Subgraph

Let G be a graph with sub(G) containing all subgraphs of G. We define a relation < over sub(G) as follows. For any two subgraphs g1 and g2 of G, g1 < g2 if and only g1 is a subgraph of g2. Prove that < is a partial order.

Recall that any relation R is a partial order if R is reflexive, transitive, antisymmetric. So, you have to show that following for < relation defined over subgraphs of G.

1. For every g in sub(G), g < g.

2. For every g1, g2, g3 in sub(G), if g1 < g2 and g2 < g3 then g1 < g3.

3. For every g1, g2 in sub(G), if g1 < g2 and g2 < g1 then g1=g2.