Math 370 Fall 2004

QUIZ 7

Numerical Analysis

Name: _____

Date: _____ **Friday November 12**
Time Begun: _____ Ron Buckmire
Time Ended: _____

Topic : Practice with Norms

The idea behind this quiz is for you to practice computing the norm of a vector and of a matrix.

Reality Check:

EXPECTED SCORE : _____**/10** ACTUAL SCORE : _____**/10**

Instructions:

1. Once you open the quiz, you have as much time as you need to complete it, but record your start time and end time at the top of this sheet.
2. You may use the book or any of your class notes. You must work alone.
3. If you use your own paper, please staple it to the quiz before coming to class. If you don't have a stapler, buy one.
4. After completing the quiz, sign the pledge below stating on your honor that you have adhered to these rules.
5. Your solutions must have enough details such that an impartial observer can read your work and determine HOW you came up with your solution.
6. Relax and enjoy...
7. **This quiz is due on Monday November 15**, in class. NO LATE QUIZZES WILL BE ACCEPTED.

Pledge: I, _____, pledge my honor as a human being and Occidental student, that I have followed all the rules above to the letter and in spirit.

Math 370 Fall 2004 **EXPLAIN YOUR ANSWERS** Quiz **EIGHT**

1. Consider the column vectors $\mathbf{x} = (2, 1, -3, 4)^T$ and $\mathbf{y} = (1, -1, 1, -1)^T$

(a) *[6 pts]* Find the L_1, L_2 and L_∞ norms of **x**, **y** and **x - y**. In other words evaluate $||x||$, $||y||$ and $||x - y||$.

(b) *[4 pts]* Let the matrix A be the 4x4 matrix formed by the outer product of **x** and **y**. In other words, $A = xy^T$. Find the L_∞ norm of A.