

# Basic L<sup>A</sup>T<sub>E</sub>X Template

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## Abstract

A sample L<sup>A</sup>T<sub>E</sub>X document

## Introduction

L<sup>A</sup>T<sub>E</sub>X is *the* tool of choice for creating nicely formatted mathematical documents. It's not a standard word processor and has a bit more of a learning curve. Once you get the hang of it, though, the payoff is tremendous. The purpose of this document is to help get you started.

The first step is to get yourself a T<sub>E</sub>X distribution. I recommend:

- MacTeX for the Mac: <https://tug.org/mactex/>
- TeXLive for the Linux: <https://www.tug.org/texlive/>
- MiKTeX for the PC: <http://miktex.org/> (or so I'm told)
- Overleaf for an online experience: <http://www.overleaf.com/>

L<sup>A</sup>T<sub>E</sub>X documents are prepared with a simple text editor - *not* a word processor. Your L<sup>A</sup>T<sub>E</sub>X distribution should come with a good L<sup>A</sup>T<sub>E</sub>X-aware text editor. You type funky looking computer code and then process it into a PDF. The easiest way to start a project is just to open a working file and replace the text with your own and I recommend that you do that with this document.

## Some math

Of course, the main thing we want to do is type some math. Here are just a few examples.

## Computation

If  $f(x) = e^{-x^2}$ , then  $f'(x) = -2xe^{-x^2}$  and

$$\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi}.$$

That mathematical sentence was created by the following L<sup>A</sup>T<sub>E</sub>X code:

```
If  $f(x)=e^{-x^2}$ , then  $f'(x)=-2xe^{-x^2}$  and  
 $\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi}$ .
```

You can view the source to see how the rest of the document was created.

## Theorem-proof

Often, we'd like a theorem-proof setup.

**Theorem.**

$$\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}.$$

*Proof.* The proof is in the pudding!

□

## Including an image

Often we'd like to incorporate a graph into our file, like the one shown in figure 1.

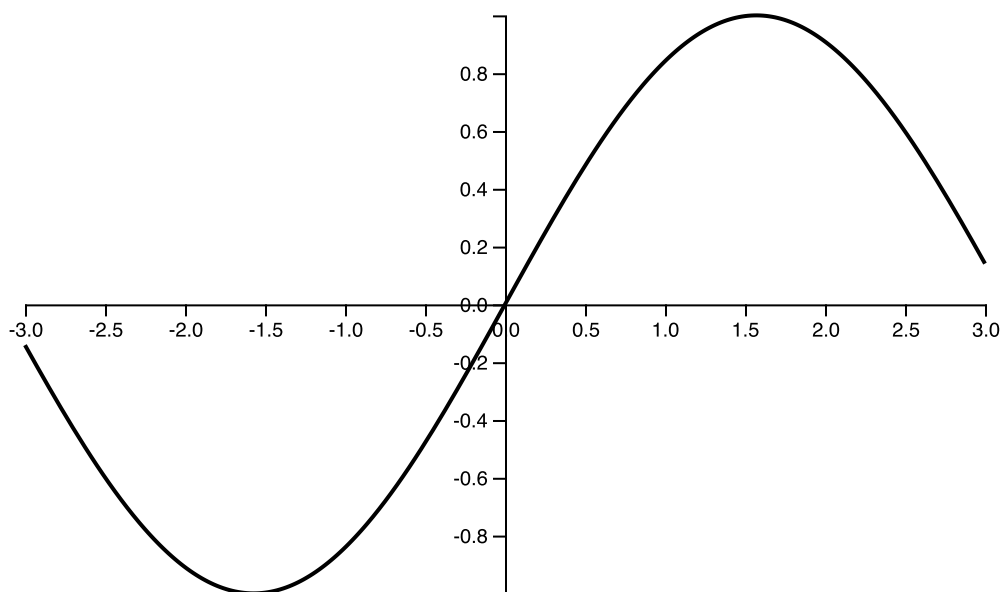


Figure 1: The graph of the sine function