



Some remarks on quadrature formulae

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Abstract

Motivated by the works of L. Fejér, G. Szegő and others, we introduce the quasi-positive interpolatory quadratures and prove some theorems. Among others, in a way, we answer certain generalizations of two conjectures raised respectively by G. Milovanovic and W. Gautschi in [5].

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§1. Introduction. Notations. Some preliminary results

1.1. Let

$$Q_n(X, v, f) = \sum_{k=1}^n \lambda_{kn}(X, v) f(x_{kn})$$

be an interpolatory quadrature (IQ) for $\int_{-1}^1 f(x)v(x)dx$ which means that it is exact for polynomials of degree $n - 1$, i.e.

$$Q_n(X, v, x^r) = \int_{-1}^1 x^r v(x) dx, \quad r = 0, 1, \dots, n - 1. \quad (1.1)$$