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RIEMANN ZETA FUNCTION AND THE GENERALIZED BERNOULLI POLYNOMIALS OF LEVEL m

YAMILET QUINTANA AND HÉCTOR TORRES-GUZMÁN

Abstract

In this work we show some relations between the Riemann zeta function and the generalized Bernoulli polynomials of level m. Our approach is based on the use of Fourier expansions for the periodic generalized Bernoulli functions of level m, as well as quadrature formulae of Euler-Maclaurin type. Some illustrative examples involving such relations are also given.

Keywords: Bernoulli polynomials, generalized Bernoulli polynomials of level m, Euler-Maclaurin quadrature formulae, quadrature formula, Riemann zeta function.

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Yamilet Quintana,
Departamento de Matemáticas Puras y Aplicadas,
Edificio Matemáticas y Sistemas (MYS), Apartado Postal: 89000, Caracas 1080 A,

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Universidad Simón Bolívar, Venezuela.
yquintana@usb.ve

Héctor Torres-Guzmán,
Departamento de Matemáticas Puras y Aplicadas,
Edificio Matemáticas y Sistemas (MYS), Apartado Postal: 89000, Caracas 1080 A,
Universidad Simón Bolívar, Venezuela.
12-11307@usb.ve