A First Look at LaTeX

To learn LaTeX a good place to start is with the sample LaTeX file in *Guide to LaTeX* by Helmut Kopka and Patrick Daly.[1]

Below are some common commands for typesetting mathematical expressions:

1. Here is an formula written in-line: $H\psi = E\psi$. Here is the same formula displayed

$$H\psi = E\psi$$

Again, the same formula but this time with an equation number

$$H\psi = E\psi \tag{1}$$

We can now refer to this equation (1).

2. Integrals are easy to write

$$\int_0^\infty e^{-x^2}\, dx = \frac{\sqrt{\pi}}{2}.$$

3. Here is an example of a several equations in a multiline display

$$
\begin{aligned}
A &= B + 1 \tag{2}\\
C &= D + \pi \\
\Lambda &= \frac{A}{B} + 7 \tag{3}
\end{aligned}
$$

If you don't want the equation numbers you use the `\begin{eqnarray*}` and `\end{eqnarray*}` commands. You need to use the `\label{}` command in the eqnarray environment to refer back to the equation, e.g. (3). Note that the middle equation does not have an equation number. This is because it was suppressed with the `\nonumber` command.

4. One more example:

$$u(r,\theta) = \sum_{m=-\infty}^{\infty} a_m r^{|m|} e^{im\theta}$$

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[1] The pdf file of this book is available on the Math 129 homepage.