Homework #3 • MATH 322 • Continuity & Differentiability

- please respect page limits. Have each problem {**A)**, **B)** ...} start at the top of a new page.
- submit your write-up into your Section's box by noon, Friday 29 September.
- I'm please with the contributions to the webct discussion, but ...
- ... please acknowledge collaborations & assistance from colleagues.

A) An Easy Start (2 pages max, 10pts) Present solutions to #11 of page 54, and #4,7 of page 60. Reference from the text/lectures the key results that are needed to support your arguments.

B) Differentiability (3 pages max, 10pts) Problems #1d, 2b, 3b, 4c on page 68. Contrast your results of #1d and 2b. For problem #3b, determine the existence of $f'(z)$ by invoking the theorems of sections 20 & 21. For #4c, be sure your discussion addresses the importance of the given domain of definition.

C) Cauchy-Riemann in Polar Form (3 pages max, 10pts) Carry out the derivations of #7,8,9 of page 69. However, for Problem #9b, replace $f(z) = 1/z$ by $f(z) = z^n$.