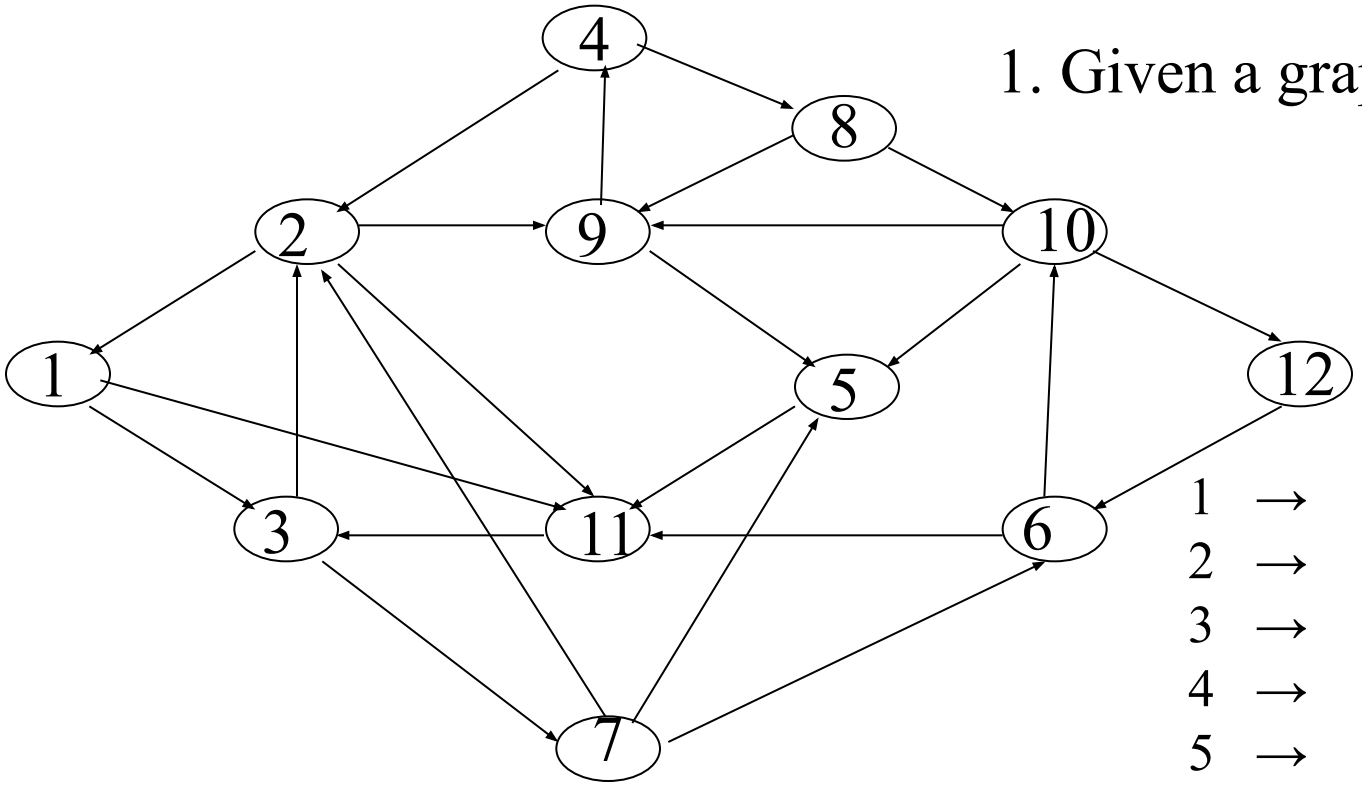
1. Given a graph G:



Give adjacency list representation:

