

06: Figures and tikzdevice

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In this tutorial we use Antykwa Toruńska for the body text and Inconsolata for the typewriter:

```
\usepackage[math]{anttor}
\usepackage{inconsolata}
```

Chunk: setup

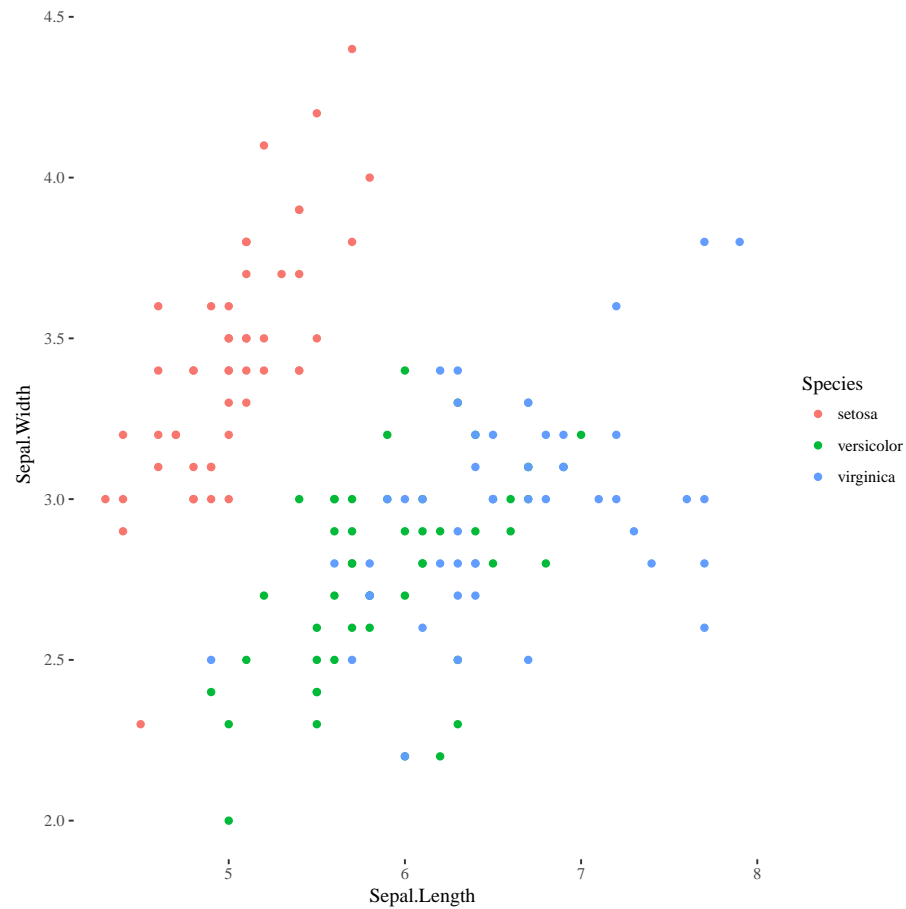
```
opts_chunk$set(fig.path="06_figures/")
knit_hooks$set(
  chunklabel=
    function(before, options, envir) {
      if(before && options$chunklabel)
        sprintf(
          "\\chunklabel{%s}", options$label)
    })
opts_chunk$set(chunklabel=TRUE)
```

Chunk: libraries

```
library(tidyverse)      # The Swiss Army knife of data processing
library(ggthemes)       # A better look for plots
theme_set(theme_tufte())
library(Hmisc)          # for the latex tabl
```

