

PGFPlot-Tikz package:A simple tutorial

Son To

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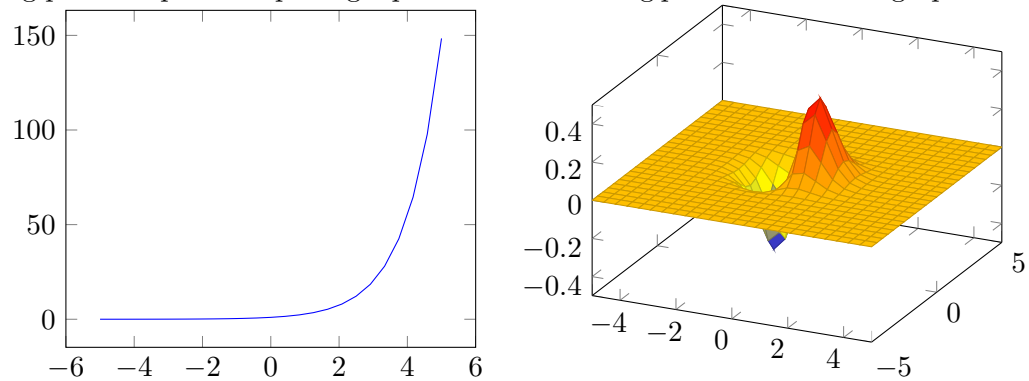
Part 1

PGFPLOTS

This part is based on [\[com\]](#).

I The Basic

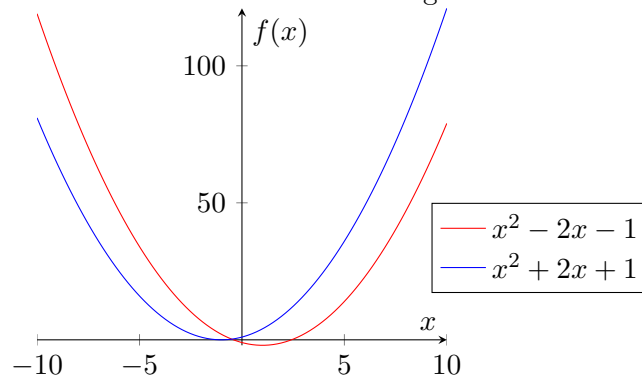
Pgfplots is a powerful package specialized in creating powerful scientific graphs.



We now get to some more details on 2D plot.

II 2D Plot

What the heck...Let's do some damage!

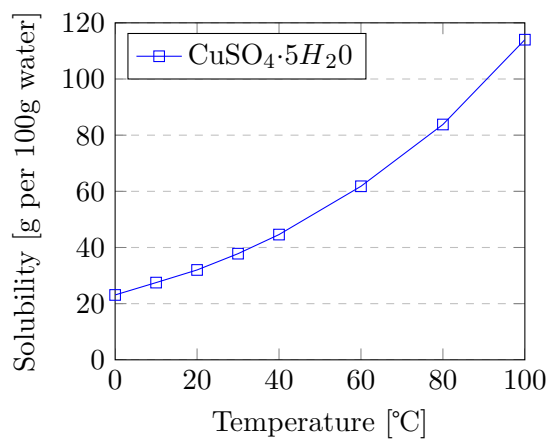


Come on man!!!! Let's make some plots from data.

II.1 Plotting from data

I love to test °C

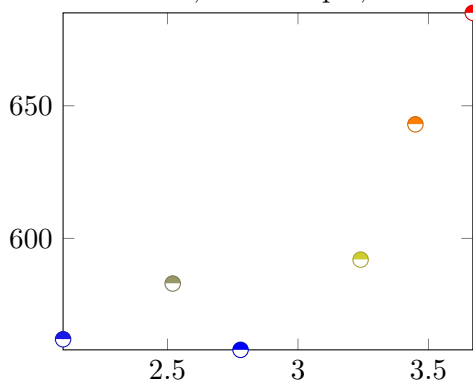
Temperature dependence of $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$



When the data is in a file, put `\addplot table {file_with_the_data.dat}` instead of using `\addplot coordinates {}`.

