Homework Number Six

This homework assignment is due Monday, October 22nd by 4 p.m., either to me in my office or else in our Homework Box. You may speak to your classmates and others (and me) about these problems, but your write-up should be your own. Show your work!

1. Determine whether the following positive series converge. Cite the test you use, and show how it works!

   - $\sum \frac{1+3n^2}{n^3+345}$
   - $\sum \cos \frac{1}{n}$
   - $\sum \frac{1}{n3^n}$
   - $\sum \frac{\ln n}{n}$

2. Determine whether the following series are conditionally or absolutely convergent. Justify your answers!

   - $\sum \frac{(-1)^n}{\sqrt{n+1}+1}$
   - $\sum \frac{(-2)^n}{n!}$

3. Determine the interval of convergence for the power series

$$\sum \frac{(x-2)^n}{n+4}$$

4. Find the Taylor series for $f(x) = 1/x$ centered at $a = 1$.