

Math 122B Homework 3

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1 Problem 1

Find a conformal mapping of the upper half-plane onto an equilateral triangle

Proof.

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2 Problem 2

Suppose f is an entire function mapping a rectangle to a rectangle. Prove that $f(z) = az + b$, where $a \neq 0$ and b are complex numbers.

Proof.

□

3 Problem 3

Let R be an open, simply connected subset of the complex plane. Let $z_1, z_2 \in R$. Prove that there exists a conformal mapping of R onto R which takes z_1 into z_2 .

Proof.

□

4 Problem 4

Let R be an open, simply connected domain, different than the entire complex \mathbb{C} . Prove that there exists no conformal mapping of \mathbb{C} onto R .

Proof.

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