Math 322 ASSIGNMENT 3, SPRING 2013 **Due at 5 PM Monday, April 8th**

1. Use the Laplace transform to solve the initial value problem $y'' + 4y = 0, \quad y(0) = -2, \quad y'(0) = 1.$ Be sure to show how this is done, in the manner shown in Video 6.

2. Use a power series to solve the ODE $y'' + 3y' = 0.$ Show the series guess in expanded form, and give the first six terms of y' and first five of y''. Find all coefficients up to a_6 - they will be in terms of a_1. Factor a_1 out of all terms containing it, and you can stop there if you wish. If you want a challenge, try to figure out how to get to the solution you got for Exercise 1, but with arbitrary constants.

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