Introduction to R
Session 9: Writing functions

1. The factorial of a non-negative integer n is defined to be n!=n*(n-1)*(n-2)…*2*1. For example, 4!=4*3*2*1=24. Create a function that takes a non-negative integer as the argument and returns the factorial of the integer. (Hint: you can use a while loop, but there are many ways to do this). What is the value of 10!

2. The formula for converting a temperature in Fahrenheit (F) to Celsius (C) is:

   C=(5/9)*(F-32)

   Write a function that converts a Fahrenheit temperature to Celsius. Use this function to create a data frame containing Fahrenheit values from 70 to 110, incremented by 1, and the corresponding temperatures in Celsius.

3. Obtain a root for the following function with the Newton-Raphson method:

   $f(x)=5x^3 -4x^2+12x – 7$

   Hint: Implement the Newton-Raphson function given in the session 9 slides. And check your answer with `uniroot()`.