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AN IMPROVEMENT TO THE ZNÁM–NEWMAN RESULT

SUN ZHIWEI

(Department of Mathematics, Nanjing University)

ABSTRACT

The main result of this paper is as follows: Let $n_0 \in \mathbb{Z}^+$ be a period of the covering function $\sigma(x) = \sum_{\substack{1 \leq i \leq k \\ n_i | x - a_i}} 1$. If $d \in \mathbb{Z}^+$ divides some n_i ($1 \leq i \leq k$) and $d \nmid n_0$, then the number of the n_i divisible by d is at least $\min_{\substack{0 \leq s \leq k \\ d \nmid n_s}} \frac{d}{(d, n_s)}$ where the notation (m, n) denotes the greatest common divisor of m and n . In the case $\sigma(x) \equiv 1$ it gives an improvement to the well-known ZnáM–Newman theorem, it is also better than the already announced result of Berger, Felzenbaum and Fraenkel.