

Convergence Tests Worksheet

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Exercises

Apply the correct test to determine the convergence or divergence of each of the following series.

I. $\sum_{k=2}^{\infty} \frac{1}{k \ln(k)^2}$

II. $\sum_{k=1}^{\infty} \frac{k+1}{2k^2-1}$

III. $\sum_{k=1}^{\infty} \left(\frac{4k-3}{2k+1} \right)^k$

IV. $\sum_{k=1}^{\infty} \frac{1}{k} \sin(1/k)$

V. $\sum_{k=1}^{\infty} \frac{1}{k \ln(k)}$

VI. $\sum_{k=1}^{\infty} \frac{k^k}{k!}$

VII. $\sum_{k=1}^{\infty} \frac{(2k)!}{4^k}$

VIII. $\sum_{k=1}^{\infty} \left(\frac{1}{\ln(k+1)} \right)^k$

IX. $\sum_{k=1}^{\infty} \frac{1}{2k-1}$

X. $\sum_{k=1}^{\infty} \frac{k}{2^k}$