4 Homework

* Modify Newton's root finding method codes given in your textbook such that it reads inputs (d_{min}, x_0 and ε) from a text file.

* Create a text file, such that; the input function is a polynomial and its coefficients are also given within the input text file named as "2015_HW4_GRxx_input.txt". Hence the format of the text file should look like;

  10e-30 -1.9 0.00001
   3.1 2.3 0 4.5 0 1.1

  In the given example above, the written parameters in the first line are d_{min}, x_0 and ε, respectively. The second line shows the coefficients of the polynomial to be solved. For example given coefficients "3.1 2.3 0 4.5 0 1.1" are for the polynomial, $f(x) = 1.1x^5 + 4.5x^3 - 2.3x - 3.1$

* Your code also should handle the cycling problem in Newton's method. You can test your code with the function, $f(x) = \dfrac{1}{1 + e^x} - \dfrac{1}{2}$.

* Write the resulting roots of the given function in a new text file named as "2015_HW4_GRxx_result.txt".

Hint: *You have to modify both the function and derivative function part of the code. Also it is easy to differentiate a polynomial.*

Reminder: *The abbreviation, "GRxx", in the text file names represents the lab group of you (e.g. GR01, GR14, etc.). Also, Do not forget to attach your text files to your e-mails.*