

Year: 2018

Vol.: 93

Fasc.: 1-2

Title: On additive representation functions

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Let A be an infinite set of natural numbers. For $n \in \mathbb{N}$, let $r(A, n)$ denote the number of solutions of the equation $n = a + b$ with $a, b \in A$, $a \leq b$. Let $|A(x)|$ be the number of integers in A which are less than or equal to x . In this paper, we prove that if $r(A, n) \neq 1$ for all sufficiently large integers n , then $|A(x)| > \frac{1}{2}(\log x / \log \log x)^2$ for all sufficiently large x .

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