LaTeX Typeset documents

CONCEPTS

Source is plain text: commands start with a backslash, groups use {braces}, % starts a comment.

.tex source your text
↓ pdflatex
.aux .toc .bbl refs, contents, citations
↓ run again
PDF final output

Cross-references and the table of contents need two runs; latexmk repeats runs for you.

Blank line starts a new paragraph; a single line break is just a space.

Reserved characters need a backslash: \# \$ \% \& _ \{ \}.

DOCUMENT STRUCTURE

\documentclass[11pt,a4paper]{article}
Class and options

\usepackage{<*pkg*>**}**
Load a package (preamble)

\title{<*t*>**} \author{**<*a*>**}**
\date{\today}
Title block data

\maketitle
Print the title block

\section{<*t*>**}**
Numbered section

\subsection{<*t*>**}**
Subsection

\usepackage[margin=2.5cm]{geometry}
Set page margins

\usepackage{hyperref}
Clickable links; load last

TEXT

\textbf{<*text*>**}**
Bold

\textit{<*text*>**}**
Italic

TEXT (cont.)

\emph{<*text*>**}**
Emphasis

\includegraphics[width=\linewidth]{<*img*>**}**
Insert image (graphicx)

LISTS

\begin{itemize} \item <*a*> **\end{itemize}**
Bullet list

\begin{enumerate} \item <*a*> **\end{enumerate}**
Numbered list

MATH

$ a^2 + b^2 $
Inline math

\[<*formula*> **\]**
Display math, unnumbered

\begin{equation} ... \end{equation}
Numbered equation

\begin{align} a &= b \\ &= c \end{align}
Aligned multi-line (amsmath)

x^{2} x_{i}
Superscript, subscript

\frac{<*a*>**}{**<*b*>**}**
Fraction

\sum_{i=1}^{n} \int_a^b \prod
Sum, integral, product

\alpha \beta \pi \Delta
Greek letters

\usepackage{amsmath}
Needed for align and friends

TABLES

\begin{tabular}{lcr}
Columns: left, centre, right

**a & b & c **
Cells split by &, row ends \\

\usepackage{booktabs}
Professional rules

\begin{table}[htbp] ... \end{table}
Floating table with caption

FIGURES AND REFERENCES

\begin{figure}[htbp] ... \end{figure}
Floating figure

\caption{<*text*>**}**
Caption inside float

\label{<*key*>**}**
Name a place (after \caption)

\ref{<*key*>**}**
Number of labelled item

\centering
Centre inside a float

BIBLIOGRAPHY

\cite{<*key*>**}**
Cite an entry

\bibliography{<*file*>**}**
BibTeX database (no .bib)

\usepackage[backend=biber]{biblatex}
Modern bibliography

\addbibresource{<*file*>**.bib}**
biblatex database

\printbibliography
biblatex output spot

BUILD

latexmk -pdf <*file*>**.tex**
Build, rerun as needed

latexmk -pdf -pvc <*file*>**.tex**
Rebuild when files change

pdflatex <*file*>**.tex**
Single pass to PDF

xelatex <*file*>**.tex**
Unicode and system fonts

RECIPES

Minimal article

```
\documentclass{article}
\usepackage[margin=2.5cm]
{geometry}
\begin{document}
Hello, $E = mc^2$.
\end{document}
```