Instructor: Wayne Hacker  
Math 550.391-f14  
Homework Set 6: ODEs on the real line

Grading Scheme for homework problems:

Each problem will be graded according to the following scheme:

- Trivial Mistake: 4 out of 5 points given
- Minor algebra/calculus mistake with a correct approach: 3 out of 5 points given
- Major algebra/calculus mistake with a correct approach: 1-2 out of 5 points given
- Wrong approach: 0 points given

Comments:

- Solving the wrong problem, even if your solution to the wrong problem is correct: 0 points for problem.
- The differences between major and minor mistakes will be determined by the instructor, not the student! This algorithm will be strictly enforced. No exceptions!

Difficulty Rating Scale: Next to each problem will be the following labels.

- E = Elementary Level Problem
- I = Intermediate Level Problem
- D = Difficult Level Problem
The Problems:

Section 3.5 Problems:

Problem 1: (rating = I) Strogatz 3.5.6 parts (a)-(b)

Problem 2: (rating = I) Strogatz 3.5.6 parts (c)-(d)

Section 3.6 Problems:

Problem 3: (rating = E) Strogatz 3.6.2

Section 4.1 Problems:

Problem 4: (rating = E) Strogatz 4.1.2

Problem 5: (rating = E) Strogatz 4.1.5

Problem 6: (rating = I) Strogatz 4.1.8

Section 4.2 Problems:

Problem 7: (rating = I) Strogatz 4.2.2

Section 4.3 Problems:

Problem 8: (rating = E) Strogatz 4.3.2

Problem 9: (rating = E) Strogatz 4.3.3

Section 4.4 Problems:

Problem 10: (rating = E) Strogatz 4.4.1

Warning: While the answer in the back of the book is correct, it is misleading. In the text, Strogatz leaves time as a dimensional quantity. If your going to non-dimensionalize an equation, then you must non-dimensionalize all of the variables in the equation! In particular, you must non-dimensionalize time. (see my notes for details).