

1118-05-165

Kerry Ojakian* (kerryojakian@gmail.com), 422 43rd Street, Brooklyn, NY 11232. *Extremal cop-win graphs.*

The game of cops and robber is a two player game, played on a graph, between a cop and a robber. First the cop chooses a vertex, then the robber chooses a vertex; then play alternates. On a turn, a player may move to an adjacent vertex or remain still. A graph is cop-win if the cop can guarantee a win. The capture time of a cop-win graph is the number of cop moves required to win. Let $\text{capt}(n)$ be the capture time of a cop-win graph on n vertices with maximum capture time. Gavenciak showed that $\text{capt}(n) = n - 4$, for $n \geq 7$, and characterized these extremal graphs. We introduce new tools that allow us to reprove this result and prove other related results. Our tools involve a particular ranking of the vertices of the graph and an examination of what kinds of rankings are possible. This is joint work with David Offner. (Received January 30, 2016)