

## Introduction to $\LaTeX$

This document will serve as a brief introduction on how to use  $\LaTeX$  which will be essential when completing the quizzes throughout the quarter.

- Introduction to  $\LaTeX$
- Embedding  $\LaTeX$  in Gradescope
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## Introduction to $\LaTeX$

$\LaTeX$  is a handy markup language that makes formatting tricky things like mathematical equations and document layouts easier.  $\LaTeX$  is really powerful but can be complicated if you're trying to learn it on your own, so here's a primer of the things you'll want to know for using  $\LaTeX$  for the quizzes this quarter.

$\LaTeX$  uses control sequences to define commands that enable advanced formatting. Control sequences are preceded by a  $\backslash$  and are often followed by a word (or an abbreviated word) that suggests what the control sequence does. For example,  $\LaTeX$  is a control sequence that results in the formatted word seen throughout this document.

Subscripts and super scripts are fairly straightforward and probably what you would expect:

- Subscripts are accomplished by using the  $\_$  character:  $x_1$
- Superscripts are accomplished by using the  $\^$  character:  $x^3$

Specific examples of how to use this in your Gradescope submissions are in the Embedding  $\LaTeX$  in Gradescope section below.

Common symbols and operations:

Symbol	Control Sequence
$\cdot$	$\backslash cdot$ (multiplication symbol)
$0$	$0$
$\Omega$	$\backslash Omega$
$\Theta$	$\backslash Theta$
$\infty$	$\backslash infty$
$\log$	$\backslash log$
$\leq$	$\backslash le$
$\geq$	$\backslash ge$
$\neq$	$\backslash neq$
$\in$	$\backslash in$
$\notin$	$\backslash notin$

## Embedding $\LaTeX$ in Gradescope

To embed a  $\LaTeX$  equation in a Gradescope submission, you need to enclose your equation in two sets of dollar signs. E.G. if you wanted to write  $n^3$  as your submission, you would type

$$$$$n^3$$$$$

In free response answers, these equations can be entered inline anywhere in your submissions. As an example, you could enter

As we can see, because the loop executes 6 times, the run time is  $n^6$ .

which will be rendered as:

As we can see, because the loop executes 6 times, the run time is  $n^6$

An important thing to note is that the math will not be rendered until you submit your answer for the question.

## Summations and more

Summations are a common occurrence in this class and so being able to write them in  $\LaTeX$  will be very useful. Their syntax is a natural extension of using subscripts/superscripts as we saw earlier and looks like this:

$$\sum_{\text{lower bound}}^{\text{upper bound}} \{\text{summand}\}$$

As an example, if you wanted to write  $\sum_{i=1}^{\infty} 2^{-i}$  in your Gradescope submission, you would enter

$$\sum_{i=1}^{\infty} 2^{-i}$$

Although it likely won't be needed for this class, integrals can be written in a very similar way using  $\int$  control sequence.

The last control sequence we will discuss is  $\frac{}{}$ . As the name suggests, this control sequence is used to write fractions. The syntax is very simple and is:

$$\frac{\text{numerator}}{\text{denominator}}$$

If in your Gradescope submission you wanted to write  $\frac{1}{3}$ , you would need to enter

$$\frac{1}{3}$$

## Additional Resources

If you have any questions regarding  $\LaTeX$  in relation to the quizzes, feel free to post them on Piazza or ask one of us during Office Hours. If you want to learn more on your own, we have compiled a couple useful resources below.

- [A comprehensive list of available symbols](#)
- [\$\LaTeX\$  math tutorial from Overleaf](#)