

## Worksheet: Ratio and Root Test problems

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

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

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

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

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

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

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

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