

## 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

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

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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