1 →
2 →
3 →
4 →
5 →
6 →
7 →
8 →
9 →
10 →
11 →
12 →

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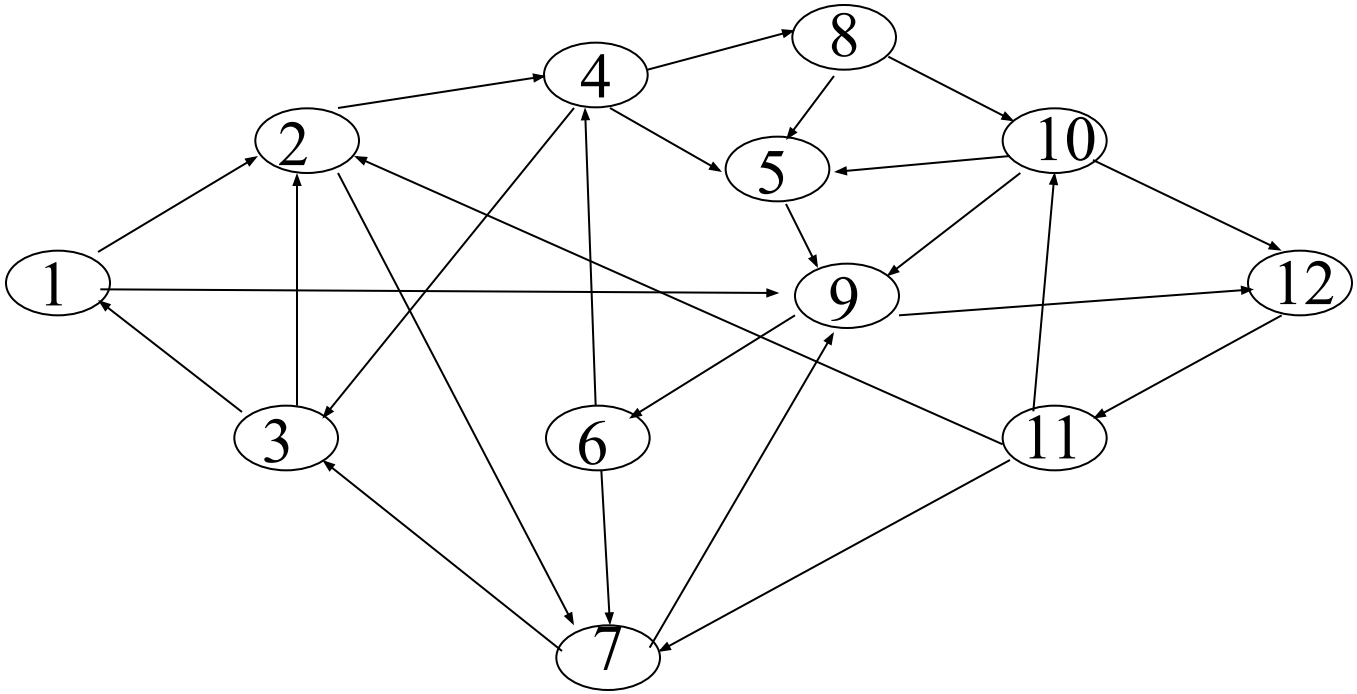
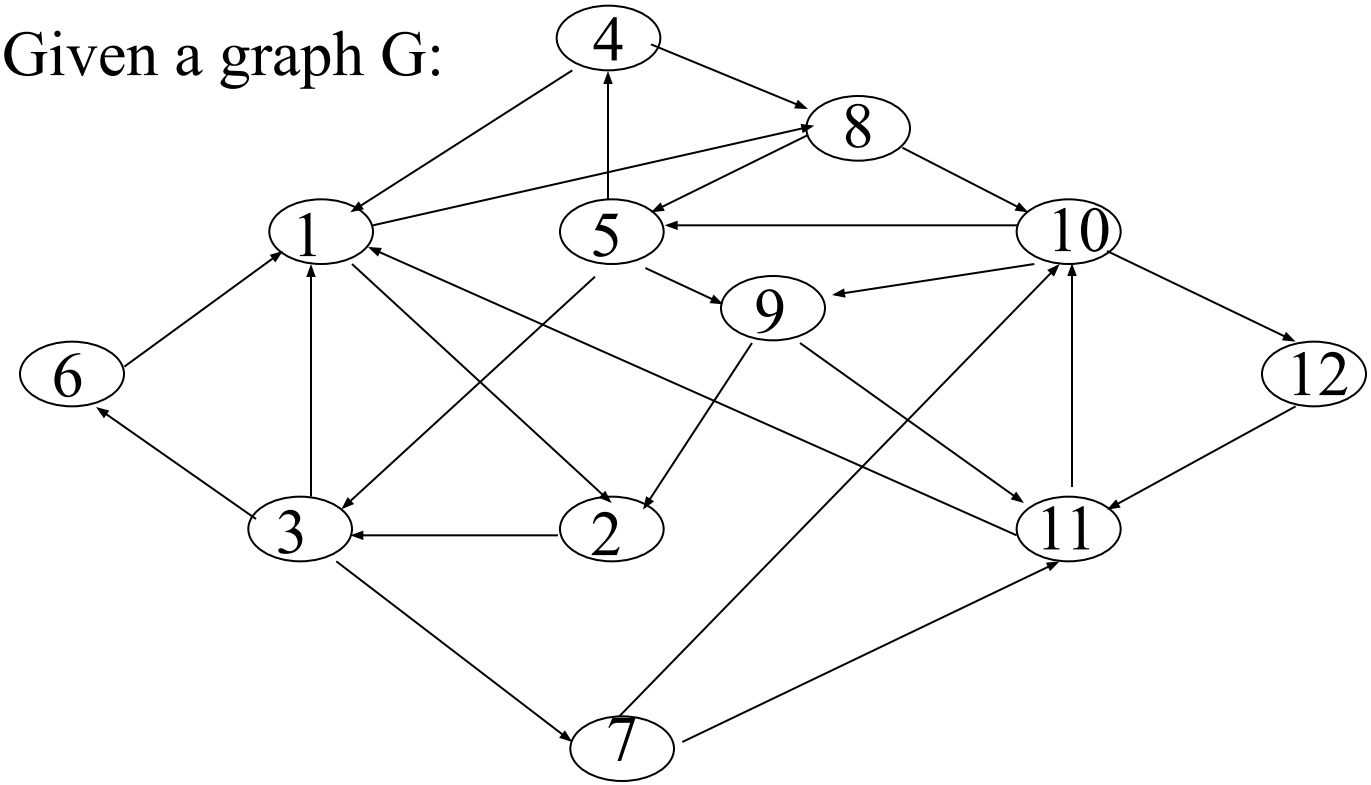
2.Given a graph G:



