

# L<sup>A</sup>T<sub>E</sub>X & T<sub>E</sub>X

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## Document Class, Packages, and Styles

- `\begin{documentclass}[options]{style}`
- `style`: article report book slides letter
- `options`: 10pt 11pt 12pt twiside twocolumn titlepage
- `\usepackage[options]{pkg}`
- `pagestyle{style}`
- `style`: plain empty headings myheadings
- `\pagenumbering{style}`
- `style`: arabic roman alph Roman Alph

## Front & Back (Title, Abstract, Contents)

- `\maketitle` Make title (\title, \author, \date)
- `\begin{abstract} ...` Make abstract
- `\tableofcontents` Make table of contents

## Displayed Paragraphs

- `\begin{quote} ...` Short displayed quotation
- `\begin{quotation} ...` Long displayed quotation
- `\begin{verbatim} ...` Typewriter font exactly as formatted

## Lists

- `\begin{itemize} ...` Bulleted
- `\begin{enumerate} ...` Numbered
- `\begin{description} ...` Labeled (use `\item[lab]`)
- `\begin{list}[label]{spacing} ...` Lots of spacing options
- `\topsep` Extra vertical space at top of list
- `\partopsep` Extra length at top if preceded by a blank line
- `\itemsep` Extra vertical space between items
- `\parsep` Vertical space between paragraphs within an item
- `\leftmargin` Distance between environment left margin and the list
- `\rightmargin` Distance between environment right margin and the list
- `\listparindent` Extra space for paragraph indent after first in item
- `\itemindent` Indentation of first line of an item
- `\labelsep` Separation between label box and first line item text
- `\labelwidth` Width of the box containing the label

## Splitting the Input

- `\input{file}` Read in file
- `\include{file}` Read file unless `\includeonly` overrides
- `\includeonly{files}` Exclude any file in list

## Line & Page Breaking

- `\linebreak` Force line break
- `\\[len]` Force line break and add vertical space
- `\pagebreak` Force page break (Also see: `\newpage`)
- `\clearpage` Dump all figures and start new page

## Boxes

- `\mbox{...}` Put a box around stuff
- `\fbox & \makebox` Like `\mbox` & `\makebox` with frame
- `\makebox[wd][pos]{...}` Box with width and position (l, r, c).
- `\raisebox[raise-ht][ht]{text}` Raised typeset box

## Paragraphs & Minipages

- `\begin{minipage}[pos]{wd} ...`
- `\parbox[pos]{wd}{...}`

## Space & Rules

- `\hspace{len}` Make a horz space. (Use \* form to force)
- `\hfill` Infinitely stretchable space
- `\vspace{len}` Make a vert space. (Use \* form to force)
- `\hrulefill` Draw horizontal line as long as possible
- `\rule[raise-ht][wd]{ht}` Draw a blob of ink
- Horz space commands: `\bigskip`, `\medskip`, `\smallskip`
- Math horz space: `\thisspace`, `\medspace`, `\thickspace`

## Lengths

- `\newlength{cmd}` Make a new length command
  - `\setlength{cmd}{len}` Set length `cmd` to `len`
  - `\addtolength{cmd}{len}` Add given length to given command
  - `\settoheight{cmd}{text}` Set length of `cmd` to the width `text`
  - `\settoheight{cmd}{text}` Set length of `cmd` to the height `text`
- NOTE: Units can be cm em ex in pc pt mm

## Counters

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

## New Commands

- `\newcommand{cmd}[n]{body}` command `cmd` with `n` args (arg vals: #n)

## Tabular Environment

- `\begin{tabular}[pos]{col-fmt} ...`
- The `col-fmt` argument specifies lines and column justification:
  - `l` Left-justified column
  - `r` Right-justified column
  - `c` Centered column
  - `|` Vertical rule
  - `@{...}` Text or space between columns
- `\multicolumn{n}{col}{...}` Span `n` columns with format `col`
- `\hline` Draw horizontal line across the table
- `\cline{i-j}` Draw horizontal line from col `i` to `j`

## Figures and Tables

- `\begin{figure}[loc] ...` Make a floating figure
- `\begin{table}[loc] ...` Make a floating table
- `loc`: h (here), h! (HERE!!), t (top), b (bottom), p (page for floats)
- `\caption{...}` Caption figure or table. \label after \caption

## Package "alltt"

- `\begin{alltt} ...` Typeset like a verbatim block, except that the special symbols `\`, `{`, and `}` have the normal meaning.

