

QUIZ 1
Mathematics A2
Feb 10, 2012

1. Converges or diverges? Give reason for your answer.

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

b.) $\sum_{n=1}^{\infty} \frac{\ln n}{n}$

c.) $\sum_{n=1}^{\infty} \frac{1}{n^2 - 2n + 5}$

d.) $\sum_{n=1}^{\infty} \frac{2n}{n^2 + 1}$

2. Give the sum of the series (if it exists):

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

b.) $\sum_{n=1}^{\infty} \frac{e^{2n} - e^n}{e^{3n}}$

3. Converges absolutely, converges conditionally or diverges? Give reason for your answer.

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

b.) $\sum_{n=1}^{\infty} (-1)^n \frac{1}{2n + 6}$

c.) $\sum_{n=1}^{\infty} (-1)^n \left(\sqrt{n^2 + 2n} - n \right)$