# Math 109 HW 10

Fall 2018

Determine whether the series converges or diverges using comparison test (including limit comparison test).

1. $\sum_{n=2}^{\infty} \frac{1}{n^2 \ln n}$
2. $\sum_{n=1}^{\infty} \frac{\ln n}{n^4}$

Determine whether the series converges or diverges.

3. $\sum_{n=1}^{\infty} \frac{(-1)^n}{4+3^n}$
4. $\sum_{n=2}^{\infty} \frac{(-1)^n}{n^2 - 3\ln n}$
5. $\sum_{n=2}^{\infty} \frac{(-1)^n}{\sqrt{n}\ln n}$
6. $\sum_{n=1}^{\infty} \frac{(-1)^n(n^2+1)}{n^2 - 2\sqrt{n}}$
7. $\sum_{n=2}^{\infty} (-1)^n \frac{n}{n^4 - 1}$

Determine whether the series is absolutely convergent or conditionally convergent.

8. $\sum_{n=1}^{\infty} \frac{\cos n\pi}{\sqrt[3]{n}}$
9. $\sum_{n=2}^{\infty} \frac{(-1)^n}{n^2 + n}$