Give the order in which nodes are traversed with BFS
from source 2: _____
from source 1: _____

3.Given a graph G:



Give the order in which nodes are traversed with DFS

_____

Give the nodes of the third cycle found by DFS

_____

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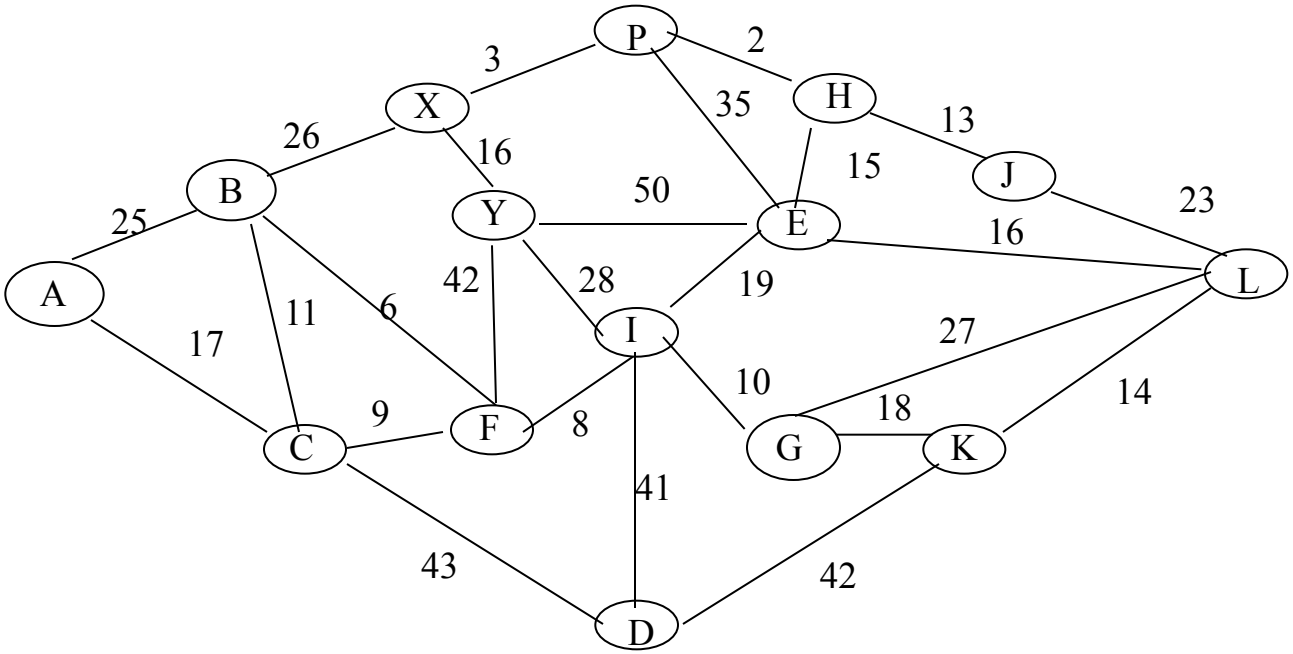
4. Given a graph below

