Name:

Pid: $\qquad$

1. Let $G$ be a graph on $n$ vertices such that every vertex has odd degree. Show that $n$ is even.
2. Find a minimal $k(n)$ such that for every graph $G$ on $n$ vertices, if $G$ has at least $k(n)$ edges, then $G$ is connected.
3. Let $G$ be a graph. Show that there are two different vertices $u$ and $v$ such that they have the same degree.
