Math 331 Mission 8 [30pts]

Copying answers and steps is strictly forbidden. Same instructions as Mission 1. Do not fold. Thanks!

## Problem 71 Your signature below indicates you have:

(a.) I have read  $\S 6.1 - 6.4, 7.1 - 7.4, 8.1, 8.2, 9.1 - 9.3$  of Gamelin:

(b.) I have read Cook's Guide to Chapter 7 and 8:\_\_\_\_\_\_\_

**Problem 72** §*VII.*1 # 1*b*, 1*d*, 1*e*, 1*g* (page 198) (residue)

**Problem 73** §*VII*.1 # 3c, 3e, 3f (page 198) (residue)

**Problem 74** §VII.2 # 6 (page 202) (improper integral via contour technique)

**Problem 75** §VII.3 # 1 (page 205) (trigonmetric integral via residues)

**Problem 76** §VII.4 # 3 (page 208) (keyhole contour)

**Problem 77** §VIII.1 # 4 (page 228) (argument principle zero-counting)

Problem 78 §VIII.2 # 3 (page 230) (Rouché's Theorem)

**Problem 79** §IX.2 # 5 (page 265) (conformal self-map of upper half-plane)

**Problem 80** §IX.3 # 4 (page 271) (isometry and unitarity)