
Practical Work 3: My First Mathematical Paper Using L^AT_EX

Author: Your Name

Date: \today.

1. Introduction

In this lesson, we explore some fundamental laws in mathematics and physics and learn how to write these equations in L^AT_EX.

2. Mathematical Equations

How do we write an equation in L^AT_EX?

In 1902, Einstein created the energy law:

$$E = mc^2$$

Also, Newton formulated his second law of motion:

$$\sum F = ma$$

We can also write:

$$\sum_{i=1}^n i = \frac{n(n+1)}{2}. \quad (1)$$

3. Using Symbols

L^AT_EX provides a variety of symbols for mathematical notation.

- Letters: α , β , γ , π , and ρ .
- Functions: φ , ϕ , and ψ .

4. Using Operators

- Summation:

$$\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$$

- Integral:

$$\int_a^b x^2 dx = \left[\frac{x^3}{3} \right]_a^b = \frac{b^3}{3} - \frac{a^3}{3}.$$

5. Displaying L^AT_EX Code

Here is the L^AT_EX code used in this document.

```
\documentclass[a4paper,12pt]{article}
```

```
\usepackage[utf8]{inputenc}
```

```
\usepackage[T1]{fontenc}
```

```
\usepackage{amsmath, amssymb}
```

```
\begin{document}
```

```
\title{My First Paper Using \LaTeX}
```

```
\author{Your Name}
```

```
\date{\today}
```

```
\maketitle
```

```
\section{Introduction}
```

In this lesson, we will explore some fundamental laws in mathematics and physics. We will also learn how to write these equations in L^AT_EX.

```
\section{Mathematical Equations}
```

How do I write an equation in L^AT_EX?

In 1902, Einstein created the energy law: $E = mc^2$

Also, Newton formulated his second law of motion: $\sum F = ma$

We can mention that:

```
\begin{equation}
```

```
\sum_{i=1}^n i = \frac{n(n+1)}{2}.
```

```
\end{equation}
```

```
\subsection{Using Symbols}
```

LaTeX provides a variety of symbols for mathematical notation. Here are some commonly used symbols:

```
\begin{itemize}
  \item Letters:  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\pi$ , and  $\rho$ .

  \item Functions:  $\varphi$ ,  $\phi$ , and  $\psi$ .
\end{itemize}

\subsection{Using Operators}

\begin{itemize}
  \item Summation:  $\sum_{i=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$ .
  % For sum limits we use \displaystyle

  \item Integral:
  \begin{equation*}
    \int_a^b x^2 \, dx = \left[ \frac{x^3}{3} \right]_a^b = \frac{b^3}{3} - \frac{a^3}{3}.
  \end{equation*}
\end{itemize}

\end{document}
```