1067-05-1373   **Kim A.S. Factor** and **Sarah K. Merz*** (smerz@pacific.edu), Department of Mathematics, The University of the Pacific, Stockton, CA 95211, and **Yoshio Sano**. *The (l, m)-step competition number of a graph.*

Roberts introduced the competition number, $k(G)$ of a graph G: the smallest k so that G, together with k isolated vertices, is the competition graph of some acyclic digraph. The notion of the $(1, 2)$-step competition graph, more generally the (l, m)-step competition graph, of a digraph was introduced by Factor and Merz. The $(1, 2)$-step competition graph of digraph D, denoted $C_{(1,2)}(D)$ is a graph with vertex set $V(D)$ so that for $x \neq y$, $\{x.y\} \in E(C_{(1,2)}(D))$ if and only if for some vertex $z \in V(D)$, $dist_{D-y}(x, z) \leq 2$ and $dist(y, z) = 1$ or $dist_{D-x}(y, z) \leq 2$ and $dist(x, z) = 1$. We introduce the (l, m)-step competition number of a graph and give bounds or the exact values for some graphs. (Received September 20, 2010)

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