Homework 1

Online January 22, 2018. Due: January 29, 1:10pm.

Please write your UNI neatly and staple your work.

Please turn in your work in the box corresponding to your section (near room 417 in the maths building). You will find your homework graded a week later in a basket in front of office 625.

Computer softwares

While the computations discussed in this course are easily doable by hand in dimension 2 and 3, the help of a computer is necessary in higher dimensions. Several softwares may be used to perform these computations:

- Symbolic computation softwares such as Mathematica or Maple.
- Numerical computing softwares such as Matlab, or the very similar and free Scilab.
- Many programming languages are able to perform elementary linear algebra. For applications of linear algebra in statistics, one would use the programming language R.

You may also use the less powerful but very convenient website WolframAlpha.com. In WolframAlpha, you may simply enter the command

\[
\text{rref}\{\{1,2,3\},\{4,5,6\},\{7,8,9\}\}
\]

in order to compute

\[
\text{rref}\begin{pmatrix}1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9\end{pmatrix}.
\]

Graded exercises

Reference numbers correspond to the 5th edition of the textbook.

Section 1.1: 18 (20 points), 21 (20 points).

Section 1.2: 5 (10 points), 9 (10 points), 17 (10 points).

Section 1.3: 21 (20 points), 30 (20 points).
More exercises

These exercises are strongly suggested but not mandatory and they will not be graded. Solutions will be posted on canvas.

Section 1.1: 36, 44

Section 1.2: 6, 7, 15, 20, 26, 27, 48.

Section 1.3: 2, 3, 4, 22,