

last one - alternating series test

1. Use the alternating series test to determine whether or not the following series are convergent.

(a)

$$\sum_{k=1}^{\infty} \frac{k \cos k\pi}{k^2 + 1} = \sum_{k=1}^{\infty} \frac{(-1)^k k}{k^2 + 1}$$

(b)

$$\sum_{k=1}^{\infty} \frac{(-1)^{k+1} k!}{(2k)!}$$

(c)

$$\sum_{k=1}^{\infty} (-1)^{k+1} \sqrt[k]{k}$$

2. Give an example of . . .

a. an absolutely convergent alternating series.

b. a conditionally convergent alternating series.

c. a divergent alternating series.

d. a divergent alternating series with $\lim_{n \rightarrow +\infty} a_n = 0$.