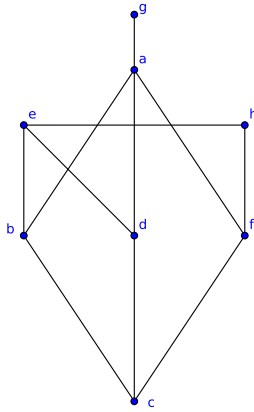


Quiz 10

For the problems below consider the following graph \mathcal{G} whose model is given below:



1. Determine if the graph is planar or not. If it is planar, give a planar model. If it is not planar, find a subgraph \mathcal{H} and indicate whether it is homeomorphic to K_5 or $K_{3,3}$. (8 pts.)
2. Let \mathcal{H} be the subgraph of \mathcal{G} obtained by deleting the vertex g and the edge (g, a) . Determine whether \mathcal{H} is Eulerian and/or Hamiltonian. Find a Eulerian circuit and/or a Hamiltonian cycle, if possible, or state that it is not possible. (8 pts.)
3. Find the chromatic number $\chi(\mathcal{G})$ and give a $\chi(\mathcal{G})$ -coloring of \mathcal{G} . (4 pts.)