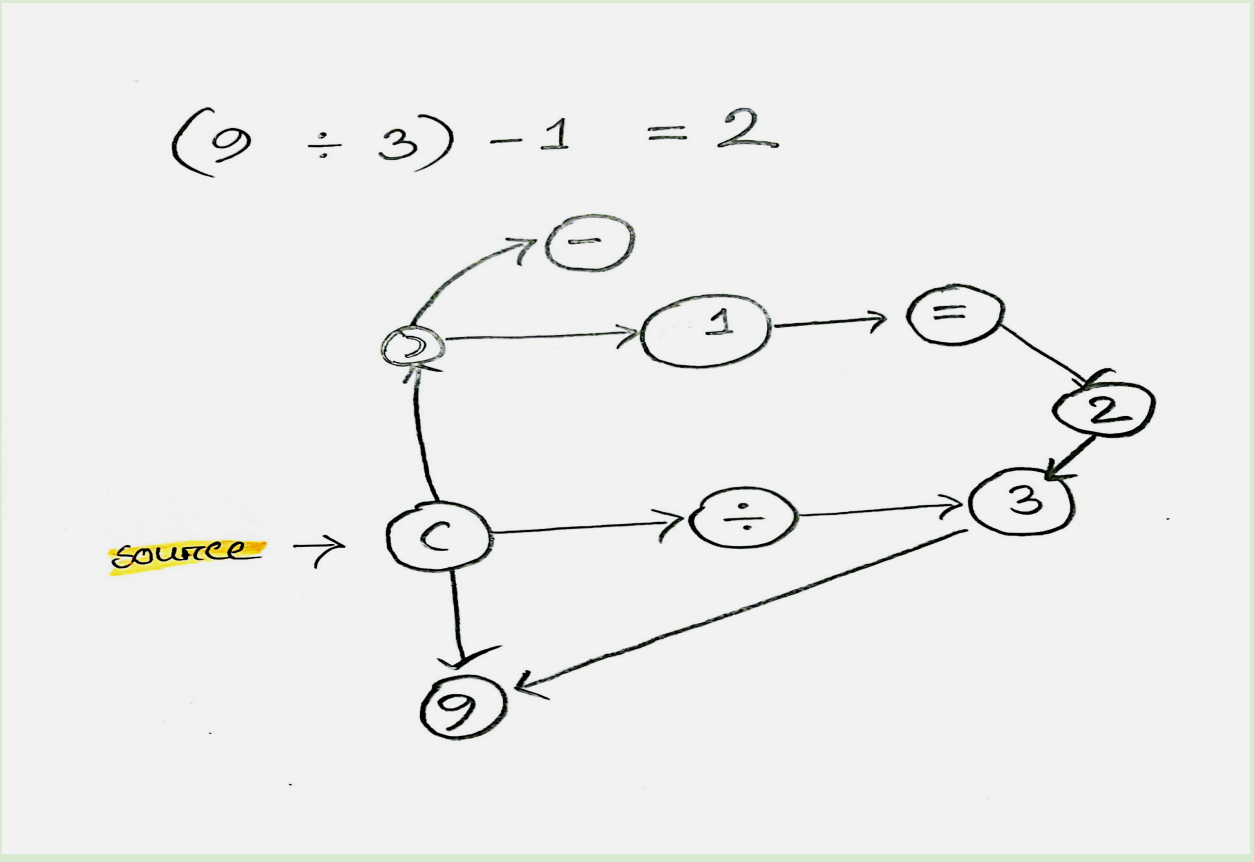
CSE 221 Quiz 02 A

Time:[7:00pm to 7.40pm] 40 minutes (including submission)

Bill says he has found a valid mathematical equation while running DFS from the node denoted by '('. According to him, the equation is:

(9 ÷ 3) - 1 = 2



a.

Compute the number of edges this DFS tree (of the equation) contains. [1]

b.

Is what Bill said right i.e is the equation achievable by running such a DFS?

Validate it by showing steps. (Neighbor/Edge selection should be done according to the necessity of the verification process, You must show start and stop time for each Node while simulating) [5]

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c.

Classify the edges of the graph into tree edge, back edge and forward edge while running DFS from the node denoted by '('.
[fill the blanks with Yes or No]

[3]

Edge (u→v)	tree edge	back edge	forward edge
"=" –> "2"			
"2" –> "3"			
"÷ " –> "3"			

d.

Explain in 1 or 2 lines, how can you traverse/explore the whole graph by implementing DFS if the graph is disconnected. [1]

[BONUS] e. If a graph has considerably more adjacent nodes for each node [dense graph], you are given a source point and a destination point. If the destination is at the maximum number of hops away from source, which traversal algorithm will work poorly? [1 line answer] [1]

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