Homework 2-01

due July 2 in class

Problem 1. Use comparison/ratio test to determine if the following series converge or diverge.

(a) ∑ \( \frac{n!}{(2n+1)!} \).
(b) ∑ \( \frac{e^n}{n^5} \).
(c) ∑ \( \frac{n \ln n}{(-2)^n} \).

Problem 2. Determine if the following series converge absolutely, converge conditionally, or diverge.

(a) ∑ \( \frac{(-1)^n}{n+3} \).
(b) ∑ \( \frac{(-1)^n n}{n+1} \).
(c) ∑ \( \frac{(-1)^n}{n!} \).

Problem 3. Use any method learned so far to determine if the following series converge or diverge.

(a) ∑ \( \frac{\cos n\pi}{n} \).
(b) ∑ \( \left( \frac{n+1}{n+2} \right)^n \).
(c) ∑ \( (-1)^n \frac{n}{\ln n} \).