Numerical Solution of the coupled Burgers' equation by Trigonometric B-spline Collocation Method

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Abstract

In the present study, the coupled Burgers' equation is going to be solved numerically by presenting a new technique based on collocation finite element method in which trigonometric cubic and quintic B-splines are used as approximate functions. In order to support the present study, three test problems given with appropriate initial and boundary conditions are studied. The newly obtained results are compared with some of the other published numerical solutions available in the literature. The accuracy of the proposed method is discussed by computing the error norms L2 and L_{[?]}. A linear stability analysis of the approximation obtained by the scheme shows that the method is unconditionally stable.

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