Quiz 6 Complex Analysis

Name: _____

ASSIGNED: **Friday March 18**
DUE: **Monday March 21**

Time Begun: _____
Time Ended: _____

Prof. Ron Buckmire

Topic : Complex Integration

The **learning goal** of this quiz is to provide an opportunity to demonstrate facility and understanding of integration of complex functions.

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 March 21**, 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.

Math 312 Spring 2016 **SHOW ALL YOUR WORK & EXPLAIN EVERY ANSWER** Quiz **SIX**

Consider the following integral in complex variables

$$\int_C (x^2 - y^2) + (2xy)i \; dz$$

(a) (*4 points*) Compute the value of the integral where C consists of line segments going from 1 to i by going along the x axis and then the y axis. Sketch the contour and write down the parametrization(s) used.

(b) (*4 points*) Compute the value of the integral where C consists of one line segment going from 1 to i directly. Sketch the contour and write down the parametrization(s) used.

(c) (*2 points*) Do you get the same answer for evaluating this function along the two different contours? Do you expect to get the same answer? Give a short reason to support your answer(s). [HINT: is the function being integrated an analytic function? How do you know?]