

## Quiz 1

Mar 03, 2016

Show all details.

1. Give formal definition of  $\lim_{n \rightarrow \infty} a_n = L$
2. Is  $\int_0^{\frac{\pi}{2}} \sqrt{\tan t} \, dt$  convergent? Explain.
3. Is  $\sum_{n=1}^{\infty} (1 + \frac{1}{n})^n$  convergent? Explain.
4. Is  $\sum_{n=3}^{\infty} \frac{1}{n(\ln n)^2}$  convergent? Explain.
5. Is  $\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^3 + 1}}$  convergent? Explain.
6. Is  $\sum_{n=1}^{\infty} \frac{2^n n! n!}{(2n)!}$  convergent? Explain.

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