

Sample LaTeX Document

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Abstract

This is a sample LaTeX document created in Visual Studio Code to demonstrate basic formatting, mathematics, and references.

1 Introduction

Welcome to LaTeX in VS Code! This document showcases a simple structure similar to what you might create in Overleaf. LaTeX is excellent for typesetting scientific documents with complex mathematics, such as the equation below:

$$E = mc^2 \tag{1}$$

2 Mathematics Example

Here's an example of a mathematical derivation using the `amsmath` package:

$$f(x) = \sin(x) \cos(x) \tag{2}$$

$$= \frac{1}{2} \sin(2x) \tag{3}$$

Equation (3) uses a trigonometric identity. You can compile this document with the LaTeX Workshop extension and view the PDF output.

3 Figures and References

You can include images using the `graphicx` package. For example:

For citations, use a `.bib` file and BibTeX. See [?] for an example.

Figure 1: Placeholder for an image.

4 Conclusion

This document demonstrates a basic LaTeX setup in VS Code. You can extend it with tables, algorithms, or custom packages as needed.