Math. 350-01
Fall, 2008
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Third Exam

Wednesday, October 22, 2008

This exam is closed book. The exam should be done on your own paper. 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 33 points, and 1 point is free. You may keep this sheet after turning in your exam.

1. Solve the initial value problem

$$y'' + 3y' + 2y = \sin(t), \;\; y(0) = 0, \;\; y'(0) = 0.$$

2. Write down the general solution to

$$y'' + 3y' + 2y = e^{-2t}.$$

3. Rewrite

$$\frac{\sqrt{3}}{2}\cos(10^6 x) + \frac{1}{2}\sin(10^6 x)$$

in the form

$$C\sin(10^6 x + \alpha).$$

That is, find C and α.