Homework #5 • MATH 322 • Contours & Complex Integration

- submit your write-up into your Section's box by noon, Friday 13 October.
- please acknowledge collaborations & assistance from colleagues.
- note: problem **C)** should be submitted with Homework #6.

A) Complex-Valued Trig & Hyperbolic Functions (1 page for each problem, 10pts) Problems #2 (page 103), #13 (page 104), and #16 (page 108).

B) Arcs & Contours (1 page for each problem, 10pts) Problem #1b (page 115). Problem #4 (page 115-6) illustrates an alternative approach for evaluating real-valued integrals. Include a final statement explaining how these integrals are treated using the regular calculus & the relative advantages/disadvantages of each method. Finally, problem #2 (page 121) introduces rather confusing notation (by using z in two different ways), please work the problem by using the modified notation:

$$w(\theta) = 2e^{i\theta}$$
$$W(y) = \sqrt{4 - y^2} + iy$$

where the focus is on verifying that $W(y) = w(\phi(y))$.

C) Contour Integrals (2 pages max, 10pts, <u>due 20 October</u>) Problems #3 and #4 (page 129).

* Good Practice The following problems are noteworthy, but are not part of the submitted assignment:

#3, 4, 10, 11, 14 on pages 104-5.

#6, 14 on page 107.

#5 on page 121.

#11 on page 130.