



Name of Candidate: Mamdouh Rabia El-Sayed Abd El-Gawad

Degree M.Sc
Title of Thesis

On Some Qualitative Properties of Solutions of Some Nonlinear Difference Equations.

Supervisors:

١- Ass. Prof. Dr. M. S. M. Saif
Approval ١٣/٤/٢٠١١

٢- Ass. Prof. Dr. A. E. H. Sayed
Department Mathematics

ABSTRACT

In this thesis was state the reason for studying nonlinear difference equations lies in the fact they are fascinating mathematical problems in their own right and in addition form important mathematical models for real dynamical systems. Also, we are getting new results. Now we describe the contents of the thesis in details.

Chapter ١: In this chapter, we state some examples, definitions, and basic concepts of difference equations.

Chapter ٢: In this chapter we will review some results concerning the asymptotic behavior of solutions of rational difference equations with negative coefficients.

Chapter ٣: Throughout this chapter we obtain new results concerning the rational difference equation

$$x_{n+1} = \frac{-\alpha x_{n-2}}{\beta \pm x_{n-1}}$$

We investigate the global asymptotic behavior of solutions of this equation.

Chapter ٤: Throughout this chapter we obtain new results concerning the rational difference equation

$$x_{n+1} = \frac{\alpha - \beta x_{n-1}}{\gamma - x_n}$$

We investigate the global asymptotic behavior of solutions of this equation .