

The Ratio and Root Test

The ratio test –

The root test -

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

$$\sum_{n=1}^{\infty} \frac{n!}{10^n}$$

$$\sum_{n=1}^{\infty} \frac{n2^n (n+1)!}{3^n n!}$$

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

$$\sum_{n=1}^{\infty} \frac{n}{(\ln n)^{n/2}}$$

$$a_1 = 5 \quad a_{n+1} = \frac{\sqrt[n]{n}}{2} a_n$$

$$a_1 = 3 \quad a_{n+1} = \frac{n}{n+1} a_n$$

$$a_1 = 1 \quad a_{n+1} = \frac{1 + \tan^{-1} n}{n} a_n$$

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