

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

$$y'' + y' - 2y = 4t, \quad y(0) = 0, \quad y'(0) = 1.$$

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

$$4y'' - 4y' + y = 16e^{t/2}.$$

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

$$y''' - y' = 2 \sin(t).$$

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

$$y^{(4)} + 2y'' + y = 0.$$