Exercise 1

Explain what the following commands do and test them on the following list
`liste=Table[Random[Integer,{1,100}],{k,100}]`.

(1) `Map[PrimeQ,liste]`

(2) `Count[Map[PrimeQ,liste],True]`

(3) `Map[(#^2)&,liste]`

(4) `Select[Map[Sqrt,liste],IntegerQ]`

(5) `N[Apply[Plus,liste]/Length[liste]]`

(6) `Sqrt[Apply[Plus,Map[(#^2)&,liste]]]`

(7) `Apply[Max,liste]`

(6 points)

Exercise 2

Please use *Mathematica*: Let $\mathbb{L}$ be a random list of integers between -50 and 50.

(a) Use the command *PrimeQ* to convert the list $\mathbb{L}$ into a new list $\mathbb{L}'$ which contains only the prime numbers of L and *False* otherwise.

(b) Give the position of the different prime numbers of L and save them in a list $\mathbb{L}''$. Furthermore, use (a) to give a list $\mathbb{L}'''$ containing this time only the prime numbers whose position in $\mathbb{L}$ are listed in $\mathbb{L}''$.

(6 points)

Deadline: at the latest Thursday, 02.05.2013, 08.15 h to nana@mathematik.uni-kassel.de.