Assignment #6
Due on Friday, 28 February, 2014.

1. Prove the following variant of the Cauchy Condensation Lemma:

If a_n is a monotonically decreasing sequence of non-negative reals and $\sum_{k=0}^{\infty} 2^k a_{2^k+1}$ diverges, then $\sum_{n=0}^{\infty} a_n$ diverges.

Note that it isn't quite the converse of the usual Cauchy Condensation Lemma. *[5]*

2. Determine whether the series $\sum_{n=0}^{\infty} \frac{n^n}{e^n n!}$ converges or diverges. *[5]*