1116-05-134 **Kelsey Quigley*** (kquigle6@mail.naz.edu), Mathematics Department, Nazareth College, Rochester, NY 14618, and **Sarah Renfro**, Department of Mathematics and Statistics, Sam Houston State University, Huntsville, TX 77341. *Rankings of Cartesian Product* $(K_s - e)\Box P_n$. Preliminary report.

A ranking of a graph is a vertex labeling such that every path between vertices with the same label contains a vertex with a larger label. The rank number of a graph is the smallest possible number of labels in a ranking. Rankings were first introduced in 1995 by Bodlaender et al. for the purpose of studying algorithms. For a given graph G and a positive integer t, the question whether the rank number is less than or equal to t is NP-complete for many classes of graphs. Interest in rankings of graphs was sparked by their many applications to other fields including designs of very large scale integration layouts (VLSI), Cholesky factorizations of matrices in parallel, and scheduling problems of assembly steps in manufacturing systems. While rank numbers for some families of graphs are established, there exist numerous families of graphs, for which the rank numbers remain unknown. Lately, families of Cartesian products are being investigated for their rank numbers.

In 2010 Alpert established rank numbers for the Cartesian product of complete graphs and paths. We studied the rankings of $(K_s - e)\Box P_n$. (Received August 05, 2015)