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SECTION: PROF. GARY DARGUSH   SCORE: _____ /50

By submitting this work I affirm that I have not given or receive any unauthorized help and that all work is my own. I understand the consequence of not following this policy will result in a score of zero for the entire exam.

Problem 1b:

$$y = 0.3679 \qquad Error = 1.0000e-05$$

Problem 1d:

Minimum Number of Time Steps for Forward Euler Method $= 373$

Number of Time Steps $= 57$

Problem 2a:

Initial Function?
$$x = (L_1 \cos\theta_1 + L_2 \cos\theta_2)$$
$$h = (L_1 \sin\theta_1 + L_2 \sin\theta_2)$$

Initial Function as Roots Problem?
$$\begin{bmatrix} x - L_1\cos\theta_1 - L_2\cos\theta_2 = 0 \\ h - L_1\sin\theta_1 - L_2\sin\theta_2 = 0 \end{bmatrix}$$

Problem 2g:

We observed that θ_1 vs t had noise and this noise results in fluctuations when we try to plot θ_2 vs t for various values of v, a calculated using θ_1, While using the data matrix directly for value of θ_1 we observed higher noise in comparison to the matrix obtained from fitted value. Since the fitted values are obtained by fitting the curve $\frac{c_1 t}{t + c_2}$ for θ_1 Data Matrix. Which results in slight fluctuation of a values (obtained by fitting the data matrix Results). Our Initial Assumptions also in the beginning for θ_2 might have an effect but ultimately they converge as θ_2 will be of the form 2π factors