main_note

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Abstract

This is a simple example to showcase the Obsidian to LaTeX converter.

1 Introduction

This document demonstrates the conversion of Markdown notes to a LaTeX document, including internal links and embedded content.

Figure 1: This is the caption

2 Results

> a quote; remove it

$$\|\hat{x} - x_0\|_2 \leq \|x^{\perp}\|_2 + 3\|\tilde{F}x^{\perp}\|_2 + 3\|\eta\|_2 + \frac{3}{2}\hat{\varepsilon}.$$

Here is some $\sum a_i$. Reference: Lemma 2.1.

$$\sum_{i=1}^{k} A_i$$

$$\sum_{i=1}^{n} A_3$$

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We present the following lemma:

Lemma 2.1. *Every even integer greater than 2 can be expressed as the sum of two prime numbers.*

Proof of Lemma 2.1. This is Goldbach's Conjecture, which remains unproven as of the knowledge cutoff date (2021-09).

□

The main theorem is:

Theorem 2.2. *For every positive integer n, the sum of the first n odd integers is equal to n^2.*

3 Proofs

Here is the proof for the main theorem. The proof is specifically for Theorem 2.2. I may or may not follow from [1].

We proceed by induction.

Base case ($n = 1$): The sum of the first odd integer (1) is equal to 1^2, which is true.

Inductive step: Assume that the sum of the first k odd integers is equal to k^2. We want to show that the sum of the first $k+1$ odd integers is equal to $(k+1)^2$.

The sum of the first k odd integers is k^2. The next odd integer is $(2k+1)$. Therefore, the

References

[1] Mark Rudelson and Roman Vershynin. "On Sparse Reconstruction from Fourier and Gaussian Measurements". In: *Communications on Pure and Applied Mathematics* 61.8 (Aug. 2008), pp. 1025–1045. ISSN: 00103640, 10970312. DOI: 10.1002/cpa.20227. URL: https://onlinelibrary.wiley.com/doi/10.1002/cpa.20227 (visited on 02/27/2022).