

Python 04 Challenge!

Aitken's Δ^2 -method accelerates the convergence of sequences by transforming a slowly-converging sequence into a faster-converging one with the same limit. The formula is

$$\hat{s}_i = s_i - \frac{(s_{i+1} - s_i)^2}{s_{i+2} - 2s_{i+1} + s_i}.$$

Write a generator that takes in a generator for a sequence and yields the Aitken acceleration of that sequence. As example input, use the sequence

$$s_N = \sum_{n=0}^N \frac{(-1)^n}{2n+1},$$

which converges to $\pi/4$ (slowly!).

Hint: `value = next(sequence)`.