Get Rstudio up and running

On this course we will do statistics with the language of statistical computing called "R".
We use R through a user-friendly interface called "Rstudio".

First task is to install R and Rstudio on your computer, in case you haven't done that already.
For University of Helsinki computers, install "R" and "Rstudio" from University's software center.
With other computers, go to:
https://rstudio.com/products/rstudio/download/
The page prompts you to
      1. Install R (https://cran.rstudio.com/) (you need to choose btw Windows, Mac or Linux).
      2. Install Rstudio Desktop. It should recommend you the correct version, but if not,
        choose from the list either Windows, Mac or a Linux version.

Your system should now have Rstudio installed. Open it
Mac: open Finder, Go → Application → Rstudio.
Windows:
Linux: Open your software menu and search Rstudio.

What you should see is on the next slide …

Rstudio

Rstudio shows 3 panels:

Left: **Console**
Console is running R.
The prompt ">"
Is waiting your command.
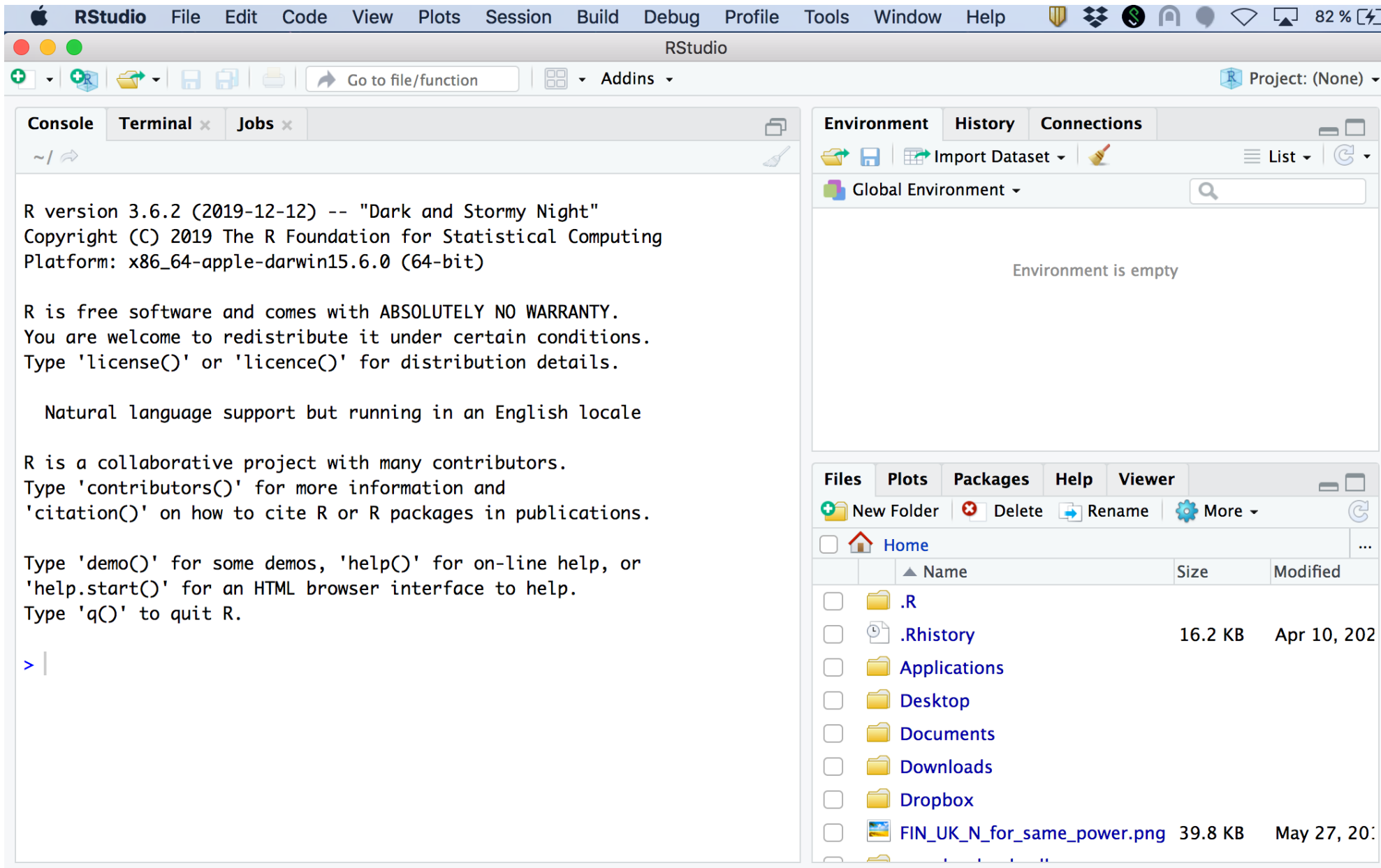Try "2+5" (hit Enter) and
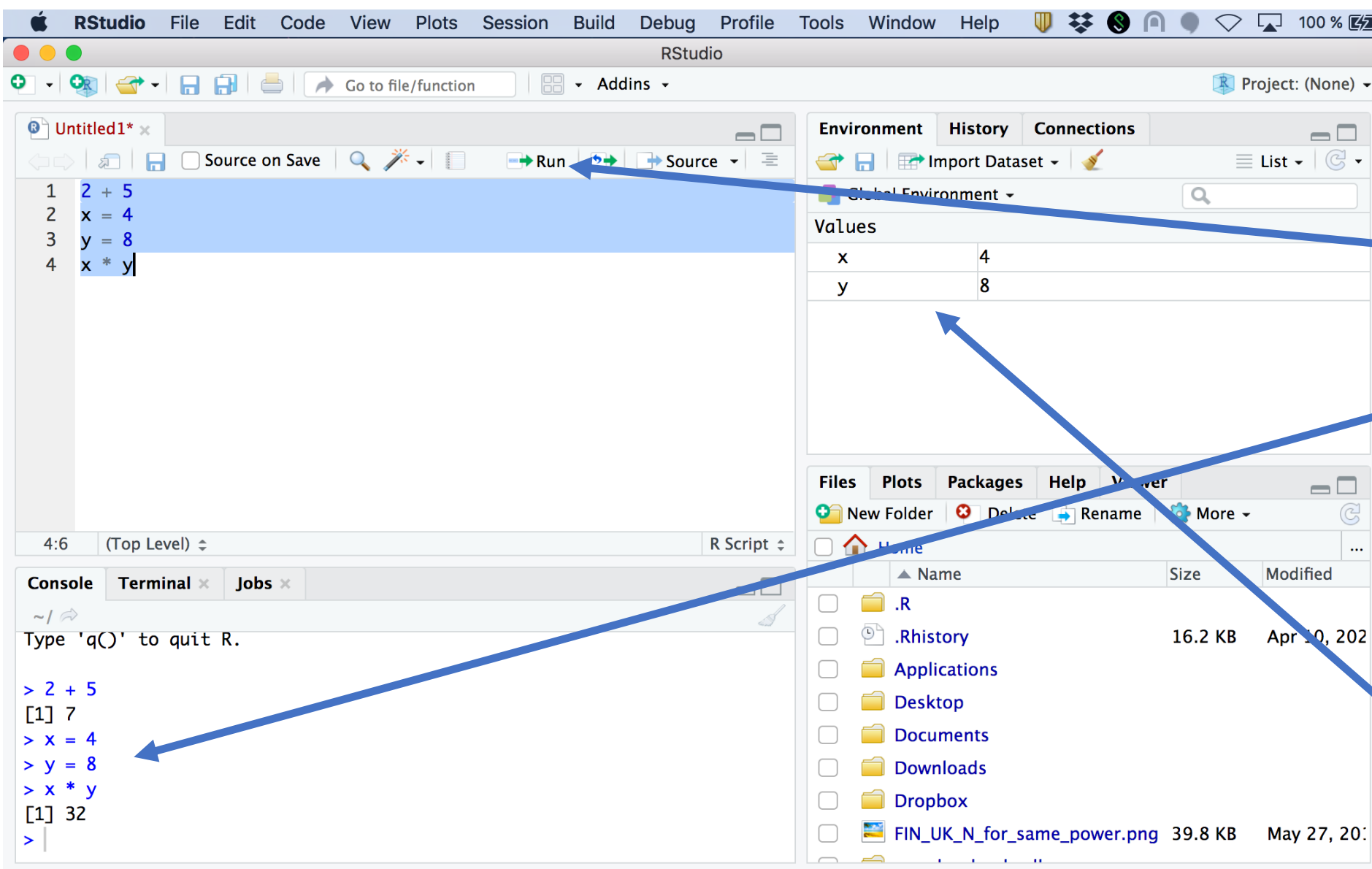it returns 7.

Top-right: **Environment**
Shows current
variables (we've none).

Bottom-right:
Shows current **directory**
In future, will show
Plots and **Help pages**

With more complex
computations, we won't
type directly to the
console but choose
File -> New file -> R script
Do it, to open a new
R script.

**R script** opens on top-left. You can write R commands on script. Repeat the ones shown here.

To run any lines, highlight them and click "Run" (cmd + Enter in Mac cntrl + Enter in Win) It sends them to console below.

With script, you can go back to edit script and re-run. This is easier than typing directly to console.

