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Sharp Integral Inequalities Based on a General Four-Point Quadrature Formula via a Generalization of the Montgomery Identity

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**Abstract.** In this paper we consider families of general four-point quadrature formulae using a generalization of the Montgomery identity. The results are applied to obtain some sharp inequalities for functions whose derivatives belong to Lp spaces. Generalizations of Simpson’s 3/8 formula and the Lobatto four-point formula with related inequalities are considered as special cases.