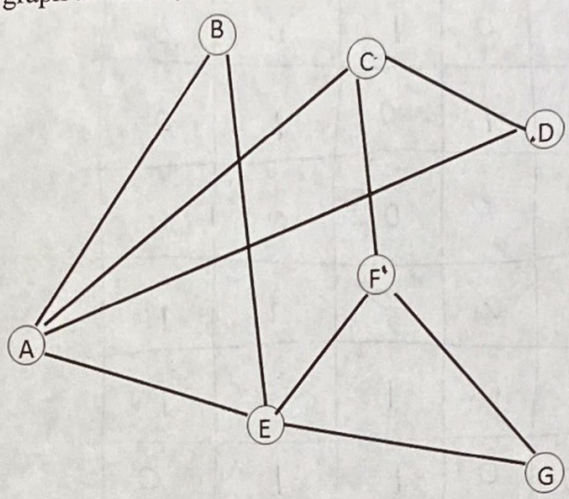
Christian Wagner

sample solution from Christian.

Given the undirected graph as below, answering the following question.



a) What is the degree of node E

4

b) List two paths from A to D, and their corresponding length (there are more than 3)

A, B, E, F, C, D ⟶ length = 5

A, C, D ⟶ length = 2

There are many other paths, answer is not unique

c) List a cycle in the graph, and its corresponding length

A -> B ⟶ E ⟶ A is a cycle of length 3

Answer is not unique

d) Show the adjacency matrix of the graph

On Back!

e) Show the adjacency list of the graph

On back!

f) Show the order of the node that will be visited with **breath first search** algorithm

A ⟶ B, C, D, E ⟶ F, G

g) Show the order of the node that will be visited with **depth first search** algorithm

A B E F C D G

D.)

	A	B	C	D	E	F	G
A	0	1	1	1	1	0	0
B	1	e	0	0	1	0	0
C	1	0	0	1	0	1	0
D	1	0	1	0	0	0	0
E	1	1	0	0	0	1	1
F	0	0	1	0	1	0	1
G	0	0	0	0	1	1	0

E.)

- A → B, C, D, E
- B → A, E
- C → A, F, D
- D → C, A
- E → A, B, F, G
- F → C, E, G
- G → F, E

order in each list does not matter, answer is not unique