1154-05-61 **Ryan Kannanaikal*** (rk635@cornell.edu), Department of Mathematics, Cornell University, Ithaca, NY 14853, and **Noah Krakoff** (nkrakoff@berkeley.edu), Department of Mathematics, University of California, Berkeley, Berkeley, CA 94704. *On the Ramsey Number $R(K_4 - e, K_8 - e)$.*

The Ramsey number $R(G, H)$ is the smallest integer n such that every graph on n vertices contains G as a subgraph or its complement contains H as a subgraph. We study (J_4, J_k)-graphs, where $J_k = K_k - e$ is the complete graph on k vertices missing one edge. Note that J_4 is a pair of triangles sharing an edge. Thus, avoiding J_4 is less restrictive than the well studied case of avoiding triangles in Ramsey theory. Using a combination of theoretical and computational techniques we study properties of J_4-free graphs, and thus the structure of lower bound witnesses for $R(J_4, J_k)$. We considered the first unknown case, namely $k = 8$. The previous bounds were $28 \leq R(J_4, J_8) \leq 38$, having been unchanged since 1998. Using our techniques we have improved the upper bound to 37 by exploiting the rich algebraic structure of the induced subgraphs a possible witness must contain. (Received July 27, 2019)