

Chaudhary, M. S.; Tikare, Sanket A.**On gauge Laplace transform.** (English) Zbl 1252.44001

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The Laplace transform (Riemann integral) and the Laplace-Stieltjes transform (Lebesgue integral) have been studied by many authors [*I. N. Sneddon*, The use of integral transforms. New York etc.: McGraw-Hill Book Company. (1972; [Zbl 0237.44001](#)); *L. Debnath*, Integral transforms and their applications. Boca Raton, FL: CRC Press. (1995; [Zbl 0920.44001](#)); *D. V. Widder*, The Laplace transform. New York. Princeton Press (1941; [JFM 67.0384.01](#))]. The gauge (Henstock-Kurzweil) integral [*C. Swartz*, Introduction to gauge integrals. Singapore: World Scientific. (2001; [Zbl 0982.26006](#))] is a generalization of Riemann, Lebesgue, Denjoy and Perron's integrals. In this paper, the authors consider the Laplace transform as a gauge integral. Using generalized differentiation, they obtain an inversion formula. Some elementary properties are given. The gauge Laplace transform of some functions are evaluated.

Reviewer: [S. L. Kalla \(Ellisville\)](#)**MSC:**[44A10](#) Laplace transform[26A39](#) Denjoy and Perron integrals, other special integrals[44A20](#) Integral transforms of special functions**Keywords:**[Laplace transform](#); [Henstock-Kurzweil integral](#); [inversion formula](#); [Laplace-Stieltjes transform](#); [gauge integrals](#); [gauge Laplace transform](#)**Full Text:** [Link](#)