

1. Test the series for convergence: $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{n^4 + 1}{n^5 + 1}$
2. Test the series for convergence: $\sum_{n=1}^{\infty} (-1)^n \csc^{-1} n$
3. Test the series for convergence: $\sum_{n=1}^{\infty} (-1)^{n-1} \sin\left(\frac{1}{n}\right)$
4. Test the series for convergence: $\sum_{n=1}^{\infty} n \left(\frac{-1}{3}\right)^n$
5. Test the series for convergence: $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n!}$
6. Test the series for convergence: $\sum_{n=1}^{\infty} (-1)^n \frac{n(n+1)}{n!}$
7. Test the series for convergence: $\sum_{n=1}^{\infty} (-1)^n \frac{n^2}{n+1}$
8. Test the series for convergence: $\sum_{n=1}^{\infty} (-1)^n \frac{e^n}{n!}$
9. How many terms of the series $\sum_{n=1}^{\infty} \frac{(-1)^n}{n^5}$ do we need to add in order to find the sum within .0001 of its actual value?
10. How many terms of the series $\sum_{n=1}^{\infty} \frac{(-1)^n}{(n^2)^n}$ do we need to add in order to find the sum within .0001 of its actual value?
11. Approximate the sum of $\sum_{n=1}^{\infty} \frac{(-1)^n}{n!}$ correct to 2 decimal places.