

Quiz 2

Name: _____

Assigned: **Friday January 30**

Time Begun: _____

Due: **Monday February 2**

Time Ended: _____

Prof. Ron Buckmire

Topic : Planes and the Cross Product

The idea behind this bonus quiz is to provide you with an opportunity to illustrate your understanding of planes 3-dimensional space.

Reality Check:

EXPECTED SCORE : _____/10

ACTUAL SCORE : _____/10

Instructions:

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. QUIZZES WITH UNSTAPLED SHEETS WILL NOT BE GRADED.
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 at the beginning of class on Monday February 2.**
NO LATE OR UNSTAPLED QUIZZES WILL BE ACCEPTED FOR GRADING.

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 $\vec{A} = (-1, 0, 2)$, $\vec{B} = (2, 2, 0)$ and $\vec{C} = (4, -2, 2)$ in \mathbb{R}^3 .
- a. (5 points) Find the general equation of the plane which goes through these three points in \mathbb{R}^3 .

b. (2 points) Show that a normal vector for your plane in (a) is $\vec{n} = 2\hat{i} + 5\hat{j} + 8\hat{k}$.

c. (3 points) Show that the normal vector for the plane given in part (b) is not orthogonal to any of the position vectors $\vec{A} = (-1, 0, 2)$, $\vec{B} = (2, 2, 0)$ or $\vec{C} = (4, -2, 2)$. Is this a surprise? EXPLAIN YOUR ANSWER!