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**Brianna Blake\***, Department of Mathematics, Augsburg College, Minneapolis, MN 55454, and  
**Elizabeth Field**, Department of Mathematics, Southern Connecticut State University, New  
Haven, CT 06515. *Rank numbers of graphs that are combinations of paths and cycles.*

A  $k$ -ranking of a graph  $G$  is a function  $f : V(G) \rightarrow \{1, 2, \dots, k\}$  such that if  $f(u) = f(v)$  then every  $u - v$  path contains a vertex  $w$  such that  $f(w) > f(u)$ . The rank number of  $G$ , denoted by  $\chi_r(G)$ , is the minimum  $k$  such that a  $k$ -ranking exists for  $G$ . It is shown that given a graph  $G$  and a positive integer  $t$  the question whether  $\chi_r(G) \leq t$  is NP-complete. However, the rank number of numerous families of graphs have been established. We study and establish rank numbers of some more families of graphs that are combinations of paths and cycles. (Received July 27, 2012)