ESO208A: Computational Methods in Engineering
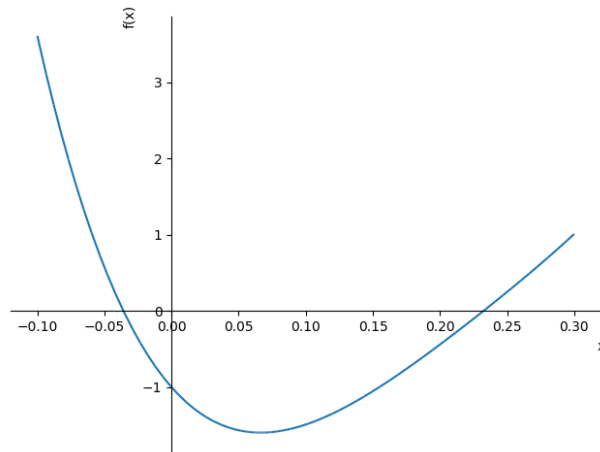## Programming Assignment 1
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Section: J1

Note: Steps taken to reach the root will be found in output.txt file in output folder once the program is executed.
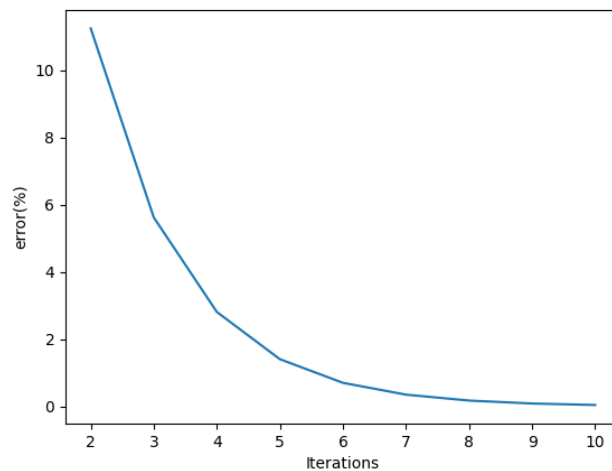
Question 1:

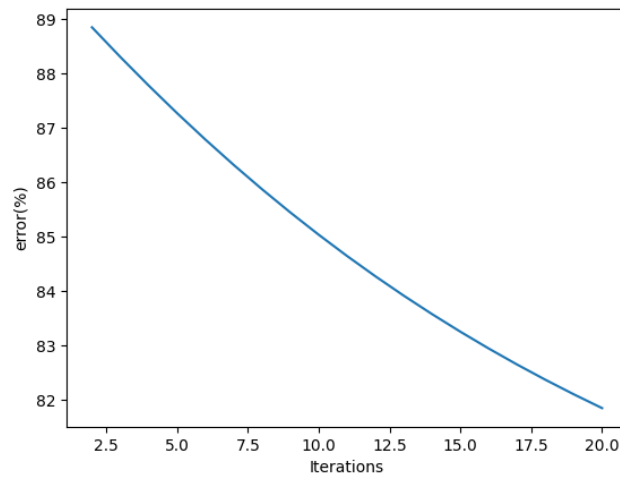**Test case 1:** $600x^4 - 550x^3 + 200x^2 - 20x - 1$

Bisection method:
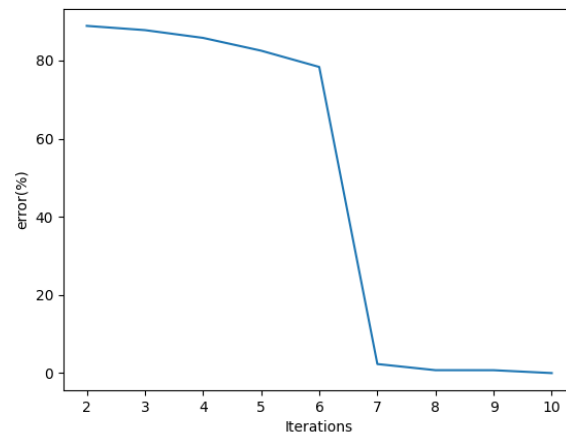
Root: 0.23227539062500002

False-position method:
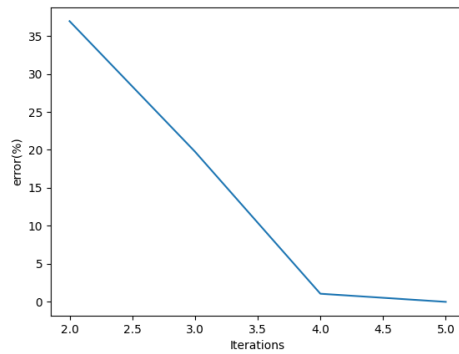
Root: 0.5907300950364348

