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**Zbl 159.06003****Erdős, Pál; Sarközi, A.; Szemerédi, E.***On the solvability of some equations in dense sequences of integers* (In English. RU original)**Sov. Math., Dokl. 8, 1160-1164 (1967); translation from Dokl. Akad. Nauk SSSR 176, 541-544 (1967). [0197-6788]**

Let  $a_1 < a_2 < \dots$  be an infinite sequence of integers for which the equation  $(a_i, a_j) = a_r$  is unsolvable for any set of distinct indices  $i, j, r$ . The authors prove that then

$$(1) \quad \sum_{k=1}^{\infty} \frac{1}{a_k \log a_k} < \infty.$$

The proof is elementary but quite complicated and uses combinatorial arguments. In a previous paper [*P. Erdős*, J. London Math. Soc. 10, 126-128 (1935; Zbl 012.05202)] the following weaker result was proved: Assume that no  $a_i$  divides any other than (1) holds. In another paper [*J. Math. Anal. Appl.* 15, 60-64 (1966; Zbl 151.03502)] the authors point out that (1) does not hold if we assume that  $[a_i, a_j] = a_r$  is unsolvable for any set of distinct indices  $i, j, r$ .

Classification:

11B83 Special sequences of integers and polynomials

11B75 Combinatorial number theory