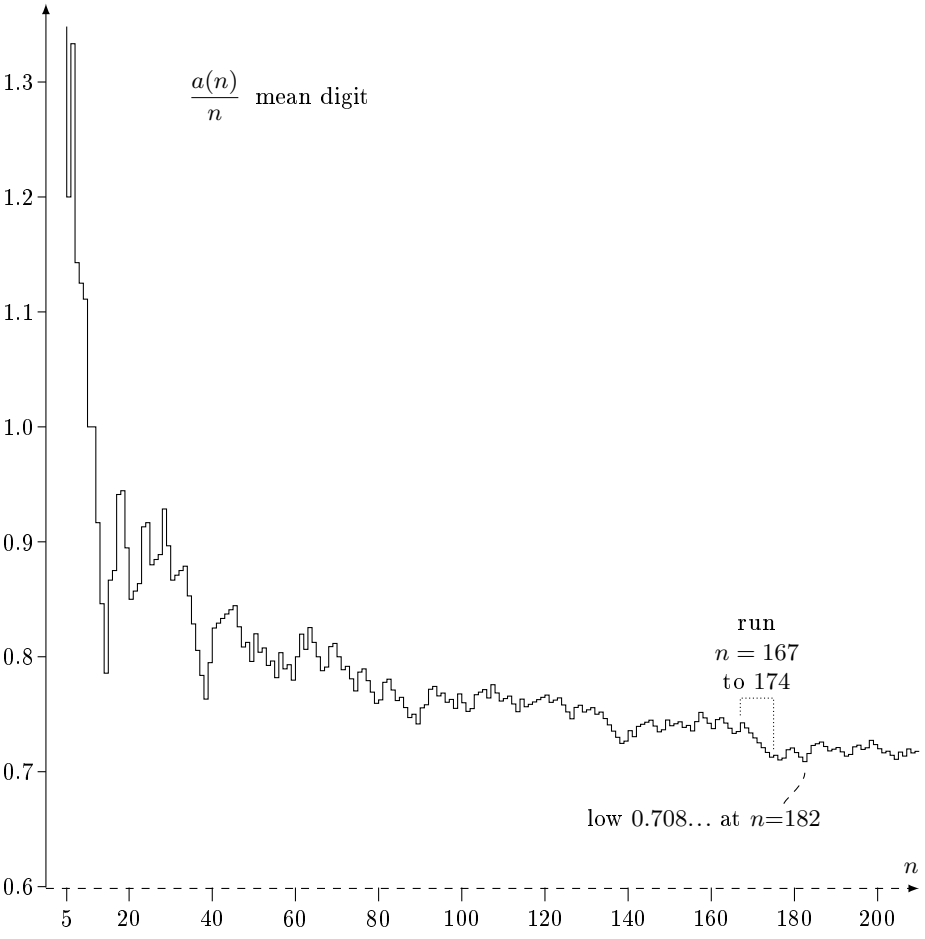
A364751 Base 4/3 Minimum Sum of Digits

Kevin Ryde, December 2023

A364751 is the minimum sum of digits for an n digit number in fractional base 4/3. The following is a plot of $a(n)/n$ which is the mean digit in such a number.



Initial terms $a(1...4)$ are omitted. Their means are 0, 1.5, 1.666..., 1.5.

The low (so far) is at n=182 which has minimum sum of digits $a(n) = 129$ for mean $129/182 = 0.708...$.

Some of the downward steps are runs where $a(n)$ is unchanged for a few n, and so a little downward hyperbola. The longest of these (so far) is the 8 terms $a(167...174) = 124$.

If digits were random $0, 1, 2, 3$ then the mean would be 1.5. Some experiments with small n suggest this is roughly so taken over all numbers of n digits.

The numerical minimum number with n digits is an initial 3 then only $0, 1, 2$ digits (ending 0). If those were random then their mean would approach 1. Some experiments suggest this is roughly so for small n.