `\/` "italic correction"

`\magnification=(number)` scale document by $n/1000$
`\magstep(number)` scaling factor of $1.2^n \times 1000$
`\magstephalf` scalling factor of $\sqrt{1.2}$
`\font\FN=(fontname)` load a font, naming it `\FN`
`\font\FN=(fontname) at <dimen>` load font scaled to dimension
`\font\FN=(fontname) scaled <number>` load font scaled by $n/1000$
`true <dimen>` dimension with no scaling

Alignment Displays

`\settabs(number)\columns` set equally spaced tabs
`\settabs+(sample line)\cr` set tabs as per sample line
`\+(text1)&(text2)&...&\cr` tabbed text to be typeset
`\halign` horizontal alignment
`\halign to(dimen)` horizontal alignment
`\openup(dimen)` add space between lines
`\noalign{(vmode material)}` insert material after any `\cr`
`\tabskip=(glue)` set glue at tab stops
`\omit` omit the template for a column
`\span` span two columns
`\multispan(number)` span several columns
`\hidewidth` ignore the width of an entry
`\cr cr` insert `\cr` if one is not present

Boxes

`\hbox to(dimen)` hbox of given dimension
`\vbox to(dimen)` vbox, bottom justified
`\vtop to(dimen)` vbox, top justified
`\vcenter to(dimen)` vbox, center justified (math only)
`\rlap` right overlap material
`\llap` left overlap material

Overfull Boxes

`\hfuzz` allowable excess in hboxes
`\vfuzz` allowable excess in vboxes
`\overfullrule` width of overfull box marker. To eliminate entirely, set `\overfullrule=0pt`.

Indentation and Itemized Lists

`\indent` indent
`\noindent` do not indent
`\parindent=(dimen)` set indentation of paragraphs
`\displayindent=(dimen)` set indentation of math displays
`\leftskip=(dimen)` skip space on left
`\rightskip=(dimen)` skip space on right
`\narrower` make paragraph narrower
`\item{(label)}` singly indented itemized list
`\itemitem{(label)}` doubly indented itemized list
`\hangindent=(dimen)` hanging indentation for paragraph
`\hangafter=(number)` start hanging indent after line n .
If $n < 0$, indent first $|n|$ lines.
`\parshape=(number)` general paragraph shaping macro

Headers, Footers, and Page Numbers

`\nopagenumbers` turn off page numbering
`\pageno` current page number. To get roman nums, set `\pageno=(negative number)`
`\folio` current page number, roman num if < 0
`\footline` material to put at foot of page
`\headline` material to put at top of page. To leave space, set `\voffset=2\baselineskip`, make room with `\advance\vsiz` by `-\voffset`.

Macro Definitions

`\def\cs{(replacement text)}` define the macro `\cs`
`\def\cs#1...#n{(repl. text)}` macro with parameters
`\let\cs=(token)` give `\cs` token's current meaning
Advanced Macro Definition Commands
`\long\def` macro whose args may include `\par`
`\outer\def` macro not allowed inside definitions
`\global\def` or `\gdef` definition that transcends grouping
`\edef` expand while defining macro
`\xdef` or `\global\edef` global version of `\edef`
`\noexpand(token)` do not expand token
`\expandafter(token)` expand item after token first
`\futurelet\cs(tok1)(tok2)` equals `\let\cs=(tok1)(tok2)`
`\csname... \endcsname` create a control sequence name
`\string\cs` list characters in name, `\ c s`
`\number(number)` list of characters in number
`\the(internal quantity)` list of tokens giving value of quantity

Conditionals

The general format of a conditional is

`\if(condition)<true text>\else<false text>\fi`
`\ifnum(num1)<relation>(num2)` compare two integers
`\ifdim(dimen1)<relation>(dimen2)` compare two dimensions
`\ifodd(num)` test for an odd integer
`\ifmmode` test for math mode
`\if(token1)(token2)` test if character codes agree
`\ifdim` compare two dimensions
`\ifx(token1)(token2)` test if tokens agree
`\ifeof(number)` test for end of file
`\iftrue, \iffalse` always true, always false
`\ifcase(number)<text0>\or<text1>\or... \or<textn>\else<text>\fi` choose text by (number)
`\loop α \if...β \repeat` loop $\alpha\beta\alpha\cdots\alpha$ until `\if` is false
`\newif\ifblob` create a new conditional called `\ifblob`
`\blobtrue, \blobfalse` set conditional `\ifblob` true, false

Dimensions, Spacing, and Glue

Dimensions are specified as `<number><unit of measure>`.
Glue is specified as `<dimen> plus(dimen) minus(dimen)`.

point	pt	pica	pc	inch	in	centimeter	cm
m width	em	x height	ex	math unit	mu	millimeter	mm
1 pc =	12 pt	1 in =	72.72 pt	2.54 cm =	1 in	18 mu =	1 em

Horizontal Spacing: `\quad` (skip 1em) `\qquad`
Horizontal Spacing (Text): `\thinspace` `\enspace` `\enskip`
`\hskip(glue)` `\hfil` `\hfill` `\hfilneg`
Horizontal Spacing (Math): thin space `\,` medium space `\>`
thick space `\;` neg. thin space `\!` `\mskip(mu glue)`

Vertical Spacing: `\vskip(glue)` `\vfill` `\vfill`
`\strut` box w/ ht and depth of "(", zero width
`` invisible box with dim of (text)
`\vphantom{(text)}` box w/ ht & depth of (text), zero width
`\hphantom{(text)}` box w/ width of (text), zero ht & depth
`\smash{(text)}` typeset (text), set ht & depth to zero
`\raise(dimen)\hbox{(text)}` raise box up
`\lower(dimen)\hbox{(text)}` lower box down
`\moveleft(dimen)\vbox{(text)}` move box left
`\moveright(dimen)\vbox{(text)}` move box right

Skip Space Between Lines: `\smallskip` `\medskip` `\bigskip`
encourage a break `\smallbreak` `\medbreak` `\bigbreak`
break if no room `\filbreak`
Set Line Spacing: `\baselineskip = (glue)`
single space `\baselineskip = 12pt`
1 1/2 space `\baselineskip = 18pt`
double space `\baselineskip = 24pt`

Increase Line Spacing `\openup(dimen)`
use `\jot's` `1\jot = 3pt`
Allow Unjustified Lines `\raggedright`
Allow Unjustified Pages `\raggedbottom`

Braces and Matrices

`\matrix` rectangular array of entries
`\pmatrix` matrix with parentheses
`\bordermatrix` matrix with labels on top and left
`\overbrace` overbrace, may be superscripted
`\underbrace` underbrace, may be subscripted

For small matrices in text, use the following constructions:

$$\{a,b \ \text{\choose} \ c,d\} \qquad \begin{pmatrix} a \\ c \\ d \end{pmatrix}$$
$$\left(\{a\atop c\} \{b\atop d\} \right) \qquad \begin{pmatrix} a & b \\ c & d \end{pmatrix}$$

Displayed Equations

`\eqno` equation number at right
`\leqno` equation number at left
`\eqalign` display several aligned equations
`\eqalignno` display aligned equations numbered at right
`\leqalignno` display aligned equations numbered at left
`\displaylines` display several equations, centered
`\cases` case by case definitions
`\noalign` to insert space between lines in displays, use `\noalign{\vskip(glue)}` after any `\cr`
`\openup(dimen)` add space between all lines in a display

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