

A beginner's guide to LaTeX (Chapter 1)

Introduction

LaTeX is used widely in the technical publishing industry because it is great for typesetting math equations.

Each LaTeX document begins with the line

```
\documentclass[arguments]{type of document}
```

A general input file has the following syntax

```
\begin{document}
```

Contents: LaTeX commands

```
\end{document}
```

Math mode

Equations

One can switch to Math mode in LaTeX by using the \$ sign.

Each equation in LaTeX begins and ends with the \$ sign.

Examples:

$\$z=x+y\$$ produces the output $z=x+y$

$\$a^3=b^3+c^3\$$ produces the output $a^3=b^3+c^3$

Fractions

For displaying fractions, use \frac. This helps display fractions as you would see them in textbooks. For example: \frac{1}{2} will be displayed as $\frac{1}{2}$ and \frac{x^3}{y^3} will be

displayed as $\frac{x^3}{y^3}$.

Using \displaystyle before every equation displays every equation in a suitably formatted style.

Lists

There are two types of bulleted lists in LaTeX: enumerate and itemize.

Syntax of enumerate

```
\begin{enumerate}
```

```
\item
```

```
\item
```

```
\end{enumerate}
```

Syntax of itemize

```
\begin{itemize}
```

```
\item
```

```
\item
```

```
\end{itemize}
```

One can also have nested lists as illustrated below:

```
\begin{enumerate}
```

```
\item
```

```
\item
```

```
    \begin{itemize}
```

```
        \item
```

```
        \item
```

```
    \end{itemize}
```

```
\item
```

```
\end{enumerate}
```

