Lab 2

1. factorial(3)
2. perm = function(n, x) {

factorial(n) / factorial(n-x)

}

1. comb = function(n, x) {

factorial(n) / (factorial(n-x) \* factorial(x))

}

4.

|  |
| --- |
| #install if necessary |
|  | install.packages('gtools') |
|  | #load library |
|  | library(gtools) |
|  | #urn with 3 balls |
|  | x <- c('red', 'blue', 'black') |
|  | #pick 2 balls from the urn with replacement |
|  | #get all permutations |
|  | permutations(n=3,r=2,v=x,repeats.allowed=T) |

5.

|  |
| --- |
| #number of permutations |
|  | nrow(permutations(n=3,r=2,v=x,repeats.allowed=T)) |

6.

|  |
| --- |
| #urn with 3 balls |
|  | x <- c('red', 'blue', 'black') |
|  | #pick 2 balls from the urn without replacement |
|  | #get all permutations |
|  | permutations(n=3,r=2,v=x) |

|  |
| --- |
| #number of permutations |
|  | nrow(permutations(n=3,r=2,v=x)) |

7.

#calculate the number of combinations without replacement/repetition

choose(n=24,k=4)