Limit Comparison Test

Question

Which of the following limits would help you decide if $\displaystyle\sum_{n=1}^{\infty} a_n$ converges? (There may be more than one right answer.)

A. $\displaystyle\lim_{n \to \infty} \frac{a_n}{\frac{1}{n^2}} = 5$

B. $\displaystyle\lim_{n \to \infty} \frac{a_n}{\frac{1}{\sqrt{n}}} = 12$

C. $\displaystyle\lim_{n \to \infty} \frac{\left(\frac{1}{2}\right)^n}{a_n} = \infty$

D. $\displaystyle\lim_{n \to \infty} \frac{\frac{1}{n^2}}{a_n} = 0$