1096-05-107 **Alex Weinstock-Collins*** (weincoll@gmail.com), School of Mathematical Sciences, Rochester Institute of Technology, Rochester, NY 14623, and **Ethan Mark** (topgun@berkeley.edu), Department of Mathematics, Unviersity of California - Berkeley, Berkeley, 94720-3840. *New Bounds on the Bipartite Ramsey Number b(2,5).*

The bipartite Ramsey number $b(n_1, n_2)$ is the smallest positive integer b such that any 2-coloring of the edges of $K_{b,b}$ contains a monochromatic copy of K_{n_1,n_1} in the first color, or K_{n_2,n_2} in the second color. The Zarankiewicz number $z(m, n; s, t)$ is the maximum number of edges in a subgraph of $K_{m,n}$, which does not contain $K_{s,t}$ as a subgraph. The current smallest open case of a bipartite Ramsey number is $16 \leq b(2, 5) \leq 19$, for which the bounds were established by Goddard, Henning, and Oellermann in 2004. In this work we improve these bounds to $17 \leq b(2, 5) \leq 18$, by constructing a suitable 2-coloring of $K_{16,16}$, and proving that all 2-colorings of $K_{18,18}$ contain one of the forbidden subgraphs. The latter proof uses our new bounds on certain Zarankiewicz numbers, in particular $z(10, 14; 5, 5) < 112$, which were obtained by a combination of theoretical arguments and computational techniques. Our current work focuses on improving the bounds on Zarankiewicz numbers and using them to derive better bounds on other bipartite Ramsey numbers. (Received July 30, 2013)