
Zbl 147.02601

Erdős, Pál

On the difference of consecutive terms of sequences defined by divisibility properties (In English)

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Let A denote a set of pairwise relatively prime positive integers such that $\sum 1/a_i < \infty$. Let B be the set of positive integers not divisible by any element of A. The author proves: I. There is an absolute constant $c > 0$ (independent of A) such that for sufficiently large x the interval $(x, x+x^{1-c})$ contains $ab \in B$. II. There is a set A such that for infinitely many b and all $b' > b (b, b' \in B)$ we have

$$b' - b > \exp\left(\frac{1}{4}(\log b \log\log b)^{1/2}\right).$$

III. Let β be the density of B and let $f(x)/x^{1-\varepsilon} \to \infty$ for all $\varepsilon > 0$ then $B(x, x + f(x)) = (\beta + o(1))f(x)$. (Here $B(u, v)$ is the number of $b \in B$ such that $u < b < v$).

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Classification:
11B83 Special sequences of integers and polynomials