Math 143 Quiz 2

Names: _____

1. For which values of p does $\sum_{n=2}^{\infty} \frac{1}{n(\ln n)^p}$ converge?

2. For which values of x does $\sum_{n=0}^{\infty} \frac{x^{2n}+1}{x^n+1}$ converge?

3. Suppose that $a_n > 0$ and suppose the sequence $\sum_{n=0}^{\infty} a_n$ converges. Does $\sum_{n=0}^{\infty} a_n^2$ converge? Why?

4. Find the values of x for which $\sum_{n=2}^{\infty} \frac{x^{n+1} + (1+x)^n}{2^n}$ converges. Then find the exact value when it does.