Math 640A  

Fall 2003

Homework 6, due Tuesday 28 October.

1. (10 points) Section 4.3 problem 1 part a.

2. (30 points) Section 4.3 computer problem 1. Put in lots of comments.

3. (20 points) Do this problem as a Good Problem, paying attention to the Layout, Flow, Symbols, and Logic handouts.
   Section 4.4 problems 1 and 2 (combine them).

4. (20 points) Section 4.4 problems 33 and 40

5. (20 points) In Section 4.5, a method is given to compute the inverse of \((I - A)\) using the Neumann series formula

\[
(I - A)^{-1} = \sum_{k=0}^{\infty} A^k.
\]

We could instead compute it using the product formula

\[
(I - A)^{-1} = \prod_{k=0}^{\infty} (I + A^{2^k}).
\]

Verify this second formula, and determine whether it is more or less efficient than the first. Would you recommend it?