Name_____

Student I.D._____

Math 2250-4
Quiz 7
March 1, 2013

1a) Consider the differential equation for $y(x)$

$$y''(x) - 5y'(x) + 6y(x) = 0 .$$

Find the general solution to this homogeneous differential equation. Hint: the solution space has a basis consisting of exponential functions.

(5 points)

1b) Verify that $y(x) = e^{4x}$ is a solution to

$$y''(x) - 5y'(x) + 6y(x) = 2e^{4x}.$$

(1 points)

1c) Use your work from a, b to deduce the general solution to the non-homogeneous DE in b, and use this general solution to solve the initial value problem

$$y''(x) - 5y'(x) + 6y(x) = 2e^{4x}$$
$$y(0) = 0$$
$$y'(0) = 0.$$

(4 points)