

THE CORRECTED TWO-POINT WEIGHTED QUADRATURE FORMULAE

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Abstract. We derive a corrected version of the weighted two-point quadrature formula, which provides a better approximation accuracy than the ordinary two-point quadrature formulae. In the corrected two-point formula the integral is approximated both with the values of the integrand in nodes $-x$ and x , and the values of its first derivative at the endpoints of the interval $[-1, 1]$. The error estimates under various regularity conditions for such formulae are established. As special cases, the corrected two-point formulae of Gauss type are obtained. Also, corrected version of weighted trapezoid, midpoint, two-point Maclaurin and two-point Newton-Cotes formulae are considered.

Mathematics subject classification (2010): 26D15, 65D30, 65D32.

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