

Math 3280 Worksheet 45

Group members (1 to 4): _____

- (1) Find the eigenvalues of the Lorenz system linearized at the origin $(x, y, z) = (0, 0, 0)$. For positive σ , ρ , and β , under what conditions is the origin unstable? The Lorenz system is:

$$\begin{aligned}x' &= \sigma(y - x) \\y' &= x(\rho - z) - y \\z' &= xy - \beta z\end{aligned}$$