

L^AT_EX– Week 7

1 Figures and Tables

Figures and tables are called “floats”. This means they are items that don’t necessarily have to appear in a certain spot in the text, but just somewhere in the general vicinity of the text that refers to them. Figures and tables are labelled with numbers and captions. Here is an example of a figure:

```
\begin{figure}
\centering
\includegraphics[width=2in]{UnitCircle.pdf}
\caption[Unit Circle]{Memorize this Unit Circle}\label{circle}
\end{figure}
```

Because the caption comes after the `\includegraphics`, the caption will be below the picture. The part of the caption inside of square brackets is what will appear in the table of contents. The part of the caption inside curly braces is what will appear below the figure. The `\centering` command will center the picture. The `\label{circle}` command will create a name for the figure, so that you can refer to it later. Place the `\label` command right after the caption. You can refer to a figure using `\ref{circle}` to get the figure number, or using `\pageref{circle}` to get the page the figure appears on.

Latex will figure out where to place your figures and tables all by itself, but if you really want to have some say in where your figure appears, you can give suggestions by using the optional arguments inside of square brackets right after the `\begin{figure}` command. The arguments are given in Table 2 on Page 3.

Here are the examples of tables. Note that `\begin{table}` tells LaTeX that you will be making a table with a caption and a number. Then `\begin{tabular}` actually creates the table.

```
\begin{table}[htb]
\caption{Some important fixed costs}
\label{cost}
\centering
\begin{tabular}{|r|l|}
\hline
```

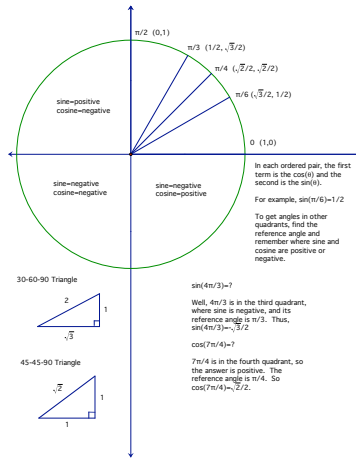


Figure 1: Memorize this Unit Circle

```

Things & cost \\
\hline
shoes & \$100 \\
haircut & \$30 \\
\hline
\end{tabular}
\end{table}

```

```

\begin{table}
\centering
\begin{tabular}{|l|l|}
\hline
option & meaning \\
\hline
h & Place it "here" right where you typed it \\
\hline
t & Place it at the "top" of the page \\
\hline
b & Place it at the "bottom" of the page \\
\hline
p & Put on a special "page" just for floats \\
\hline
\end{tabular}
\end{table}

```

```

\hline
! & Override Latex's judgment \\
\hline
\end{tabular}
\caption{The options for placement of figures}
\label{figureops}
\end{table}

```

Table 1: Some important fixed costs

Things	cost
shoes	\$100
haircut	\$30

option	meaning
h	Place it “here” right where you typed it
t	Place it at the “top” of the page
b	Place it at the “bottom” of the page
p	Put on a special “page” just for floats
!	Override Latex’s judgment

Table 2: The options for placement of figures

2 Footnotes

Anytime you want a footnote¹, you can just use the `\footnote{}` command.

...want a footnote`\footnote{like this!}`, you can....

Multiple² footnotes will be numbered automatically³.

Multiple`\footnote{more footnotes!}` footnotes will be numbered automatically`\footnote{Hurray!}`.

3 The Bibliography

L^AT_EX has a built-in system for making and referring to a bibliography. There are two main ways to make a bibliography.

1. One can create a “master” bibliography file that you use for all your papers. Then using BIBTeX, you can create an article specific bibliography that just lists the sources referred to in that paper.
2. Using the `\thebibliography` environment, which is just like an itemized list at the end of the paper.

The first option is beyond the scope of my knowledge, so I refer you to other sources to read about it. I will discuss the second option here.

Start by putting some sources in your bibliography.

At the **very end of your document**, before the phrase `\end{document}`, type

```
\begin{thebibliography}{99}
```

```
\bibitem{mainsource} Kunen, K., ‘‘The complex Stone-Weierstrass property,"  
{\it Fund. Math.} 182 (2004), no. 2, 151--167.
```

```
\bibitem{knots} Adams, Colin, ‘‘Hyperbolic knots."  
{\it Handbook of knot theory}, 1--18, Elsevier B. V., Amsterdam, 2005.
```

```
\bibitem{erdos} Erd\''os, Paul, ‘‘Some of my favourite unsolved problems."  
{\it Math. Japon.} 46 (1997), no. 3, 527--537.
```

¹like this!

²more footnotes!

³Hurray!

`\end{thebibliography}`

The results of typing this can be seen at the end of this document.

Now I can type in my document, before the bibliography. When I want to refer to something in my bibliography, I use the command `\cite{}`, as follows:

In this paper, I do not answer any questions of Erdős `\cite{erdos}`. I also have not read the papers of Kunen `\cite{mainsource}` or Adams `\cite{knots}`.

In this paper, I do not answer any questions of Erdős [3]. I also have not read the papers of Kunen [1] or Adams [2].

Notice that the bibliography items are not automatically alphabetized. You must enter the items in your bibliography in alphabetical order yourself. If you want L^AT_EX to alphabetize the bibliography, you will have to learn how to use B_IB_TE_X, which you are free to do on your own.

As with any other cross-references, you must run the Latex button twice to be sure the numberings and references are accurate.

4 Exercises

Exercise 7.1: Type the following, including the footnote:

In the book *Analysis* by Royden⁴, he defines the characteristic function as

$$\chi_E(x) = \begin{cases} 1 & x \in E \\ 0 & x \notin E \end{cases}$$

References

- [1] Kunen, K., “The complex Stone-Weierstrass property,” *Fund. Math.* 182 (2004), no. 2, 151–167.

⁴Royden, H.L., *Real Analysis*, 3rd ed., Macmillan, 1988.

- [2] Adams, Colin, “Hyperbolic knots.” *Handbook of knot theory*, 1–18, Elsevier B. V., Amsterdam, 2005.
- [3] Erdős, Paul, “Some of my favourite unsolved problems.” *Math. Japon.* 46 (1997), no. 3, 527–537.