Homework 1

Lan Huong Nguyen

October 10, 2017

Exercise 1: R Basics [20pt]

a. Compute the following using R:

- $1.46 \log_2(12!)$
- $4.02 \sqrt[3]{7^2 + e^7}$
- $\left\lfloor \frac{4.011\pi}{3} \binom{5}{2} \right\rfloor$
- $\cos(1 + 2\pi) + \sin\left(\frac{3}{4}\pi\right)$
- A sum of numbers from 3 to 9

b. Generate a matrix A with 5 rows and 10 columns with entries being random uniform numbers on an interval $[0, 1]$. Then generate a matrix B with 10 rows and 7 columns where entries are random integers in teh interval 10 to 50 (inclusive). Use `set.seed()` function with a chosen seed (recored the seed) for reproducibility. Type in `?set.seed` in the R console to learn more about the function. With the two matrices compute:

- AB (a matrix product)
- sum of the 3rd row of A and 4th column of B
- sum of all entries of A multiplied by the element of B in the 8th row and 6th column.

c.

d.

Exercise 2: Data Import [20pt]

Accessing elements

Exercise 3. Control Flow [20pt]

Exercise 4. Functions [20pt]

Exercise 5. Data manipulations [20pt]