
Zbl 358.05027

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Asymptotic enumeration of K_n-free graphs. (In English)

Colloq. int. Teorie comb., Roma 1973, Tomo II, 19-27 (1976).

[For the entire collection see Zbl 348.00004.]

This paper is devoted to the proofs of the following two results.

Result 1: Let $G_k(n)$ be the number of graphs with n vertices and with no complete subgraphs on k vertices. Then $\log_2(G_k(n)) = \frac{n^2}{2}\left(1 - \frac{1}{k-1}\right) + O(n^2)$.

Result 2: Let T_n be the number of graphs with n vertices and with no complete subgraphs on 3 vertices; let S_n be the number of bipartite graphs on n-vertices. Then

$$T_n = S_n\left(1 + o\left(\frac{1}{n}\right)\right).$$

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Classification:
05C30 Enumeration of graphs and maps
05C35 Extremal problems (graph theory)