This quiz covers: Chapter 3.1, 3.2 and 3.3. **DUE: Friday 3/16** at beginning of class.

Directions: Complete all questions and **show all applicable work.** Partial credit will be given. Please feel free to consult your text, notes and the online direction field solver as you see fit. Please do not discuss with other people (except the professor) or use the internet at large (including Wolfram Alpha). Each part is worth 5 points.

1.) (Chapter 3.1) Find the solution to the following differential equation and initial condition

$$y'' + 4y' + 3y = 0$$

where $y(0) = 2$ and $y'(0) = -1$.

2.) (Chapter 3.2) Given the differential equation:

$$y'' - 2y' + y = 0$$

and solutions $y_1(t) = e^t$ and $y_2(t) = te^t$. Do these two solutions satisfy the DE. Do they form a fundamental set of solutions?

3.) (Chapter 3.3) Find the solution to the following differential equation and initial condition

$$y'' + 2y' + 2y = 0$$

where $y(\pi/4) = 2$ and $y'(\pi/4) = -2$.