# Example Rmd

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## R Markdown (you can use pound signs for different sizes of headers)

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

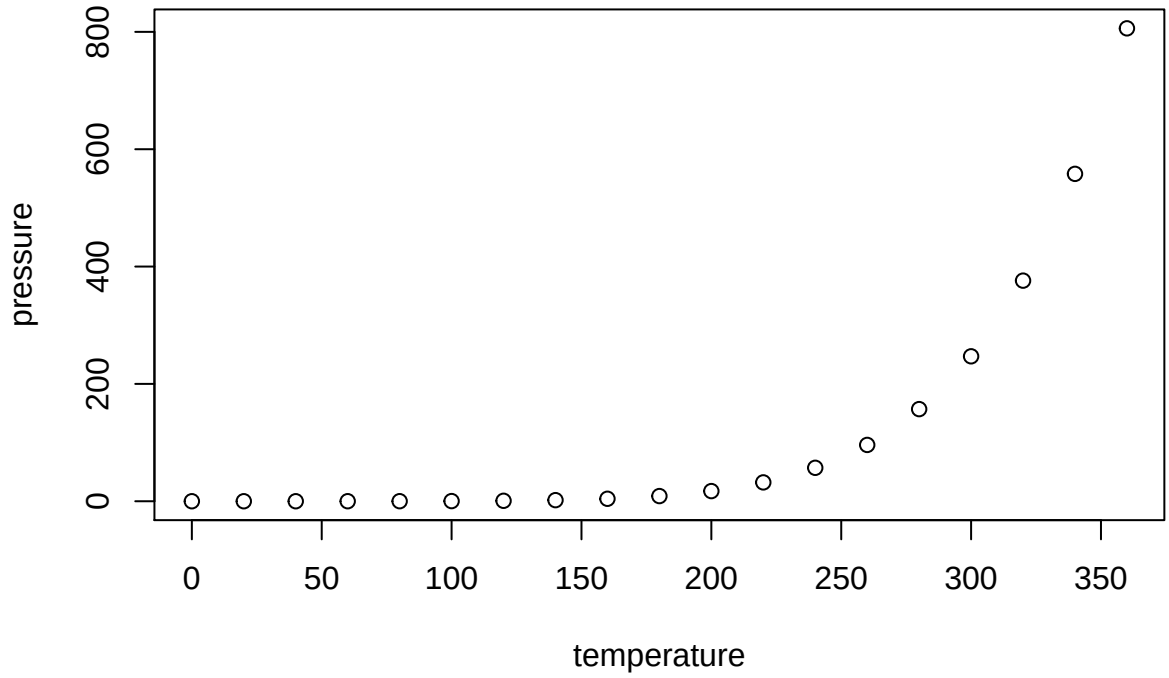
When you click the **Knit** (double asterisks can make something bold) button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed           dist       
##  Min.   : 4.0   Min.   :  2.00  
##  1st Qu.:12.0   1st Qu.: 26.00  
##  Median :15.0   Median : 36.00  
##  Mean   :15.4   Mean   : 42.98  
##  3rd Qu.:19.0   3rd Qu.: 56.00  
##  Max.   :25.0   Max.   :120.00
```

## Including Plots

You can also embed plots, for example:




Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

R Markdown can be very easy to use. For one, it gives you examples of how to use it every time you create a new file. Everything above automatically populates when you create a new rmd file (I've included some notes above).

Now I'll have some examples of how to use some other features in rmd.

I can make a table of some data this way:

80 89 81 83 84 83 85 86 89 92 87 84 87 87 84 84

This just presents the data in a pretty way to the viewer. I can also put the data in a code chunk for analyses like below:

```
##  [1] 80 81 83 83 84 84 84 84 85 86 87 87 87 89 89 92
```

If I'm taking these data and would like to report the 25th and 75th percentiles (i.e., the interquartile range), I can calculate it in a code chunk and then write it like I do below to call results:

```
n <- length(order)
# 25th percentile
p1 <- 0.25
adotb1 <- p1*(n+1)
# a = 4 and b = 25
y25 <- sort[4] + 0.25*(sort[5] - sort[4])
# 75th percentile
p2 <- 0.75
adotb2 <- p2*(n+1)
```

```r
# a = 12 and b = 75
y75 <- sort[12] + 0.75*(sort[13] - sort[12])
```

For the above data, n = 16 (the back quotes with r and then an object name will give the numerical value for that object) and when finding the 25th percentile $p = 0.25$ (using dollar signs will help you with in text formulas). $p(n+1) = 0.25 * (16+1) = 4.25$, so

$$y_p = y_{(a)} + .b(y_{(a+1)} - y_{(a)})$$

(double dollar signs will give you out of text formulas)

$$y_{0.25} = y_{(4)} + .25(y_{(5)} - y_{(4)})$$

The 25th percentile is 83.25.
For the 75th percentile $p = 0.75$ and $p(n+1) = 0.75 * (16+1) = 12.75$, so

$$y_p = y_{(a)} + .b(y_{(a+1)} - y_{(a)})$$

$$y_{0.75} = y_{(12)} + .75(y_{(13)} - y_{(12)})$$

The 75th percentile is 87.