**MATH103: Complex Analysis** **Fall 2023**

# Homework 12

David Yang

*Chapter XI (Conformal Mapping) Problems.*

Section XI.5 (Compactness of Families of Functions), Problem 7

**Let $D$ be a bounded domain, and let $f(z)$ be an analytic function from $D$ into $D$. Show that if $z_0 \in D$ is a fixed point for $f(z)$, then $|f'(z_0)| \leq 1$.**

*Solution.* ■

Extra Problem

**Find a conformal map that takes** $\{0 < \arg z < \frac{\pi}{2},\, 0 < |z| < 1\}$ **onto** $\{|z| = 1\}$**.**

*Solution.* ■