## Type Size

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

## Type Style

- Paragraph mode
  - `\textrm{...}` Roman
  - `\textit{...}` Italics
  - `\textbf{...}` Bold
  - `\textsc{...}` Caps
  - `\texttt{...}` Type
  - `\textsf{...}` SSrf
  - `\textsl{...}` Slant
- math mode
  - `\mathrm{...}` Roman
  - `\mathit{...}` Italics
  - `\mathbf{...}` Bold
  - `\mathsc{...}` Caps
  - `\mathtt{...}` Type
  - `\mathsf{...}` SSrf
  - `\mathcal{...}` Cal
  - `\Bbb{...}` AMS Black Board Bold

## Sectioning

- `\part` `\chapter` `\section` `\subsection`
- `\paragraph` `\subparagraph` `\appendix` `\subsubsection`

## Package "graphicx"

- `\scalebox[h_scl][v_scl]{...}` One arg may be !
- `\resizebox[h_len][v_len]{...}` One arg may be !
- `\reflectbox{...}`
- `\rotatebox[angle]{...}` Counterclockwise in degrees
- `\includegraphics[opts]{file_name}` Include graphic into document.
- `opts`: comma separated list of options
  - `scale=float` Scale value of 1 is natural sized
  - `width=len`
  - `height=len`
  - `angle=float` Counterclockwise `float` degrees
  - `origin=x y` Rotation origin
  - `totalheight=len` Height after rotation
  - `keepaspectratio=bol` Value is "true" or "false"
  - `clip=bol` Clip image outside of bounding box
  - `bb=llx lly urx ury` Bounding Box. Values in points.
  - `trim=llx lly urx ury` Shrink bounding box. Values in points.

## Package "xcolor"

- `\definecolor{clr-name}{gray}{val}` Define a gray color
- `\definecolor{clr-name}{rgb}{r,g,b}` Define an RGB color. r,g,b∈[0,1]
- `\textcolor[mdl]{fg_clr}{...}` Set `text` color
- `\colorbox[mdl][bg_clr]{...}` Set `text` background color
- `\fcolorbox[mdl][box_clr][bg_clr]{...}` fbox with frame and background color
  - `no mdl` → named color: red, green, blue, cyan, yellow, magenta, black, white, gray, lightgray, brown, darkgray, lime, olive, orange, pink, purple, teal, violet, or a color defined via `\definecolor`.
  - `mdl == rgb` → color is comma separated triple: r,g,b∈[0,1]
  - `mdl == gray` → color is single float
  - `mdl == HTML` → color is six hex digits: RRGGBB

## Cross Reference

- `\label{key}` Assign current counter to `key`
- `\ref{key}` Print value assigned to `key`
- `\pageref{key}` Print page number assigned to `key`

## Package "hyperref"

- `\href{url}{text}` Make link, print `text` in document
- `\url{url}` Make link, print `url` with `\texttt`
- `\hypersetup{colorlinks=true}` Color links, don't put them in boxes

## Package "fancyhdr"

- `\pagestyle{fancy}` Enable mode in preamble with `\pagestyle`
- `\thispagestyle{style}` Style for this page: Suppress all with "empty"
- `\lhead{...}` Top. Left. Document classification
- `\chead{...}` Top. Center.
- `\rhead{...}` Top. Right. Document title
- `\lfoot{...}` Botom. Left.
- `\cfoot{...}` Botom. Center. Page number: `\thepage`
- `\rfoot{...}` Botom. Right. Signature: `\mjmrRstd`

