Electronic Journal: Southwest Journal of Pure and Applied Mathematics

Internet: http://rattler.cameron.edu/swjpam.html

ISBN 1083-0464

Issue 1 July 2004, pp. 1-9

Submitted: October 21, 2003. Published: July 1, 2004

ON THE APPROXIMATE SOLUTION OF SOME FREDHOLM INTEGRAL EQUATIONS BY NEWTON'S METHOD

J. M. GUTIÉRREZ, M. A. HERNÁNDEZ AND M. A. SALANOVA

ABSTRACT. The aim of this paper is to apply Newton's method to solve a kind of nonlinear integral equations of Fredholm type. The study follows two directions: firstly we give a theoretical result on existence and uniqueness of solution. Secondly we illustrate with an example the technique for constructing the functional sequence that approaches the solution.

A.M.S. (MOS) Subject Classification Codes. 45B05,47H15, 65J15

Key Words and Phrases. Fredholm integral equations, Newton's method.

University of La Rioja, Department of Mathematics and Computation

E-mail: jmguti@dmc.unirioja.es,mahernan@dmc.unirioja.es

C/Luis de Ulloa s/n. 26006 Logroño, Spain.

masalano@dmc.unirioja.es,

Supported in part by a grant of the Spanish Ministry of Science and Technology (ref. BFM2002-00222) and a grant of the University of La Rioja (ref. API-02-98). Copyright ©2004 by Cameron University