Homework Feedback 6

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**P. 453 #13** Prove Theorem 7.24

**Answer:** First prove :

because has all 0 diagonal elements.

Second: Since is the eigen value of largest magnitude, Therefore, we get:

**P. 462 #1** Compute the condition numbers of the following matrices relative to .

**Answer:** The norm is easy to compute, where the condition numbers for the matrices in this problem are a.50, b. 241.37 c. 600002 d. 339864.59 e.12 f. 198.17.

Most answers in the homework report are correct.

**P. 464 #9** Use four-digit rounding arithmetic to compute the inverse of the 3 x 3 Hilbert matrix H, and then compute . Determine .

**Answer:** It istedious to finish the computation using 4-digit arithmeticto **compute the inverse twice. Note that different methods have different rounding error.** I suggest to compute the inverse using adjoint matrix method, which is efficient for small matrix. The **first row** of I compute using adjoint matrix method is .

All the answers at first row around the value, like or , are deemed to be correct.