

Cal Poly Department of Mathematics

Puzzle of the Week

Nov 6 - 12, 2014

Suggested to me by Tom O'Neil:

Let $\{x_n\}_{n=0}^{\infty}$ be the sequence defined recursively by

$$x_0 = a, \quad x_1 = b, \quad x_{n+1} = \frac{x_{n-1} + (2n-1)x_n}{2n}, \quad \text{for } n \geq 1.$$

Calculate, in terms of a and b , the value of $\lim_{n \rightarrow \infty} x_n$.

Solutions should be submitted to Morgan Sherman:

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before next Thursday. Those with correct and complete solutions will have their names listed on the puzzle's web site (see below) as well as in next week's email announcement. Anybody is welcome to make a submission.

<http://www.calpoly.edu/~sherman1/puzzleoftheweek>