

Quiz 1

Complex Analysis

Name: _____

Friday January 22

Time Begun: _____

Time Ended: _____

Prof. Ron Buckmire

Topic : Arithmetic and Algebra with Complex Numbers

The **Learning Goal** of this quiz is for you to get practice manipulating complex numbers so that arithmetic operations on them become as familiar to you as real numbers.

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 on Monday January 25**, in class. NO LATE OR UNSTAPLED 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. (3 points) Prove the following statements are true for any complex number z :

$$\operatorname{Re}(z) = \frac{z + \bar{z}}{2} \text{ and } \operatorname{Im}(z) = \frac{z - \bar{z}}{2i}$$

2. (4 points) Describe and sketch the set of points in the complex plane which satisfy the equation

$$\operatorname{Re}(z) + 1 = |z - 1|$$

3. (3 points) In the complex plane, which of the points i , $2 - i$, $-1 + i$ and -3 is farthest from the origin? Which is closest?