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The asymptotic property of the “midpoint” for the high-order Cauchy’s mean value theorem with incomplete Beta integral. (Chinese. English summary) Zbl 07404454

Summary: In this paper, we studied a type of high-order Cauchy mean value theorems with incomplete Beta integral based on the auxiliary function, generalized the Cauchy’s mean value theorem. We also discussed the asymptotic property of “midpoint” ξ for the theorem, and generalized some existing results.

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26A24 Differentiation (real functions of one variable): general theory, generalized derivatives, mean value theorems

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incomplete Beta integral; Cauchy’s mean value theorem; auxiliary function; midpoint; asymptotic property