No.
Date

Barisan tak hingga

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ALDEN LUTHFI

(2.) $\{2, 1, \frac{2^3}{3^2}, \frac{2^4}{4^2} \dots\}$

formula eksplisit $a_n = \frac{2^n}{n^2}$, $n \geq 1$

a_n konvergen jika $\lim_{x\to\infty} f(x) = L$ dengan $f(x) = \frac{2^x}{x^2}$

$$\lim_{x\to\infty} \frac{2^x}{x^2} \underset{L}{=} \lim_{x\to\infty} \frac{2^x \ln 2}{2x} \underset{L}{=} \lim_{x\to\infty} \frac{2^x(\ln 2)^2}{2} = \infty$$

maka karena $\lim_{x\to\infty} f(x) = \infty$ dapat dipastikan bahwa a_n divergen

Deret tak hingga

(4.) deret $\sum_{n=1}^{\infty} \sqrt[n]{2}$ divergen jika $\lim_{x\to\infty} \sum_{n=1}^{x} \sqrt[n]{2} = \infty$

$\sum_{n=1}^{k} \sqrt[n]{2} = \sqrt{2} + \sqrt[3]{2} + \sqrt[4]{2} \dots \sqrt[k]{2}$

tes $\lim_{n\to\infty} \sqrt[n]{2} = 0 \rightarrow$ misal $f(x) = 2^{\frac{1}{x}} \rightarrow \lim_{x\to\infty} 2^{\frac{1}{x}}$

$= \lim_{x\to\infty} 2^{\lim_{x\to\infty} \frac{1}{x}} = 2^0 = 1$

karena $\lim_{n\to\infty} a_n \neq 0$ maka $\sum_{n=1}^{\infty} a_n = 2^{\frac{1}{n}} = \sqrt[n]{2}$ divergen