

PHYSICS 331 ADVANCED CLASSICAL MECHANICS  
Problem Set 10

*Problem 1*

Thornton and Marion: Chapter 4, Problem 11.

After doing the simulation, answer the following question: *What do you think is going on here? Is this a chaotic state or an ordered state?*

*Problem 2*

Thornton and Marion: Chapter 4, Problem 13.

Comment on your results. This is a relatively quick, but very important exercise.

*Problem 3*

Thornton and Marion: Chapter 4, Problem 20.

When you create your plot, make sure that it is an “ $x - y$ ” scatter plot rather than the ‘join-the-dots’ line plots that Excel produces. Use markers only (no lines) and make the markers small enough so as to reveal the finer details of the plot. You may even try zooming in on a particular region; change the scale so as to see the sub-structure in the attractor.

*Other Things*

Don’t forget that you have a journal assignment as well. Submit your comments about the reading via email. Mention what parts you understand, what parts you don’t, what seems interesting to you—and what doesn’t, along with any other comments that you feel are relevant for the reading. Focus your comments on the reading from sections 5.1–5.2.