1086-05-2691 **Jobby Jacob*** (jxjsma@rit.edu). *Rank number of some graph Cartesian products.*

A k-ranking of a graph G is a function $f : V(G) \to \{1, 2, ..., k\}$ 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. Given a graph G and a positive integer t, deciding if $\chi_r(G) \leq t$ is NP-Complete. However, rank numbers of various classes of graphs have been established. We will discuss properties of k-rankings of some graph Cartesian products, along with the rank numbers of some of these graphs. (Received September 25, 2012)