

**Homework 6**  
**Due 7/14/05**

**Problem 1:** Suppose that  $f(z)$  is holomorphic on  $G$  and  $f'(z)$  is continuous on  $G$ . Also suppose that  $|f(z) - 1| < 1$  for all  $z \in G$ . For every closed piecewise  $C^1$  curve  $\gamma: [a, b] \rightarrow G$ , show that

$$\int_{\gamma} \frac{f'(z)}{f(z)} dz = 0$$

**Problems 2-8:** VI.7.2, VI.8.3 (note:  $f$  may not be holomorphic!), VI.8.4, VI.12.1, VI.12.2, VII.4.1, VII.5.1 (it's the only exercise after section VII.5).