

L^AT_EX Quick References

- **Comments**

Use the percent symbol to comment, and CTRL-/ to bulk comment/uncomment.

- **Sections**

```
\section{} % Numbered
\section*{} % Unnumbered

\subsection{}
\subsubsection{} % etc. etc.
```

- **Inline Math**

Write a sentence, and obtain $2x + 3y$ as an answer.

Write a sentence, and obtain $2x + 3y$ as an answer.

- **Display Math**

Write a sentence, and obtain $2x + 3y$ as an answer.

Write a sentence, and obtain

$$2x + 3y$$

as an answer.

- **Equations (for unnumbered, use equation*)**

```
\begin{equation}
  \label{eq:my_eq1} % Optional label if you want to reference it later
  a^2 + b^2 = c^2
\end{equation}
```

$$a^2 + b^2 = c^2 \tag{1}$$

- **Clever Reference**

We obtain this value by using `\cref{eq:my_eq1}`.
I can also obtain this with `\Cref{eq:my_eq1}`.

We obtain this value by using eq. (1).

I can also obtain this with Equation (1).

(Note that the whole word “Equation” appears if you use a capital “C” with the cref command.)

- **Common Math Things**

```
\infty % Infinity
\frac{/* numerator */}{/* denominator */}
<
>
=
\leq % Less than or equal to
\geq % Greater than or equal to
\neq % Not Equal to
\approx
\cdot % Dot for multiplication
\times % Times symbol
\pm % Plus/minus symbol
\mp % Flips the plus/minus symbol
^{} % Things in braces are superscript
_{} % Subscript
\sum^{n}_{i=0} % Summation Sigma (can change what goes in braces)
\int^{a}_{b} % Integral
```

- **Trig and More Math Things**

```
\sin
\cos
\tan
\sec
\csc
\cot
\log
\ln
```

- **Align**

```
\begin{align*} % I typically use align* because I want unnumbered lines
(x+2)^2 &= (x+2)(x+2) \\ % The \\ is newline
&= x^2 + 2x + 2x + 4 \\
&= x^2 + 4x + 4
\end{align*}
```

$$\begin{aligned}
 (x+2)^2 &= (x+2)(x+2) \\
 &= x^2 + 2x + 2x + 4 \\
 &= x^2 + 4x + 4
 \end{aligned}$$

- **siunitx Package**

See the documentation for the package [here](#), pages 4-8 for quick references.

```

\num{123.456} % num command for numbers only
\num{3.07e5} % Can use scientific notation

\si{kg.m.s^{-1}} % si command for units only
                % Use . (period) for multiplication/good spacing

\SI{9.8}{m.s^{-2}} % For numbers and units

```

123.456

3.07×10^5

kg m s^{-1}

9.8 m s^{-2}

$10.33 \frac{\text{C}}{\text{kW h}}$

$\frac{40}{5}$

$6.022 \times 10^{23} \frac{\text{u}}{\text{mol}}$

- **physics Package**

See additional documentation for this package [here](#).

You no longer need to use

```

\left
\right

```

if you use the physics package (already included in your preamble). Some common commands from this package

```

\qty(/*stuff*/) % Automatically resized parentheses
\qty[/*stuff*/] % Auto resized square braces
\qty| /*stuff*/ | % auto resized vert braces
\abs{ /*stuff*/ } % Equivalent to above
\qty{ /*stuff*/ } % Auto resized brackets
\dv{x} % d/dx
\dv{f}{x} % df/dx
\dv[n]{f}{x} % d^n f / dx^n

```

• Lists

```

\begin{enumerate} % for numbered lists
  \item Stuff
  \item More Stuff
  \item Even More Stuff
\end{enumerate}

\begin{itemize} % My bullet points for this reference guide
                % are made with the itemize environment
  \item Stuff
  \item Stuff
  \item Stuff
\end{itemize}

```

1. Stuff
 2. More Stuff
 3. Even More Stuff
- Stuff
 - Stuff
 - Stuff

• Figures

Use the “width” option in the include graphics command to change the size of your image. The square braces (and its options) are optional, and can be omitted if you want to display the image in its full size.

Remember, \LaTeX will auto-complete figures and tables for you.

```

\begin{figure}[H]
  \centering
  \includegraphics[width=0.6\textwidth]{ball_and_rod.jpg}
  \caption{Caption}

```

```

\label{fig:my_label}
\end{figure}

```

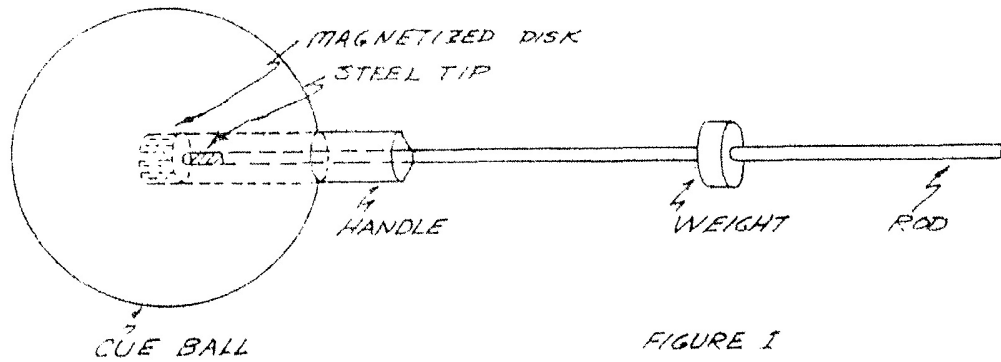


Figure 1: Caption

- **Tables**

Use l (the letter L) for left aligned columns, c for center, r for right.

```

\begin{table}[H]
\centering
\begin{tabular}{@{}lcr@{}} \toprule
One & Two & Three \\ \midrule
1 & 2 & 3 \\
4 & 5 & 6 \\
7 & 8 & 9 \\ \bottomrule
\end{tabular}
\caption{Caption}
\label{tab:my_label}
\end{table}

```

One	Two	Three
1	2	3
4	5	6
7	8	9

Table 1: Caption

A vector is written as \mathbf{v} . When writing on paper, we use the little arrow, \vec{v} . The size, or length of a vector, \vec{v} is written as $\|\vec{v}\|$.

$$\|\mathbf{v}\|.$$

$$a = nk$$

$$a + 1 = n\ell$$

$$a = n\ell - 1$$

$$nk = n\ell - 1$$

$$nk - n\ell = -1$$

$$n(k - \ell) = -1$$