Definition: Hamiltonian path (non-repeating vertices)
Definition: Hamiltonian cycle
Definition: Hamiltonian graph

Theorem: If $v_1, \ldots, v_k \in V(G)$ and $G \setminus \{v_1, \ldots, v_k\}$ has at least $r+1$ connected components, then $G$ does not contain H.C.
Proof: Don't even write it.

(History from EGT p.143)

Definition: $c(G)$ = length of longest cycle in $G$

Theorem: $c(G) < n^{1/2}$ for some $\varepsilon > 0$

If $G$ is a 3-colorable cubic planar graph with $|V(G)| = n$ and $n$ is large enough, use Tutte's gadget.

Proof: Keep iterating gadget construction, always satisfy hypotheses, but w/in each gadget must omit one sub-gadget.