

Math 3113 homework

38. (assigned 4/11) 5.2 # 2, 3, 4 (do not do the part of the problem that asks you to use a computer system or graphing calculator, just use the eigenvalue method to find the general solution).
39. (assigned 4/13) 5.2 # 8, 9 (again, do not do the part of the problem that asks you to use a computer system or graphing calculator, just use the eigenvalue method to find the general solution).
40. (assigned 4/18) Study the solutions to Quiz 7 that are now posted. 7.1 # 1 (use integration by parts to calculate $\int_0^b e^{-st} dt$), 3, 7 (notice that for this function, $\int_0^b e^{-st} f(t) dt = \int_0^1 e^{-st} dt$ whenever $b \geq 1$. In taking the limit as $b \rightarrow \infty$, you can assume that $b \geq 1$ since only large values of b affect the limit.) Try to do 7.1 # 13 using the transforms in Fig. 7.1.2 (and linearity). On Wednesday we'll do a number of examples illustrating how to do 7.1 # 11-22.
41. (assigned 4/20) 7.1 # 11-19 (for # 17, 18, use a trig identity), 7.1 # 23-32 (all can be done using the formulas, no need for the partial fractions method yet)
42. (assigned 4/22) No new problems, just make sure you are fully caught up on 7.1, and understand the formula $\mathcal{L}(f'(t)) = s\mathcal{L}(f(t)) - f(0)$.
43. (assigned 4/25) 7.2 # 1, 4, 8 (all can be done using method 2— plugging in specific values of s to find the coefficients, rather than setting up linear equations to solve for them). Do others if you need more practice.
44. (assigned 4/27) 7.2 # 10 (when solving for the coefficients in the partial fractions, you can only determine three of the four unknown coefficients by substituting values of the variable s . But for the fourth one, you only need to compute the coefficient of s^3 and observe that it must be 0, then you can find the fourth coefficient since you have already found the other three), 7.2 # 11, 7.3 # 32.
45. (assigned 5/2) 7.2 as many as needed of # 17-24, including at least # 17, 18, 20 (easier if you write the fraction as a sum of a fraction with numerator $2s$ and one with numerator 1), 21 (use the formula twice).
46. (assigned 5/4) 7.3 # 1-10, 18. Some of problems # 11-22 and 27-28 would be good practice for the final exam.
47. (assigned 5/4) 7.4 # 15, 17, 22 (remember that $\ln(a) - \ln(b) = \ln(\frac{a}{b})$)