Modified-false-position method:
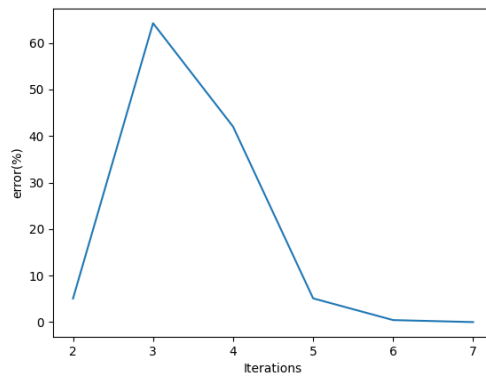
Root: 0.23235296162942096
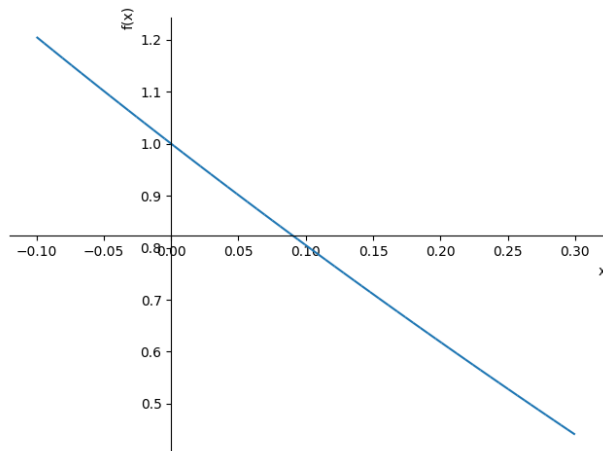
Newton-Raphson method:

Root: 0.2323529647687637

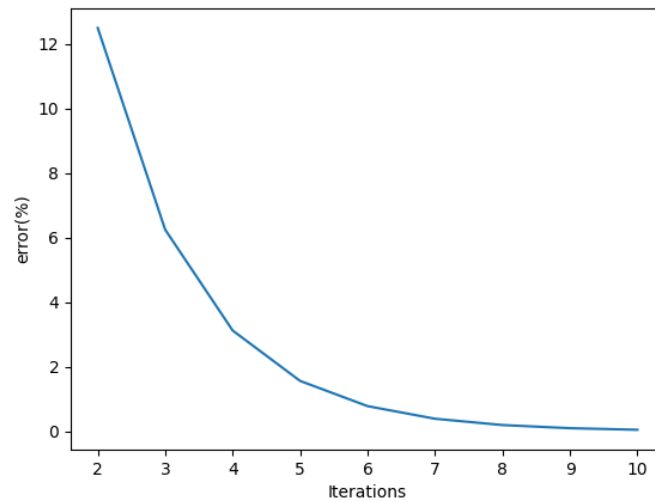## Secant Method:

Root: 0.23235295673399128
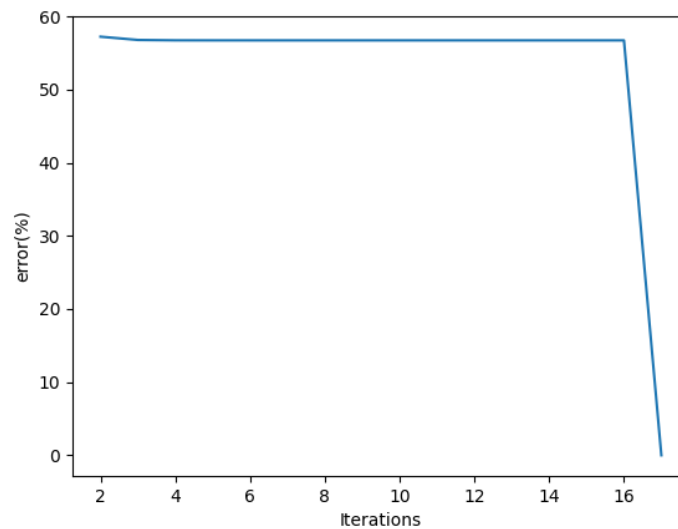

Test Case 2: exp(-x) -x

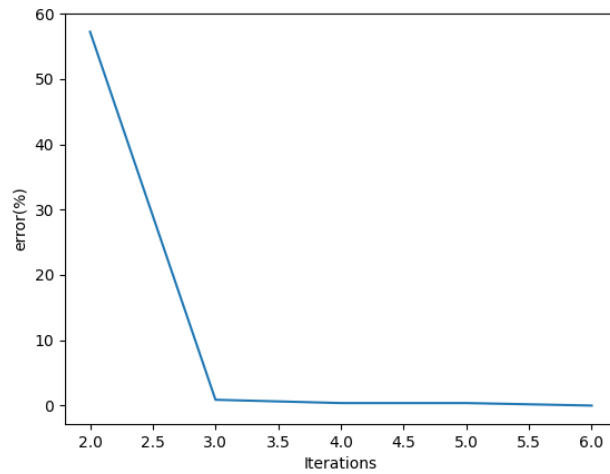## Bisection method:

