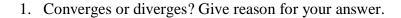
Numerical series Mathematics A2 1st week



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

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

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

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

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