Note Template

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Abstract

This is a note template, with all but minimal compilable files provided. Feel free to adjust for your usage.

Contents

Chapter 1

Introduction

Lecture 1: First Lecture

1.1 A Template for you to take note

13 Oct. 08:00

This is a simple demo for you to take fancy notes in LaTeX!

1.2 Useful Environment

We now see some common environment you'll need to complete your note.

Definition 1.2.1 (Natural number)**.** We denote the set of *natural numbers* as $\mathbb{N}$.

Lemma 1.2.1 (Useful lemma)**.** Given the axioms of natural numbers $\mathbb{N}$, we have

$$0 \neq 1.$$

Proof. Obvious. ■

Proposition 1.2.1 (useful proposition)**.** From Lemma 1.2.1, we have

$$0 < 1.$$

Theorem 1.2.1 (Mass-energy equivalence)**.** Given Proposition 1.2.1, we then have

$$E = mc^2.$$

Proof. The blank left for me is too small,[a] hence we put the proof in Appendix A.1. ■

[a] https://en.wikipedia.org/wiki/Richard_Feynman

Corollary 1.2.1 (Riemann hypothesis)**.** From Theorem 1.2.1, we then have the following.

The real part of every nontrivial zero of the Riemann zeta function is $\frac{1}{2}$, where the Riemann zeta function is just

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} = \frac{1}{1^s} + \frac{1}{2^s} + \frac{1}{3^s} + \cdots.$$

Proof. The proof should be trivial, we left it to you. ■

DIY (Do It Yourself)

As previously seen. We see that Lemma 1.2.1 is really helpful in the proof!

Remark. This leads to lots of useful theorem!

Note. I hope you learn something while proving this!

Example. Here are some applications of Corollary 1.2.1, see the link.[a]

[a] https://math.stackexchange.com/questions/404624/what-does-proving-the-riemann-hypothesis-accomplish

Internal Link

You should see all the common usages of internal links. Additionally, we can use citations as [New26], which just link to the reference page!

1.3 Figures

A simple demo for drawing:

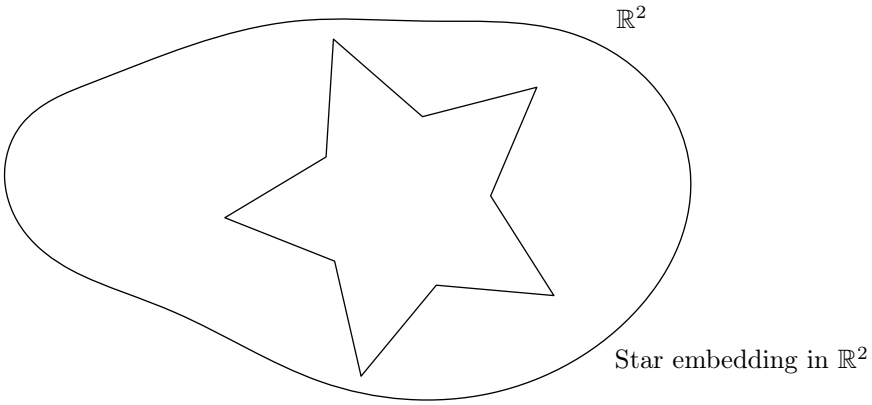

Figure 1.1: Random Drawing.[1]

[1] For detailed information, please see https://github.com/sleepymalc/VSCode-LaTeX-Inkscape.

Appendix

Appendix A

Additional Proofs

A.1 Proof of Theorem 1.2.1

We can now prove Theorem 1.2.1.

Proof. See https://en.wikipedia.org/wiki/Mass%E2%80%93energy_equivalence. ■

Bibliography

[New26] I. Newton. *Philosophiae naturalis principia mathematica*. Innys, 1726. URL: https://books.google.com/books?id=WeZO9rjv-1kC.