

Misc. tips on using L^AT_EX

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July 14, 2017

Table of contents

TikZ

Using TeXstudio

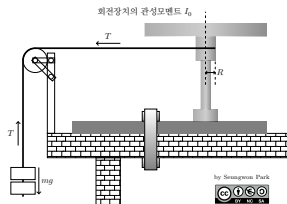
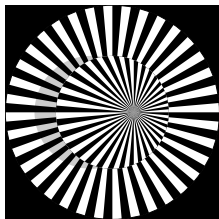
Graphics

Math / Macros

Misc.

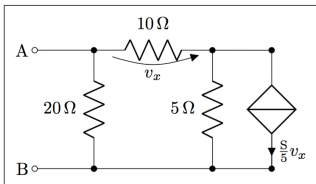
TikZ – Intro. to TikZ

- ▶ “TikZ ist kein Zeichenprogramm”
 - ▶ “TikZ is not a drawing program” ~~Yes, it is.~~
 - ▶ `\draw (0,0) -- (1,1);`
 - ▶ `\draw (0,0) rectangle (1,1);`



TikZ – circuitikz

- ▶ circuitikz package for circuit drawing
- ▶ No more annoying mouse-clicking!



```
1 \begin{circuitikz}[scale=1.2]\draw
2   (0,0) node[anchor=east] {B}
3     to[short, o-] (1,0)
4     to[R=20<\ohm>, *-] (1,2)
5     to[R=10<\ohm>, v=$v_x$] (3,2) -- (4,2)
6     to[cI=$\frac{\siemens}{5} v_x$, *-] (4,0) -- (3,0)
7     to[R=5<\ohm>, *-] (3,2)
8   (3,0) -- (1,0)
9   (1,2) to[short, -o] (0,2) node[anchor=east]{A}
10;\end{circuitikz}
```

TikZ – Geogebra

► File - Export - Graphics View as PGF/TikZ

GeoGebra to PGF Export

X units (cm)	1.0	Picture width	21.2
Y units (cm)	1.0	Picture height	11.5399999999
x Min	-4.3	x Max	16.9
y Min	-5.2399999999	y Max	6.2999999999

Document font size: 10 pt Format: LaTeX (article class)

☐ Use Gnuplot to plot functions ☒ Display the symbol for points

☐ Grayscale


```
\documentclass[10pt]{article}
\usepackage{pgf,tikz}
\usepackage{mathrsfs}
\usetikzlibrary{arrows}
\pagestyle{empty}
\begin{document}
\definecolor{zzttqq}{rgb}{0.6,0.2,0.}
\definecolor{qqqqff}{rgb}{0.,0.,1.}
\begin{tikzpicture}[line cap=round,line join=round,>=triangle 45,x=1.0cm,y=1.0cm]
\clip(-4.3,-5.24) rectangle (16.9,6.3);
\fill[line width=1.2pt,color=zzttqq,fill=zzttqq,fill opacity=0.10000000149011612]
\draw [line width=1.2pt,color=zzttqq] (1.56,4.16)-- (0.42,-0.24);
```

TikZ – Misc.

- ▶ Use standalone class for making img.
- ▶ If compiling time $\rightarrow \infty$, perhaps you've missed semicolon ;.
- ▶ Use for-loop with pgffor package.
 - ▶ For-loop var. can be used widely. e.g.,
 - ▶ `\draw (\i, 0) -- (0, 2*\i);`
 - ▶ `\includegraphics{\i.png}`
- ▶ Have a look at texample.net

Using TeXstudio – Search / Preview

- ▶ Inverse search : 'Go to Source'
- ▶ Can directly jump from preview to code.
- ▶ Preview Selection/Parentheses
 - ▶ Almost real-time equation rendering!

Using TeXstudio – TeX conversion

- ▶ Idefix – Convert to LaTeX
- ▶ Useful when showing TeX code itself.
 - ▶ Generally, `listings` is used for inserting code.
 - ▶ Simple syntax highlighting - keywords(int, for, ...)

