MECH105: Homework 9

Instructions

You should do this homework assignment "by hand". That does not mean that you cannot use computers or calculators. *You should use MATLAB.* However, unlike previous assignments you are not required to turn in a .m file. Please read the instructions carefully.

For both problems consider the function:

$$f(x) = -0.9x^2 + 1.7x + 2.5$$

For both problems your initial guess should be $x_0 = 5$

Problem 1

Use fixed point iteration to determine the root of the function given. Perform the computation until $\epsilon_a < \epsilon_s = 0.01\%$.

Give a table with the following columns:

- i (iteration number)
- x_i
- $|\epsilon_a|$
- $|\epsilon_t|$
- $|\epsilon_t|_i / |\epsilon_t|_{i-1}$

Problem 2

Use the Newton-Raphson method to determine the root of the function given. Perform the same computations and give a similar table of values.