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On a property of the ‘absolute value of a number’ function for different nodes of Lagrange interpolation. (Russian) [Zbl 1438.41001]

Summary: Lagrange interpolation processes are considered for the following matrices of interpolation nodes: the matrix of Chebyshev polynomials roots of the 1st kind, the matrix of Legendre polynomials roots, and the extended matrix of Legendre polynomials roots.

For these matrices the uniform convergence of Lagrange process of interpolation for the absolute value function proved. Also, we receive estimates on the order of convergence for each of these matrices. To ensure the quality of convergence, the endpoints of the segment were added as nodes to the matrix of Legendre roots. However, for the absolute value function the order of convergence of the Legendre process does not change, but improves by approximately 8 times. For comparison, the negative result of equidistant nodes is taken.

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Keywords:
modulus of a number; interpolation; Lebesgue constant; Chebyshev polynomial; Legendre polynomial; extended matrix

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