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**Summing a curious, slowly convergent series.**

Am. Math. Mon. 115, No. 6, 525-540 (2008).

It is well known that unlike the harmonic series the series $\sum^{(9)} 1/n$ over all reciprocals of integers that do not contain the digit 9 in their base 10 representation converges. This is likewise true of all series $\sum^{(X)} 1/n$ in which $n$ is confined to the set of integers that do not contain the string $X$ in their base 10 representation. The purpose of the paper is to present an efficient algorithm for computing the value $\psi_X$ of such a series to an accuracy of 100 digits. (Actually, to compute $\psi_{42}$ was a challenge put forward by [*F. Bornemann, D. Laurie, S. Wagon, J. Waldvogel*, The SIAM 100-digit challenge. A study in high-accuracy numerical computing. (Philadelphia), PA: Society for Industrial and Applied Mathematics (SIAM). (2004; Zbl 1060.65002)]). The algorithm uses truncation and extrapolation methods and is linked to the Perron-Frobenius theorem on spectral properties of matrices with positive entries. The authors conjecture that for a sequence of $n$-digit strings $X_n$ without periodic patterns $\lim_n \psi_{X_n}/10^n = \log 10$ and prove a related conjecture for 1-periodic $X_n$.

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