

Math 55 Discussion problems 27 Apr

1. Draw a graph with the given adjacency matrices.

(a)
$$\begin{bmatrix} 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 1 & 0 \\ 1 & 1 & 1 & 0 \end{bmatrix}$$

(b)
$$\begin{bmatrix} 0 & 2 & 3 & 0 \\ 1 & 2 & 2 & 1 \\ 2 & 1 & 1 & 0 \\ 1 & 0 & 0 & 2 \end{bmatrix}$$

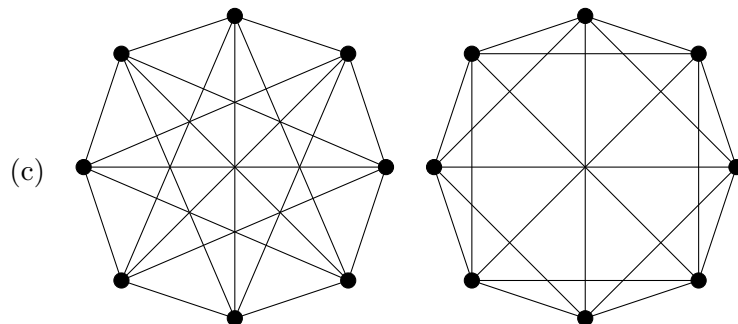
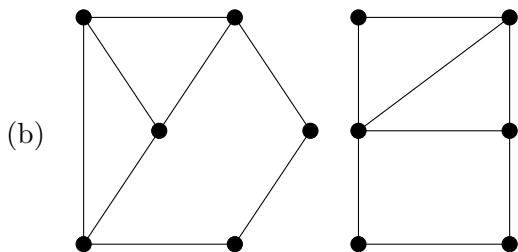
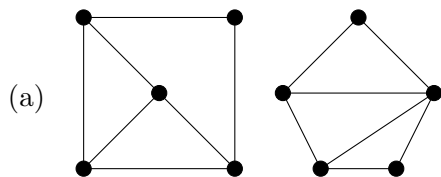
2. How many nonisomorphic simple graphs are there with n vertices, when n is

(a) 2?

(b) 3?

(c) 4?

3. Determine whether each of the given pair of graphs is isomorphic.



4. How many nonisomorphic subgraphs does K_3 have?
5. How can the adjacency matrix of \overline{G} be found from the adjacency matrix of G , where G is a simple graph?
6. Show that every connected graph with n vertices has at least $n - 1$ edges.