

Integral Test

AP Test

79. Let f be a positive, continuous, decreasing function such that $a_n = f(n)$.

If $\sum_{n=1}^{\infty} a_n$ converges to k , which of the following must be true?

A) $\lim_{n \rightarrow \infty} a_n = k$

B) $\int_1^n f(x) dx$ diverges

C) $\int_1^{\infty} f(x) dx$ diverges

D) $\int_1^{\infty} f(x) dx$ converges

E) $\int_1^{\infty} f(x) dx = k$

22. If $\lim_{b \rightarrow \infty} \int_1^b \frac{dx}{x^p}$ is finite, then which of the following must be true?

(A) $\sum_{n=1}^{\infty} \frac{1}{n^p}$ converges (B) $\sum_{n=1}^{\infty} \frac{1}{n^p}$ diverges (C) $\sum_{n=1}^{\infty} \frac{1}{n^{p-2}}$ converges

(D) $\sum_{n=1}^{\infty} \frac{1}{n^{p-1}}$ converges (E) $\sum_{n=1}^{\infty} \frac{1}{n^{p+1}}$ diverges