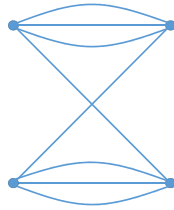


1. Draw a graph with the given adjacency matrix

$$\begin{pmatrix} 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 1 & 0 \\ 1 & 1 & 1 & 0 \end{pmatrix}$$

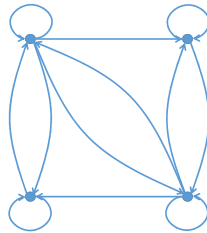
2. Represent the given graph using the adjacency lists, the adjacency matrix, and the incidence matrix



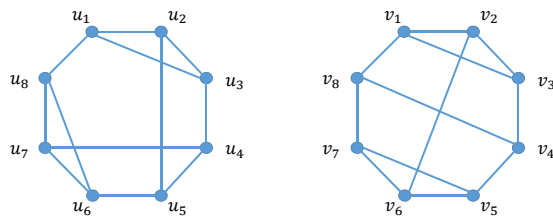
3. Draw an undirected multigraph represented by the given adjacency matrix

$$\begin{pmatrix} 1 & 3 & 2 \\ 3 & 0 & 4 \\ 2 & 4 & 0 \end{pmatrix}$$

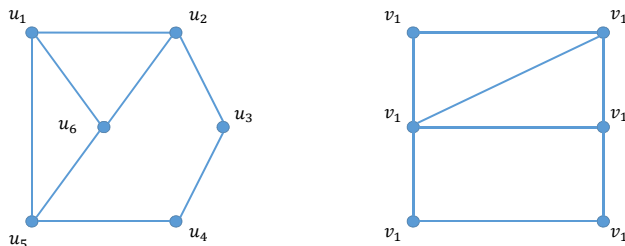
4. Represent the given graph using the adjacency lists, the adjacency matrix, and the incidence matrix



5. Use graph parameters to determine whether the given graphs are isomorphic.



6. Use graph parameters to determine whether the given graphs isomorphic.



7. Find the number of paths of length 2,3,4, and 5 between any two adjacent vertices in $K_{3,3}$.
8. Show that in every simple graph there is a path from every vertex of odd degree to some other vertex of odd degree.
9. How many nonisomorphic simple graphs with 4 vertices are there?
10. Is the given graph bipartite?

