ASYMPTOTIC BEHAVIOR OF TWO DIMENSIONAL RATIONAL SYSTEM OF DIFFERENCE EQUATIONS

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Abstract. In this paper, we investigate global behavior of the system of two nonlinear difference equations

$$x_{n+1} = \frac{a_1 x_n}{a_2 + a_3 y_n^r}, \quad y_{n+1} = \frac{b_1 y_n}{b_2 + b_3 x_n^r}, \ n = 0, 1, ...,$$

where $a_1, a_2, a_3, b_1, b_2, b_3, r \in (0, \infty)$ and the initial conditions $x_0, y_0 \in (0, \infty)$. Some numerical examples are given to illustrate our results.

Keywords. difference equations, global stability, rate of convergence.

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