The Integral Test and Estimates of Sums

SYMPLIT

1. Determine if the series $\sum_{n=2}^{\infty} \frac{1}{n(\ln n)^2}$ converges or diverges.

2. Determine if the series $\sum_{n=1}^{\infty} \frac{2}{4n^2-1}$ converges or diverges.

3. Determine if the series $\sum_{n=1}^{\infty} ne^{-n^2}$ converges or diverges.

4. Determine if the series $\sum_{n=1}^{\infty} \frac{\ln n}{n^3}$ converges or diverges.

5. Determine if the series $\sum_{n=1}^{\infty} \frac{1}{n^2+4n+5}$ converges or diverges.

6. Find the values of p for which $\sum_{n=1}^{\infty} \frac{1}{n(\sqrt[5]{\ln n+4})^p}$ is convergent.

7. How many terms in the series $\sum_{n=1}^{\infty} \frac{1}{n^2}$ are needed to find the sum to within $\frac{1}{1000}$?

8. Estimate the error in using s_{10} as an approximation to the series $\sum_{n=1}^{\infty} \frac{1}{n(\ln n+1)^3}$

9. Find the sum of the series $\sum_{n=1}^{\infty} \frac{1}{n^5}$ correct to 2 decimal places.