Math 336 Midterm, April 26, 2010

Name:_____

One notebook sized page of notes is allowed on the test.

1. Let Ω be an open connected set in $\mathbb{C}$. Suppose f and $\overline{f}$ are analytic on Ω. Prove that f is constant.

2. Suppose f is an entire function and $|f(z) - 1| > 1$ for all z. Prove that f is constant.

3. Compute

$$\int_{|z-3|=2} \frac{e^z dz}{z(z-2)}.$$

4. Compute

$$\int_{|z|=1} \frac{|dz|}{|z-2|^2}.$$