Zbl 840.05094

Erdős, Paul

Problems and results in combinatorial analysis and combinatorial number theory. (In English)

Alavi, Yousef (ed.) et al., Graph theory, combinatorics, and applications, Vol. 1. Proceedings of the sixth quadrennial international conference on the theory and applications of graphs held at Western Michigan University, Kalamazoo, Michigan, May 30-June 3, 1988. New York: John Wiley & Sons Ltd. Wiley-Interscience Publication. 397-406 (1991). [ISBN 0-471-60917-X]

The author discusses several results and open problems in combinatorial analysis and combinatorial number theory. The following two indicate the flavor of the paper: 1. The graph $H(n)$ determined by the vertices of the n- dimensional cube has 2^n vertices and $n2^{n-1}$ edges. Let $F_k(n)$ be the smallest integer for which every subgraph of $H(n)$ having $f_k(n)$ edges contains a C_{2k}. The author conjectured more than 25 years ago that, for $n > n_0(\varepsilon)$, $f_1(n) < (\frac{1}{2} + \varepsilon)n2^{n-1}$, i.e., slightly more than half the edges of $H(n)$ force a C_4. Presently, he considers it surprising that this simple and attractive conjecture is still open. 2. Let $\alpha_1 < \alpha_2 < \cdots$ be an infinite sequence of integers for which all the triple sums $\alpha_i + \alpha_j + \alpha_l$ are distinct. The author states that he is offering 500 dollars for a proof or disproof of the old conjecture of his that $\lim \alpha_n/n^3 = \infty$.

A.N.Philippou (MR 93g:05136)

Classification:
05C99 Graph theory
11B75 Combinatorial number theory
00A07 Problem books

Keywords:
open problems; combinatorial analysis; combinatorial number theory; conjecture; infinite sequence of integers

©European Mathematical Society & FIZ Karlruhe & Springer-Verlag