Math 1b. Series—Other Convergence Tests (The Ratio Test)

Spring 2006

1. Determine the convergence of $\sum_{n=1}^{\infty} \frac{n!}{(2n)!}$.

2. Determine the convergence of $\sum_{n=1}^{\infty} \frac{n!}{(n+2)!}$.

3. Determine the convergence of $\sum_{n=1}^{\infty} \frac{1}{\sqrt[3]{n^2-1}}$.

4. Determine the convergence of $\sum_{n=1}^{\infty} \frac{\arctan n}{1+n^2}$.

5. Determine the convergence of $\sum_{n=1}^{\infty} \frac{n^3}{n^5+4}$.

6. Determine the convergence of $\sum_{n=1}^{\infty} \frac{1}{n3^n}$.

7. Determine the convergence of $1 + \frac{1}{1\cdot 3} + \frac{1}{1\cdot 3\cdot 5} + \frac{1}{1\cdot 3\cdot 5\cdot 7} + \cdots$.