

A LaTeX example - a quiz format

Due: January 18, 2008.

Name: _____

Instructions go here.

1. This first problem has two parts.
 - (a) This is the first part.
 - (b) This is the second part.
2. This is the second problem. It involves an equation that I want to include “inline” like this: $E = mc^2$ and an equation that I want to highlight in “displaystyle” like this

$$\frac{dx}{dt} = x(1-x)(x-a).$$

The inline equation is surrounded by `\(...\)` and the `displaystyle` equation is in `\[...\]`. Many people use `$. . . $` and `$$. . . $$`, respectively, instead but those (or at least the latter) are technically not LaTeX commands, even though they seem to work. Note that LaTeX tries to make the typesetting of spaces consistent so extra spaces in your `.tex` file are usually ignored. To force extra horizontal space, use `\hspace{0.5cm}` (to add a half cm space, for example). In math mode, spaces can be added using a `\` – just be sure to leave a space before and after it so it isn’t mistaken for a command.

- (a) If you are writing a number with units, the following formatting is useful:

$$\gamma = 6 \cdot 10^{-5} \text{ pN s } \mu\text{m}^{-1}$$

The `\mbox` command, which I’ve used around the “pN s” and “m”, is useful for creating non-math text inside a math environment. Otherwise, your units will be italicized and might end up oddly spaced, like so:

$$\gamma = 6 \cdot 10^{-5} pNs\mu m^{-1}$$

Notice that the text inside the `\mbox` is spaced correctly but in math mode, spacing is treated differently. This is because in the latter case, LaTeX is assuming that the p, N, s, μ and m each represent a different variable or parameter and that I am intending to take their product.

- (b)

(Bonus) I didn’t want this last problem to be numbered like the rest so I’ve used the optional argument that the `\item` command accepts. It looks like `\item[Bonus]`.

Some layout issues that might be confusing – to indicate the end of a paragraph, simply leave a blank line in the .tex file. The following paragraph will automatically be indented (unless you place a `\noindent` command at the start). If you want to force a hard return in the middle of a paragraph or elsewhere, place a `\\` at the end of the line. If you do both (leave a space and put `\\`), when you typeset the file, you will get an error indicating that “there is no line to end here”.

In case you were wondering about the `\verb` commands in the .tex file, they allow for “verbatim” typing i.e. LaTeX temporarily types exactly what is found within the command scope. `\verb` is a unique command in that the argument does not go inside `{ }` like most other commands. Instead, the user can choose what symbol to use around the argument (must be the same on either side). This allows you to type a string of text that contains the symbol `}` without confusing LaTeX. If this doesn’t make sense, imagine what would happen with the following command if you replace the argument, “`arg`”, with the string “`%!}&*`”: `\verb{arg}`