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Padé approximants, continued fractions and Heine's q-hypergeometric series. (English)

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The author investigates the Padé approximants to Heine's basic hypergometric function defined by

$$ {}_2\Phi_1(a,b;c;x) = \sum_0^\infty \frac{[a]_n[b]_n}{[q]_n[c]_n}x^n, |q|<1,\ |x|<1, $$

where $[\alpha]_n = (1-\alpha)(1-\alpha q)\dots(1-\alpha q^{n-1})$, $n \geq 1$ $[\alpha]_0 = 1$. Numerical results are provided which illustrate the superiority of the Padé approximations over Taylor series approximations.

Reviewer: A.Knopfmacher (Wits)

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33D20 Generalized basic hypergeometric series (MSC2000)
41A21 Padé approximation

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