Series quiz

Select each of the following

1. $\displaystyle\sum_{n=1}^{\infty} \frac{(-1)^n}{1+3^n}$

   A. Converges or Diverges
   B. p-series, geometric, alternating, nth term

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

   A. Converges or Diverges
   B. p-series, geometric, alternating, nth term

1. $\displaystyle\sum_{n=1}^{\infty} \left(\frac{\pi}{e}\right)^n$

   A. Converges or Diverges
   B. p-series, geometric, alternating, nth term

1. $\displaystyle\sum_{n=1}^{\infty} \frac{\cos \pi n}{n^3}$

   A. Converges or Diverges
   B. p-series, geometric, alternating, nth term

1. $\displaystyle\sum_{n=1}^{\infty} \frac{1}{\sqrt{n}-1}$

   A. Converges or Diverges
   B. p-series, geometric, alternating, nth term

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

   A. Converges or Diverges
   B. p-series, geometric, alternating, nth term

1. $\displaystyle\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^3+2n}}$

   A. Converges or Diverges
   B. p-series, geometric, alternating, nth term

1. $\displaystyle\sum_{n=1}^{\infty} \frac{(-1)^n}{n^5-2}$

   A. Converges or Diverges
   B. p-series, geometric, alternating, nth term

1. $\displaystyle\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt[4]{n^3}}$

A. Converges or Diverges
B. p-series, geometric, alternating, nth term

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

A. Converges or Diverges
B. p-series, geometric, alternating, nth term

Find the interval of convergence of $\displaystyle\sum_{n=1}^{\infty} \frac{(-1)^n (x-2)^n}{(n+1)^2}$

Let $f(x) = \displaystyle\sum_{n=1}^{\infty} (-1)^{n+1} \frac{1}{4^n} \frac{1}{n}$. Use the first 4 terms of this series to approximate $f(2)$. Call this approximation P. Find an upper bound on the error $|P - f(2)|$.

Find the sum $\displaystyle\sum_{n=0}^{\infty} \frac{3^{n+2}}{4^n}$ or prove that the series diverges.

For which values of p will the following series converge: $\displaystyle\sum_{n=1}^{\infty} \frac{n^{p^2} - 1}{n^p + 1}$