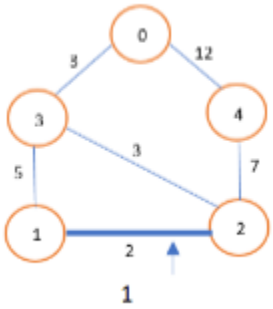
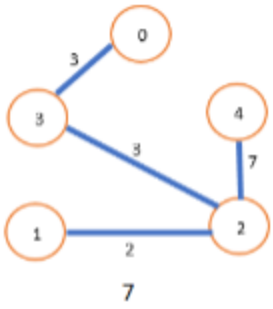
Exercise 3:

1. A minimum spanning tree is a spanning tree with the minimum sum of the edge weights. It is a subgraph of the original graph and can be created from the graph by using depth first or breadth first traversals. A MST also contains every vertex of a connected graph and has all cycles removed. Below is an example of the full graph and the spanning tree respectively.



Full graph



Spanning tree

In this example, all the nodes are connected, with no cycles. The total weight of the edges is 15, which is the minimum amount.