

1077-VJ-2398

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Cops and Robber on the hypercube. Preliminary report.

The game of Cops and Robber is a two-player, perfect-information game played on an undirected graph G . A robber and a fixed number of cops each occupy vertices of G , and take turns moving to adjacent vertices. The cops win if a cop ever occupies the same vertex as the robber. The cop number is the minimum number of cops required to guarantee a winning strategy for the cops, and this number can be interpreted as a measure of the difficulty of searching the graph. We investigate the cop number for variations of this game on the hypercube and related graphs. (Received September 22, 2011)