

LabWork #8

MAT 116E-Advanced Scientific and Engineering Computing (MATLAB)

Instructor: Dr. Ali Demirci

Teaching Assistants: Gökhan GÖKSU, Göksu ORUÇ Recitation Date: 30/11/2018

Task 1

Determine the highest real root of

$$f(x) = x^3 - 6x^2 + 11x - 6.1$$

by the help of followings:

- i) Graphically,
- ii) Using the Newton's method,
- iii) Using bisection method.

Task 2

The volume of liquid V in a hallow horizontal cylinder of radius r and length L is related to depth of the liquid h by

$$V = [r^2 \cos^{-1}(\frac{r-h}{r}) - (r-h)\sqrt{2rh-h^2}]L.$$

Determine h given $r = 2m$, $L = 5m$, and $V = 8m^3$.

Task 3

Use fixed point iteration to solve the following equation with $x_0 = 1$,

$$x = 1 + 0.3\sin x.$$

Submission Information

Any LabWork submitted after class will be subject to a 20-point deduction per 24 hour period. Extensions should be requested at least 3 days in advance and will only be granted for exceptional reasons (e.g., conference submission). You may work with your friends. Collaboration is strongly recommended. However, each student should be able to present his/her program.