

Getting Equations into Powerpoint/Keynote

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1 Introduction

One of the most annoying weaknesses of Apple Keynote, Microsoft Powerpoint and most other slide making programs I know is making equations that look as good as we are used to in \LaTeX . This set of tips will provide at least a couple pathways for this process. There are many others and I welcome additional suggestions and support code. All the tools I mention here are either ubiquitous or have equivalents that are.

2 Using LaTeXiT equation editor on the Mac

The best way to handle equations on the Mac is to use this outstanding utility available at pierre.chachatelier.fr/programmation/latexit_en.php from Pierr Chatellier. The steps are easy and give you that one more bit of justification you were looking for to buy a Mac in the first place.

1. Download LaTeXiT from here and install as per instructions.
2. Launch LaTeXiT and set the following preferences:
 - Font size of at least 96—at least this is what I found makes nice looking slides.
 - Start sticking \LaTeX code into the input window and watch the magic appear in the graphics window above it.
 - Note: the “Display” option works find for simple math that you enter without and `\begin{equation}` while “Text” works better with `\egnarrray` type things.
 - You can also set the equation text color for use on whatever background colour you anticipate on the slides.
 - When you have what you like in the graphics output window just drag and drop it into the Powerpoint/Keynote window. Shrink it to fit and you will have very nice quality output.

3 The Screen Grab and Paste Path

If you are stuck without a Mac (my condolences) there are other options that are more tedious. The basic idea here is to use \LaTeX to make the equations and then grab them from the screen and convert them to transparent gif or png files so that they float over whatever background is in the Powerpoint slide. Here are the steps, which work only on a Unix computer as long as all the utilities required are available.

1. Make a \LaTeX document with your equations. Use all the standard parameters and do not worry about font size or any other special considerations other than to avoid making the margins too wide. Err on the side of using `eqnarray` to get a fairly short line length.
2. Run \LaTeX on the file and then view the output using `xdvi`. If you plan to use a dark background on the slide template, I suggest using the `-rv` option in order to get white text on a dark background.
3. In `xdvi`, adjust the zoom, or shrink factor to something in the range of 1–3. This will blow up the image of the equation and is the means by which you can balance resolution against image—and subsequently file—size in Powerpoint. You will just have to play with this so take one equation through the full process and see how it looks before doing more.
4. Using some sort of screen capture program, for example `Grab` on the Macintosh or `snapshot` on an SGI, make an image file of the equation, with or without the equation number as you like. (Please send me pointers to other screen capture program on different platforms)
5. Convert the image file to gif or png. There are numerous tools for this—the shareware program `xv` will also do the conversion very nicely; ImageMagik has command line conversion tools that are very handy for scripting; and GraphicConverter is a great program on the Mac for all sorts of image conversion and manipulation.
6. We are not done yet! The last trick is to give the gif/png file a transparent background—not a necessity, but a nice trick. To achieve this, I usually use GraphicConverter but there are lots of other tools out there for this purpose.
7. With this all complete, you should have one or more transparent gif/png files that you can move to your Mac or PC and insert (as graphics from file) into the Powerpoint presentation file. This will require some resizing of the image file so make sure to hold down the shift key when resizing to maintain the aspect ratio.

4 Windows solutions

The program www.technion.ac.il/~zvikabh/software/iguanatex/ IguanaTex is billed as “A Free LaTeX Add-In for PowerPoint”. I have not tried it but it comes recommended (Thanks Nik Hoepker).

5 Linux and Windows solution

Below is a solution from Scott Hoge, who is a LaTeX whiz and wanted to find a nice way to use a Linux or Windows computer for making equations.

Following the outline on Rob's page, one can generate the latex equations in a tex file, one equation per file. Then, run `dvips` with the `-E` option, to generate `.eps` output files. Then, use `epstool` www.cs.wisc.edu/~ghost/gsview/epstool.htm to add in a BMP or TIFF preview image to the eps file. Word/Powerpoint can load the `.eps` file.

for example:

eq1.tex:

```
\documentclass{article}
\pagestyle{empty}
\begin{document}
\[ A x =b \]
\end{document}
latex eq1.tex
dvips -E -o eq1.eps eq1.tex
epstool -t6p --gs-args "-dTextAlphaBits=4 -dGraphicsAlphaBits=4" --dpi 300 eq1.eps eq1_v2.
```

will produce an eps file with a tiff6p preview image at 300 dots-per-inch, with 4 bit of anti-aliasing. (This could be scripted into a nice little tool, me thinks.)

For Word usage, the cool thing is that the bit map is used on the screen preview, but the eps file is used when sent to a postscript printer (or ghostscript).

Apparently, `epstool` has been around since 1995, as part of the `gsview` package.

6 Suggestions

If you have additional suggestions for this process or other programs to suggest for the conversions, please send me an email

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