

Math 325: Differential Equations

Name: _____

Quiz 4 Nov. 14, 1997

Consider the non-linear system

$$\begin{aligned}\frac{dx}{dt} &= 4x - x^2 - xy \\ \frac{dy}{dt} &= y - 2xy - y^2\end{aligned}$$

- a) Find all critical points of this system.
- b) Find the corresponding linear system near each critical point and determine its eigenvalues.
- c) Discuss the type and stability of each critical point of the original system.