

Equations and Mathematics Exercise

Guelma University LaTeX Course

October 28, 2024

Objective

Introduce students to writing mathematical expressions in LaTeX.

Tasks

1. Write Simple Inline Equations

Use the inline math mode by wrapping expressions in `$` symbols. Example:

- $E = mc^2$ can be written as `$E = mc^2$`.

2. Add Displayed Equations

For more complex equations, use the display math mode by enclosing expressions in `\[` and `\]` symbols, or the `equation` environment. Add fractions, roots, and symbols:

- Example: `\[ \frac{a}{b} + \sqrt{x} \]`

3. Align Equations in Multiple Lines

Use the `align` or `multline` environments to write equations in multiple lines, aligning them for better readability. For example:

```
\begin{align}
a + b &= c \\
d + e &= f
\end{align}
```

Example Code

Below is an example LaTeX code for this exercise:

```
\documentclass{article}
\usepackage{amsmath}
```

```

\begin{document}

\section*{Example: Equations and Mathematics}

% Inline equation
Einstein's famous equation is  $E = mc^2$ , where:
\begin{itemize}
  \item  $E$  is energy,
  \item  $m$  is mass,
  \item  $c$  is the speed of light.
\end{itemize}

% Displayed equation with symbols, fractions, and roots
\section*{Example of a Displayed Equation}
\[
\frac{a}{b} + \sqrt{x} = c
\]

% Aligned equations
\section*{Example of Aligned Equations}
\begin{align}
a + b &= c \\
d + e &= f
\end{align}

\end{document}

```