AMS 326 - HW1 Report

Duc Ha

February 15th, 2026

Problem 1.1

- Method 1: Bisection Method:
Using Bisection Method, assume there are k iterations, we have $89k + 8$ FLOPs
The final answer given is 0.54071044921875
- Method 2: Newton's Method:
Using Newton's Method, assume there are k iterations, we have $60k$ FLOPs
The final answer given is 0.540795208889561
- Method 3: Secant Method
Using Secant Method, assume there are k iterations, we have $61k$ FLOPs
The final answer given is 0.5407458221936771
- Method 4: Monte Carlo Method
Using Monte Carlo method, I believe there is around 1.4×10^6 FLOPs The final
answer given by a trial is 0.5407153554528785

Problem 1.2

(1)
The polynomial $P_4(t)$ calculated is $-2.667x^4 - 14.83x^3 + 173.2x^2 - 200.7x + 5060$
Also, using $P_4(t = 6)$ we calculate $P_4(t = 6)$ to be roughly 3430

(2)
The quadratic fit of the data $Q_2(t)$ is $Q_2(t) = 4388 + 687.5t - 116.1t^2$
Also, using $Q_2(t = 6)$ we calculate $Q_2(t = 6)$ to be roughly 4332

Additional Problem

The cubic fit of the 10-session Tesla stock is $Y(x) = 5175 - 417.8x + 305.4x^2 - 46.83x^3$