

CLL:113-Tut-5 (18.11.20)

Q1. Develop a C/C++ program to implement Bairstow's method to determine the positive real roots of

(a) $f(x) = x^3 + x^2 - 4x - 4$

(b) $f(x) = x^3 - 0.5x^2 + 4x - 2$

The program should print values for –
r, s, b3, b2, b1, b0, dels, delr, errs, errr
for each iteration in command line.

Error tolerance = 10^{-5}

Finally, the program should print the positive real roots for the equation.

Make a single program for both the equations.

(To be discussed in tut session 6)

Q2. Generate eight equally spaced points from the function $f(t) = \sin^2 t$ from $t = 0$ to 2π . Fit this data with

- (a) A Lagrangian Polynomial
 - (b) A Newton's Divided Difference Formula
 - (c) A seventh-order interpolating polynomial
- Comment about your findings