

# Abstract

This investigation is concerned with the solutions of nonlinear Volterra integral equations of second kind that have been determined by employing Optimal Homotopy Asymptotic method (OHAM). The reliability and efficiency of OHAM have been shown by solving examples of Volterra integral equation of second kind. It is shown through graphical illustration and tables that the OHAM solution has least maximum error among the other existing methods which proves the effectiveness and soundness of OHAM. It has also shown that how the OHAM solution converges to exact solution.

Chapter 1 includes fundamentals that assist to comprehend the phrasings which are going to be utilized later. Basic definitions in this chapter help to make a good concept about the theory of integral equations. .

In chapter 2, we have discussed Optimal Homotopy Asymptotic Method (OHAM) and its algorithm.

Chapter 3 includes numerical examples which are solved by Optimal Homotopy Asymptotic Method (OHAM).

In Chapter 4, we have observed that solution obtained by OHAM is more efficient and reliable than other methods.