Document Title

Author

Date

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Abstract

This is the abstract.

1 Introduction

This section is the introduction.

1.1 Subsection

This is a numbered subsection.

Unnumbered Subsection

This is an unnumbered subsection.

2 Another Section

This is another section.

2.1 Equations

This is an in-line equation $a^2 + b^2 = c^2$. The alternative for longer equations and to use numbering is the following:

$$\int_a^b x^2 dx \tag{1}$$

This equation is equation 1. It is often necessary to align the equations:

$$\begin{aligned} I &= \frac{\pi r^4 2}{3} \\ &= \frac{2}{3}\pi r^4 \end{aligned} \tag{2}$$

Equations can also be included multiply as follows:

$$\begin{aligned} &\lim_{h \to 0} \frac{f(x+h) - f(x)}{h}, \\ &\iiiint_V \mu(t, x, y, z)\, dt\, dx\, dy\, dx. \end{aligned} \tag{3}$$

Sometimes a box can be appropriate:

$$\boxed{x^2 + y^2 = z^2} \tag{4}$$

Sometimes it can be difficult to get the formatting perfect, consider this nested fraction:

$$y = x_0 + \cfrac{1}{x_1 + \cfrac{1}{x_2 + \cfrac{1}{x_3 + x_4}}}$$

Sometimes subequations are needed: Maxwell's equations:

$$\nabla \cdot \vec{B} = 0, \tag{5a}$$

$$\nabla \times \vec{E} = -\frac{\partial B}{\partial t}, \tag{5b}$$

$$\nabla \times \vec{B} = \mu_0 \vec{J} + \mu_0 \epsilon_0 \frac{\partial E}{\partial t}. \tag{5c}$$

2.2 Lists

Lists are very simple to include:

1. Do something
2. Do something else
3. End

An alternative format:

- An item
- Another item
- etc.

2.3 Figures

This section contains a figure, complete with a caption, 1.

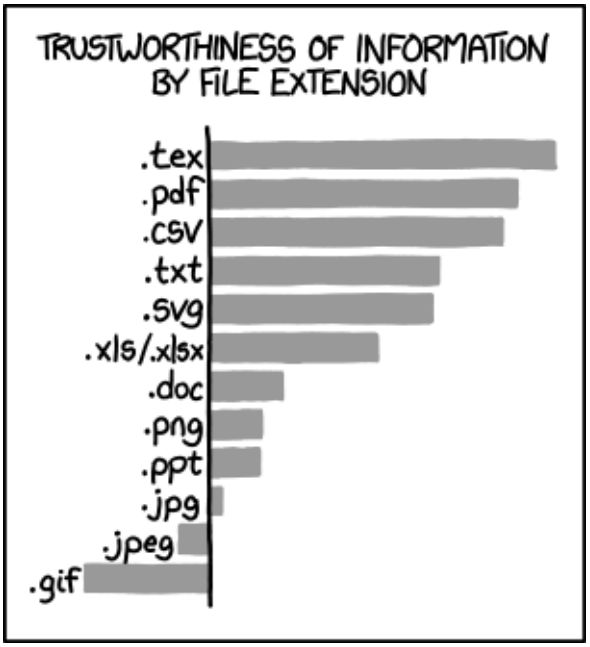

Figure 1: xkcd comic.

2.4 Tables

Tables can be a real pain to format correctly within LaTeX, but are far easier within LyX, for example. Here is a table:

Table 1: An example table.

Pet	Size	Price [£]
Tree	60m	500
Cat	35cm	60
Giant Squid	13m	who knows
Crocodile	6m	600

We now reference one of our references [1]. If using the .bib file for the bibliography you must compile first with latex, then with bibtex, then again twice with latex.

References

[1] R.J. LeVeque. *Finite Volume Methods for Hyperbolic Problems*. Cambridge University Press, 2004.