## Bibliography

- `\cite{label}` Cyte the bib entry with the given label
- Example bibliography done by hand:

```
\begin{thebibliography}{MMMMMM}
\pagebreak[0] \samespage{
\@bibitem{Weihrauch 00}{KW00}
Klaus Weihrauch (2000)\
\emph{Computable Analysis: An Introduction}\
ISBN 3-540-66817-9\
This book is well written and a fun read\ldots}
\end{thebibliography}
```

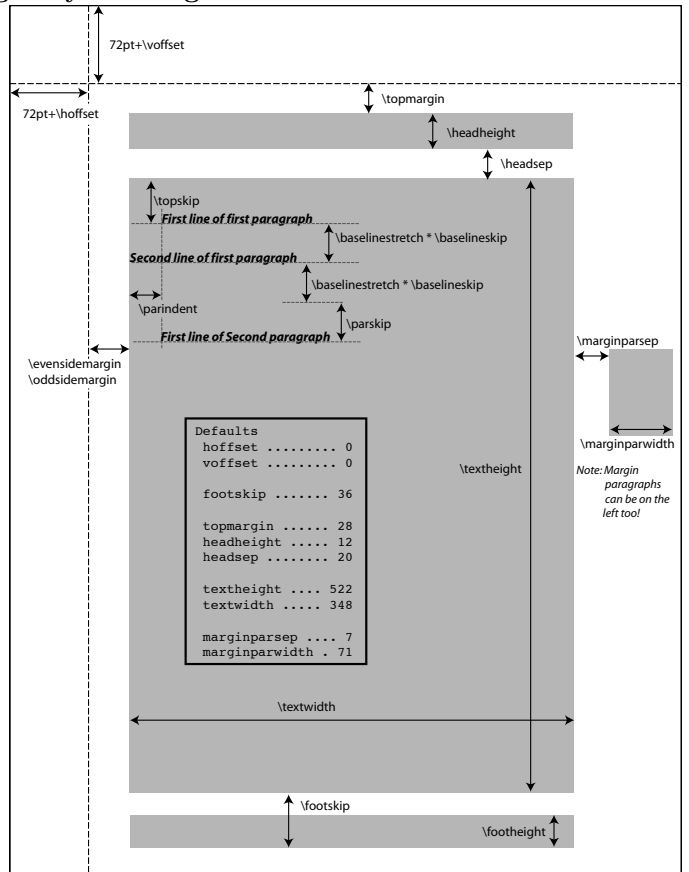
## Special Symbols

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

## Math Mode Symbols

• Various Symbols				
$\alpha$ alpha	$\Gamma$ Gamma	$\varphi$ varphi	$\diamond$ diamond	$\leftarrow$ leftarrow
$\beta$ beta	$\Delta$ Delta	$\chi$ chi	$\sphericalangle$ angle	$\Leftarrow$ Leftarrow
$\gamma$ gamma	$\Theta$ Theta	$\psi$ psi	$\perp$ bot	$\rightarrow$ rightarrow
$\delta$ delta	$\Lambda$ Lambda	$\omega$ omega	$\oplus$ oplus	$\Rightarrow$ Rightarrow
$\epsilon$ epsilon	$\Xi$ Xi	$\prec$ prec	$\ominus$ ominus	$\leftrightarrow$ leftrightarrow
$\varepsilon$ varepsilon	$\Pi$ Pi	$\succ$ succeq	$\otimes$ otimes	$\Leftrightarrow$ Leftrightarrow
$\zeta$ zeta	$\Sigma$ Sigma	$\dots$ ldots	$\oslash$ oslash	$\mapsto$ mapsto
$\eta$ eta	$\Upsilon$ Upsilon	$\cdots$ cdots	$\odot$ odot	$\hookrightarrow$ hookrightarrow
$\theta$ theta	$\Phi$ Phi	$\aleph$ aleph	$\bigcirc$ bigcirc	$\leftharpoonup$ leftharpoonup
$\vartheta$ vartheta	$\Psi$ Psi	$\prime$ prime	$\dagger$ dagger	$\leftharpoondown$ leftharpoondown
$\iota$ iota	$\Omega$ Omega	$\forall$ forall	$\ddagger$ ddagger	$\longleftarrow$ longleftarrow
$\kappa$ kappa	$\pm$ doteq	$\infty$ infy	$\amalg$ amalg	$\Longleftarrow$ Longleftarrow
$\lambda$ lambda	$\mp$ pm	$h$ hbar	$\succ$ succ	$\longrightarrow$ longrightarrow
$\mu$ mu	$\mp$ mp	$\emptyset$ emptyset	$\parallel$ parallel	$\Rightarrow$ Longrightarrow
$\nu$ nu	$\times$ times	$\exists$ exists	$\subseteq$ subseteq	$\Leftrightarrow$ Longleftrightarrow
$\xi$ xi	$\div$ div	$\nabla$ nabla	$\supseteq$ supseteq	$\Leftrightarrow$ Longleftrightarrow
$\omicron$ o	$*$ ast	$\surd$ surd	$\geq$ geq	$\mapsto$ longmapsto
$\pi$ pi	$*$ star	$\leq$ leq	$\triangle$ triangle	$\hookrightarrow$ hookrightarrow
$\varpi$ varpi	$\circ$ circ	$\imath$ imath	$\sim$ sim	$\rightharpoonup$ rightharpoonup
$\rho$ rho	$\bullet$ bullet	$\jmath$ jmath	$\subset$ subset	$\rightharpoondown$ rightharpoondown
$e$ varrho	$\cdot$ cdot	$\ell$ ell	$\supseteq$ supseteq	$\uparrow$ uparrow
$\sigma$ sigma	$\cap$ cap	$\neg$ neg	$\neq$ neq	$\Uparrow$ Uparrow
