

Line Breaking

`\linebreak` force a line break
`\[len]` start new line and leave *len* vertical space
`\-` permit hyphenation
`\begin{sloppypar} ... \end{sloppypar}`
 allow loose lines in paragraphs
`\sloppy` allow loose lines

Page Breaking

`\pagebreak` force a page break
`\enlargethispage*{ht}` squeezes extra *ht* of text on current page.
`\newpage` start a new page
`\clearpage` print all figures and tables and start a new page

Boxes

`\mbox{...}`
`\makebox[wd][pos]{...}`
 make box of width *wd*; *pos* puts text at left (l), right (r), or center (default)
`\fbox{text}`
`\framebox[wd][pos]{text}` *pos = l, r (default c)*
 same as `\mbox` or `\makebox` but draws frame around box
`\newsavebox{cmd}` defines *cmd* to be a bin for saving boxes
`\sbox{cmd}{text}`
`\savebox{cmd}[wd][pos]{text}`
 same as `\mbox` or `\makebox` but saves box in bin *cmd*
`\usebox{cmd}` print box saved in bin *cmd*
`\begin{minipage}[pos]{wd} ... \end{...}`
 make parbox of width *wd*, aligned by *pos* at top (t), bottom (b), or center (default) line
`\parbox[pos]{wd}{...}` same as *minipage* for small text, no displayed environments *pos = t, b*

Space

`\hspace{len}` make *len* horizontal space; *-form works even at beginning of line
`\hfill` make infinitely stretchable horizontal space
`\vspace{len}` leave *len* vertical space; *-form works even at beginning of page

Length

units cm em ex in pc pt mm
`\newlength{cmd}` define *cmd* to be a length
`\setlength{cmd}{len}` set length *cmd* to *len*
`\addtolength{cmd}{len}` add *len* to length *cmd*

Pictures

`\begin{picture}(x,y)(x',y') ... \end{...}`
 $x \times y$ picture [lower-left corner at (x', y')]
`\put(x,y){...}` put object at point (x, y)
`\multiput(x,y)(\Delta x, \Delta y){n}{...}`
 make *n* copies of object with first at (x, y) and others offset by $(\Delta x, \Delta y)$
`\makebox(x,y)[pos]{...}` make $x \times y$ box; *pos* puts object at top (t), bottom (b), left (l), right (r), and/or centered (default); `\framebox` and `\savebox` have analogs
`\dashbox{d}(x,y)[pos]{...}` like `\makebox` but puts dashed lines of length *d* around box
`\line(h,v){l}` line of slope v/h and horizontal extent *l* (length *l* if $h = 0$), $0 \leq h, v \leq 6$
`\vector(h,v){l}` same as `\line` but draws arrowhead; $0 \leq h, v \leq 4$
`\shortstack[pos]{...}`
 like `\begin{tabular}[pos] ...`
`\circle{d}` draw circle of diameter *d*; *-form draws solid disk
`\oval(x,y)[part]` draw $x \times y$ [partial] oval
`\frame{...}` draw frame around object
 line thickness `\thinlines` or `\thicklines`

graphics and color Packages

`\scalebox{fac}{...}` scale by factor of *fac*
`\resizebox[wd][ht]{...}` scale to $wd \times ht$
`\rotatebox{ang}{...}` rotate by *ang* degrees
`\includegraphics{file}` insert graphics from file *File* \rightarrow width = height keep aspect ratio
`\definecolor{clr}{mdl}{val}` define color *clr* using color model *mdl*
`\color{clr}` set current color to *clr*
`\textcolor{clr}{...}` typeset in color *clr*
`\colorbox{clr}{...}` typeset on colored box
`\pagecolor{clr}` set background color of page

Figures and Tables

`\begin{figure} ... \end{figure}`
 make floating figure
`\begin{table} ... \end{table}`
 make floating table
`\caption{...}` make figure or table caption

tabbing Environment

Rows separated by `\\`; columns determined by:
`\=` set tab stop
`\>` go to next tab stop
`\kill` throw away line

array and tabular Environments

`\begin{array}[pos]{cols} ... \end{array}`
`\begin{tabular}[pos]{cols} ... \end{tabular}`
 use `array` for formulas, `tabular` for text; items separated by `&` and rows by `\\`; *pos* aligns with top (t), bottom (b), or center (default); *cols* entries format columns:
 l left-justified column
 r right-justified column
 c centered column
 | vertical rule
 @{...} text or space between columns
 *{n}{...} equivalent to *n* copies of ...
`\multicolumn{n}{col}{...}` span next *n* columns with *col* format
`\hline` draw horizontal line between rows
`\cline{i-j}` horizontal line across columns *i-j*

Definitions

`\newcommand{cmd}[n][opt]{...}` define command *cmd* [with *n* arguments] [first optional]
`\newenvironment{nam}[n]{beg}{end}`
 define environment *nam* [with *n* arguments]
`\newtheorem{nam}{cap}` define a theorem-like environment *nam* captioned by *cap*