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Chunk: Sepal

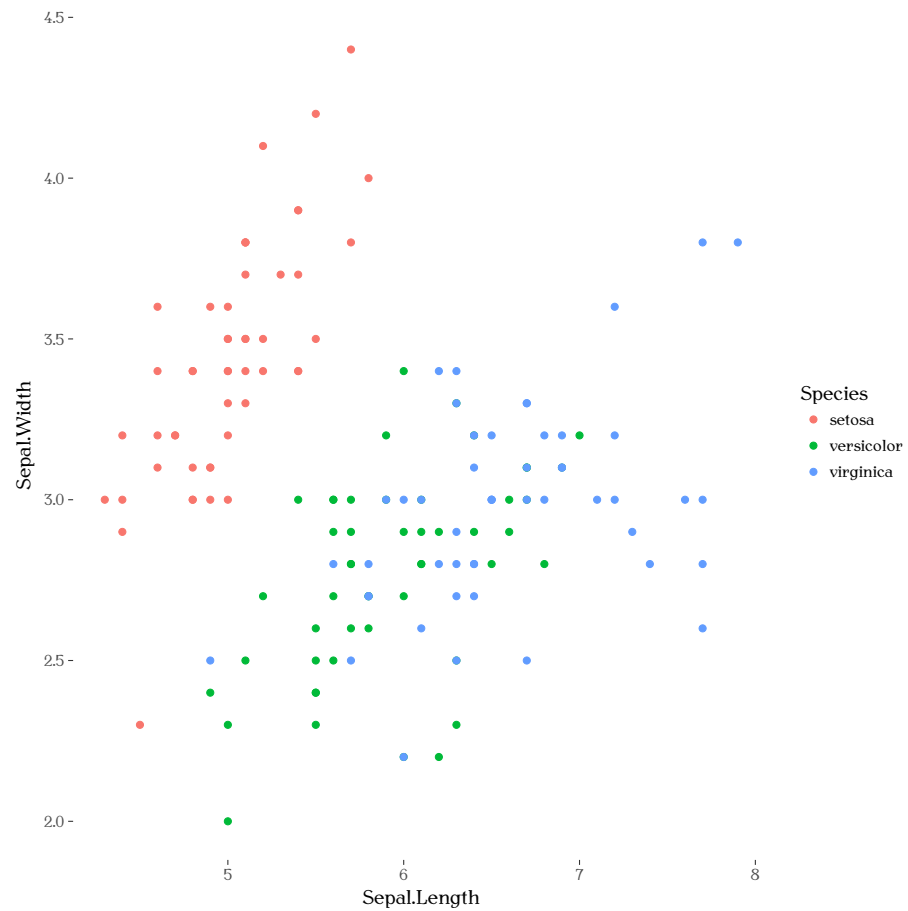


Problems with knitr plots:

1. R uses Times Roman and Helvetica—this might clash with the document fonts.
2. We would like to use \TeX -based annotations—adding \sqrt{x} to the plot labels!

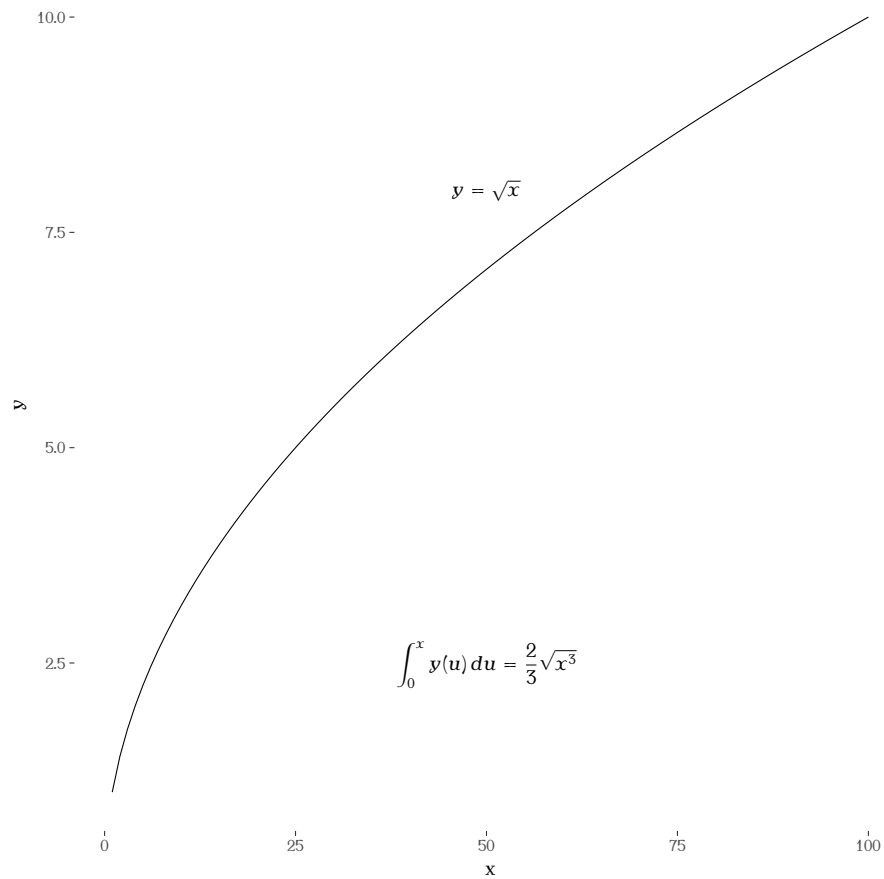
Solution: `dev="tikz"` either per chunk or as
`opts_chunk$set(dev="tikz")`

