

Section 11.5: Additional Problems

1) Do these series converge or diverge?

$$\sum_{n=1}^{\infty} \frac{(-0.5)^n}{n} \qquad \sum_{n=1}^{\infty} (-1)^n \frac{\ln(n)}{n}$$

2) Challenging Problem: Explains why the decreasing of the b_n is needed for the alternating series test.

Show that the series $\sum_{n=1}^{\infty} (-1)^{n-1} b_n$, where $b_n = \frac{1}{n}$ if n is odd and $b_n = \frac{1}{n^2}$ if n is even, is divergent.

Why does the alternating series Test not apply?

3) Does this series converge?

$$\sum_{n=1}^{\infty} (-1)^n n e^{-n}$$