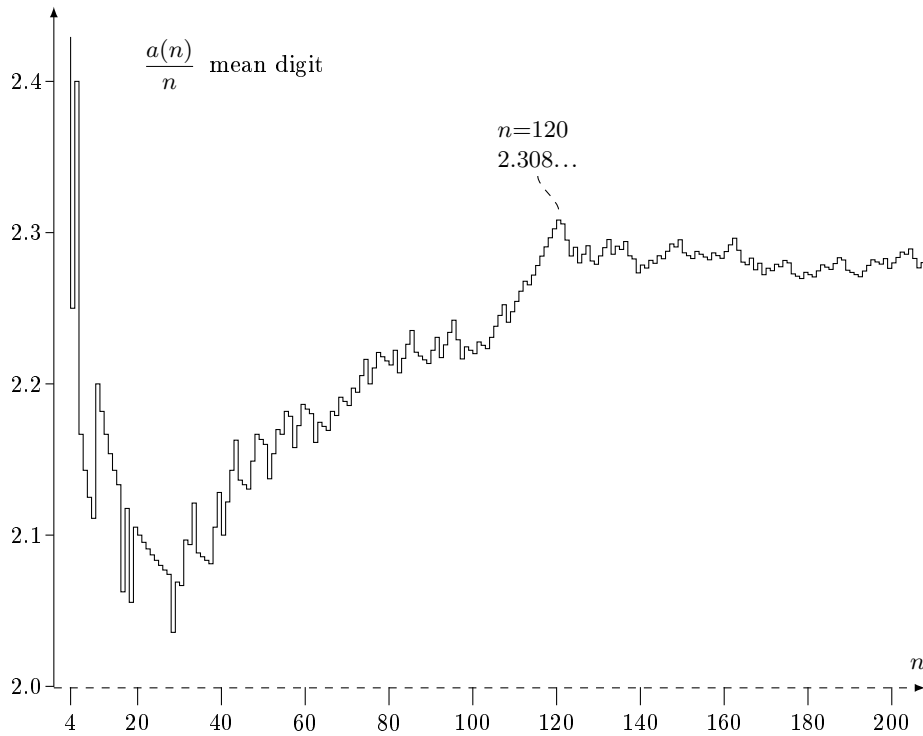


A363758 Maximum Sum of Digits

Kevin Ryde, March 2024

A363758 is the maximum 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 $a(1\dots3)$ are omitted. Their means are 3, 3, $2+\frac{2}{3}$.

The peak (so far) in the middle of the plot is at $n=120$ which has sum of digits $a(n) = 277$ for mean $277/120 = 2.308\dots$

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 maximum number with n digits uses only 1, 2, 3 (and ends 3). If those were random then their mean would be 2. Some experiments suggest this is roughly so for small n .

The plot up to the middle peak $n=120$ might have looked like continuing to grow, but beyond that the means drift down (so far) towards about 2.28.