

Math 1B Discussion Problems 28 Feb

1. Determine whether each of the following series converges or diverges. If the series converges find its sum.

(a) $\sum_{n=1}^{\infty} \frac{2^n - 1}{3^n}$

(b) $\sum_{n=1}^{\infty} \cos(n\pi)$

(c) $\sum_{n=1}^{\infty} \frac{\cos(n\pi)}{3^n}$

(d) $\sum_{n=1}^{\infty} \left(1 - \frac{1}{n}\right)^n$

(e) $\sum_{n=1}^{\infty} (\sqrt{n+4} - \sqrt{n+3})$

2. Determine whether each of the following series converges or diverges using the integral test. If the series converges estimate its sum by taking $n = 4$.

(a) $\sum_{n=1}^{\infty} \frac{1}{n^2+4}$

(b) $\sum_{n=1}^{\infty} \frac{n}{n^2+4}$

(c) $\sum_{n=1}^{\infty} \frac{n^2}{e^n}$