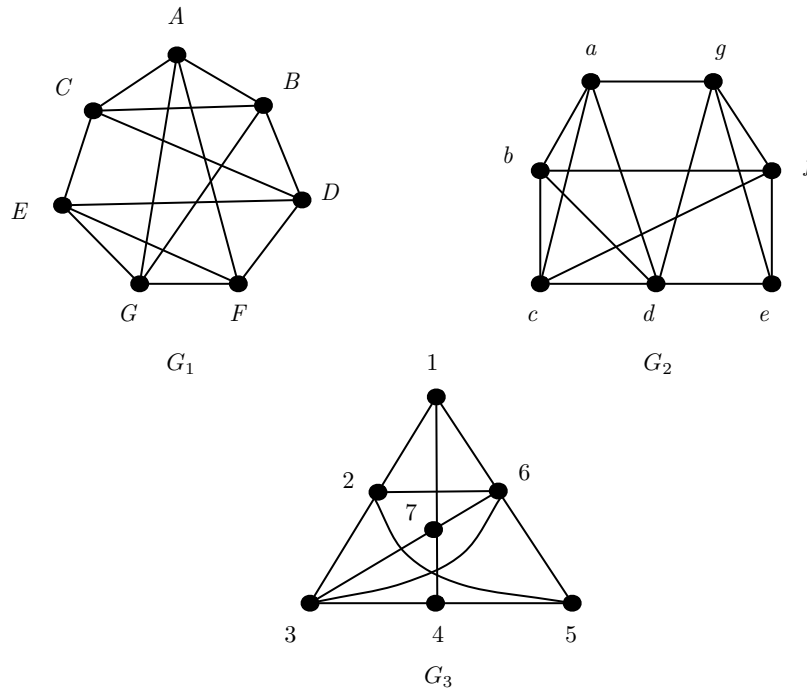# ▶ Problem 9.3-9(b)

Consider the following three graphs.

G_1

G_2

G_3

For each pair of graphs, either exhibit an isomorphism between vertex sets or explain why the graphs are not isomorphic.

Solution. Since the degree sequence of G_1 is $4, 4, 4, 4, 4, 4, 4$ (i.e., G_1 is a regular graph) and the degree sequences of both G_2 and G_3 are $5, 4, 4, 4, 4, 4, 4, 3$. Thus G_1 is isomorphic to neither of the other graphs. As for G_2 and G_3, they are not isomorphic because in G_2, the vertices of degrees 3 and 5 (i.e., d and e) are adjacent, while this is not the case in G_3 (vertices 4 and 6 are not adjacent). So, G_2 and G_3 are not isomorphic. □