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Numbers of Graphs.*

An obstacle representation of a graph G is a drawing of G in the plane with straight line edges, together with a set of polygons called obstacles, such that an edge exists in G if and only if it does not intersect an obstacle. The obstacle number of G is the smallest number of obstacles in any obstacle representation of G . Although it seems that most graphs have obstacle number 1, we'll show that there exist graphs with arbitrarily large obstacle number. We'll also consider what happens if the obstacles are forced to be convex, and we'll present a number of open questions. This is work done in the Willamette Valley REU program. (Received September 20, 2010)