

The *LaTeX Help by Example* LaTeX Lessons will help you LaTeX your homework. By comparing the provided LaTeX Lesson code/input (`FileName.tex`) to the compiled/output PDF file (`FileName.pdf`), you will quickly pick up the needed LaTeX to do your homework.

How To Use Latex Lessons

Read (the linked webpage) [Getting started with LaTeX](#) to learn how to use LaTeX with the free Overleaf. Then create an Overleaf blank project and name your project **Latex Lessons**. Then:

1. download each provided Latex Lesson LaTeX file into your Overleaf **Latex Lessons** project
2. (re)compile each LaTeX file in Overleaf (which will produce the corresponding PDF file)
3. read through the PDF files, learning LaTeX as you go.

This way you will have all the LaTeX Lessons in one handy place.

When you want to do something similar to what you have seen in a Latex Lesson, just compare that LaTeX Lesson code/input (`FileName.tex` file) to the compiled/output PDF file to see how to do it.

The Latex Lessons are designed to be worked in order.

Helpful Overleaf Feature

If you left double click at a place in the PDF file, then Overleaf indicates the corresponding place in the LaTeX file, making it easy to compare the PDF output to LaTeX input.

Indent a new paragraph and prevent an indent

Notice the blank line above this sentence? The blank line above tells LaTeX to start a new paragraph (thus to indent). If you want to prevent an indent caused by a blank line (or something else), then leave a blank line and start the next line with the LaTeX command `\noindent`. See below.

1. Notice there is a blank line above but this line is not indented.

How to tell LaTeX to ignore what you write on the rest of a line.

If you put a percent sign (i.e. `%`) then LaTeX will ignore everything after the percent sign until the next carriage return. For example, look through here to see how to leave a note to yourself. In the homework templates, you will notice this done often to leave notes to the students.

begin/end an environment

In LaTeX, you begin an environment with `\begin{EnvironmentName}`. Before you can (re)compile the LaTeX file, you need to end that environment with `\end{EnvironmentName}`. E.g.,

Proof. Put your proof there here. □

If you forget to end an environment, your LaTeX file will not compile to produce a PDF file. So end the environment after the begin environment and recompile. Beware, some environments do not allow blank lines.

Text Mode and Math Mode

There are two modes in LaTeX. We are currently in text mode. Mathy stuff needs to be typed in math mode. There are several ways to go into math mode. When writing inline, one can just enclose the mathy stuff between dollar signs `$`. E.g., double click through here to see the sign for the natural numbers \mathbb{N} . BTW: `mathbb` is short for *math blackboard* (afterall, this is how we write these symbols on a blackboard). The *equation environment* automatically puts us into *math mode* in display (i.e., center) format and we do not need the `$` signs. Double click through here to see:

$$\text{thenaturalnumbers}\mathbb{N}. \tag{1}$$

Note the text “the natural numbers” was typed in math mode instead of text mode. To correct:

the natural numbers \mathbb{N} or the natural numbers \mathbb{N}

Note our first display was tagged (1). The second equation was not tagged since we put a `*` in two places. If you see `(??)`, then recompile your LaTeX file and the `??` will change to a number.

LaTeX Help Sources

[Overleaf's help](#) is great! In [Detexify](#), just draw the math symbol and it tell you the LaTeX code.