ASYMPTOTIC BEHAVIOR OF TWO DIMENSIONAL RATIONAL SYSTEM OF DIFFERENCE EQUATIONS

E. M. Elabbasy\textsuperscript{1} and S. M. Eleissawy\textsuperscript{2}

\textsuperscript{1}Department of Mathematics, Faculty of Science
Mansoura University, Mansoura, 35516, Egypt
\textsuperscript{2}Department of Physics and Engineering Mathematics
Faculty of Engineering, Port-Said University, Egypt

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

\[ x_{n+1} = \frac{a_1 x_n}{a_2 + a_3 y_n}, \quad y_{n+1} = \frac{b_1 y_n}{b_2 + b_3 x_n}, \quad n = 0, 1, \ldots, \]

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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email: journal@monotone.uwaterloo.ca