Math 712, **Homework Set 6**, October 20, 2005
Due Friday, October 28

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1. Consider again **Problem 3.5.1** from our textbook and the two boundary conditions at the right boundary ($u_M^{n+1} = u_{M-1}^n$ and $u_M^{n+1} = u_M^n - \lambda(u_M^{n+1} - u_{M-1}^{n+1})$). You must have a code for each boundary condition. For each boundary condition produce a log-log graph of the error in the discrete L_2 norm versus λ; use $0.25 \leq \lambda \leq 3$. Determine the behavior of the order of accuracy as a function of λ for each boundary condition. Explain your observations.

2. Do **Problem 3.5.2** for initial/boundary data from exact solution (a). Treat the undifferentiated term accurately (as stated in the problem).