Chunk: Sepal1



Chunk: annotation

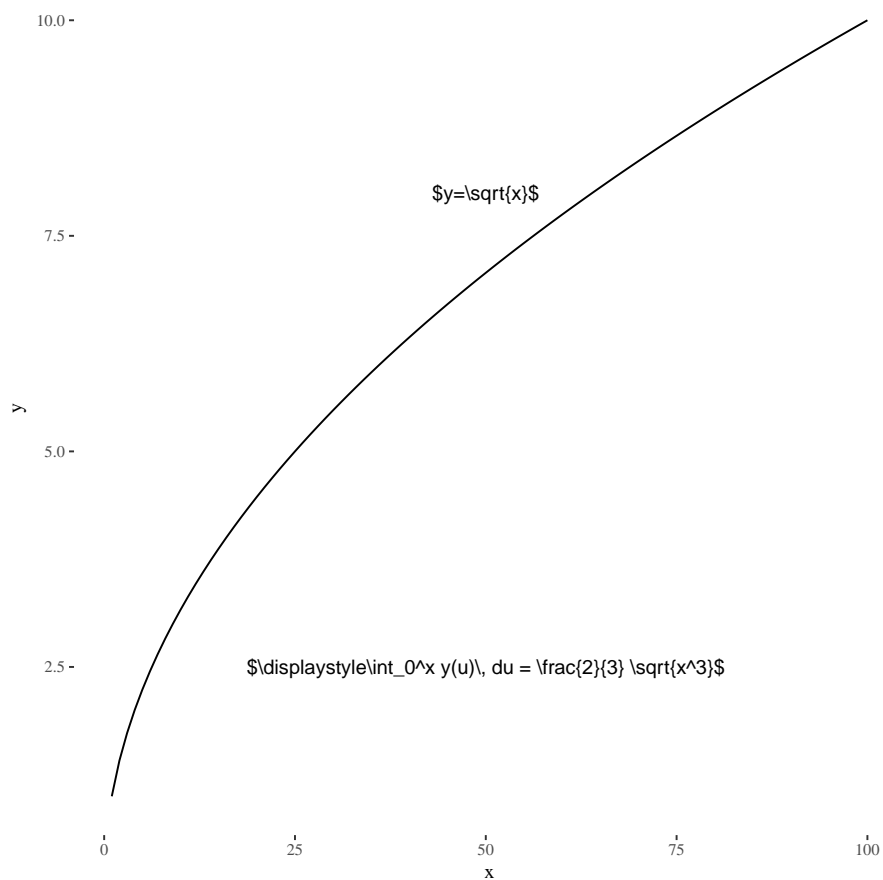
```
x <- 1:100
sqr <- tibble(x=x, y=sqrt(x))
ggplot(sqr) + geom_line(aes(x,y)) +
  annotate("text", x=50, y=8,
    label="$y=\\sqrt{x}$") +
  annotate("text", x=50, y=2.5,
    label=
      "$\\displaystyle\\int_0^x y(u)\\,, du = \\frac{2}{3} \\sqrt{x^3}$")
```



Compare with annotations *without* tikz device:

Chunk: annotation-notikz

```
x <- 1:100
sqr <- tibble(x=x, y=sqrt(x))
ggplot(sqr) + geom_line(aes(x,y)) +
  annotate("text", x=50, y=8,
    label="$y=\sqrt{x}$") +
  annotate("text", x=50, y=2.5,
    label=
      "$\displaystyle\int_0^x y(u)\,, du = \frac{2}{3} \sqrt{x^3}$")
```



The problem with this approach: it is slow, especially at the first run!
I use it mostly for publications.