Math 3113 homework

29. (assigned 3/9) Prepare for Quiz 5 on Friday. Over the spring break, do 3.5 # 47. Try to do it (i) first by the single formula in Theorem 1 of Section 3.5, then (ii) from the two equations we called (1) and (2) in class, that is, formulas (31) on page 209 of the book, then (iii) by going through the full method of variation of parameters starting with $y = u_1 e^{-x} + u_2 e^{-x}$, as we did in the class example (on Friday there will also be a handout showing the general procedure).

30. (assigned 3/21) As many of 4.1 # 1-10 as needed. You should be able to do any of these.

31. (assigned 3/23) Solve the systems in 4.1 # 12, 14, and 15 and graph them using knowledge of conic sections, rather than a computer algebra system. Solve the system in problem 4.1 #20, but do not try to graph it.

32. (assigned 3/28) Check your situation on the new interim grade posting, and if you are having serious difficulty, then investigate whether you should drop the class. Be fully caught up on the homework problems from 4.1. Be able to do any of 5.1 # 1-6 easily. Do 5.1 # 9, 10.

33. (assigned 3/30) Check your Exam II against the posted solutions, and make sure that you know how to do all the problems.

34. (assigned 3/30) Be reading Section 5.1, and review your notes from class as well. Start on 5.1 # 11-20 and do as many as you can. I will work another example on Friday, and by next week you should be able to do any of 5.1 # 11-20 easily.

35. (assigned 4/1) For 5.1 # 21-30, do the first part of the problem— verifying that X_1, X_2, etc. are solutions. Do as many of the problems as you need to in order to understand this well. Notice that when the book writes something like $e^t \begin{bmatrix} 2 \\ 2 \\ 1 \end{bmatrix}$, it means $\begin{bmatrix} 2e^t \\ 2e^t \\ e^t \end{bmatrix}$. If you can do the rest of what the problems ask, that is, use the Wronskian to check linear independence and apply the General Solution Theorem (Homogeneous Case), go ahead and do those. I'll explain these in class on Monday and work 5.1 # 26 as an example, but it's better for learning if you can figure it out on your own first.

36. (assigned 4/4) As many as needed from 5.1 # 21-30. In the next class, we will see how to solve the IVP. If you can, look ahead at this and start 5.1 # 31-38.

37. (assigned 4/6) As many as needed of 5.1 # 31-38. Make sure you become proficient at the Gauss-Jordan method for solving linear systems— it's useful in many contexts, not just this course.