

# An example document

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## Introduction

This is an example document. Recreating this document as closely as possible to the original is the homework. For that, you will need slightly more stuff than we talked about during the class, most notably the `booktabs` package (you can easily find its documentation on the internet).

## 1 Mathematics

Inline formulæ:

- $a^2 + b^2 = c^2$
- $\pi \approx 3,14159$
- $\forall \alpha : \sin^2 \alpha + \cos^2 \alpha = 1$
- $f: R \rightarrow R$
- $\frac{1}{\sqrt{2\pi}} \int_{-\pi}^{\pi} f(x) e^{inx} dx$
- $\text{conv } A$

Displayed formulæ:

$$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = e \quad (1)$$

$$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = e \quad (2)$$

(Can you spot the difference between equations (1) and (2)?)

$$|x| = \begin{cases} x & \text{when } x \geq 0 \\ -x & \text{when } x < 0 \end{cases}$$

$$\begin{aligned} (x+y)^2 &= (x+y)(x+y) = \\ &= x^2 + xy + yx + y^2 = \\ &= x^2 + 2xy + y^2 \end{aligned}$$

$$\begin{cases} Ax + By + C = 0 \\ (x - a)^2 + (y - b)^2 = r^2 \end{cases}$$

## 2 Table

Table 1 on page 2 was typeset using the excellent `booktabs` package, which contains helpful tips about typesetting nice-looking tables. Also, the references in the previous sentence were done automatically, using the `\label/\ref` L<sup>A</sup>T<sub>E</sub>X mechanism.

right	center	left
1	2	3
45	67	89
joined cells		—

Table 1: An example table