R-6.1 Draw a simple undirected graph *G* that has 12 vertices, 18 edges, and 3 connected components. Why would it be impossible to draw *G* with 3 connected components if *G* had 66 edges?

R-6.4 Bob loves foreign languages and wants to plan his course schedule to take the following nine language courses: LA15, LA16, LA22, LA31, LA32, LA126, LA127, LA141, and LA169. The course prerequisites are:

- LA15: (none)
- LA16: LA15
- LA22: (none)
- LA31: LA15
- LA32: LA16, LA31
- LA126: LA22, LA32
- LA127: LA16
- LA141: LA22, LA16
- LA169: LA32

Find a sequence of courses that allows Bob to satisfy all the prerequisites.

R-6.7 Would you use the adjacency list structure or the adjacency matrix structure in each of the following cases? Justify your choice.

a. The graph has 10,000 vertices and 20,000 edges, and it is important to use as little space as possible.
b. The graph has 10,000 vertices and 20,000,000 edges, and it is important to use as little space as possible.
c. You need to answer the query areAdjacent as fast as possible, no matter how much space you use.