

Homework #6: Typing mathematics with L^AT_EX

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1. The first thing that you might notice about properly typed mathematical text is that variables such as x , y , and z are typeset in a different font from the rest of the text. Usually an italic font is used, although **A**, **B**, and **C** can be typed in a bold math font as well.

2. Next, you might want to know that the names of functions are typeset in an upright font, so that we have $\sin(2x) = 2 \sin(x) \cos(x)$ instead of $\sin(2x) = 2 \sin(x) \cos(x)$, which looks lousy. *Note that this is true even when the surrounding text is italic; one still types standard functions such as \ln and \log in a roman font.*

3. Soon, you will become brave enough to try to typeset a really big and exciting equation that is so important that it needs to be set apart from the text.

$$\sum_{n=0}^{\infty} \frac{\lambda^n}{n!} = e^\lambda$$

There is nothing so satisfying as seeing a nicely displayed equation, except, perhaps, seeing it displayed with an automatically generated equation number!

$$\int_0^x (1+u)^{25} du = \frac{1}{26}(1+x)^{26} - 1 \quad (1)$$

You will notice that the differential d is set in a roman font, whereas the variable u is set in an italic font. I have read that this is a high point of mathematical style.

4. Before long, you will want to type more complicated expressions. Here are some examples inline with the text: $\lim_{x \rightarrow 0} x \sin\left(\frac{1}{x}\right)$ and $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here they are displayed:

$$\lim_{x \rightarrow 0} x \sin\left(\frac{1}{x}\right) \quad \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad (2)$$

It is a good idea to put some text after a displayed equation.