Math. 350-01
Fall, 2013
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Second Exam

Wednesday, October 9, 2013

This exam is closed book, but you may use calculators. Make sure your name is on all pages. Show all work, and show it in a logical and organized manner. Each entire problem is worth 25 points.

1. Find the general solution to the differential equation

$$y'' + 4y' + 5y = 0,$$

and state what happens to the solutions as $t \to \infty$.

2. Find the general solution to

$$y'' + 5y' + 4y = \sin(t).$$

3. Find the solution to the initial value problem

$$y'' + 10y' + 25y = 0, \quad y(0) = 0, \quad y'(0) = 1.$$

4. Find the general solution to

$$y'' + 5y' + 4y = e^{-t}.$$