

Math 339 - Dynamical Systems
Assignment # 3
due Fri September 29th, 4pm

Instructions: You are being evaluated on the presentation, as well as the correctness, of your answers. Try to answer questions in a clear, direct, and efficient way. Sloppy or incorrect use of technical terms will lower your mark.

1. Exercise 2.6
2. Exercise 2.7
3. Repeat Exercise T2.9 (p 81) for the map

$$f(x, y) = \left(\frac{x}{3}, y - \frac{2}{3}x^2 \right).$$

For part (b), find the invariant set S , assuming that it has the form

$$S = \{(x, rx^2) : x \in \mathbb{R}\}.$$

Plot the stable and unstable manifolds of f , and a few representative solution curves.