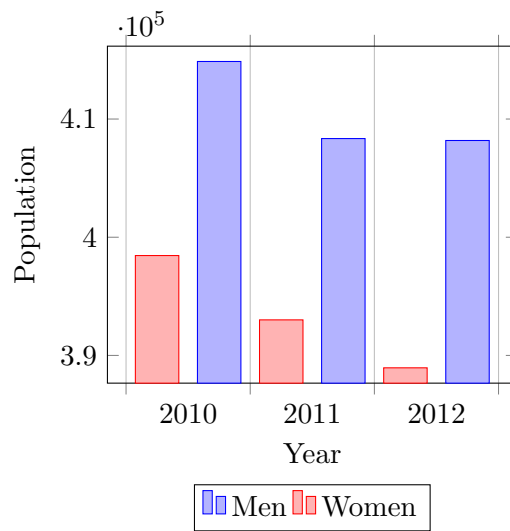
II.2 Scatter plots

Scatter plot is used to represent information by using some kind of marks, which are common, for example, when computing statistical regression.



II.3 Bar graphs

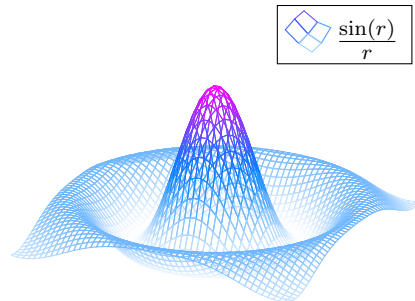
Bar graphs are used to display gathered data.



III 3D Plots

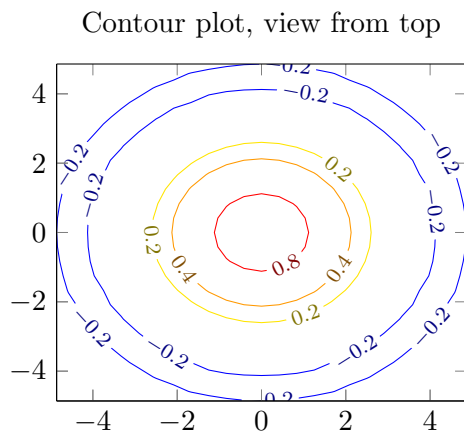
For the basic plot, we refer to section I. We now use mesh feature for the plot.

Example using the mesh parameter



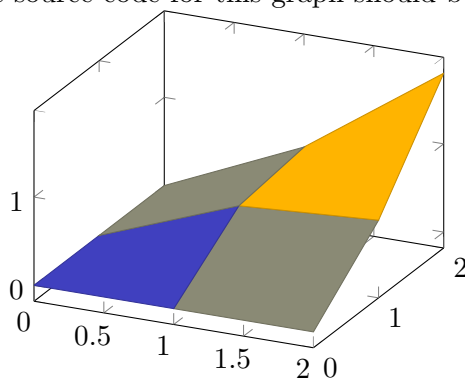
III.1 Contour plot

The data needs to be calculated by external programs (gnutplot, mathematica, etc...)



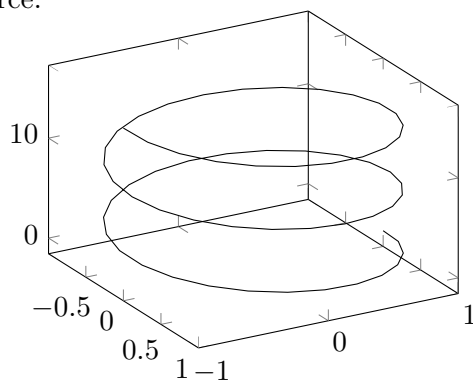
III.2 Plotting a surface from data

The source code for this graph should be self-explanatory.



