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Approximation, Numerical Differentiation and Integration Based on Taylor Polynomial

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Abstract: We represent new estimates of errors of quadrature formula, formula of numerical differentiation and approximation using Taylor polynomial. To measure the errors we apply representation of the remainder in Taylor formula by least concave majorant of the modulus of continuity of the $n-$th derivative of an $n-$times differentiable function. Our quantitative estimates are special applications of a more general inequality for P_n-simple functionals.