90e:05044a 05C55 05C25 05C35
Radziszowski, Stanisław P. (1-RIT-C);
Kreher, Donald L. (1-RIT-C)
On $(3,k)$ Ramsey graphs: theoretical and computational results.
J. Combin. Math. Combin. Comput. **4** (1988), 37–52.

90e:05044b 05C55 05C35
Radziszowski, Stanisław P. (1-RIT-C);
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Upper bounds for some Ramsey numbers $R(3,k)$.
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A $(3,k,n,e)$ graph is a graph with n vertices, e edges, no cliques of size 3, and no independent sets of size k. In a similar manner, a $(3,k,n)$ graph and a $(3,k)$ graph can be defined. Given k, the smallest n such that there does not exist a $(3,k,n,e)$ graph for any e is the Ramsey number $R(3,k)$. For $n<R(3,k)$, the function $e(3,k,n)$ is the minimum number e such that there exists a $(3,k,n,e)$ graph. The values of this function are important in determining the values of the Ramsey function $R(3,k)$. In this paper, a partial formula for the function $e(3,k,n)$ is proved (the formula is valid for $n\le 3(k-1)$). In addition, computer procedures are outlined which allow the authors to construct catalogues of all $(3,k)$ graphs for $k\le 6$ and all $(3,7,22)$ graphs. Some comments about the automorphism groups of a few of these graphs are also made.

In the second paper the authors present information on the function $e(3,8,n)$, the values of which are necessary if one is to find the value of $R(3,8)$ using current methods. The authors claim that "calculation of $R(3,8)$ by the same method cannot be obtained unless a very powerful machine is run using probably prohibitively long time".

The authors also improve the upper bound for the unknown Ramsey numbers $R(3,k)$, for $10\le k\le 14$. *Charles M. Grinstead* (1-SWRM)