

Math 472: Computer Assignment 6 — due Wednesday, Dec.7, 2005

1. (a) Use the linear transformation from Problem 2 in Assignment 8 to modify the Matlab program `PSBVP.m` so that you can solve linear 2-pt BVPs on arbitrary intervals $[a, b]$ with boundary conditions $y(a) = \alpha$ and $y(b) = \beta$.
(b) Test your program from (a) and compare it to the finite difference method for the BVP

$$\begin{aligned}t^2 y''(t) - t(t+2)y'(t) + (t+2)y(t) &= 0 \\ y(1) = e, \quad y(2) &= 2e^2\end{aligned}$$

from Computer Assignment 4 by modifying the Matlab script `PSBVPDemo.m` appropriately.