

**Dynamical Systems(550.391)**  
**(Optional) Homework 9 (Due Monday, December 12, 2005)**

**General Directions:** You must show all work and document any assumptions to receive full credit on a problem. Feel free to use MATLAB or any other computer system for your analysis. (Refer to the Software Usage Guidelines on the course website to determine what computer output you need to submit.)

1. Strogatz: Problem 9.3.2

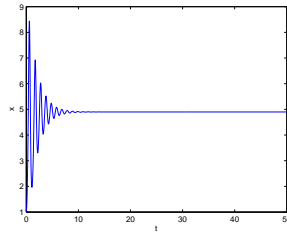


Figure 1

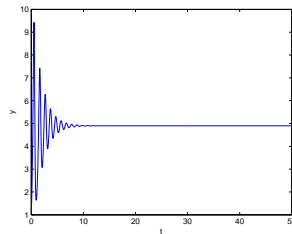


Figure 2

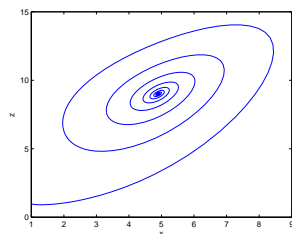


Figure 3

2. Strogatz: Problem 9.3.3

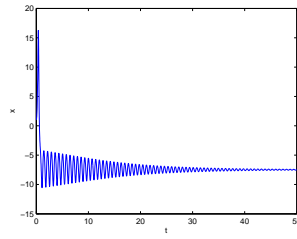


Figure 4

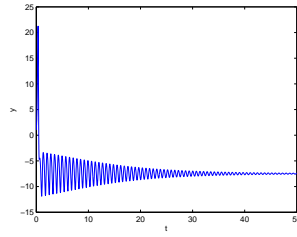


Figure 5

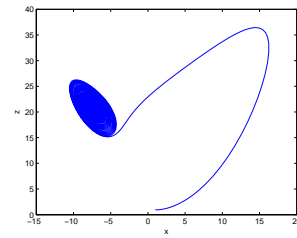


Figure 6

3. Strogatz: Problem 9.3.4

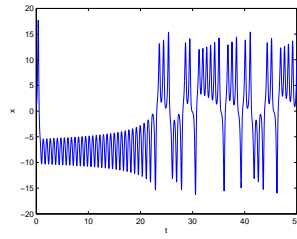


Figure 7

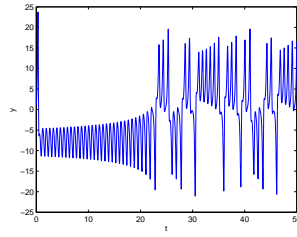


Figure 8

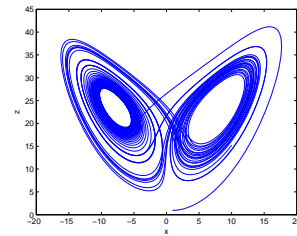


Figure 9

4. Strogatz: Problem 9.3.5

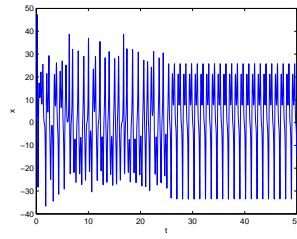


Figure 10

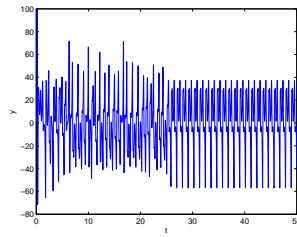


Figure 11

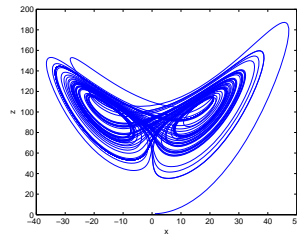


Figure 12

5. Strogatz: Problem 9.5.1

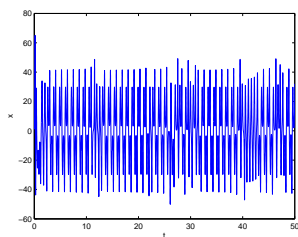


Figure 13

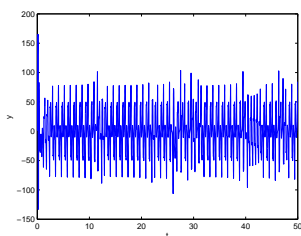


Figure 14

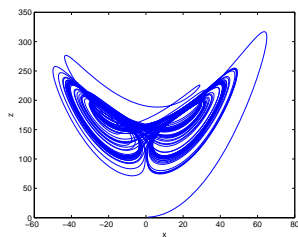


Figure 15

6. Strogatz: Problem 9.5.2

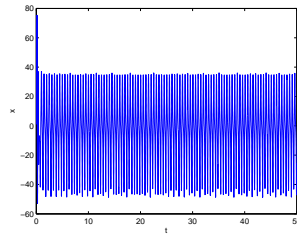


Figure 16

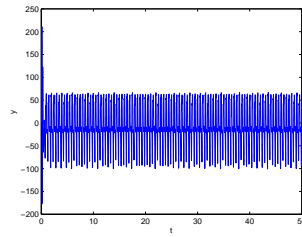


Figure 17

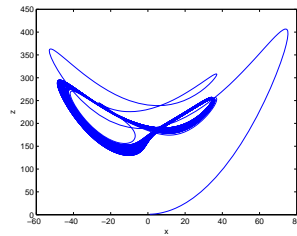


Figure 18