Math 2250-4
Quiz 6
October 25, 2013

1a) Consider the differential equation for $y(x)$
$$y''(x) + 3y'(x) - 4y(x) = 0 .$$
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 $y(x) = -2$ is a solution to the inhomogeneous differential equation
$$y''(x) + 3y'(x) - 4y(x) = 8.$$

(1 points)

1c) Combine your work from <u>a</u>, <u>b</u> to deduce the general solution to the inhomogeneous DE in <u>b.</u> Then use this general solution to solve the initial value problem
$$y''(x) + 3y'(x) - 4y(x) = 8$$
$$y(0) = 0$$
$$y'(0) = 2.$$

(4 points)