

Why

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Problem

Consider the sequence $(a_n)_{n \in \mathbb{N}}$ defined by

$$a_n = \frac{1}{n^2}.$$

Does $\lim_{N\to\infty} \sum_{n=1}^N a_n$ exist? If so, what is the limit? These questions are known as the *Basel problem*.

Solution

Proposition 1.

$$\lim_{N \to \infty} \sum_{n=1}^{N} s_n = \frac{\pi^2}{6}.^2$$

¹Future editions will include. Future editions may also rename this sheet.

 $^{^2}$ Future editions will include a proof.

