

# Exploring Math, Code, and Design

A Comprehensive LaTeX Example with Style and Functionality

## Introduction

In this document, we showcase various features of LaTeX, including mathematical formulas, code listings, and stylish content boxes. The goal is to present this in a more visually appealing, professional manner.

**Mathematical Formulas** Mathematical equations are an essential part of many documents. Here's the famous quadratic formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

We can also represent sets in mathematical notation. For example, the set of real numbers  $\mathbb{R}$  and the set of integers  $\mathbb{Z}$ .

Another essential formula is the Pythagorean theorem:

$$a^2 + b^2 = c^2$$

**Code Example** The following Python code snippet demonstrates a simple function that prints a greeting:

```
1 def greet(name):  
2     print(f"Hello, {name}!")  
3  
4 greet("World")
```

The above code shows the use of a function and string formatting in Python.

## Stylish Boxes with Content

To make your content stand out, we can use various types of boxes:

This is a neat, double-bordered box. It's used to highlight important content. You can adjust the width and style as necessary.

This box has a shadow effect, giving it a more modern, stylish appearance. It can be used for emphasis or to separate different sections of content.

## Conclusion

In this document, we've used LaTeX to combine elegant mathematical formulas, clean code formatting, and stylish content boxes to make the presentation more professional and visually appealing.