III.3 Plotting parametric curve

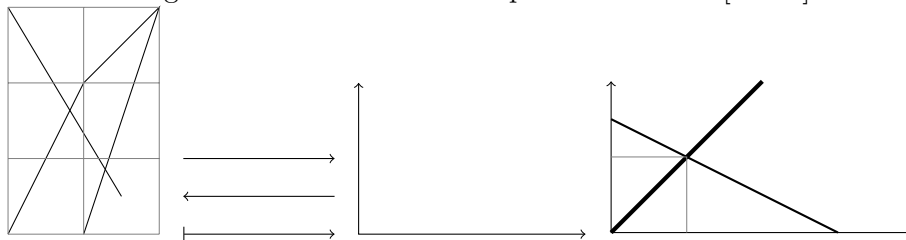
A sample of the parametric plot is here, but I do not know what a parametric means at this moment! Therefore, this is blindly copied from the tutorial source.



Part 2

Tikz package

Since Tikz and Pgfplots packages are such gigantic packages, these intro will have to be enough until a later time. This part is based on [\[Jac11\]](#).



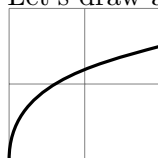
Drawing is an art. . . We can also use custom width for draw with `line width=...`. The default width unit is point(pt).



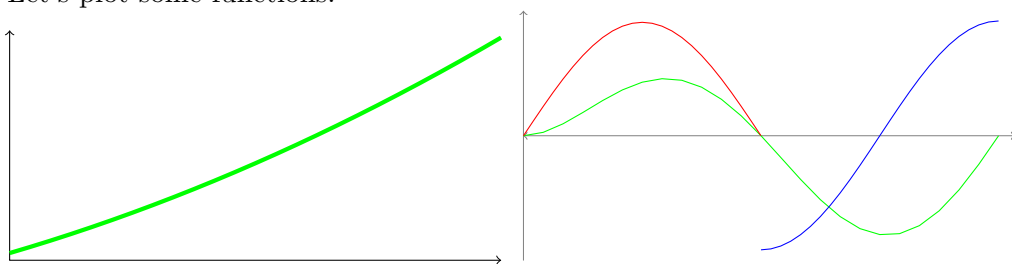
Let's draw some circle.



Let's draw a curve!



Let's plot some functions!



Let's fill up some simple areas.



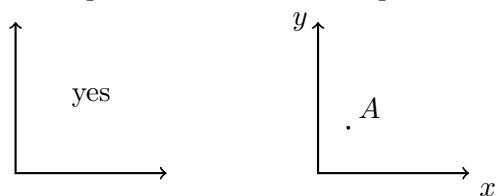
outline or not? with `\path`



Let's fill up some arbitrary areas:



Let's put some labels in the picture.

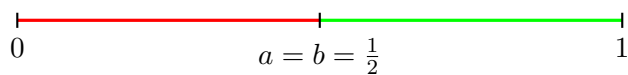


Mixing the `\node` by putting it right after the point of relative position, without the backslash `\`.

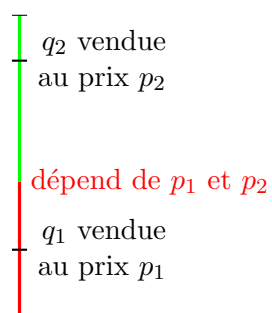
An example of alignment of text in `\node`

This happens in period 1 and is aligned left	This happens in period 2 and is centered	This happens in period 2 and is right-aligned

