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Adelic Formulae for Beta-functions in Fields of Algebraic Numbers

For the idele group of any field of algebraic numbers a regularization for divergent adelic products of gamma- and beta-functions for characters (ramified or non) of local fields is proposed, and corresponding regularized adelic formulae are obtained. Concrete realizations of the formulae obtained are given for the field of rational numbers, quadratic fields, circular fields and for some cubic fields. For oneclass quadratic fields necessary and sufficient conditions that a ramified character on idele group is trivial on the multiplicative group of the field are obtained, and the adelic formulae are specified. Applications to the Veneziano and Virasoro–Shapiro amplitudes.
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References: P. G. O. Freund, and E. Witten, Adelic String Amplitudes, *Phys. Lett. B* **199** (1987), 191–194. V. S. Vladimirov, Adelic Formulae for Gamma- and Beta-functions in Algebraic Number Fields, *Doklady Mathematics* **347** (1996), 11–15.