My first LaTeX document

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Contents

Figure 1: A nice plot

As you can see in figure 1, the function grows near the origin. This example is on page 1.

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

*Funded by the Overleaf team.

1. This is the first entry in our list.

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

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

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

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

$$E = m \tag{1}$$

Subscripts in math mode are written as a_b and superscripts are written as a^b. These can be combined and nested to write expressions such as

$$T^{i_1 i_2 \ldots i_p}_{j_1 j_2 \ldots j_q} = T(x^{i_1}, \ldots, x^{i_p}, e_{j_1}, \ldots, e_{j_q})$$

We write integrals using $\int$ and fractions using $\frac{a}{b}$ $\dfrac{a}{b}$. Limits are placed on integrals using superscripts and subscripts:

$$\int_0^1 \frac{dx}{e^x} = \frac{e-1}{e}$$

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Lower case Greek letters are written as ω δ etc. while upper case Greek letters are written as Ω Δ.

Mathematical operators are prefixed with a backslash as $\sin(\beta)$, $\cos(\alpha)$, $\log(x)$ etc.

1 First example

The well-known Pythagorean theorem $x^2 + y^2 = z^2$ was proved to be invalid for other exponents, meaning the next equation has no integer solutions for $n > 2$:

$$x^n + y^n = z^n$$

2 Second example

This is a simple math expression $\sqrt{x^2+1}$ inside text. And this is also the same: $\sqrt{x^2+1}$ but by using another command.

This is a simple math expression without numbering

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

separated from text.

This is also the same:

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

…and this:

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

Abstract

This is a simple paragraph at the beginning of the document. A brief introduction about the main subject.

After our abstract we can begin the first paragraph, then press "enter" twice to start the second one.

This line will start a second paragraph.

I will strt the third paragraph and then add
a manual line break which causes this text to start on a new line but remains part of the same paragraph. Alternatively, I can use the `\newline` command to start a new line, which is also part of the same paragraph.

cell1	cell2	cell3
cell4	cell5	cell6
cell7	cell8	cell9

$\alpha\beta\gamma\rho\sigma\delta\epsilon$
$\times \otimes \oplus \cup \cap$
$<>\subset\supset\subseteq\supseteq$
$\int \oint \sum \prod$
$a_{n_i} \coprod_{i=1}^{n}$

$$\sum_{i=1}^{\infty} \frac{1}{n^s} = \prod_{p} \frac{1}{1-p^{-s}}$$

cos csc exp ker lim sup min sinh arcsin
ln

Algorithm 1

```
1: procedure EUCLID(a, b)                    ▷ a b
2:     r ← a mod b
3:     while r ≠ 0 do                        ▷ 0
4:         a ← b
5:         b ← r
6:         r ← a mod b
7:     end while
8:     return b                              ▷ b
9: end procedure
```