Quiz **5**   Complex Analysis

Name: _____

Friday February 20

Date: _____

Time Begun: _____   Ron Buckmire

Time Ended: _____

Topic : Complex Exponential

The point of this quiz is to show your understanding of the Complex Exponential function.

Reality Check:

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

Instructions:

0. Before you open the quiz, check out the hint at `http://blackboard.oxy.edu`.

1. Once you open the quiz, you have 40 minutes to complete it.

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 23**, 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.

(a) (*4 points*) What is the image of the set $D = \{z : \pi \geq \text{Re } z \geq 0\}$ under the mapping $w = e^z$?
   Sketch the image and pre-image sets.

(b) (*3 points*) Find all solutions of $e^z = -4$, if they exist.

(c) (*3 points*) Evaluate $\lim\limits_{z \to 0} \dfrac{e^z - 1}{z}$