1077-05-2075 **James Carraher*** (s-jcarrah1@math.unl.edu), **Ilkyoo Choi**, **Michelle Delcourt** and **Lawrence Erickson**. *Cops and robbers location game.*

We consider a cops and robbers game on a finite graph G where a single cop seeks a single robber. The cop does not know the location of the robber, but on each turn the cop can probe a vertex and obtain the distance from the probed vertex to the robber. The cop wins if he or she can determine where the robber is located. If the cop can not determine the robber's location then the robber may move to an adjacent vertex. We show that if the girth of the graph G is at most 5 then the robber can never be caught. For large subdivisions of the complete graph and grid, we demonstrate a winning strategy for the cop. (Received September 21, 2011)