Apostol, Tom M.

A proof that Euler missed: Evaluating ζ (2) the easy way. (English) Zbl 0538.10001

Math. Intell. 5, No. 3, 59-60 (1983).

The author proves Euler's identity $\sum_{n=1}^{\infty} n^{-2} = \pi^2/6$ by simply evaluating a certain double integral in two different ways. Contrary to the more standard proofs this approach can be presented in a course in elementary calculus.

Reviewer: F.Beukers

MSC:

11-01 Introductory exposition (textbooks, tutorial papers, etc.) pertaining to number theory
11M06 $\zeta(s)$ and $L(s,\chi)$
40A05 Convergence and divergence of series and sequences

Keywords:
zeta (2); summation of series; Euler's identity

Full Text: DOI

References:

[1] R. Apéry (1979) Irrationalité de {\(\zeta\)}(2) et {\(\zeta\)}(3).Astérisque 62.11–13. Paris: Société Mathématique de France.

[2] F. Beukers (1979) A note on the irrationality of {\(\zeta\)}(2) and {\(\zeta\)}(3),Bull. Lon. Math. Soc. 11:268–272. · Zbl 0421.10023 · doi:10.1112/blms/11.3.268

[3] F. Goldscheider (1913)Arch. Math. Phys. 20:323–324.