On s-elementary wavelets in R and their applications in solving integral equations

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Abstract

In this paper, we introduce a class of s-elementary wavelets as the basis functions and use them to present an operational computational method for solving nonlinear Fredholm and Volterra integral equations. For presenting the methods, first, operational matrices for the s-elementary wavelets are derived. Then, the s-elementary wavelets bases along with these operational matrices are applied for solving integral equations. Convergence analysis of the s- elementary wavelets basis are investigated. To reveal the accuracy and efficiency of the proposed method some numerical examples are included and the obtained results are compared with some references.

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