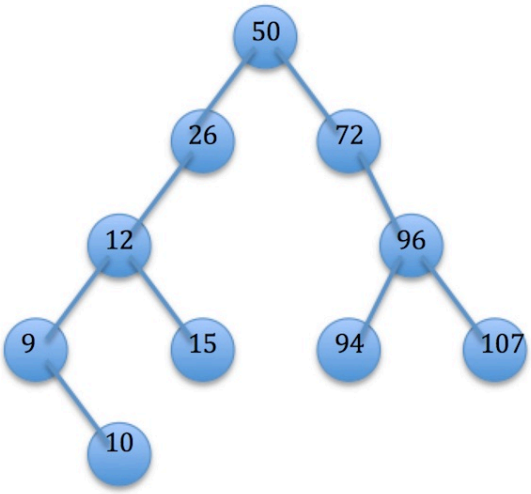
Cesar Arroyo

1. The purpose of using header and trailer nodes in a linked list is to simplify the insertion and deletion algorithms. These two nodes are not apart of the list but the actual list is between them. The header and trailer hold no data but ensures the real node in the linked list it is preceded and followed by a node.

2. a. false because in a binary tree each node has up to two leaves and in BST it is used for searching where the left child contains only nodes values less than parent node and right child contains nodes with values greater than or equal to parent
   b. true
   c. true
   d. true
   e. false because there can only be only parent which is the root
   f. false because the root is the parent of itself; no parent
   g. true
   h. true
   i. false because if it were true they would visit the root to start which they do however afterwards each traversal visits a different subtree which makes the statement false

3. a. 100 levels because each node would contain one child worst case
   b. (100 <= 1 + 2 + 4 + 8 + 16 + 32 + 64) == 7levels Best case
   c. For a binary tree the maximum number of nodes at N levels is 2^(N+1) - 1
   d. Maximum number of nodes in the Nth level of binary tree is 2^N
   e. Nth level of a BST will equal the Number of ancestors of a node
   f. The number of binary search trees that can be made from three nodes that contain the key values 1,2,3 is 6
   g. The number of binary search trees that can be made from three nodes that contain the key values 1,2,3 is 3

4. BST 50 72 96 94 107 26 12 9 15 10


50
26
72
12
96
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15
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107
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