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Erdős, Pál

On a problem in elementary number theory and a combinatorial problem (In English)

Math. Comput. 18, 644-646 (1964). [0025-5718]

Let $f_t(n)$ denote the smallest integer k such that if $1 \leq a_1 < a_2 < \cdots < a_k \leq n$, $k = f_t(n)$, is an arbitrary sequence of integers one can always find $a_{i_1}, a_{i_2}, ..., a_{i_t}$ which have pairwise the same greatest common divisor. The author proved (cf. the preceding review) that for fixed $t, f_t(n) < n/\exp[(\log n)^{1/2}]^{-\varepsilon}$. In the present paper he proves that for every t and $\varepsilon > 0$ there is an n_0 so that for all $n > n_0(t, \varepsilon)$, $2^{c_t \log n/\log\log n} < f_t(n) < n^{3/4+\varepsilon}$.

L.Carlitz

Classification:
11B83 Special sequences of integers and polynomials