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COMPARING HYBRID FUNCTIONS AND HAAR WAVELETS TO ESTABLISH QUADRATURE RULES FOR NUMERICAL INTEGRATION

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Abstract: A quadrature rule based on hybrid functions and uniform Haar wavelets is provided to find approximations of the values of definite integrals. The main advantages of this approach are its simplicity and efficacy. We offer error estimates and numerical examples to verify the convergence and accuracy of the suggested approach.

Keywords and Phrases: Numerical method, Quadrature rule, Haar wavelets, Hybrid functions.

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1. Introduction

In science and engineering, numerical integration has numerous uses. Regarding the quadrature rule of numerical integration, a great deal of research has been done in this field. Polynomial interpolation serves as the foundation for the quadrature rule. To determine the weights associated with nodes, interpolating polynomials