

Homework for Lecture 2 of Dr. Z.'s Dynamical Models in Biology class

Email the answers (either as .pdf file) to

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by 8:00pm Monday, Sept. 15, 2025.

Subject: hw2

with an attachment LastFirstHw2.pdf

1. Solve the following differential equation, subject to the given initial condition

$$\frac{dy}{dt} = \frac{y^3}{(t+1)} \quad , \quad y(0) = 1 \quad .$$

2. Solve the folloing differential equation, subject to the given initial conditions

$$y''(t) - 3y'(t) + 2y(t) = 0 \quad , \quad y(0) = 2 \quad , \quad y'(0) = 3 \quad .$$

3. Find all the eigenvalues and corresponding eigenvectors of the matrix

$$\begin{bmatrix} 3 & -4 \\ 4 & 3 \end{bmatrix}$$