Math 312 Spring 2004

Quiz **1**

Name: _____

Date: _____
Time Begun: _____
Time Ended: _____

Complex Analysis
Monday January 26
Ron Buckmire

Topic : Arithmetic and Algebra with Complex Numbers

The point of this quiz is to get practice manipulating complex numbers so that operations on them become as familiar to you as real numbers.

Instructions:

1. Once you open the quiz, you have 60 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 Wednesday, January 28**, 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.

SHOW ALL YOUR WORK

1. (*2 points*) Prove, for any complex number z, Re $z = \dfrac{z+\bar{z}}{2}$ and Im $z = \dfrac{z-\bar{z}}{2i}$

2. (*2 points*) Describe and sketch the set of points which solve the equation Re $z + 1 = |z - 1|$

3. (*6 points*) Given that $z = -3 + 3i$, compute each of the following and sketch them on an Argand diagram.

   (a) arg z

   (b) $-\arg \bar{z}$

   (c) $-\arg\left(\dfrac{1}{z}\right)$