

Section 6.1 #1, 2, 5, 9, 13, 30, 49, 50, 51, 65, 71

1. $g(a) = (1, 2)$ $g(b) = (1, 3)$
 $g(c) = (2, 3)$ $g(d) = (2, 2)$

2. a) Yes, the graph is simple.

b) No, the graph is not complete

c) Yes, the graph is connected.

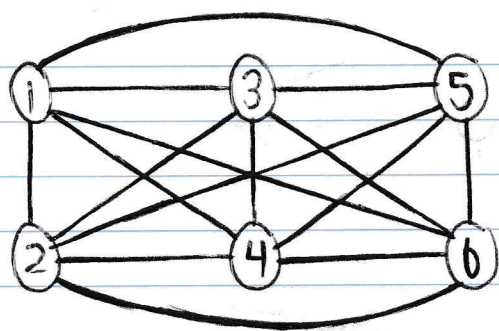
d) Yes, 3-4-5-6 and 3-5-6

e) Yes, 3-4-5-3

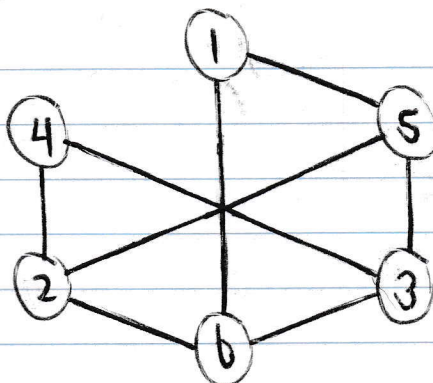
f) Yes, the graph becomes acyclic when 5 is removed.

g) Yes, the graph becomes not connected when a1 is removed.

5.



65.



9. a) Nobody from the IT department knows anybody from the marketing department and vice versa.

b) Carl and Fletcher are not acquainted. Siyini is only acquainted with one person, Carl.

13. B is not isomorphic to A and C because it does not have an isolated node.

30. 8 regions

49. A graph of isolated nodes with loops.

50. A graph with no edges.

51. The adjacency matrix would be all ones except for zeros going down the diagonal from top left to bottom right.

71. Since G' is also a simple graph and therefore also has no loops, there is a diagonal of zeros going from top left to bottom right. Then for every other space, if there had been a zero in the adjacency matrix for graph G , there would now be a one in the adjacency matrix for graph G' and vice versa.