Numbering : Count

`\setcounter{ctr}{n}` set counter *ctr* to *n*
`\addtocounter{ctr}{n}` add *n* to counter *ctr*

Sentences and Paragraphs

quotes single '...' double "..."
 dashes intra-word - number range: --
 punctuation: ---
 spacing small \, inter-word _ unbreak-
 able ~ sentence-ending period \@.
 special characters \\$ \\$ & & % \\
 # \# { \{ } \} - _ *\begin{emph}*
 emphasis \emph{...} *\em{...}* *\begin{emph}*
 unbreakable text \mbox{...} *\end{emph}*
 footnotes \footnote{...}
 date \today

Type Style

\textrm{...} Rom \textsc{...} CAPS
 \textit{...} Ital \texttt{...} Type
 \textbf{...} Bold \textsf{...} SSrf
 \textsl{...} Slan

\boldmath use bold math symbols

in math mode

\mathrm{...} Rom \mathtt{...} Type
 \mathit{...} Ital \mathsf{...} SSrf
 \mathbf{...} Bold \mathcal{...} CAC

\mathbb{...} IN, IR

Type Size

\tiny \small \large \huge
 \scriptsize \normalsize \Large \Huge
 \footnotesize \LARGE

Accents and Symbols

ò \{o} ò \^o ò \v{o} q \c{o}
 ó \'o ò \=o ö \H{o} q \d{o}
 ô \~o ô \.o õ \t{oo} q \b{o}
 õ \"o õ \u{o}

† \dag § \S © \copyright
 ‡ \ddag ¶ \P £ \pounds

Sectioning and Table of Contents

\part \section \paragraph
 \chapter \subsection \subparagraph
 \subsubsection
 \appendix start appendix
 \tableofcontents make table of contents

Mathematical Formulas

...\$ or \(...\) in-text formula
 \[...\] displayed formula *\begin{displaymath}*
 \begin{equation} ... \end{equation}
 numbered equation
 \begin{eqnarray} ... \end{eqnarray}
 numbered equations, like 3-column array en-
 vironment; \nonumber omits one equation
 number, eqnarray* omits all
 _{...} subscript
 ^{...} superscript
 ' prime (')
 \frac{n}{d} print fraction $\frac{n}{d}$
 \sqrt[n]{arg} print $\sqrt[n]{arg}$
 ellipsis \ldots ... \cdots ... \vdots :
 symbols see Tables 3.4–3.8 (pp. 42–44)
 Greek letters α \alpha ... Ω \Omega
 delimiters \left or \right followed by delim-
 iter from Table 3.10 (p. 47)
 \overline{exp} print \overline{exp}
 space thin \, medium \: thick \; neg-
 ative thin \!

Displayed Paragraphs

\begin{quote} ... \end{quote}
 short displayed quotation
 \begin{quotation} ... \end{quotation}
 long displayed quotation
 \begin{center} ... \end{center}
 centered lines, separated by \\
 \begin{verse} ... \end{verse}
 \\ between lines, blank line between stanzas
 \begin{verbatim} ... \end{verbatim}
 in typewriter font exactly as formatted

Lists

Begin each item with \item or \item[label]
 \begin{itemize} ... \end{itemize}
 “ticked” items
 \begin{enumerate} ... \end{enumerate}
 numbered items
 \begin{description} ... \end{description}
 labeled items

Document Class, Packages, Styles

\documentclass[options]{class}
 style article report book
 slides letter (for letters)
 options 11pt titlepage twoside leqno
 12pt twocolumn a4paper fleqn
 \usepackage[options]{pkg}
 pkg amstex color latexsym
 babel graphics makeidx
 \pagestyle{style} style of head and foot:
 plain empty headings myheadings
 \pagenumbering{style} style of page numbers:
 arabic roman alph Roman Alph

Title Page and Abstract

\maketitle make title with information declared
 by \title, \author, and [optional] \date
 \begin{titlepage} ... \end{titlepage}
 do-it-yourself title page
 \begin{abstract} ... \end{abstract}
 make abstract

Cross-Reference

\label{key} assign current counter value to key
 \ref{key} print value assigned to key
\page{...} \label{...}

Bibliography and Citation

\bibliography{...} make bibliography and tell
 BibT_EX names of bib files
 \begin{thebibliography}{lbl} ... \end{...}
 make bibliography; lbl is widest entry label
 \bibitem[lbl]{key} begin bibliography entry for
 citation key [with lbl as label]
 \cite[note]{keys} cite reference(s) keys [with
 added note]

Splitting the Input

\input{file} read specified file
 \include{file} read specified file unless excluded
 by \includeonly
 \includeonly{files} exclude any file not in files
 \begin{filecontents}{file} contents \end{...}
 write contents on specified file