The LaTeX Template for Beginners

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Abstract

Hello world! This is my first LaTeX document.

Let's examine the function $y = \dfrac{x}{3x^2 + x + 1}$.

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Keywords: Learning; September

Contents

1 Introduction

The golden rays of the setting sun bathed the valley in a warm, ethereal glow. Rolling hills stretched out as far as the eye could see, dotted with clusters of wildflowers that danced gently in the breeze. A crystal-clear stream wound its way through the meadow, its waters shimmering like liquid glass beneath the soft hues of the evening sky. In the distance, towering mountains stood guard, (see figure 1) their snow-capped peaks kissed by the last light of day, casting long, graceful shadows over the tranquil scene[1]. The air was filled with the scent of pine and fresh earth, a perfect harmony between nature and serenity.

2 Mathematical Notations

2.1 superscripts

$$2x^3$$

$$3x^{88}$$

$$x^{4y^9+10}$$

2.2 Subscripts

$$x_1$$

$$y_{12}$$

$$a_0, a_1, a_2, \ldots, a_{100}$$

2.3 Greek letters

$$\pi$$

$$\Pi$$

$$\alpha$$

$$A = \pi r^2$$

2.4 Trig functions

$$y = \sin x$$

$$\tan\alpha = \frac{\sin\alpha}{\cos\alpha}$$

$$x = \csc\theta$$

$$y = \sin^{-1} x$$

$$y = \arcsin x$$

[1]This is an example of footnote.

2.5 Log functions

$$y = \log x$$

$$y = \log_5 x$$

$$y = \ln x$$

2.6 Roots

$$\sqrt{2}$$

$$\sqrt[3]{x}$$

$$\sqrt{x^2 + y^2} = 10$$

$$\sqrt{1 + \sqrt{x}}$$

2.7 Fractions

$$\frac{1}{2}$$

About $\frac{2}{3}$ of the glass is full.

About $\frac{2}{3}$ of the glass is full.

About $\frac{2}{3}$ of the glass is full.

$$\frac{\sqrt{x+1}}{\sqrt{x+2}}$$

$$y = \frac{1}{1 + \frac{1}{x}}$$

A rectangle has side lengths of $(x + 1)$ and $(x + 3)$.A hard return is going to start a new paragraph.
A rectangle has side lengths of $(x + 1)$ and $(x + 3)$. \\ is a soft return and therefore the line is not indented.
The equation

$$A(x) = x^2 + 4x + 3$$

gives the area of the rectangle.
{} makes sure to keep your equation on a line.(Trevisanato & Kim, 2000)

$$\alpha^2 + \beta^2 = \gamma^2 \tag{1}$$

Famous Gaussian quadrature:

$$\begin{aligned}
S &= 1 + 2 + 3 + \cdots + n \\
S &= n + (n-1) + (n-2) + \cdots + 1 \\
2S &= (1+n) + (2+(n-1)) + (3+(n-2)) + \cdots + (n+1) \\
2S &= n(n+1) \\
S &= \frac{n(n+1)}{2}
\end{aligned}$$

Formulas for various situations:

$$F(x) = \begin{cases} 0 & \text{, if } x < -1 \\ x + 1 & \text{, if } x > 3 \\ 1 & \text{, otherwise.} \end{cases} \tag{2}$$

$$a^2 + b^2 = c^2$$

This is the symbol for the set of all real numbers: $\mathbb{R}$.

2.8 Calculus

The function $f(x) = (x-3)^2 + \frac{1}{2}$ has domain $\mathrm{D}_f : (-\infty, \infty)$ and range $\mathrm{R}_f : \left[\frac{1}{2}, \infty\right)$

$$\lim_{x \to a^-} f(x)$$

$$\lim_{x \to a}$$

$$\lim_{x \to a} \frac{f(x) - f(a)}{x - a} = f'(a)$$

2.9 Integral

$$\int \sin x \, dx = -\cos x + C$$

$$\int_a^b$$

$$\int_{2a}^{b} x^2 \, dx = \left[\frac{x^3}{3}\right]_a^b = \frac{b^3}{3} - \frac{a^3}{x}$$

2.10 Summation

$$\sum_{n=1}^{\infty} ar^n = a + ar + ar^2 + \cdots + ar^n$$

$$\int_a^b f(x) \, dx = \lim_{x \to \infty} \sum_{k=1}^{n} f(x_k) \cdot \Delta x$$

2.11 Vector

$$\vec{v} = v_1\vec{i} + v_2\vec{j} = \langle v_1, v_2 \rangle$$

3 Brackets

The distributive property states that $a(b+c) = ab + ac$, for all $a, b, c \in \mathbb{R}$

The equivalence class of a is $[a]$

The set A is defined to be $\{1, 2, 3\}$.