$\varsigma$ varsigma	$\cup$ cup	$\top$ top	$\equiv$ equiv	$\Downarrow$ Downarrow
$\tau$ tau	$\vee$ vee	$b$ flat	$\perp$ perp	$\Downarrow$ Downarrow
$\upsilon$ upsilon	$\wedge$ wedge	$natural$ natural	$\ll$ ll	$\Uparrow$ updownarrow
$\phi$ phi	$\wr$ wr	$\sharp$ sharp	$\supseteq$ supset	$\Downarrow$ updownarrow
$\partial$ partial	$\wp$ wp	$\searrow$ searrow	$\in$ in	$\triangleright$ triangleright
$\nearrow$ nearrow	$\cong$ cong	$\swarrow$ swarrow	$\nrightarrow$ nrightarrow	$\triangleleft$ triangleleft
• Funny Shaped Dots				
$\vdots$ vdots	$\ddots$ ddots			
• Variable-sized symbols				
$\sum$ sum	$\prod$ prod	$\coprod$ coprod	$\int$ int	$\oplus$ bigoplus
$\oint$ oint	$\bigcap$ bigcap	$\bigcup$ bigcup	$\bigsqcup$ bigsqcup	$\biguplus$ biguplus
$\bigvee$ bigvee	$\bigwedge$ bigwedge	$\bigodot$ bigodot	$\bigotimes$ bigotimes	
• Delimiters				
$\uparrow$ uparrow	$\Uparrow$ Uparrow	$\downarrow$ downarrow	$\Downarrow$ Downarrow	$\{$ {
$\}$ }	$\updownarrow$ updownarrow	$\Updownarrow$ Updownarrow	$\lfloor$ lfloor	$\rfloor$ rfloor
$\lceil$ lceil	$\rceil$ rceil	$\langle$ langle	$\rangle$ rangle	$\backslash$ backslash
• Large Delimiters				
$\lrcorner$ lrcorner	$\lrcorner$ lrcorner	$\lrcorner$ lrcorner	$\lrcorner$ lrcorner	$\lrcorner$ lrcorner
$\ulcorner$ ulcorner	$\urcorner$ urcorner	$\llcorner$ llcorner	$\lrcorner$ lrcorner	$\lrcorner$ lrcorner
$\beth$ beth	$\daleth$ daleth	$\gimel$ gimel	$\digamma$ digamma	$\varkappa$ varkappa
$\Lsh$ Lsh	$\looparrowleft$ looparrowleft	$\downarrow$ downarrow	$\curvearrowleft$ curvearrowleft	$\rightarrow$ rightarrow
$\Rsh$ Rsh	$\upharpoonleft$ upharpoonleft	$\rightleftarrows$ rightleftarrows	$\upharpoonright$ upharpoonright	$\dashrightarrow$ dashrightarrow
$\multimap$ multimap	$\leftarrowtail$ leftarrowtail	$\curvewarrows$ curvewarrows	$\circlearrowright$ circlearrowright	$\rightsquigarrow$ rightsquigarrow
$\Lleftarrow$ Lleftarrow	$\dashleftarrow$ dashleftarrow	$\circlearrowleft$ circlearrowleft	$\leftleftarrows$ leftleftarrows	$\rightleftarrows$ rightleftarrows
$\uparrows$ uparrows	$\looparrowright$ looparrowright	$\downharpoonleft$ downharpoonleft	$\rightrightarrows$ rightrightarrows	$\twoheadrightarrow$ twoheadrightarrow
$\nleftarrow$ nleftarrow	$\nrightarrow$ nrightarrow	$\nleftarrow$ nleftarrow	$\nrightarrow$ nrightarrow	$\leftrightsquigarrow$ leftrightsquigarrow
$\ggg$ ggg	$\lesssim$ lessdot	$\sqsqsupset$ sqsupset	$\backsim$ backsimeq	$\eqcirc$ eqcirc
