AN IMPROVEMENT TO THE ZNÁM–NEWMAN RESULT

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Abstract

The main result of this paper is as follows: Let \( n_0 \in \mathbb{Z}^+ \) be a period of the covering function \( \sigma(x) = \sum_{1 \leq i \leq k} 1 \) 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 \( \min_{0 \leq s \leq k} \frac{d}{(d,n_s)} \) 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.