Math 20750
Spring, 2016

Assignment 5, due February 12

Reread §§2.5, 2.8–2.9 in Polking, Boggess and Arnold and read §§2.5, 3.1–3.3

Do:
§2.9 #10,12,18,26,30,31

§2.5 #2,6,9,10,12 In #6, the rate pure water is poured into the tank should be 2 gal per minute and the rate the salt-solution is leaving should be 3 gal per minute.

§3.1 #2,10,11,15,16 In #11(c), you can use any technique to solve the equation.

Reread chapters 5-7 in *Differential Equations with MATLAB®*.

Do as a MATLAB group:
Problem Set B #4,13,20

Use a separate m-file for each problem. Staple the published solutions together in order. Make sure the names of all members of your MATLAB group are on MATLAB assignment before turning it in.

Hints and suggestions for Problem Set B #4

- Unlike problem 1, this problem is written as a paragraph. However it still has several parts. Identify and do all of them.
- Experiment to find a good right endpoint.
- You will probably want to include graphs with different right endpoints to get gooviews of all of the solutions.
- Be sure to explain discuss the effect small changes in initial data.
  - Use material from both Chapters 5 and 7 of *Differential Equations with MATLAB®* to analyze it, in addition to using what you see in your plots.
  - You have the four ways of analyzing the effect. Do you get the same conclusion from each?
- *For MATLAB whizzes only*: Display each of the solutions in a different color on the same graph.

Hint for Problem Set B #13(c)

- There are quite a few equilibrium solutions — seven. Be sure to find all of them.
- You may want to do several plots of the direction field, with different rectangles, to show all of the equilibrium solutions.

- Be sure to classify all seven.

Hint for Problem Set B #20

- For (b), see the discussion on p. 80.
- In (d) you might want a different rectangle than the one you used in(c).