MATHEMATICAL THEOREMS

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Abstract. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aeque doleamus animo, cum corpore dolemus, fieri tamen permagna accessio potest, si aliquod aeternum et infinitum impendere malum nobis opinemur. Quod idem licet transferre in voluptatem, ut postea variari voluptas distinguique possit, augeri amplificarique non possit. At etiam Athenis, ut e patre audiebam facete et urbane Stoicos irridente, statua est in quo a nobis philosophia defensa et collaudata est, cum id, quod maxime placeat, facere possimus, omnis voluptas assumenda est, omnis dolor repellendus. Temporibus autem quibusdam et.

Call me Ishmael. Some years ago — never mind how long precisely — having little or no money in my purse, and nothing particular to interest me on shore, I thought I would sail about a little and see the watery part of the world. It is a way I have of driving off the spleen, and regulating the circulation. Whenever I find myself growing grim about the mouth; whenever it is a damp, drizzly November in my soul; whenever I find myself involuntarily pausing before coffin warehouses, and bringing up the rear of every funeral I meet; and especially whenever my hypos get such an upper hand of me, that it requires a strong moral principle to prevent me from deliberately stepping into the street, and methodically knocking people's hats off — then, I account it high time to get to sea as soon as I can. This is my substitute for pistol and ball. With a philosophical flourish Cato throws himself upon his sword; I quietly take to the ship. There is nothing surprising in this. If they but knew it, almost all men in their degree, some time or other, cherish very nearly the same feelings towards the ocean with me. [1]

There now is your insular city of the Manhattoes, belted round by wharves as Indian isles by coral reefs - commerce surrounds it with her surf. Right and left, the streets take you waterward. Its extreme down-town is the battery, where that noble mole is washed by waves, and cooled by breezes, which a few hours previous were out of sight of land. Look at the crowds of water-gazers there.

Anyone caught using formulas such as $\sqrt{x+y} = \sqrt{x} + \sqrt{y}$ or $\frac{1}{x+y} = \frac{1}{x} + \frac{1}{y}$ will fail.

The binomial theorem is

$$(x+y)^n = \sum_{k=0}^{n} \binom{n}{k} x^k y^{n-k}.$$

A favorite sum of most mathematicians is

$$\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}.$$

Likewise a popular integral is

$$\int_{-\infty}^{\infty} e^{-x^2}\,\mathrm{d}x = \sqrt{\pi}$$

Theorem 0.1. *The square of any real number is non-negative.*

Proof. Any real number x satisfies $x > 0$, $x = 0$, or $x < 0$. If $x = 0$, then $x^2 = 0 \geq 0$. If $x > 0$ then as a positive time a positive is positive we have $x^2 = xx > 0$. If $x < 0$ then $-x > 0$ and so by what we have just done $x^2 = (-x)^2 > 0$. So in all cases $x^2 \geq 0$. □

1. Introduction

This is a new section. You can use tables like Table 1.

	Area	**Parameters**
Cylinder	$\pi h \dfrac{D^2 - d^2}{4}$	h: height D: outer radius d: inner radius
Tetrahedron	$\dfrac{\sqrt{2}}{12} a^3$	a: edge length

Table 1. Solids

1.1. Things that need to be done.

Prove theorems, such as Theorem 1.1.1.

Theorem 1.1.1. *The Riemann hypothesis is true.*

Proof. This is left as an exercise to the reader, given the complexity of the theorem. □

2. Background

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References

1. Astley, R., Morris, L.: At-scale impact of the Net Wok: A culinarically holistic investigation of distributed dumplings. Armenian Journal of Proceedings. 61, 192–219 (2020)

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