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A faster product for π and a new integral for $\ln \frac{\pi}{2}$. (English) Zbl 1159.11328

Am. Math. Mon. 112, No. 8, 729-734 (2005).

Summary: From a global series for the alternating zeta function, we derive an infinite product for π that resembles the product for e^γ (γ is Euler's constant) in ["An infinite product for e^γ via hypergeometric formulas for Euler's constant, γ ", preprint, [urlarxiv:math/0306008](https://arxiv.org/abs/math/0306008)]. (An alternate derivation accelerates Wallis's product by Euler's transformation.) We account for the resemblance via an analytic continuation of the polylogarithm. An application is a 1-dim. analog for $\ln(\pi/2)$ of the 2-dim. integrals for $\ln(4/\pi)$ and γ in [*Am. Math. Mon.* 112, No. 1, 61-65 (2005; [Zbl 1138.11356](#))].

MSC:

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

[11M35](#) Hurwitz and Lerch zeta functions

Cited in **7** Documents

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