Math 173/273 - Spring, 2003 - Prof. Gu
Problem Set IV - Due: 1:15 p.m., Monday, April 21

Do each of the following problems:
(1) Exercise 2, Chapter 9, Page 96 of Lax.
(2) Exercise 3, Chapter 9, Page 100 of Lax.
(3) Exercise 6, Chapter 9, Page 101 of Lax.
(4) Exercise 7, Chapter 9, Page 101 of Lax.
(5) Define the matrix function $A(t)$ by

$$A(t) = \begin{pmatrix} e^t & e^{-t} \\ e^t & -e^{-t} \end{pmatrix}$$

(a) Show that $a_0 = -\sqrt{2}$ is a simple eigenvalue of $A(0)$.

(b): For $A(t)$ and $a_0$, as above, determine functions $a(t)$ and $h(t)$ as described in Theorems 7 and 8, Page 102 of Lax.