

BONUS Quiz 4

Multivariable Calculus

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Friday February 17

Time Begun: \_\_\_\_\_

Ron Buckmire

Time Ended: \_\_\_\_\_

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**Topic :** Application of Partial Derivatives

The idea behind this bonus quiz is to provide you with an opportunity to illustrate your understanding of partial derivatives.

**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/212/06/](http://faculty.oxy.edu/ron/math/212/06/).
1. Once you open the quiz, you have as much time as you like to complete it, 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 February 20**, 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.

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1. Consider  $f(x, y) = e^{\sin(x)} \cos(xy)$ ,

(a) (2 points) Compute  $f_x$  and  $f_y$ .

(b) (5 points) Find the equation of the tangent plane to this surface  $z = f(x, y)$  at  $(0, 0)$ .

(c) (3 points) Sketch 2-d graphs of what the tangent plane looks like in the (i)  $xy$ -plane with  $z = 0$   
(ii)  $zx$ -plane with  $y = 0$  and (iii)  $zy$ -plane with  $x = 0$ .