$\lll$ lll	$\succsim$ succsim	$\thicksim$ thicksim	$\Vdash$ Vdash	$\because$ because
$\geqq$ geqq	$\precsim$ precsim	$\subsim$ subseteq	$\smallsmile$ smallsmile	$\between$ between
$\vDash$ vDash	$\lessgtr$ lessgtr	$\pitchfork$ pitchfork	$\smallfrown$ smallfrown	$\geqslant$ geqslant
$\leqq$ leqq	$\lesssim$ lesssim	$\supseteq$ supseteq	$\varpropto$ varpropto	$\Vdash$ Vdash
$\gtrless$ gtrless	$\lesseqgtr$ lesseqgtr	$\lessapprox$ lessapprox	$\prec$ prec	$\succapprox$ succapprox
$\curlyeqprec$ curlyeqprec	$\curlyeqsucc$ curlyeqsucc	$\shortparallel$ shortparallel	$\fallingdotseq$ fallingdotseq	$\therefore$ therefore
$\eqslantless$ eqslantless	$\backepsilon$ backepsilon	$\trianglelefteq$ trianglelefteq	$\trianglerighteq$ trianglerighteq	$\bumpeq$ bumpeq
$\thickapprox$ thickapprox	$\preccurlyeq$ preccurlyeq	$\vartriangleleft$ vartriangleleft	$\vartriangleright$ vartriangleright	$\circeq$ circeq
$\gnapprox$ gnapprox	$\gneq$ gneq	$\gtrless$ gtrless	$\gtrsim$ gtrsim	$\gtrless$ gtrless
$\lnapprox$ lnapprox	$\lneq$ lneq	$\lneqq$ lneqq	$\lneqslant$ lneqslant	$\nless$ nless
$\nVDash$ nVDash	$\ncong$ ncong	$\nprec$ nprec	$\npreceq$ npreceq	$\nshortmid$ nshortmid
$\ngtr$ ngtr	$\nleq$ nleq	$\nprec$ nprec	$\nsucc$ nsucc	$\nsucceq$ nsucceq
$\mid$ mid	$\nparallel$ nparallel	$\nprec$ nprec	$\nsucc$ nsucc	$\nsucceq$ nsucceq
$\nshortparallel$ nshortparallel	$\nsim$ nsim	$\nsubseteq$ nsubseteq	$\nsucc$ nsucc	$\nsucceq$ nsucceq
$\nsucceq$ nsucceq	$\precsim$ precsim	$\subseteq$ subseteq	$\succsim$ succsim	$\prec$ prec
$\ntriangleright$ ntriangleright	$\supseteq$ supseteq	$\supseteq$ supseteq	$\varsupseteq$ varsupseteq	$\smallsetminus$ smallsetminus
$\Cap$ Cap	$\Cup$ Cup	$\barwedge$ barwedge	$\boxdot$ boxdot	$\boxplus$ boxplus
$\cdot$ centerdot	$\circledast$ circledast	$\circledcirc$ circledcirc	$\circledddash$ circledddash	$\curlyvee$ curlyvee
$\dagger$ dotplus	$\doublebarwedge$ doublebarwedge	$\intercal$ intercal	$\leftthreetimes$ leftthreetimes	$\ltimes$ ltimes
$\Bbbk$ Bbbk	$\Finv$ Finv	$\Game$ Game	$\angle$ angle	$\backprime$ backprime
$\blacksquare$ blacksquare	$\blacktriangle$ blacktriangle	$\blacktriangledown$ blacktriangledown	$\circledS$ circledS	$\complement$ complement
$\eth$ eth	$\hbar$ hbar	$\hslash$ hslash	$\lozenge$ lozenge	$\measuredangle$ measuredangle
$\sphericalangle$ sphericalangle	$\square$ square	$\triangledown$ triangledown	$\varnothing$ varnothing	$\triangle$ triangle