Note how Environment now shows the values of variables 'x' and 'y'.

Now you know what R script is. You can close this R script without saving.
Make a folder for the files of this course on your computer and save *Topic1_learnR.R* there.
It is an R script. Open *Topic1_learnR.R* in Rstudio and follow it.

After *Topic1_LearnR.R*, open file *Rmarkdown_intro.Rmd* in Rstudio
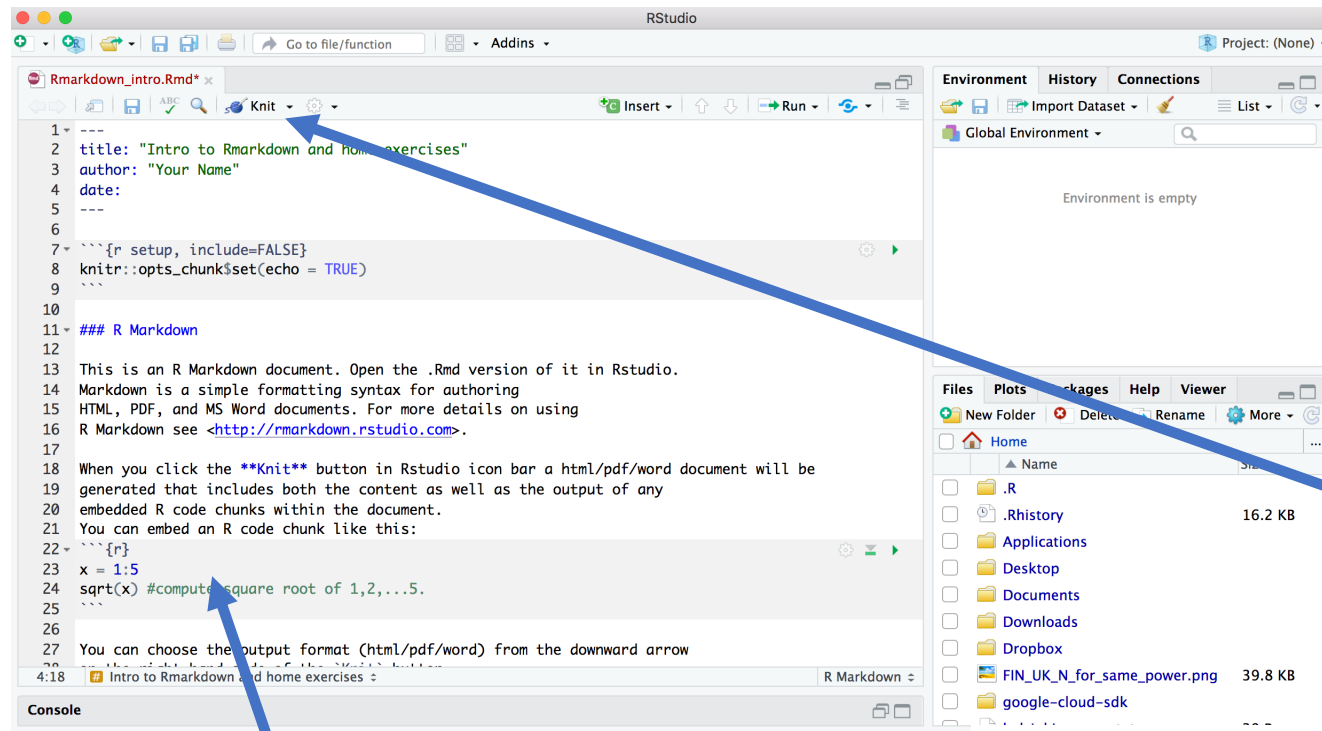
Upper left corner in Rstudio shows now **Rmd source code**

"Rmd" = Rmarkdown is a document format that can easily combine R commands and R results with standard text, and make PDF, DOC or HTML output.
You can use it for reporting analyses in your project work.

To compile Rmd source code into nice document, click "Knit". You can choose format (PDF/HTML/Word) from small downward arrow next to "Knit".

Compiling above Rmd file to html format (readable by web browsers) is shown on right.

For example, see how
Line "### R Markdown" turned into title text
R code chunk ```{r} … ``` is printed out
And how its result is shown after the code

Follow the Rmd file to complete the toy exercises.

Intro to Rmarkdown and home exercises

Your Name

R Markdown

This is an R Markdown document. Open the .Rmd version of it in Rstudio. 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** button in Rstudio icon bar a html/pdf/word document will be generated that includes both the content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
x = 1:5
sqrt(x) #compute square root of 1,2,...5.
```

```
## [1] 1.000000 1.414214 1.732051 2.000000 2.236068
```