Worksheet: Ratio and root tests

Use the ratio and root tests, or other tests as needed, to determine if the series converges or diverges.

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

B. $\displaystyle\sum_{n=1}^{\infty} \frac{3^n}{n!}$

C. $\displaystyle\sum_{n=1}^{\infty} \frac{(n-1)^n}{n^n}$

D. $\displaystyle\sum_{k=1}^{\infty} \frac{e^k}{k^e}$

E. $\displaystyle\sum_{n=1}^{\infty} \frac{1}{(1+\ln n)^n}$

F. $\displaystyle\sum_{n=1}^{\infty} \frac{(2n)!}{n^{2n}}$

G. $\displaystyle\sum_{n=1}^{\infty} \frac{n!}{(n+2)!}$