
Zbl 448.10003
Erdős, Paul
On some problems in number theory. (In English)
Theorie des nombres, Semin. Delange-Pisot-Poitou, Paris 1979-80, Prog. Math. 12, 71-75 (1981).

[For the entire collection see Zbl 444.00010.]
The problems discussed include or are related to the following conjectures: (1) Is it true that to every $\varepsilon > 0$ there is a k so that the density of integers n for which n has two divisors $d_1 < d_2 < 2d_1$, so that all prime factors of $d_1 d_2$ are $> k$ is less than ε^2? (2) Is there a covering system $q_i(\mod n)_i$, $1 < n_1 < \cdots < n_k$ for which n_1 is as large as desired? (3) Is it true that there is an r so that every integer is the sum of a prime and at most r powers of two? (4) There exists an $F(n)$ such if the integers not exceeding $F(n)$ are split into two classes at least one of them contains an arithmetic progression of n terms. Is $\lim F(n)^{1/n} = \infty$? (5) If $\Sigma 1/a_i = \infty$ then the integers a_i contain, for every k, k consecutive terms of an arithmetic progression. (6) Let $1 \le a_1 \le \cdots \le a_{t_n} \le n$, where $(a_i + a_j) \nmid a_i a_j$. What is the behavior of $\max t_n$? (7) Let $F(X, n)$ be the number of integers $X < m \le X + n$ for which there is a $p|m$, $n/3 < p < n/2$. Is it true that $F(X, n) > Cn/\log n$?

G.Lord

Classification:
11-02 Research monographs (number theory)
11B83 Special sequences of integers and polynomials
11B25 Arithmetic progressions
11P32 Additive questions involving primes
11N05 Distribution of primes
05A05 Combinatorial choice problems
00A07 Problem books

Keywords:
covering congruences; problems; sum of prime and powers of two

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