## Page Layout Lengths



## AMS Math Mode Symbols

$\ulcorner$ ulcorner	$\urcorner$ urcorner	$\llcorner$ llcorner	$\lrcorner$ lrcorner	$\varkappa$ varkappa	$\leftleftarrows$ leftleftarrows	$\downdownarrows$ downdownarrows
$\beth$ beth	$\daleth$ daleth	$\gimel$ gimel	$\digamma$ digamma	$\rightarrowtail$ rightarrowtail	$\rightleftarrows$ rightleftarrows	$\twoheadleftarrow$ twoheadleftarrow
$\Lsh$ Lsh	$\looparrowleft$ looparrowleft	$\downarrow$ downarrow	$\curvearrowleft$ curvearrowleft	$\upharpoonright$ upharpoonright	$\dashrightarrow$ dashrightarrow	$\rightsquigarrow$ rightsquigarrow
$\Rsh$ Rsh	$\upharpoonleft$ upharpoonleft	$\rightleftarrows$ rightleftarrows	$\upharpoonright$ upharpoonright	$\circlearrowright$ circlearrowright	$\rightleftarrows$ rightleftarrows	$\rightleftarrows$ rightleftarrows
$\multimap$ multimap	$\leftarrowtail$ leftarrowtail	$\curvewarrows$ curvewarrows	$\circlearrowright$ circlearrowright	$\leftleftarrows$ leftleftarrows	$\rightleftarrows$ rightleftarrows	$\leftrightsquigarrow$ leftrightsquigarrow
$\Lleftarrow$ Lleftarrow	$\dashleftarrow$ dashleftarrow	$\circlearrowleft$ circlearrowleft	$\leftleftarrows$ leftleftarrows	$\rightleftarrows$ rightleftarrows	$\rightleftarrows$ rightleftarrows	$\leftrightsquigarrow$ leftrightsquigarrow
$\uparrows$ uparrows	$\looparrowright$ looparrowright	$\downharpoonleft$ downharpoonleft	$\rightrightarrows$ rightrightarrows	$\twoheadrightarrow$ twoheadrightarrow	$\leftrightsquigarrow$ leftrightsquigarrow	$\leftrightsquigarrow$ leftrightsquigarrow
$\nleftarrow$ nleftarrow	$\nrightarrow$ nrightarrow	$\nleftarrow$ nleftarrow	$\nrightarrow$ nrightarrow	$\leftrightsquigarrow$ leftrightsquigarrow	$\leftrightsquigarrow$ leftrightsquigarrow	$\leftrightsquigarrow$ leftrightsquigarrow
$\ggg$ ggg	$\lesssim$ lessdot	$\sqsqsupset$ sqsupset	$\backsim$ backsimeq	$\eqcirc$ eqcirc	$\gtrsim$ gtrsim	$\sqsubset$ sqsubset
$\lll$ lll	$\succsim$ succsim	$\thicksim$ thicksim	$\Vdash$ Vdash	$\because$ because	$\between$ between	$\shortmid$ shortmid
$\geqq$ geqq	$\precsim$ precsim	$\subsim$ subseteq	$\smallsmile$ smallsmile	$\geqslant$ geqslant	$\between$ between	$\succcurlyeq$ succcurlyeq
$\vDash$ vDash	$\lessgtr$ lessgtr	$\pitchfork$ pitchfork	$\smallfrown$ smallfrown	$\Vdash$ Vdash	$\Vdash$ Vdash	$\risingdotseq$ risingdotseq
$\leqq$ leqq	$\lesssim$ lesssim	$\supseteq$ supseteq	$\varpropto$ varpropto	$\prec$ prec	$\succapprox$ succapprox	$\blacktriangleleft$ blacktriangleleft
$\gtrless$ gtrless	$\lesseqgtr$ lesseqgtr	$\lessapprox$ lessapprox	$\prec$ prec	$\succapprox$ succapprox	$\eqslantgtr$ eqslantgtr	$\blacktriangleright$ blacktriangleright
