

Meeting: 1003, Atlanta, Georgia, SS 9A, AMS-MAA-SIAM Special Session on Research in Mathematics by Undergraduates, I

1003-00-103

Kelly J VanOchten* (vanoc1kj@cmi.ch.edu), Central Michigan University, Cobb Hall, Mount Pleasant, MI 48858, and **Jessica Muntz**, Central Michigan University. *(p, k) and Optimal Pebbling Numbers of Diameter Three Graphs.*

Consider a distribution of pebbles on the vertices of a graph G . A (p, k) *pebbling step* involves removing p pebbles from a vertex, paying a “toll” of $p - k$ pebbles, and moving the remaining k pebbles to an adjacent vertex. The (p, k) *pebbling number* of G is the smallest number of pebbles needed so that for every distribution of a certain number of pebbles, every vertex in G is pebbleable by a sequence of (p, k) pebbling steps. The (p, k) *pebbling number* of G is denoted $peb(G)$.

The *optimal pebbling number* of G , denoted $opt(G)$, is the smallest number of pebbles needed such that every vertex in G is pebbleable by a sequence of $(2, 1)$ pebbling steps for a particular distribution of that number of pebbles.

We present results on $(2, 1)$ pebbling numbers and (p, k) pebbling numbers for diameter 3 graphs. We also present results on optimal pebbling numbers for diameter 3 graphs and some possible generalizations to graphs of diameter d . (Received August 06, 2004)