Homework 8 (MATH 2310-04)   **Name (Print):**

Due date: April 24, 2014

1. Use the Laplace transform to solve the given initial value problem.

$$y''+4y'+3y = 1, \quad y(0) = 1, \quad y'(0) = 2$$

  Solution :
  y(t) = [1 − 4 e^{-3t} + 6 e^{-t}] / 3

2. Use the Laplace transform to solve the given initial value problem.

$$y''+4y = 1, \quad y(0) = 0, \quad y'(0) = 0$$

  Solution :
  y(t) = [1 − cos(2t)] / 4

3. Use the Laplace transform to solve the given initial value problem.

$$y''-3y'+2y = e^{3t}, \quad y(0) = 1, \quad y'(0) = 0$$

  Solution :
  y(t) = [5 e^{t} − 4 e^{2t} + e^{3t}] / 2