MATHEMATICS 23a/E-23a, Fall 2015
Linear Algebra and Real Analysis I
How to download and install R

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Do this installation and setup at the first opportunity, so that your computer will be set up properly!

1. Create a folder for Math 23a on your computer.
   (For example, I use `C:\Courses\M23a-2015.`)

2. Click the link on the "Downloading and Installing R" page of the Math 23a site to download and install version 3.2.0 of R. There are separate links for Windows and for Mac. Since many students' Windows computers will support only the 32-bit version, we will standardize on that one for Windows, but the 64-bit version also works fine.

3. Click the link for RStudio on the "Downloading and Installing R" page of the Math 23a site to download and install RStudio.

4. Create a subfolder named Scripts in your Math 23a folder. Download the four scripts from the "Installation R Scripts" box on the "Downloading and Installing R" page of the course Web site into that folder. Beware: don't accidentally save the scripts as .txt files! Right click on the link to the script that you wish to download, then click "Save link as...". Make sure that you save the file as an R file, that is, with the extension .R (ie: Inscribed.R)

5. Start up R Studio and select Tools...Global Options from the menu. Change the Default Working Directory to be the Scripts subfolder of your Math 23a folder. item While still in Global Options, Select Pane Layout. Check only Plots in the upper right pane. Check everything else for the lower right pane. Adjust the panes to the the upper right pane is square and about half the width of the screen.

6. In RStudio, select File...Open File from the menu and open the script Packages.R from the Scripts subfolder in your Math 23a folder. Click Code... Run Region...Run All to run the code. (By using Control-R, you can execute the commands in this file one at a time, but this is not necessary.) This script will install two packages: pracma (Practical Math) and plotrix (plotting tricks). These contain a few useful functions that are missing from the base version of R. You only need to run this script once.

7. Click the link on the "Downloading and Installing R" page to download "An Introduction to R." It's a pretty good language reference, although it includes many details that will not be needed for this course.

8. Open the script R2PointsVectors.R. Click the Run button (with the green arrow) (or press Control-R on a Windows PC) repeatedly to move through a short demonstration of how R treats everything as a vector. Then run Triangle.R to make sure that your pracma package is installed. Finally, run Inscribed.R to make sure that the plotrix package is installed. These packages will be used from time to time during the course.

9. (I only know how to do this in Windows.) While not in RStudio, right-click on an R script and choose "Open with..." If RStudio is on the list of Recommended Programs, select it. If not, browse to find it – I went to `C:\Program Files\R Studio\bin\rstudio.exe`. Check "Always use the selected program to open this kind of file."

   Now you can double-click on an R script on the course Web site and it will open in RStudio.

10. If you want to try out more R scripts, go to the Week 1 page of the Math 23a Web site, from which you can download and run the scripts for the first module.

11. If you encounter trouble with any of these instructions, send an email to bamberg@tiac.net and Paul Bamberg will try to help out.