

Rosen, Discrete Mathematics and Its Applications, 6th edition
Extra Examples

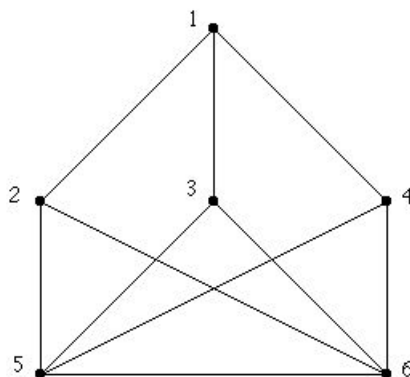
Section 9.7—Planar Graphs



— Page references correspond to locations of Extra Examples icons in the textbook.

p.664, icon at Example 8

#1. Determine whether the following graph is planar.

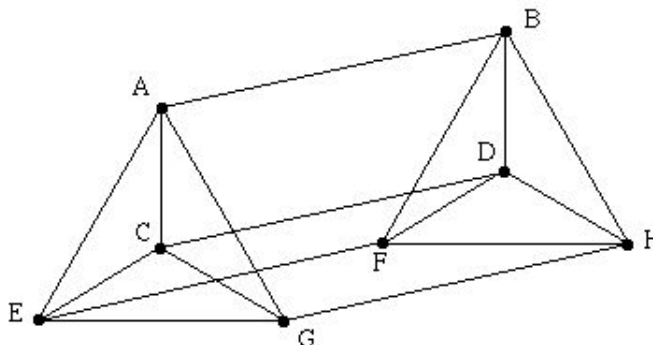


Solution:

The graph is not planar. If the edge $\{5, 6\}$ is removed, the resulting subgraph is isomorphic to $K_{3,3}$. (Use $\{2, 3, 4\}$ and $\{1, 5, 6\}$ as the partition of the vertices of $K_{3,3}$.)

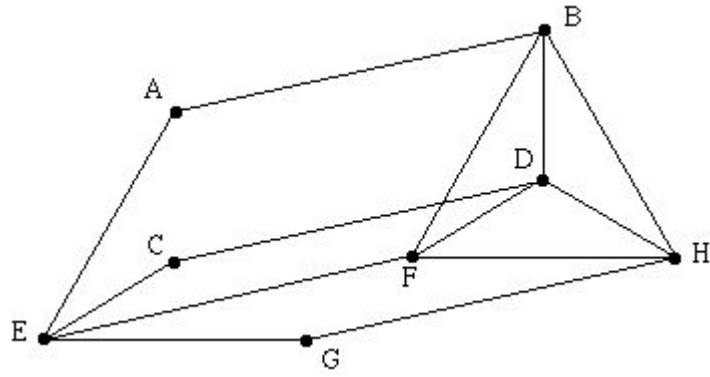
p.664, icon at Example 8

#2. Determine whether the following graph is planar.



Solution:

The graph is not planar. It contains a subgraph homeomorphic to K_5 , using vertices E, B, D, F, H . First remove some edges to obtain the following subgraph:



Then use elementary subdivisions at vertices A, C, G to obtain the following graph, K_5 :

