My first LaTeX document

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Contents

Chapter 1

Basic

1.1 Paragraph

This line is supposed to be a very long text. Its purpose is to show how the paragraph works in Latex. As you can see this is a multi-line text.

To start a new paragraph, we can do a blank line in the latex file. Each new paragraph has a default indent.

This line is to show the effect of the indent mentioned in the previous paragraph.

Some of the **greatest** discoveries in science were made by ***accident***. hello

Some of the greatest *discoveries* in science were made by accident.

Some of the greatest discoveries *in science were made by accident.*

Some of the greatest *discoveries* in science were made by accident.

1.2 Listing

Example: Unordered List

- The individual entries are indicated with a black dot, a so-called bullet.
- The text in the entries may be of any length.

Example: Ordered List:

1. This is the first entry in our list.

2. The list numbers increase with each entry we add.

1.3 Links

Example: hyper link: This is the link to a blog

1.4 Insert Code Snippets

1.4.1 Insert Code

```
enum AnyThing {
        Color(&'static str),
        Reddit(i32),
}

let obj1 = AnyThing::Color("This is a red color");
let obj2 = AnyThing::Reddit(10);
```

1.4.2 Insert Algorithm

Algorithm 1 An algorithm with caption

Require: $n \geq 0$
Ensure: $y = x^n$

1: $y \leftarrow 1$
2: $X \leftarrow x$
3: $N \leftarrow n$
4: **while** $N \neq 0$ **do**
5: **if** N is even **then**
6: $X \leftarrow X \times X$
7: $N \leftarrow \frac{N}{2}$ ▷ This is a comment
8: **else if** N is odd **then**
9: $y \leftarrow y \times X$
10: $N \leftarrow N - 1$
11: **end if**
12: **end while**

Chapter 2

Images

Example: Use scale parameter

Example: Use max width and linewidth from adjustbox package.

Example: Use max width and textwidth from adjustbox package.

Example: Use figure and reference.

Figure 2.1: A nice plot.

As you can see in figure 2.1, the function grows near the origin. This example is on page 5.

Chapter 3

Math

Example: Inline Math formula:

In physics, the mass-energy equivalence is stated by the equation $E = mc^2$, discovered in 1905 by Albert Einstein.

Example: Inline Math formula 2:

$E = mc^2$ is typeset in a paragraph using inline math mode—as is $E = mc^2$, and so too is $E = mc^2$.

Example: Math Block:

The mass-energy equivalence is described by the famous equation

$$E = mc^2$$

discovered in 1905 by Albert Einstein.

In natural units ($c = 1$), the formula expresses the identity

$$E = m \tag{3.1}$$

3.1 Matrix

$$\begin{matrix} 1 & 2 & 3 \\ a & b & c \end{matrix}$$

$$\begin{pmatrix} 1 & 2 & 3 \\ a & b & c \end{pmatrix}$$

$$\begin{bmatrix} 1 & 2 & 3 \\ a & b & c \end{bmatrix}$$

$$\begin{Bmatrix} 1 & 2 & 3 \\ a & b & c \end{Bmatrix}$$

$$\begin{Bmatrix} 1 & 2 & 3 \\ a & b & c \end{Bmatrix}$$

$$\begin{Vmatrix} 1 & 2 & 3 \\ a & b & c \end{Vmatrix}$$

3.2 Equations

3.2.1 Single Line Equation

$$e^{\pi i} + 1 = 0 \tag{3.2}$$

3.2.2 Multi-Line Equation

$$\begin{aligned} e^{\pi i} + 1 &= 0 \\ &= 0 + 1 + 2 - 1 - 2 \end{aligned} \tag{3.3}$$

3.2.3 Multi-line formula

$$e^{\pi i} + 1 = 0$$
$$e^{\pi i} + 1 = 0$$

Chapter 4

Table

4.1 Basic Table

cell1	cell2	cell3
cell4	cell5	cell6
cell7	cell8	cell9

4.2 Table with Boarder

cell1	cell2	cell3
cell4	cell5	cell6
cell7	cell8	cell9

4.3 Table with Caption

Table 4.1 shows how to add a table caption and reference a table.

Col1	Col2	Col2	Col3
1	6	87837	787
2	7	78	5415
3	545	778	7507
4	545	18744	7560
5	88	788	6344

Table 4.1: Table to test captions and labels.

4.4 My Default Table Style

Item	Status	Description	Note
1	OK	this is the first test	nan
2	Failed	The second test failed	Need to retry
3	Pending	Pending for testing	Pending

Table 4.2: test caption

Chapter 5

Command and Environment

The set of real numbers are usually represented by a blackboard bold capital R: $\mathbb{R}$.

Other numerical systems have similar notations. The complex numbers $\mathbb{C}$, the rational numbers $\mathbb{Q}$ and the integer numbers $\mathbb{Z}$.

We can use it like this:

$$(x+y)^2$$

And even the exponent can be changed:

$$(a+b)^4$$