

Figures, References and Citations

Figures

In this document, we show how to put multiple graphs in a single figure.

To be specific, suppose I have the following graphs from Maple:

```
plot(x^2,x=-3..3);
```

Right click the mouse on the graph, and choose **Export**, then choose JPG. Save your graph in the same folder as your LaTeX file.

In LaTeX, here is the command to have two graphs show up in one figure (I have my figure saved as: Lab02Fig01.jpg). I put two copies of the graph in by simply adding the `\includegraphics` command for each of my graphs.

```
\begin{figure}[h]
\centering
\includegraphics[width=2.0in]{Lab02Fig01}\quad
\includegraphics[width=2.0in]{Lab02Fig01}
\caption{This is a caption for the figure.}
\label{LabelForGraph01}
\end{figure}
```

And the result is Figure 1. The `h` in the top line tells LaTeX that you'd like the figure "here". Other options are `T` (for top) and `B` (for bottom). Please do not try to force where the figure appears- Let LaTeX figure it out automatically.

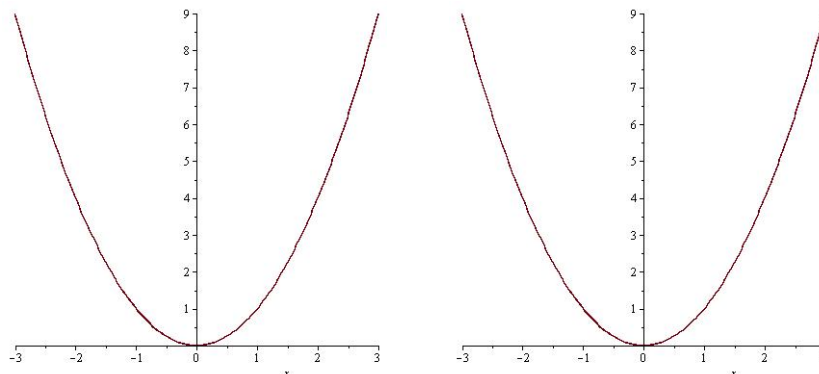


Figure 1: This is a caption for the figure.

Reminder: Labels and References

We can label more than figures- We can label equations as well. Here is an example of labeling, then referencing an equation. Note the use of `\begin{equation}` instead of `$$`.

```

\begin{equation}
x=\frac{-b\pm \sqrt{b^2-4ac}}{2a}
\label{QuadForm}
\end{equation}

```

Which produces the quadratic formula, and the equation is numbered:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad (1)$$

Now in my text, I can write something like:

... the solutions are shown in Equation `\ref{QuadForm}`.

and the result is:

... the solutions are shown in Equation 1.

You can also put labels on sections, subsections, and items in lists in order to refer back to them (with numbers put in automatically!).

Citations and Bibliography

It is very important to always cite your sources. We create the bibliography at the end of the document, and create labels for reference. In this example, I have three texts in my bibliography, and the third one is labeled by `Erdos01`. When I cite that reference, it looks like this:

This is obvious `\cite{Erdos01}`.

Which results in: This is obvious [1]. If you see a question mark for the citation, run LaTeX again. In place of references in your document, you'll have:

```

\begin{thebibliography}{9}

\bibitem{Erdos01} P. Erd\H os, \emph{A selection of problems and
results in combinatorics}, Recent trends in combinatorics (Matrahaza,
1995), Cambridge Univ. Press, Cambridge, 2001, pp. 1--6.

\bibitem{ConcreteMath}
R.L. Graham, D.E. Knuth, and O. Patashnik, \emph{Concrete
mathematics}, Addison-Wesley, Reading, MA, 1989.

\bibitem{Knuth92} D.E. Knuth, \emph{Two notes on notation}, Amer.
Math. Monthly \textbf{99} (1992), 403--422.

\end{thebibliography}

```

For students interested in managing a large bibliography, look up the use of “BibTeX”. We will typically have 1 or 2 references, so the technique shown here is fine.

References

- [1] P. Erdős, *A selection of problems and results in combinatorics*, Recent trends in combinatorics (Matrahaza, 1995), Cambridge Univ. Press, Cambridge, 2001, pp. 1–6.
- [2] R.L. Graham, D.E. Knuth, and O. Patashnik, *Concrete mathematics*, Addison-Wesley, Reading, MA, 1989.
- [3] D.E. Knuth, *Two notes on notation*, Amer. Math. Monthly **99** (1992), 403–422.