R exercise 01: basic commands and operations

(1) Execute the commands listed below one by one via the R prompt.
(2) See and understand what happens. In case of functions, carefully read the help pages and browse through them.
(3) Play around with the commands by changing the parameters, choosing different command options, etc.
(4) Write some commands into a file and invoke them with the function `source()`. Explore the parameters and options of this function.
(5) Using the function `sink()`, divert the screen output of some commands to a file. Check what has been written to the file. Explore the parameters and options of this function.

```
help("lm")
?lm
help(package="MASS")
help.search("permutations")
help.start()
ls()
getwd()
setwd([PATH])
system(„[LINUX-COMMAND"])
4^2
e^1
?e
pi
?pi
log(100)
log10(100)
?c
c(1,4,5)
x <- c(1,4,5)          # '=' is not the assignment operator!
class(x)
1:5
2*1:5                  # operator precedence!
(2*1):5
x <- seq(from=1, to=20, by=3)
x[3]
x[-3]
x>7
all(x>7)
any(x>7)
x[x>7]
which(x > 7)
sum(x)
prod(x)
sin(x)
x <- (1:5)*2
range(x)
length(x)
y <- x^2 + 10
y-x
x*y
x %*% y
outer(x,y)
mymat <- matrix(1:15, 3, 5)
mymat
mymat <- matrix(1:15, 3, 5, byrow=TRUE)
mymat
class(mymat)
dim(mymat)
t(mymat)
(mymat2 <- matrix(seq(2,30,2), 3, 5))
mymat %*% t(mymat2)
t(mymat) %*% mymat2
result <- t(mymat) %*% mymat2
result
```