Numerical integration of functions from holder classes Hs [0, 1] by linear Legendre multiwavelets

ABSTRACT

In the previous research, a direct computational method based on linear Legendre multi-wavelets has been applied for solving definite integrals. However, the error analysis to show the convergence of the method has not been discussed. Therefore, error analysis of the approximation method is established in the Holder classes Hs[0, 1] to show the efficiency of the method. The connections of the module of difference smoothness of the function is also established. Finally, some numerical examples of the implementation the method for the functions from Holder classes are presented.

Keyword: Numerical integration; Holder classes; Linear Legendre multi-wavelets; Error analysis; Computational method; Efficiency