Graphics – graphicspath

- ▶ Placing images and tex file in one directory...? No!
- ▶ `\graphicspath {{images/}}`
 - ▶ Same with `\graphicspath {{./images/}}`
 - ▶ Note that there are two brackets.

Graphics – Image Lorem Ipsum(?)

- ▶ You may use 'example-image-a'. Or,
- ▶ `\usepackage[draft]{graphicx}`

Graphics – Excel graph to pdf

- ▶ How to fit graph margin?
- ▶ Excel
 - ▶ 'Format Chart Area' - 'Size' / Copy & Paste
- ▶ Powerpoint
 - ▶ 'Design' - 'Slide Size' / 'Export' (PDF)
- ▶ Or, simply do pdfcrop.
- ▶ Be careful of font size - may be too small.

Graphics – Book graphic to pdf

- ▶ Screen capture : Can't be vector graphic.
- ▶ How to extract vector graphic from pdf?
 - ▶ Export a single page as pdf.
 - ▶ Select an area of page at pdfresizer.com/crop
 - ▶ Do pdfcrop.

Math / Macros – Myscript Mathpad

- ▶ For whole eq. recognition...
 - ▶ `webdemo.myscript.com/views/math.html`
 - ▶ Wonderful precision.
- ▶ Available on the (iOS) App Store.
 - ▶ Mobile ver. : lower precision.

Math / Macros – Math equations

- ▶ Detexify : detexify.kirelabs.org
- ▶ TeXstudio - left sidebar : (almost) whole list.
- ▶ Some caution on math typesetting :
 - ▶ Do not italicize cos, log. (Use `\cos`, `\log`)
 - ▶ Group the subscript/superscript with curly brackets even if it's only one character.
 - ▶ It's *recommended* to romanize diff. notation 'd'.

Math / Macros – Defining new commands

- ▶ `\newcommand {\scp}{SCP Artificial Muscle}`
- ▶ `\newcommand {\diff}[1]{\mathrm {d}#1}`

Math / Macros – 자동 조사 기능

- ▶ 그림 2가 / 그림 3이
- ▶ 그림 `\ref{fig:circuit}`가...?
- ▶ \가
- ▶ 은/는, 이/가, 와/과, 로/으로, 을/를, 라/이라.

Math / Macros – Using BibTeX

- ▶ Great way of bibliography management.
- ▶ Stack your ref. info. in 'bibfile.bib'.
 - ▶ Only inline-cited references will be listed.
 - ▶ Copy-Paste from Google Scholar.
 - ▶ Or, use Mendeley.
- ▶ Auto sorting, formatting
- ▶ Style : `ieeetr`, `apalike`, ...

Misc. – TeX gitignore

- ▶ Ignores auxiliary files like *.aux, *.toc from VCS.
- ▶ Be careful of *.pdf files – is it result, or a figure?
- ▶ git.io/vQ7kR

Misc. – Splitting files

- ▶ `\include` or `\input`
 - ▶ Inserts code from file.
 - ▶ `\include` : Speed advantage.
 - ▶ `\include` essentially does a `\clearpage`.
- ▶ `pdfpages` package
 - ▶ Inserts desired pages from pdf file.

Misc. – Calculation in LaTeX

- ▶ \LaTeX is Turing-complete.
 - ▶ git.io/vQ7qy, git.io/vH0QS
- ▶ Fib / Prime number / Hanoi Tower
- ▶ Or... use LuaTeX!
 - ▶ LuaTeX 1.0 announced, released since 2017.
 - ▶ latex-project.org/news/2016/09/29/luatex1/

Misc. – Misc. Tips for complete Novices

- ▶ Use backtick/apostrophe for opening/closing quote.
- ▶ Please use google - of course, in English.
- ▶ Don't be frustrated of errors.
- ▶ Have a look at good docs :
 - ▶ lshort
 - ▶ 'texdoc ***'
 - ▶ latex.gs.hs.kr
 - ▶ If you were a previous Word user :
 - ▶ 'LaTeX Cheat Sheet for Word User' will be helpful.
 - ▶ bit.ly/2tM0JJn