

Math 207 Quiz #6  
May 10, 2011

Name: \_\_\_\_\_

Show all work and answers on a separate sheet. Put a box around your final answer.

1. (3 pts.) Find the general solution to  $x'' - 4x' + 13x = 0$ .
2. (3 pts.) Solve the following IVP:  $4y'' + 13y' + 3y = 0$ ,  $y(0) = 2$ ,  $y'(0) = 5$
3. (2 pts.) For a mass-spring system modeled by  $3y'' + 5y' + ky = 0$ , for what values for the spring's stiffness ( $k$ ) yield solutions that are overdamped? (Overdamped Solutions: Solutions that do **not** oscillate infinitely as  $t \rightarrow \infty$ .)
4. (2 pts.) Find a particular solution  $y_p$  to the equation  $y'' + 2y' - y = 5t - 3$ .