

Math 420: Assignment 5

Please show all work. Good luck. This assignment is due on Tuesday, October 6 at 5:00 PM.

- 1) Verify that the given functions form a fundamental set of solutions of the differential equation on the indicated interval. Form the general solution.

$$4y'' - 4y' + y = 0, e^{\frac{1}{2}x}, xe^{\frac{1}{2}x}, (-\infty, \infty)$$

- 2) The given family of functions is the general solution of the differential equation on the indicated interval. Find a member of the family that is a solution of the initial value problem.

$$y = c_1 e^{4x} + c_2 e^{-x}, (-\infty, \infty)$$

$$y'' - 3y' - 4y = 0; y(0) = 1, y'(0) = 2$$