

Problem Set 2

Due: Beginning of class (at 2 p.m.) on Monday, Oct. 7.

The problems below are from *Nonlinear Dynamics and Chaos* by Steven Strogatz.

9.2.1

10.4.1

Notes: Do parts (a) and (b) in either order, whichever makes more sense to you. The tangent bifurcation is a discrete-time version of what type of continuous-time bifurcation found in one-dimensional ODEs?

9.4.2

Notes: In part (b), illustrate the stability or instability of each fixed point with a cobweb diagram.

11.3.1

11.4.6

Notes: For part (b), give a detailed sketch of the set of x_0 that never escape, and then describe the structure of this set from your sketch. (Do your best here.)