

Year: 2018	Vol.: 93	Fasc.: 1-2
------------	----------	------------

Title: An extension of the sine addition formula on groups and semigroups

Author(s): Bruce Ebanks

The functional equation $f(xy) = f(x)g(y) + g(x)f(y)$ is called the sine addition formula, and in a very general setting it is known that g must be the average of two multiplicative functions. Here we consider the case in which the two multiplicative functions coincide, but we generalize that case to a functional equation with four unknown functions. That is, assuming that M is a nonzero multiplicative function, we solve $f(xy) = k(x)M(y) + g(x)h(y)$ for the four unknown functions f, g, h, k on groups and certain semigroups under the additional assumption that the unknown functions are at least central.

Address:

Bruce Ebanks
Department of Mathematics
University of Louisville
Louisville, Kentucky 40292
USA