Math 212 Fall 2005

BONUS Quiz 1
Multivariable Calculus

Name: _____

Date: _____

Time Begun: _____

Time Ended: _____

Friday September 16

Ron Buckmire

Topic : Planes

The idea behind this bonus quiz is to provide you with an opportunity to illustrate your undrestanding of planes and lines in n-dimensional space.

Reality Check:

EXPECTED SCORE : _____/**10**

ACTUAL SCORE : _____/**10**

Instructions:

0. Please look for a hint on this quiz posted to `faculty.oxy.edu/ron/math/212/05/`.

1. Once you open the quiz, you have **30 minutes** to complete, please 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 September 12**, 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.

1. Consider the position vectors **A** $(-1, 0, 2, 2)$, **B** $(2, 2, 0, 2)$ and **C** $(4, 4, -2, 2)$

a. (*3 points*) Find the vector equation of the plane which goes through these points in $\mathbb{R}^4$.

b. (*3 points*) Find the coordinates of three points (different from **A**, **B** and **C** which also lie on this plane.

c. (*4 points*) Find the equation of the plane through these three new points and show that this new plane is at least parallel to the plane in part (a).