

# COMPLEX ANALYSIS, HW # 1

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Chapter 5, problem 10, Chapter 6, problems 3, 4, 6, 8 and these problems:

## Problem 1.

Construct a conformal mapping that sends the open set

$$U_1 = \{z = x + iy \mid 0 < y < x\}$$

to the open set

$$U_2 = \{z = x + iy \mid x^2 + y^2 < 1, y > 0\}.$$

## Problem 2.

Find explicitly a conformal mapping of the domain

$$\left\{ z \in \mathbb{C} \mid |z| < 1, \left| z - \frac{1}{2} \right| > \frac{1}{2} \right\}$$

to the unit disc.