The movie ticker costs \$11.50.

$$2(\frac{1}{x^2-1})$$

$$2\left(\frac{1}{x^2-1}\right)$$

$$2\left[\frac{1}{x^2-1}\right]$$

$$2\left\{\frac{1}{x^2-1}\right\}$$

$$2\left\langle\frac{1}{x^2-1}\right\rangle$$

$$2\left|\frac{1}{x^2-1}\right|$$

$$\left.\frac{dy}{dx}\right|_{x=1}$$

$$\left(\frac{1}{1+\left(\frac{1}{x-1}\right)}\right)$$

4 Lists

1. pencil
2. calculator
3. ruler
4. notebook
   (a) notes
   (b) homework
   (c) assessments
      i. tests
      ii. quizzes
      iii. journal entries

5. highlighters

i. pencil

ii. calculator

iii. ruler

iv. notebooks

- pencil
- calculator
- ruler
- notebook
  - notes
  - homework
  - assessments
    - tests
    - quizzes
    - journal entries
- highlighters

apple

one banana

two pear

5 Text formate

This will produce *italicized* text.
This will produce **bold face** text.
This will produce SMALL CAPS text.
This will produce `typewriter font` text.
Please visit Michelle Kr's website at `http://Michelle.com`.
Please visit XIAMEN University Malaysia's website at XMUM Official website.

Please excuse my dear aunt Sally.
Please excuse my dear aunt Sally.
Please excuse my dear aunt Sally.
Please excuse my dear aunt Sally.
Please excuse my dear aunt Sally.
Please excuse my dear aunt Sally.

Please excuse my dear aunt Sally.
Please excuse my dear aunt Sally.
Please excuse my dear aunt Sally.

This line is centered.

This line is left-justified.

This line is right-justified.

6 Insertion of pictures

Try to insert vector graphics(McKay & Blumberg, 2002) so that the image will not change in clarity when it is enlarged or reduced.

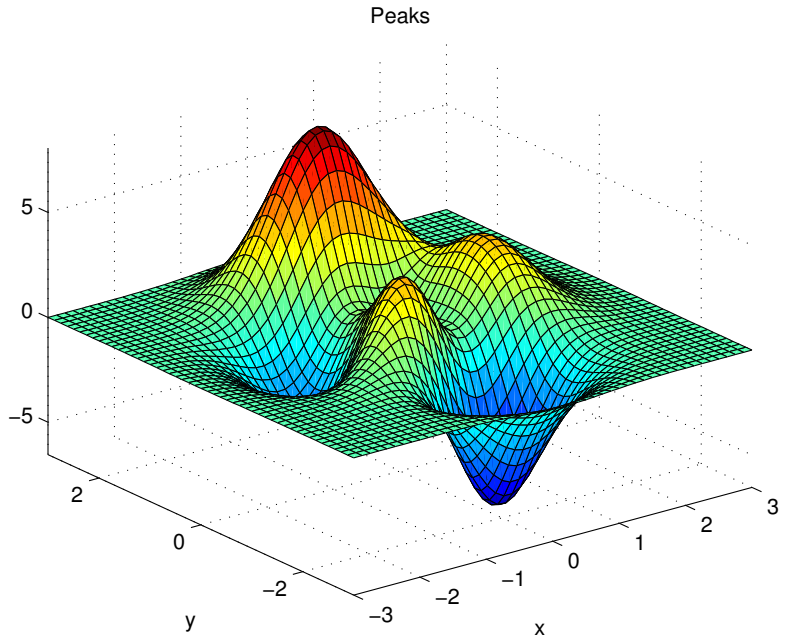

Figure 1: idk what

Reference test Equation 1

7 Sheet

x	1	2	3	4	5
$f(x)$	d	d	w3	f8iw	viu

Table 1: Sweet baby

Table 2: My first table

Variable Name	Meanings
N	Nodes, eg. Ng denotes the set of Goal Nodes
A	Adjacency matrix
G	Relationship Network Model(Yang & Wang, 1993)
x	The degree of realization of SDGs, as a 1*17 matrix
Δx	Perturbations arising, for 1*17 matrix
c	Anti-interference coefficient, related

References

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