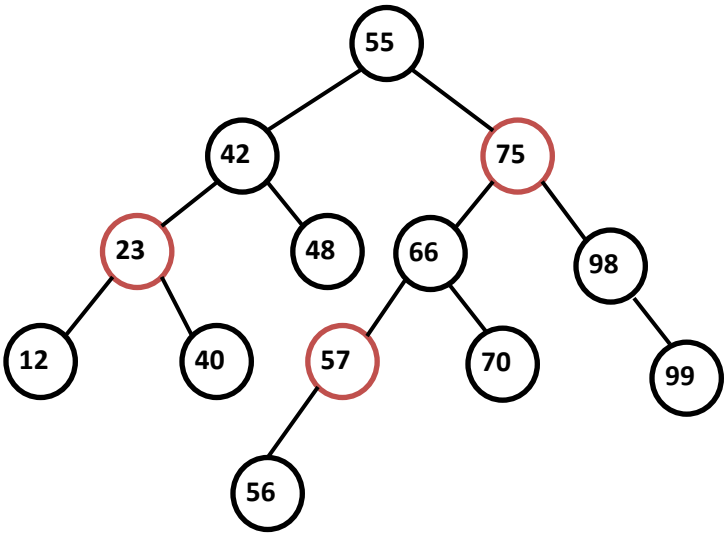
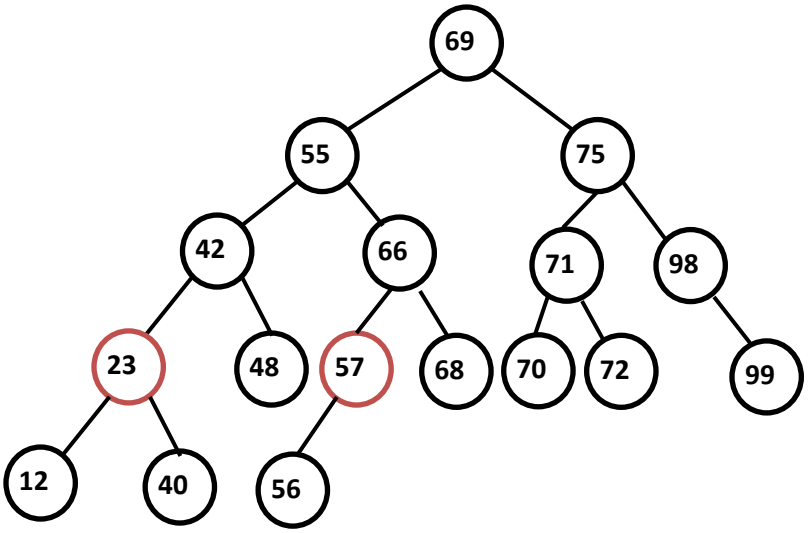
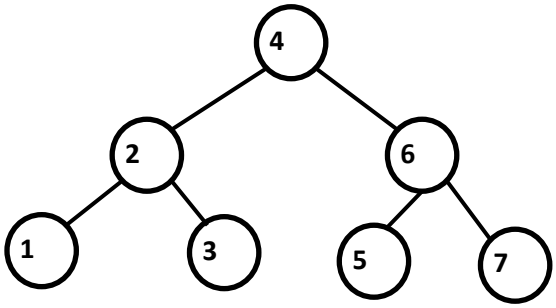
1. For the following Red-Black tree, show what happens when 68, then 72, 69, then 71 are inserted into the tree.



Solution:

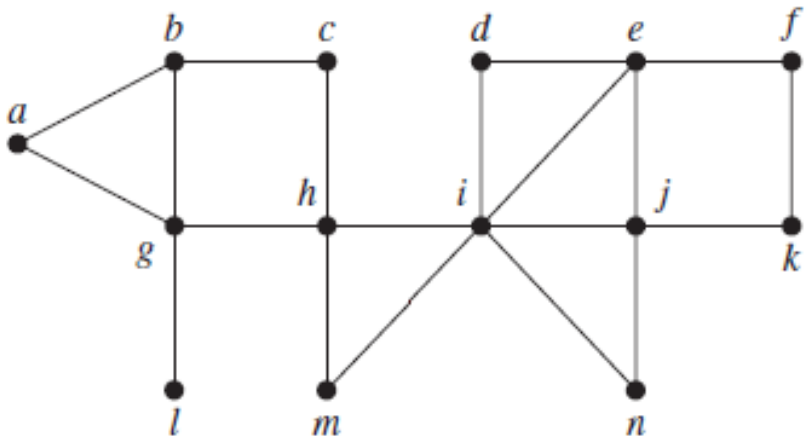


2. Given an empty Red-Black tree, show what happens after the following keys are inserted into the tree, in the given order: 7, 6, 5, 4, 3, 2, 1



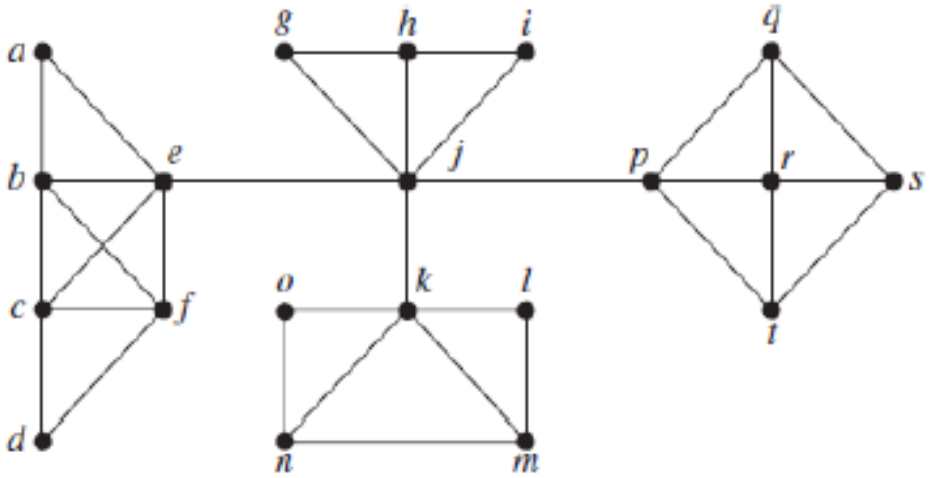
3. For the following undirected graphs, use both a Depth First Search/Traversal and a BreadthFirst Search/Traversal to produce lists of the order in which the vertices are visited. For each case, start the search at vertex a, and If there is a choice when deciding which vertex to visit next, always choose the alphabetically earlier vertex.

a)



DFS: a b c h g l i d e f k j n m
BFS: a b g c h l i m d e j n f k

b)



DFS: a b c d f e j g h i k l m n o p q r s t
BFS: a b e c f j d g h i k p l m n o q r t s