
Zbl 0865.11063

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On sets of uniqueness for completely additive arithmetic functions. (English)

Analysis 16, No.4, 405-415 (1996).

For a completely additive function $f:\mathbb{N}\to\mathbb{C}$ a set $A\subset\mathbb{N}$ is called a set of uniqueness if f is completely determined by its values on A. This concept can be generalized as follows. Let f be a mapping of $\mathbb{N}$ into an abelian group $(G,+)$ with $f(mn)=f(m)+f(n)$ for all $m,n\in\mathbb{N}$ (f "completely additive"). Given a subgroup H of G, determine all subsets $A\subset\mathbb{N}$ such that for any completely additive $f:\mathbb{N}\to G$ we have $f(\mathbb{N})\subset H$ whenever $f(A)\subset H$ ("sets of G/H uniqueness"). The authors characterize sets of $\mathbb{Z}/(q\mathbb{Z})$-uniqueness ($q\in\mathbb{N}$) and $G/\{0\}$-uniqueness for finite abelian groups.

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Keywords : sets of uniqueness; completely additive function; finite abelian groups

Classification :

∗11N64 Characterization of arithmetic functions

11B99 Sequences and sets