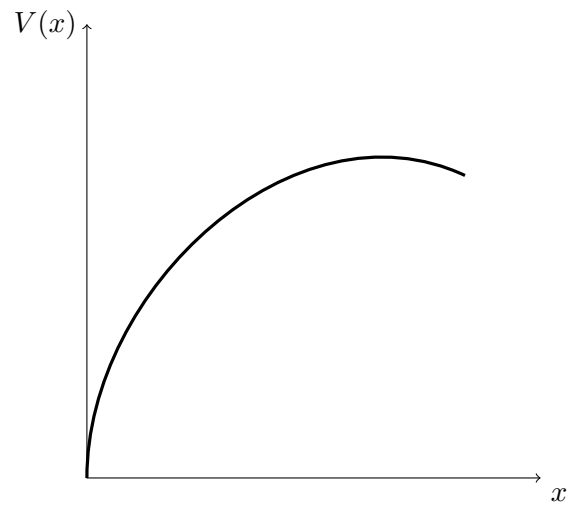
I Hotelling



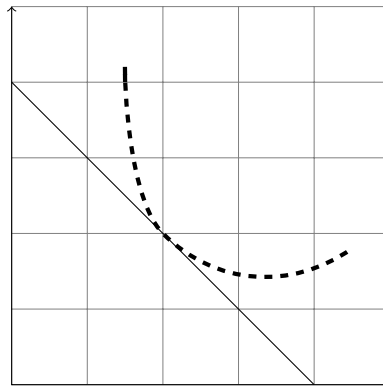
II Vertical differentiation



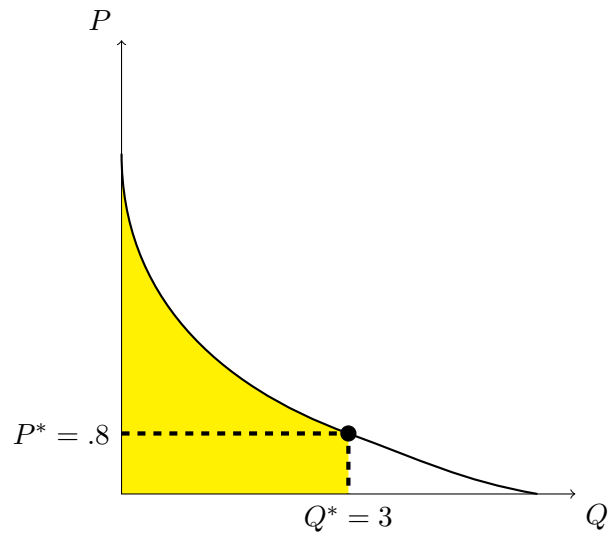
III A curve



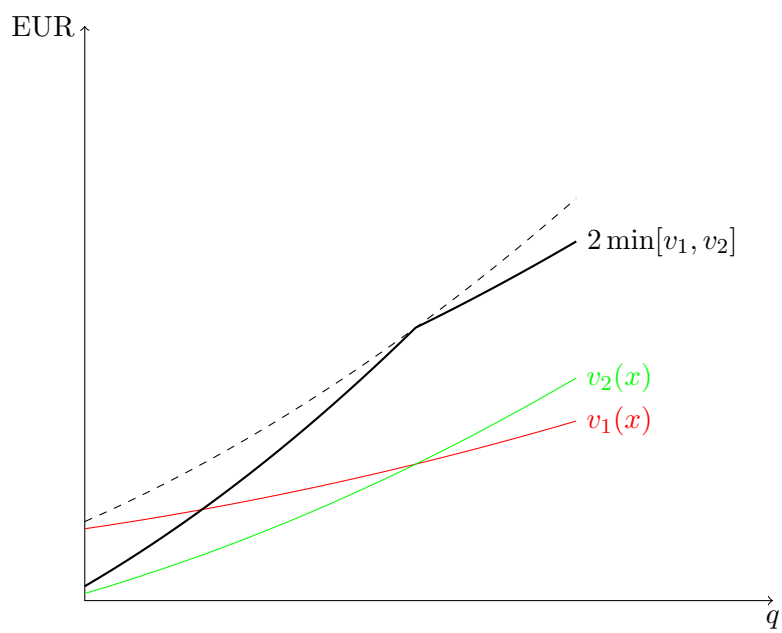
IV Tangency



V Consumer surplus



VI Plotting lots of curves



Whole bibliography

[Jac11] Jacques Crémer. *A very minimal introduction to TikZ*. 2011.

- [com] ShareLaTeX community. *Pgfplots package*. URL: https://www.sharelatex.com/learn/Pgfplots_package#/Reference_guide.

From manuals

- [Jac11] Jacques Crémer. *A very minimal introduction to TikZ*. 2011.

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