LATEX TUTORIAL

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1 Introduction

Let's begin with a formula $e^{i\pi} + 1 = 0$

$$e = \lim_{n\to\infty} \left(1 + \frac{1}{n}\right)^n = \lim_{n\to\infty} \frac{n}{\sqrt[n]{n!}}$$

1. We can do another:

$$e = \sum_{n=0}^{\infty} \frac{1}{n!}$$

- ***As a continued fraction***

  We can also use continued fraction

$$e = 2 + \cfrac{1}{2 + \cfrac{2}{3 + \cfrac{3}{4 + \cfrac{4}{5 + \ddots}}}}$$

More formulas

$$\int_a^b f(x)dx$$

$$\int_a^b f(x)dx$$

$$\iiint f(x,y,z)dxdydz \tag{1}$$

$$\vec{v} =< v_1, v_2, v_3 > \tag{2}$$

$$\vec{v} \cdot \vec{w}$$

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

Equation 2 is a vector

$$e = \lim_{n\to\infty} \left(1 + \frac{1}{n}\right)^n = \lim_{n\to\infty} \frac{n}{\sqrt[n]{n!}} = \lim_{t\to 0^+} (1+t)^{\frac{1}{t}} \tag{3}$$

$$\begin{aligned} e &= \lim_{n\to\infty} \left(1 + \frac{1}{n}\right)^n && (4)\\ &= \lim_{n\to\infty} \frac{n}{\sqrt[n]{n!}} && (5)\\ &= \lim_{t\to 0^+} (1+t)^{\frac{1}{t}} && (6) \end{aligned}$$

$$\begin{aligned} e &= \lim_{n\to\infty} \left(1 + \frac{1}{n}\right)^n \\ &= \lim_{n\to\infty} \frac{n}{\sqrt[n]{n!}} && (7)\\ &= \lim_{t\to 0^+} (1+t)^{\frac{1}{t}} \end{aligned}$$

2 More Tricks

1	1
3	4000000000000000

Table 1: Caption

Theorem 2.1 (Hello World Theorem)**.** *Hello world*

Proof. Proof goes here □

Corollary 2.1.1. *corollary from the theorem*

The real numbers $\mathbb{R}$
Instead of typing $\mathbb{R}$ always, we can use macros
The real numbers $\mathbb{R}$
for shorthand for column matrix consisting of 2 elements Now the shorthand usage

$$\begin{bmatrix} x \\ y \end{bmatrix}$$