Abstract

The stability of the spectral relaxation method (SRM) is demonstrated for boundary value problems. The analysis is based on basic concepts in the analysis of numerical methods and iterative methods. The derivation of the (SRM) scheme is discussed. Numerical examples are given for the case of the incompressible steady state problems. These sample calculations show that the schemes realize theoretical predictions of how their truncation errors depend on grid size. The Matlab codes are straightforward and allow the reader to see the differences in implementation between convergence, consistence and stability of the numerical scheme.