

1036-39-87

H Sedaghat* (hsedagha@vcu.edu), Department of Mathematics, Virginia Commonwealth University, Box 842014, Richmond, VA 23284-2014. *On a class of third order rational difference equations with quadratic terms.*

We discuss some facts known about the 3rd order rational difference equation

$$x_{n+1} = x_n \left(\frac{\alpha x_n + \beta x_{n-1} + \gamma x_{n-2}}{Ax_n + Bx_{n-1} + Cx_{n-2}} \right)$$

where

$$\alpha, \beta, \gamma, A, B, C \geq 0, \alpha + \beta + \gamma, A + B + C > 0.$$

We also suggest possible future directions for research on the above equation which has many nontrivial special cases that are obtained by setting one or more of the six coefficients equal to zero. (Received January 15, 2008)