$\curlyeqprec$ curlyeqprec	$\curlyeqsucc$ curlyeqsucc	$\shortparallel$ shortparallel	$\fallingdotseq$ fallingdotseq	$\therefore$ therefore	$\trianglelefteq$ trianglelefteq	$\blacktriangleright$ blacktriangleright
$\eqslantless$ eqslantless	$\backepsilon$ backepsilon	$\trianglelefteq$ trianglelefteq	$\trianglerighteq$ trianglerighteq	$\bumpeq$ bumpeq	$\doteqdot$ doteqdot	$\gtrdot$ gtrdot
$\thickapprox$ thickapprox	$\preccurlyeq$ preccurlyeq	$\vartriangleleft$ vartriangleleft	$\vartriangleright$ vartriangleright	$\circeq$ circeq	$\circeq$ circeq	$\ntriangleleft$ ntriangleleft
$\gnapprox$ gnapprox	$\gneq$ gneq	$\gtrless$ gtrless	$\gtrsim$ gtrsim	$\gtrless$ gtrless	$\ntriangleleft$ ntriangleleft	$\ntriangleleft$ ntriangleleft
$\lnapprox$ lnapprox	$\lneq$ lneq	$\lneqq$ lneqq	$\lneqslant$ lneqslant	$\nless$ nless	$\ntriangleleft$ ntriangleleft	$\ntriangleleft$ ntriangleleft
$\nVDash$ nVDash	$\ncong$ ncong	$\nprec$ nprec	$\npreceq$ npreceq	$\nshortmid$ nshortmid	$\ntriangleleft$ ntriangleleft	$\ntriangleleft$ ntriangleleft
$\ngtr$ ngtr	$\nleq$ nleq	$\nprec$ nprec	$\nsucc$ nsucc	$\nsucceq$ nsucceq	$\ntriangleleft$ ntriangleleft	$\ntriangleleft$ ntriangleleft
$\mid$ mid	$\nparallel$ nparallel	$\nprec$ nprec	$\nsucc$ nsucc	$\nsucceq$ nsucceq	$\ntriangleleft$ ntriangleleft	$\ntriangleleft$ ntriangleleft
$\nshortparallel$ nshortparallel	$\nsim$ nsim	$\nsubseteq$ nsubseteq	$\nsucc$ nsucc	$\nsucceq$ nsucceq	$\ntriangleleft$ ntriangleleft	$\ntriangleleft$ ntriangleleft
$\nsucceq$ nsucceq	$\precsim$ precsim	$\subseteq$ subseteq	$\succsim$ succsim	$\prec$ prec	$\ntriangleleft$ ntriangleleft	$\ntriangleleft$ ntriangleleft
$\ntriangleright$ ntriangleright	$\supseteq$ supseteq	$\supseteq$ supseteq	$\varsupseteq$ varsupseteq	$\smallsetminus$ smallsetminus	$\veebar$ veebar	$\boxtimes$ boxtimes
$\Cap$ Cap	$\Cup$ Cup	$\barwedge$ barwedge	$\boxdot$ boxdot	$\boxplus$ boxplus	$\curlywedge$ curlywedge	$\divideontimes$ divideontimes
$\cdot$ centerdot	$\circledast$ circledast	$\circledcirc$ circledcirc	$\circledddash$ circledddash	$\curlyvee$ curlyvee	$\curlywedge$ curlywedge	$\rtimes$ rtimes
$\dagger$ dotplus	$\doublebarwedge$ doublebarwedge	$\intercal$ intercal	$\leftthreetimes$ leftthreetimes	$\ltimes$ ltimes	$\rightthreetimes$ rightthreetimes	$\rtimes$ rtimes
$\Bbbk$ Bbbk	$\Finv$ Finv	$\Game$ Game	$\angle$ angle	$\backprime$ backprime	$\bigstar$ bigstar	$\blacklozenge$ blacklozenge
$\blacksquare$ blacksquare	$\blacktriangle$ blacktriangle	$\blacktriangledown$ blacktriangledown	$\circledS$ circledS	$\complement$ complement	$\diagdown$ diagdown	$\diagup$ diagup
$\eth$ eth	$\hbar$ hbar	$\hslash$ hslash	$\lozenge$ lozenge	$\measuredangle$ measuredangle	$\mho$ mho	$\nexists$ nexists
$\sphericalangle$ sphericalangle	$\square$ square	$\triangledown$ triangledown	$\varnothing$ varnothing	$\triangle$ triangle		

