

DEN Homework # 8

Solve the problems and then bring your work to the lab in the ninth week of school.

1. In the previous homework we looked for the root of the function $f(x) = x^2 - 3x + 1$ using the bisection method and the Newton method, there we had the initial guess $x_0 = 1$.

a) Find some transformation of the equation $x^2 - 3x + 1 = 0$ into a fixed-point problem. Write the corresponding iterative formula and show two iterative steps with initial value $x_0 = 1$ (that is, find x_1, x_2).

Then make a guess regarding the success of this iteration using $|\varphi'(1)|$.

b) Repeat the task a) for some other transformation of that equation into a fixed-point problem.