

Module - 2.5: Practice Problems

1. How many edges does a tree with **n** nodes have?
2. How many edges does a complete graph with **n** nodes have?
3. Convert the following **Adjacency Matrix** into an **Adjacency List** and draw the graph.
(no need to code)

```
1 0 0 1
1 0 1 0
0 1 0 1
0 0 1 1
```

4. Convert the following **Adjacency List** into an **Adjacency Matrix** and draw the graph.
(no need to code)

```
A -> B, C
B -> B, A, D
C -> D, A
D -> A
```

5. Convert the following edge list of an **undirected graph** to its respective **Adjacency List** representation.

```
[
  [A, B, 1]
  [B, C, 3]
  [C, A, 2]
  [E, F, 9]
  [C, D, 1]
  [E, F, 7]
]
```

Mention the properties of this graph

- a. Is the graph weighted or unweighted?
- b. Does the graph have cycles?
- c. If the graph has cycles, remove some edges to make it acyclic (i.e. with no cycle)
- d. Has the graph become a tree? Why or why not?
- e. If not, then add edges to make it a tree.