MATH 286 PROBLEMS DUE FEBRUARY 14, 2001

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1. Solve:

$$y'' + 3y' + y = 0, \quad y(1) = 2, \; y'(1) = 3.$$

2. Find the maximal interval of definition of the solution of

$$y'' + \frac{y'}{\cos(t)} + 3y \ln |t| = 0, \quad y(1/2) = 3, \; y'(1/2) = -1.$$

3. Find the Wronskian of

$$e^{2t}, \; e^{4t}$$

as a function of t.

4. Using the Wronskian, decide whether

$$y_1(t) = t, \quad y_2(t) = t(1 + e^t)$$

are a fundamental system of solutions of

$$t^2 y'' - t(t+2)y' + (t+2)y = 0.$$