MATH 214 – 8 NOVEMBER 2011 – EXAM 2

Answer all of the following questions on the answer sheets provided. Show all work, as partial credit may be given. This exam is counted out of a total of 40 points.

1. (10 pts.) Find the solution of the initial value problem

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

2. (10 pts.) Use the method of variation of parameters to find a particular solution to the differential equation

$$y'' - y' - 2y = 2\,e^{-t}.$$

3. (10 pts.) Find the general solution to the differential equation

$$y''' - y'' = 6t.$$

4. (10 pts.) Find the general solution to the differential equation

$$y^{(4)} - 5y'' + 4y = 0.$$