

Math 8051 Homework 3

Due Wednesday, 9/27/17

1. Prove Proposition 5.2 on page 24.
2. Exercise 4 on page 28.
3. Use the Lebesgue Number Lemma to give another proof that a continuous function on a compact set must be uniformly continuous.
4. Fill in the details in the proof of Proposition 1.6 on page 32.
5. Find the radius of convergence of the following power series.
 - a) $\sum 2^n z^n$
 - b) $\sum \frac{1}{n^n} z^n$
 - c) $\sum (\log n)^2 z^n$
 - d) $\sum a^{(n^2)} z^n$, where $|a| < 1$.