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On the rational recursive sequence $x_{n+1} = \left(A + \sum_{i=0}^k \alpha_i x_{n-i} \right) / \sum_{i=0}^k \beta_i x_{n-i}$. (English)

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Summary: The main objective of this paper is to study the boundedness character, the periodic character, the convergence and the global stability of positive solutions of the difference equation

$$x_{n+1} = \left(A + \sum_{i=0}^k \alpha_i x_{n-i} \right) / \sum_{i=0}^k \beta_i x_{n-i}, \quad n = 0, 1, 2, \dots$$

where the coefficients A, α_i, β_i and the initial conditions $x_{-k}, x_{-k+1}, \dots, x_{-1}, x_0$ are positive real numbers, while k is a positive integer number.

MSC:

- 39A22 Growth, boundedness, comparison of solutions to difference equations
- 39A20 Multiplicative and other generalized difference equations, e.g., of Lyness type
- 39A30 Stability theory for difference equations
- 39A23 Periodic solutions of difference equations

Cited in **1** Review
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Keywords:

boundedness character; period two solution; convergence; global stability; rational difference equation; positive solutions

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