Root: 0.56689453125

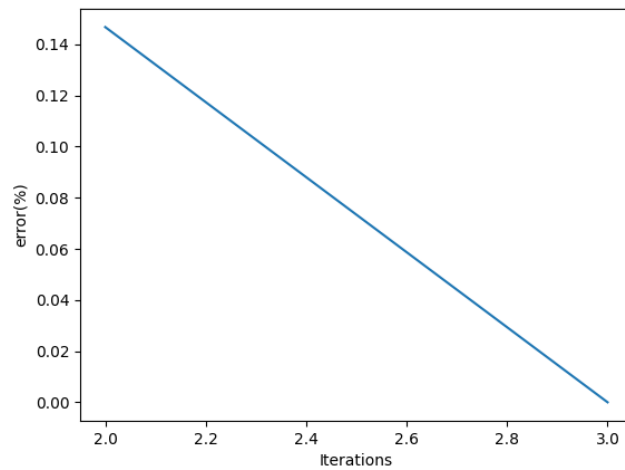## False-position method

Root: 0.5671432904097838

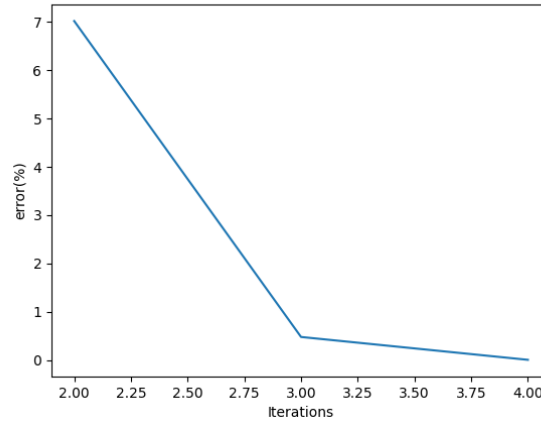## Modified-False-Position method

Root: 0.5671432904114888

Newton-Raphson method
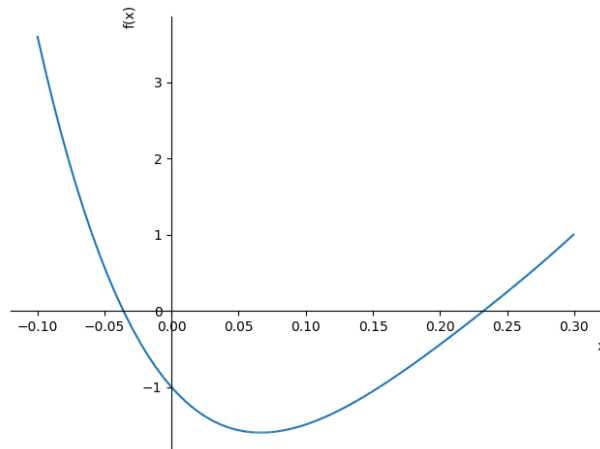
Root: 0.5671432904097811

Secant method:

Root: 0.5671432990837618

Question 2:

Test Case 1: $600x^4 - 550x^3 + 200x^2 - 20x - 1$
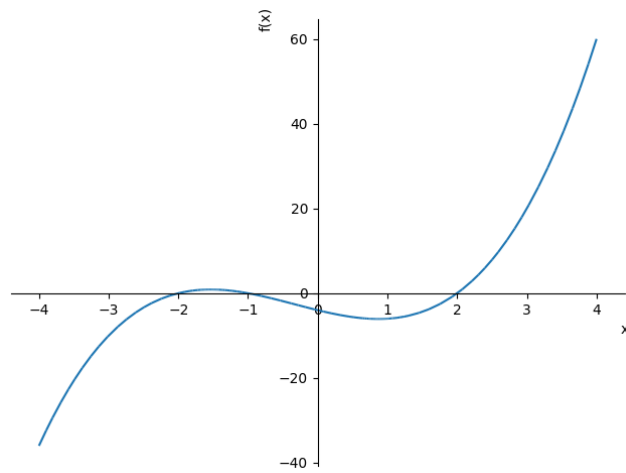

Muller method:

Root: 0.232352964749917

Bairstow method:

Roots:

- 0.2323529647499173
- -0.0358396918662678
- 0.360076695724878 + 0.26549174408570536I
- 0.360076695724878 + -0.26549174408570536I

Test Case 2: $x^4 + x^3 - 4x - 4$

Muller method:

Root: 2.00000000005357

Bairstow method:

Roots:

- 2.0
- -1.0
- -2.0