

Numerical Solution of Two-Dimensional Integral-Algebraic Systems Using Legendre Functions

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We consider a method for computing approximate solutions to systems of two-dimensional Volterra integral equations. The approximate solution is sought in the form of a linear combination of two-variable shifted Legendre functions. The operational matrices technique is used to reduce the problem to a system of linear algebraic equations. Some numerical tests have been carried out and the results show that this method has a good performance, even in the case when the matrix A is singular in all the considered domain.