Strategy for Testing Series

Question

Suppose $a_n = \dfrac{1}{n^4 + n + 2}$. Which of the following is a valid argument for why $\sum_{n=1}^{\infty} a_n$ converges?

A. $\lim_{n\to\infty} a_n = 0$, so $\sum a_n$ converges by the Test for Divergence.

B. $\lim_{n\to\infty} \dfrac{a_{n+1}}{a_n} = 1$, so $\sum a_n$ converges by the Ratio Test.

C. $\sum a_n$ is a p-series with $p = 4$, so $\sum a_n$ converges by p-test.

D. $a_n \leq \dfrac{1}{n^4}$ and $\sum \dfrac{1}{n^4}$ converges, so $\sum a_n$ converges by the Comparison Test.