## Mathematical Environments

- $\$ ... \$$  OR  $\{( ... )\}$  Inline formula
- $\$\$ ... \$\$$  OR  $\left[ ... \right]$  Displayed formula
- $\backslashbegin{equation} ... \backslashend{equation}$  Numbered equation
- $\backslashbegin{eqnarray} ... \backslashend{eqnarray}$  Numbered array (rc1) of equations

## Common Math Constructs

- $\sqrt{abc}$  \sqrt{abc}
- $\frac{abc}{xyz}$  \frac{abc}{xyz}
- $\int x dx$  \int\limits\_{x\in X} x dx
- $\begin{matrix} a & b \\ c & d \end{matrix}$  \begin{matrix} a & b \\ c & d \end{matrix}
- $f'$  f'
- $\sqrt[n]{abc}$  \sqrt[n]{abc}
- $\stackrel{a}{b}$  \stackrel{a}{b}
- $\int_0^1 x dx$  \int\_0^1 x dx

## Stretching Math Mode Delimiters

- $\left(\frac{abc}{xyz}\right)$  \left(\frac{abc}{xyz}\right)
- $\int\frac{abc}{xyz}$  \left.\int\frac{abc}{xyz}\right\}

## Over & Under Delimiters & Accents

- Over & Under
  - $\widetilde{abc}$  \widetilde{abc}
  - $\overleftarrow{abc}$  \overleftarrow{abc}
  - $\overline{abc}$  \overline{abc}
  - $\widehat{abc}$  \widehat{abc}
  - $\overrightarrow{abc}$  \overrightarrow{abc}
  - $\overbrace{abc}$  \overbrace{abc}
  - $\underbrace{abc}$  \underbrace{abc}
- Accents
  - $\acute{x}$  \acute{x}
  - $\grave{x}$  \grave{x}
  - $\breve{x}$  \breve{x}
  - $\check{x}$  \check{x}
  - $\doteq{x}$  \doteq{x}
  - $\dot{x}$  \dot{x}
  - $\grave{x}$  \grave{x}
  - $\hat{x}$  \hat{x}
  - $\tilde{x}$  \tilde{x}
  - $\vec{x}$  \vec{x}