Hint for 7b in Assignment 6

Given a graph $G = (V, E)$, where V is the set of the vertices and E is the set of edges, construct a graph H in the following way. Set $n = |V|$.

- Subdivide every edge of G into two edges by adding a new vertex in the middle of that edge.
- Add a separate clique of size $100n^2$ to the graph. That is, add a set of $100n^2$ new pairwise adjacent vertices $u_1, \ldots, u_{100n^2}$.
- Join u_1 to every vertex in V.

What is the relation between the size of the "maximum clique in G" and the size of the "maximum 2-clique in H"?