**R Workshop 31st January 2024 – Worksheet 1**

1. Type the follow commands into the console window and think about the output you get:

5 + 4

x <- 5

6 <- y (why does this fail?)

6 -> y (why does this work?)

x + y

x + z (what is wrong here?)

y^2

1. Assign to variable ‘t’ (i.e. t <- …) a vector of numbers running from 1 to 10.

Assign ‘s’ a vector of these numbers doubled (multiplied by two).

Assign ‘p’ the values of the 1st, 5th and 7th values of ‘s’.

Make ‘q’ a matrix that has two columns, one for t and the other for s – HINT look up the function cbind(), or try with the matrix() function.

1. Find the mean, median, sum and the position of the minimum value is the follow set of numbers:

5, 80, 72, 64, -120, 75, -2, 7, 7, 8, 9

1. Look at the following logic statements and see whether you think they are TRUE or FALSE, then test them out in R to see if you’re correct. Assign x the value 7 and y the value 4 beforehand.

5 >= 4

3 < y

3 < -y

3 <- y (this is intentional, why do you get an error?)

x == 7 & y == 3

x == 7 | y == 3

x == y | x != 7

(x == 7 | y == 10) & x != y (harder but do things in brackets first)

1. Write a script to make a for loop that prints out every other number in a vector – HINT use seq() to in the for loop to make a vector that goes up by 2 each time. Turn this into a function that then outputs the sum of the vector (all the numbers in it).
2. Read in the mtcars.csv file and make a separate table for those cars that have less than 4 carburetors (carb column) – HINT use a which statement like in the slides. Plot the displacement against the horsepower of just these cars, using red filled in triangles (check the pch choices with a google search).
3. Run a linear regression using your choice of 4 explanatory variables in the mtcars dataset to predict mpg. Look at which ones are important and how well your model fits. Try with some of the ‘non-continuous’ variables such as the number of forward gears and think about what this means for the linear regression model formula.