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Radziszowski, Stanisław P. (1-RIT-CS);
Tse, Kung-Kuen (1-KEAN)

A computational approach for the Ramsey numbers $R(C_4, K_n)$. (English. English summary)

14th MCCCC (Wichita, KS, 2000).
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Say that F is a (G,H)-graph if neither $G \subseteq F$ nor $H \subseteq \overline{F}$. The Ramsey number $R(G,H)$ is the least integer r such that no (G,H)-graph of order r exists. The authors show that $R(C_4,K_7) = 22$ and $R(C_4,K_8) = 26$, and they obtain the lower bounds $R(C_4,K_9) \geq 30$ and $R(C_4,K_{10}) \geq 34$. The adjacency matrix of a (C_4,K_7)-graph of order 21 is exhibited, as is that of a (C_4,K_8)-graph of order 25. In the process of this work, the authors determine all (C_4,K_n)-graphs for $n < 7$ and all (C_4,K_7)-graphs with at least 19 vertices. Most of their results make use of computer algorithms.

C. C. Rousseau (Memphis, TN)