Graph Posets

1. Let $G$ be a graph. Let $X$ be the collection of subgraphs of $G$. Define a relation “$\leq$” on $X$: for $H, H' \in X$ $H \leq H'$ if and only if $H$ is a subgraph of $H'$. Show that $(X, \leq)$ is a poset.

2. Let $G$ be a graph. Let $X$ be the collection of subgraphs of $G$ which have some property $P$ (for instance, the subgraphs which are connected and spanning). Is it true that $(X, \leq)$ is a poset regardless of what property $P$ is?