```
#List of useful functions from course 1
ls()
rm()
load()
save()
mode()
length()
names()
sum()
range()
median()
mean()
sd()
max(),min()
which()
which.max(),which.min()
rnorm()
rep()
seq()
-----
other mathemical functions (examples)
log(),log2(), log10()
sqrt()
factorial()
choose()
floor(),ceiling(),round()
runif()
\cos(), \sin()
abs()
----
operators
%/% %%
+ - / * ^
>>=<==!=
&!|
```

Exercices

A.

1.Below are results from checking nests for eggs - for each nest number of eggs is given.

2,3,4,0,0,5,3,4,1,2,4,3,2,0,2,3,4,3,1,3,2. Locations:

"BigForest", "SmallForest", "Lake", "Meadow", "Park", "Grassland", "Pasture", " Roof", "BigForest2", "SmallForest2", "Lake2", "Meadow2", "Park2", "Grassland2", "Past ure2", "Roof2", "BigForest3", "SmallForest3", "Lake3", "Meadow3", "Park3"

2. How many nests were checked and how many eggs are in total?

3. What is an average number of eggs? Minimal and maximal mumber of eggs?

4. How many nests have more than 3 eggs?

5. How many nests have 4 eggs?

6.Which nests have 0 eggs?

7. How many eggs in total are in nests with 3 or more eggs?

8.In what locations nests were empty?

9. How many eggs were in park nests?

10. What was the average number of eggs in nests with non-0 eggs?

11.Remove all 0 eggs entries.

12.Remove Park2 entry.

13.Change all 1 eggs entries into 6 eggs.

Β.

1.Make a vector with size of 50 Daphnias. Sample randomly from a normal distribution with mean 2.2 mm and standard deviation 0.2mm.

2.Compute average size of Daphnias in your sample.

3. What is maximum/minimum size?

4.Compute range of size.

- 5. Which Daphnia is the smallest one?
- 6. How many Daphnias are bigger than 3mm?

7.Compute mean size of Daphnia as a sum of lengths of all Daphnias divided by number of Daphnias.

C. 1.Read help for function rep().

Construct vectors:

1 2 3 1 2 3 1 2 3 1 1 1 2 2 2 3 3 3 "one" "one" "two" "three" "three"

2.Read help for function seq() Construct vectors:

from 1 to 3 in 0.2 increments from 3 to 1 in 0.25 decrements from 1 to 3, consisting of 20 steps from 100 to -100 (in that order). Which are possible to construct with ":"?

D. List all objects in your workspace. Save them in a file somewhere NOT in your working directory.

Remove all objects and check that your workspace is empty. Load saved data.

E. Check R behaviour in situations listed below:

Positive subscripts extract the specified values and negative subscripts extract all other values. What happens when 0 is used as a subscript?

What happens when a non-integer value is used as a subscript?

What happens when NA is used as a subscript?

What happens when you try to extract an element with a subscript of greater than n from a vector with n elements ?