

# The LaTeX Template for Beginners

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## Abstract

Hello world! This is my first  $\text{\LaTeX}$  document.

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**Keywords:** Learning; September

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# 1 Mathematical Notations

## 1.1 superscripts

$$2x^3$$
$$3x^{88}$$
$$x^{4y^9+10}$$

## 1.2 Subscripts

$$x_1$$
$$y_{12}$$
$$a_0, a_1, a_2, \dots, a_{100}$$

## 1.3 Greek letters

$$\pi$$
$$\Pi$$
$$\alpha$$
$$A = \pi r^2$$

## 1.4 Trig functions

$$y = \sin x$$
$$\tan \alpha = \frac{\sin \alpha}{\cos \alpha}$$
$$x = \csc \theta$$
$$y = \sin^{-1} x$$
$$y = \arcsin x$$

## 1.5 Log functions

$$y = \log x$$
$$y = \log_5 x$$
$$y = \ln x$$

## 1.6 Roots

$$\sqrt{2}$$

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

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

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

## 1.7 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:

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

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

## 2 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.

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

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

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

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

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

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

$$\frac{dy}{dx} \Big|_{x=1}$$

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

### 3 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. notebook

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

apple

one banana

two pear

## 4 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.

Reference test Equation 1

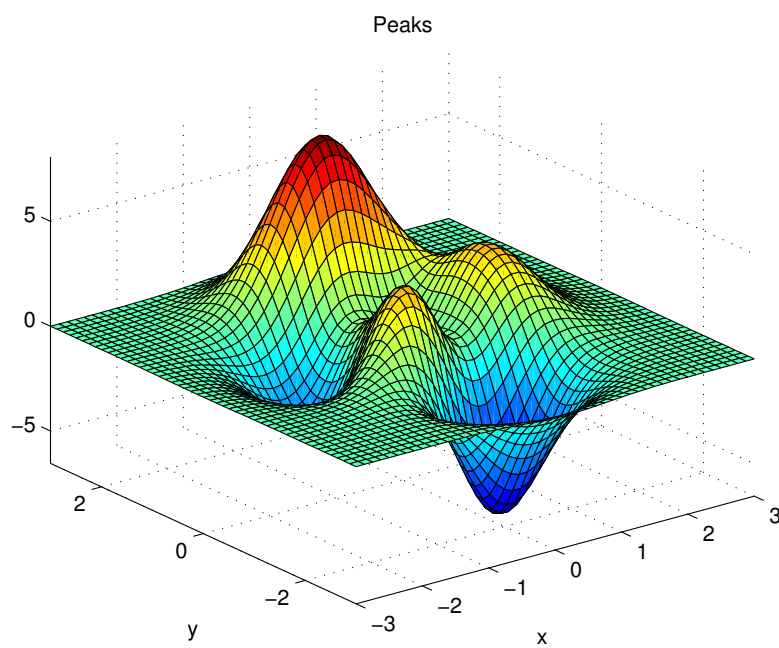


Figure 1: idk what



## 5 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
$\Delta x$	Perturbations arising, for 1*17 matrix
$c$	Anti-interference coefficient, related

## References

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