Math 1B, Quiz 6

Monday, March 9

1. TRUE OR FALSE (2 pts each). You DO NOT have to show your reasoning if the answer is true. If the answer is false, provide a counterexample (if appropriate).

   (a) If $\sum a_n$ is absolutely convergent then $\sum a_n \cos(n)$ is absolutely convergent.

   (b) If $a_n > b_n > 0$ and $\sum a_n$ is divergent then $\sum b_n$ is divergent.

   (c) The Ratio Test can be used to show that $\displaystyle\sum_{n=1}^{\infty} \frac{(-1)^n}{n^2}$ is convergent.

2. (2 pts each) Identify each of the following series as absolutely convergent, conditionally convergent, or divergent. You must justify your answers.

   (a) $\displaystyle\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt{n}}$

   (b) $\displaystyle\sum_{n=1}^{\infty} \left(\frac{n+3}{2n+4}\right)^n$

   (c) $\displaystyle\sum_{n=1}^{\infty} \frac{50^n}{n!}$

Extra Credit

Write $e^{0.06}$ in decimal form as accurately as you can ($\sum_{i=1}^{n} \frac{1}{5i}$ pts for n decimal places).