What are the neighbors in the minimum spanning tree (MST) of the node H_____ and the node F_____

- By how much the weight of edge (Y,F) should be reduced to make this edge added to MST?
  At least by_____ . The edge _____ will be knocked out of MST.
- By how much the weight of edge (I,G) should grow to be knocked out of MST?
  At least by_____ . The edge _____ will be added to MST



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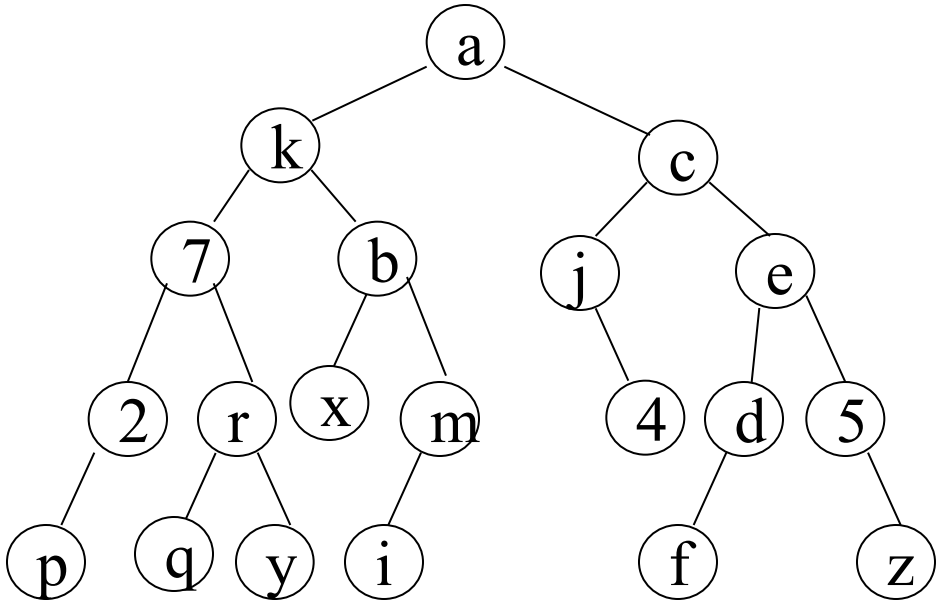
5. For the following graph G with edges

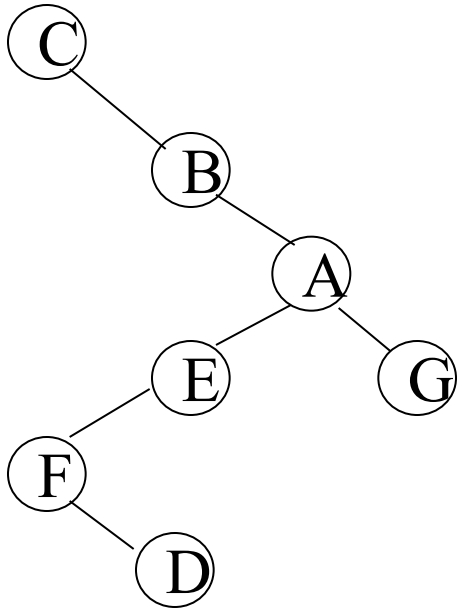
(1,2), (2,3), (3,4), (4,5), (5,6), (6,7), (7,8), (8,9), (9,10), (10,11), (11,12), (10,1), (3,8), (5,9) , (7,2)

either prove that G is non-planar or draw G without self-intersections

6. Given Binary Search Trees



What are the children of ***c*** after deletion of ***e*** ?
Give both possible variants ____ or ____.
What is the successor of ***y*** ___.



What is the successor of B ___.
What is the predecessor of F ___.
What is the successor of E ___.
What is the predecessor of G ___.

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