

# Creating Documents with Rmd or Rnw

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You'll use substantially the same structure to write a document using markdown or  $\text{\LaTeX}$ , that is, with a `.Rmd` or `.Rnw` file type.

## 1 Why would you want to use one versus the other?

- $\text{\LaTeX}$  compiles nicely to PDF, Rmd to HTML
- Rmd is easier to write and compile, but offers less control over formatting
- If you already know  $\text{\LaTeX}$ , Rnw isn't really any harder.

## 2 The Boiler Plate

Files will typically start with an R-chunk that sets things up the way you want it. (This can be hidden from view using `include=FALSE` inside the chunk tag.)

```
require(mosaic)           # load packages that will be used
require(knitr)            # so you can run chunks

opts_chunk$set(          # set some defaults for R output
  fig.width=8,           # generate plots 8 inches wide
  fig.height=3,          # generate plots 3 inches tall
  out.width=".8\\textwidth", # width of figures in pdf (note escapes)
  fig.align="center",    # center figures
  dev = 'pdf',           # create pdf graphics
  tidy = FALSE           # don't tidy up the R code
)                        # there are many other options, too

trellis.par.set(theme=col.mosaic()) # change a bunch of color settings
trellis.par.set(fontsize=list(text=10)) # set font size for plots
```

**Important Note.** Before using Rnw files in RStudio, you should change the default so that RStudio uses knitr rather than Sweave (an older system that does a similar thing). Do this in the Sweave section of the RStudio options.

### 3 Some examples

Let's take a look at the function

$$f(x) = \sin(3x)$$

and its derivative and antiderivative. The style of the “chunk” differs, but the R commands are the same in Rnw and Rmd.

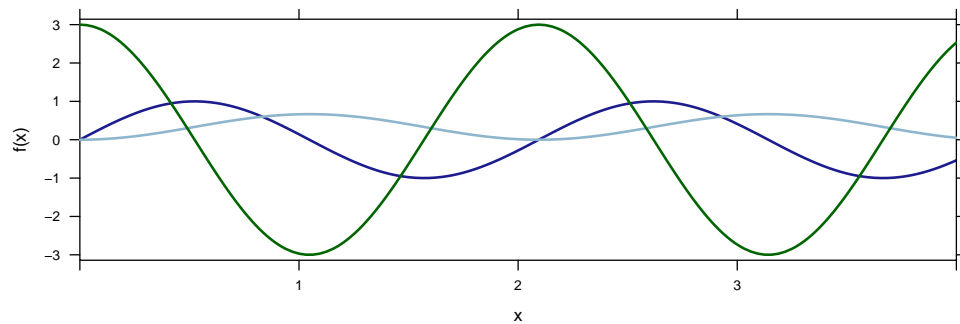
```
f <- makeFun( sin(3*x) ~ x )
g <- D( f(x) ~ x )
F <- antiD( f(x) ~ x )
plotFun( f(x) ~ x, x.lim=c(0,4), ylim=c(-pi,pi) )
plotFun( F(x) ~ x, add=TRUE, col=2)

## converting numerical color value into a color using lattice settings

## NULL

plotFun( g(x) ~ x, add=TRUE, col=3)

## converting numerical color value into a color using lattice settings
```



```
## NULL
```