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A New Approach to Numerical Solution of Nonlinear Partial Mixed Volterra-Fredholm Integral Equations via Two-Dimensional Triangular Functions

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Abstract

This paper proposes a numerical procedure for solving the nonlinear partial mixed Volterra-Fredholm integro-differential equations by two-dimensional triangular function (2D-TFs). The integration and differentiation in two-dimensional spaces have been presented for an operational matrix on triangular functions, whereas by converting the nonlinear partial mixed Volterra-Fredholm integro-differential equation to a system of algebraic by using these matrices. Some numerical examples, have been proposed to obtain the accuracy and effectiveness of the method.

Keywords: nonlinear equations; partial mixed Volterra-Fredholm integral equations; operational matrix; two-dimensional triangular functions.