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New Wallis- and Catalan-type infinite products for π , e , and $\sqrt{2 + \sqrt{2}}$. (English)

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Wallis' infinite product is generalized and other Wallis-type products for other constants are established. The proofs use a classical infinite product formula involving the gamma function. Using the Stirling formula, Catalan's infinite product of radicals for e is extended to Catalan-type products for other constants involving e . Finally, an analog of Pippenger's formula is given.

Reviewer: [Cristinel Mortici \(Targoviste\)](#)

MSC:

[40A20](#) Convergence and divergence of infinite products

[33B15](#) Gamma, beta and polygamma functions

[11Y60](#) Evaluation of number-theoretic constants

Cited in **2** Reviews

Cited in **5** Documents

Keywords:

Wallis-type products; Catalan-type infinite products; Pippenger's product; constants; factorization; series; gamma function; Stirling's formula; Euler's reflection formula; factorials; asymptotics

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