Assignment #3

Due: Thursday, March 6, 4:00 pm

You are being evaluated on the presentation, as well as the correctness, of your answers. Try to answer questions in a clear, direct, and efficient way. Sloppy or incorrect use of technical terms will lower your mark.

1. Give the complex form of the principal value of $e^{\sqrt{i}}$.

2. Evaluate
(a) $(1 - i)^{1+i}$
(b) $\sinh(1 + \pi i)$
(c) $i^{i^{i}}$

3. Show that $\sin \bar{z}$ is nowhere analytic.

4. Find the largest domain of analyticity for the following functions:
(a) $f(z) = \mathrm{Log}(z^2)$
(b) $f(z) = \mathrm{Log}(\mathrm{Log}(z))$

5. Find all values of z for which $\cosh z = \frac{1}{2}$.