MA 238-02 §3.7 + handouts	**Quiz #5**	*score*	**Name:** _____ **5 April 1999**

1. Determine the largest interval in which the IVP has a unique solution. You need not find the solution but you should explain how you arrive at your conclusion.

$$t(t-4)y'' + 3ty' + 4y = 2, \qquad y(3) = 0, \qquad y'(3) = -1$$

2. Compute the Wronskian of the two functions $y_1 = t^2$ and $y_2 = y^3$. Is it possible for $\{t^2, t^3\}$ to be a basic set of solutions for a differential equation of the form $y'' + a(t)y' + b(t)y = f(t)$ on the interval $I = (-1, 1)$. Assume that $a(t), b(t), f(t) \in C^0(I)$.

3. Use variation of parameters to find a particular solution for the given differential equation. Then write the general solution.

$$y'' + y = \csc t$$

4. For the given differential equation note that t^2 is a solution. Use the reduction of order method as explained in the handout to find the general solution.

$$t^2y'' + ty' - 4y = 0$$