

Graded out of 40 points. No aids (book, notes, calculator, phone, etc.) are permitted. Show all work and use proper notation for full credit. Answers should be in reasonably simplified form.

1. Determine whether each of the following series diverges, converges conditionally, or converges absolutely.

(a) (10 points.) $\sum_{n=2}^{\infty} \frac{(-1)^n}{n^2 \ln(n)}$

(b) (10 points.) $\sum_{k=0}^{\infty} \frac{(-1)^{k-1}}{2(k+1)}$

2. Determine whether each of the following series converges or diverges.

(a) (10 points.) $\sum_{k=1}^{\infty} \frac{5^k}{k!}$

(b) (10 points.) $\sum_{n=5}^{\infty} \frac{n}{2^n}$