A Comprehensive Sample Document

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1 Introduction

Albert Einstein (1879–1955) was a theoretical physicist widely recognized as one of the greatest minds in history. His groundbreaking theory of relativity revolutionized our understanding of space, time, and gravity. Einstein's famous equation, $E = mc^2$, established the relationship between mass and energy, paving the way for modern physics and influencing technologies like nuclear energy. He received the Nobel Prize in Physics in 1921 for his explanation of the photoelectric effect, a crucial step in developing quantum theory.

Einstein was also known for his advocacy of civil rights, pacifism, and a passion for music. His legacy continues to inspire scientists and thinkers across the world.

2 Mathematical Expressions

Mathematics is a crucial aspect of academic writing. Here is an example of inline math: $E = mc^2$, and here is a displayed equation:

$$\int_a^b x^2\,dx = \frac{b^3}{3} - \frac{a^3}{3} \tag{1}$$

Equations like these can be used to demonstrate various mathematical concepts.

3 A Small Table

Tables are a great way to organize and present data. Below is an example:

Category	Value	Percentage
Category A	50	25%
Category B	70	35%
Category C	80	40%

Table 1: Sample Table of Categories

4 A Pie Diagram

Pie charts visually represent data distributions. Below is a sample pie chart:

5 A Parabola Chart

Below is a parabola chart showcasing the equation $y = x^2$:

6 Conclusion

In this document, we explored how to use LaTeX to create a well-structured and visually appealing document. With sections on Albert Einstein, mathematical expressions, tables, and diagrams, we demonstrated the versatility of LaTeX for academic and professional writing.

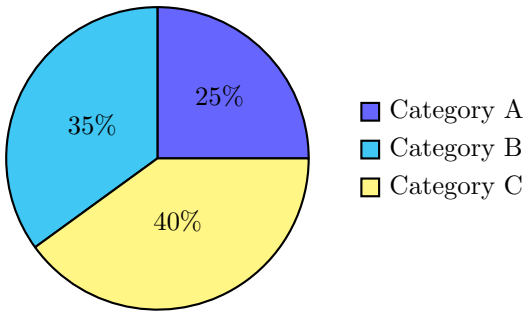

Figure 1: Sample Pie Chart

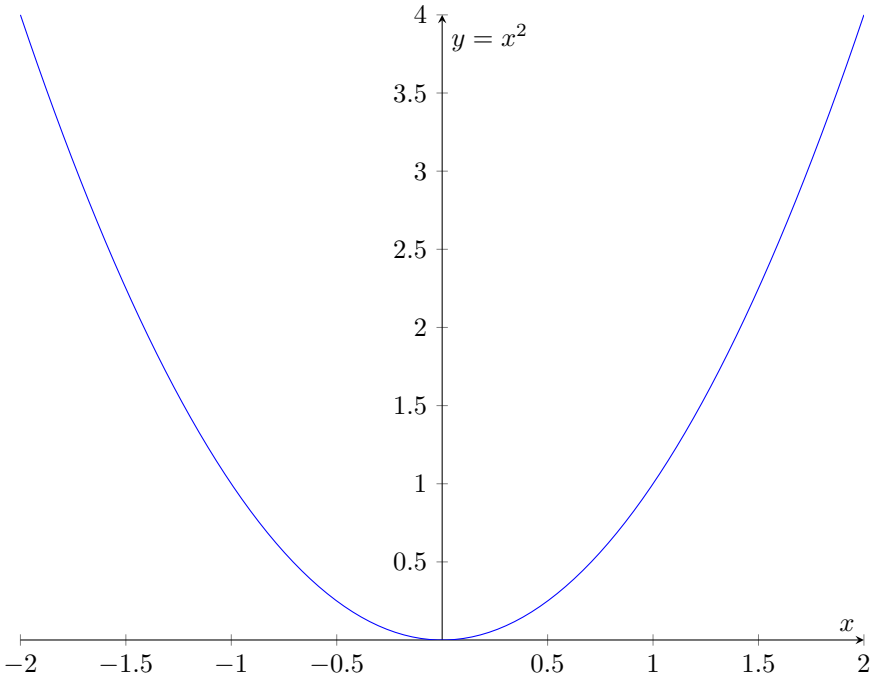

Figure 2: Parabola Chart for $y = x^2$

References

1. Lamport, L. (1994). *LaTeX: A Document Preparation System*. Addison-Wesley.
2. Einstein, A. (1905). On the Electrodynamics of Moving Bodies. *Annalen der Physik*.
3. Kopka, H., & Daly, P. W. (2003). *Guide to LaTeX*. Addison-Wesley.