LaTeX Mini HOWTO

On my website, to insert mathematics you have to use LaTeX. For instance, let's say we wish to insert math within a sentence such as $F = ma$. This can be done by typing $F=ma$. Or, if you wish to display an equation by itself out of a sentence such as:

$$F = ma$$

Then, enclose the math expression within two dollar signs as follows:

```
$$
F=ma
$$
```

Greek Symbols

Greek symbols are generally written the way they are pronounced. Thus, θ, ξ, ψ can be written as θ, ξ, and ψ respectively. Capital Greek letters are written by uppercasing the first letter. Thus, Ψ, Θ, and Ξ are typeset as Ψ, Θ, and Ξ.

Fractions

A fraction such as

$$c = \frac{a}{b}$$

should be coded as

```
c=\frac{a}{b}
```

A fraction within a fraction:

$$c = \frac{a + \frac{3}{2}}{b}$$

is coded as:

```
c=\frac{a+\frac{3}{2}}{b}
```

Subscripts and Superscripts

Subscripts and superscripts such as

$$a = b_{d+2}^{c+\frac{1}{2}}$$

should be written as:

```
a=b^{c+\frac{1}{2}}_{d+2}
```

Text within Equation

The text that appears within an equation such as

$$\phi = \frac{\textrm{performance}}{\textrm{price}}$$

should be written as:

```
\phi= \frac{\textrm{performance}}{\textrm{price}}
```

Integrals

An integral such as

$$\epsilon = \int_{x=0}^{L} \left(\frac{x}{5} - \frac{x^2}{2} \right) dx$$

should be coded as:

```
$$
\epsilon=\int_{x=0}^L \left( \frac{x}{5}-\frac{x^2}{2} \right) dx
$$
```

Sums

The sum of a series

$$s = \sum_{i=1}^{N} (b-a)^i$$

should be coded as

```
s=\sum_{i=1}^N (b-a)^i
```

Large Brackets

Say we want to enclose a fraction within parentheses or brackets. This can be done by preceding the parenthese/bracket with the code \left or \right. For example:

$$a = \left[\frac{\partial F}{\partial x} + \frac{\partial G}{\partial y} \right]$$

The latter can be typeset as:

```
a=\left[\frac{\partial F}{\partial x}+\frac{\partial G}{\partial y}\ri
ght]
```

Special Symbols

Adding a dot on a variable such as $\dot{m}$ can be done with the code

```
\dot{m}
```

Adding an overline over some symbol or group of symbols such as $\overline{a+b}$ can be done with the code

```
\overline{a+b}
```

Adding a tilde over a variable such as $\tilde{a}$ can be done with the code:

```
\tilde{a}
```

Adding a prime to a variable such as a' can be done with

```
a^\prime
```

Numbered Equations

If you wish to write an equation with an equation number as follows:

$$F = ma \tag{23a}$$

Type the following:

```
\begin{equation}
F=ma
\tag{23a}
\label {eqn:newton}
\end{equation}
```

And reference it as Eq. (23a) by typing

```
Eq. (\ref{eqn:newton})
```

Online LaTeX Manuals

List of LaTeX mathematical symbols:

https://oeis.org/wiki/List_of_LaTeX_mat … al_symbols

You can learn more about LaTeX on tug.org:

http://www.tug.org/tutorials/tugindia/chap11-scr.pdf

Or on hkbu.edu.hk:

http://www.math.hkbu.edu.hk/TeX/short-math-guide.pdf