

## Sentences and Paragraphs

quotes single ‘...’ double “...”  
 dashes intra-word - number range: --  
 punctuation: ---  
 spacing small \, inter-word \\_ unbreak-  
 able ~ sentence-ending period \@.  
 special characters \\$ \% & \% % \\  
 # \# { \{ } \} - \\_  
 emphasis \emph{...}  
 unbreakable text \mbox{...}  
 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{...} CAL

## Type Size

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

## Accents and Symbols

ò \‘{o}      ô \~{o}      õ \v{o}      ø \c{o}  
 ó \’{o}      ô \={o}      ö \H{o}      ø \d{o}  
 ô \^ {o}      ô \. {o}      õ \t{oo}      ø \b{o}  
 ö \"{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{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 \alpha ... \Omega \Omegamega  
 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

## Bibliography and Citation

\bibliography{...} make bibliography and tell  
     BIB<sub>T</sub>E<sub>X</sub> 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

## 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}`  
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

## 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* × *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* × *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 ≤ *h*, *v* ≤ 6  
`\vector(h,v){l}` same as `\line` but draws arrowhead; 0 ≤ *h*, *v* ≤ 4  
`\shortstack[pos]{...}`  
like `\begin{tabular}[pos]{...}`  
`\circle[d]` draw circle of diameter *d*; \*-form draws solid disk  
`\oval(x,y)[part]` draw *x* × *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* × *ht*  
`\rotatebox[ang]{...}` rotate by *ang* degrees  
`\includegraphics{file}` insert graphics from file  
`\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

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