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}
```