

Friday, March 8

Clicker Questions

Clicker Question 1

Practicing the Comparison Test

Determine the convergence or divergence of these two series:

$$\text{I. } \sum_{n=1}^{\infty} \frac{6^n}{5^n - 4^n}$$

$$\text{II. } \sum_{n=1}^{\infty} \frac{n}{n^2 - n + 4}$$

- A. I. diverges but II. converges
- B. both I. and II. diverge
- C. both I. and II. converge
- D. I. converges but II. diverges

Series to compare to

I. $\frac{6^n}{5^n - 4^n} > \frac{6^n}{5^n} = \left(\frac{6}{5}\right)^n$, and the geometric series $\sum_{n=1}^{\infty} \left(\frac{6}{5}\right)^n$ diverges.

II. $\frac{n}{n^2 - n + 4} > \frac{n}{n^2} = \frac{1}{n}$ when $n \geq 5$, and the harmonic series $\sum_{n=5}^{\infty} \frac{1}{n}$ diverges.