2) BST Traversal

a.

node.data += left.data + (right.data * 2)

Leaf nodes that have no children

15, 37, 65, 87, 93

36 → Right = 37

36 + 0 + (2 · 37) = 36 + 74 = 110

46 → Left = 36, Right = null

46 + 110 + 0 = 156

59 → Right = 65

59 + 0 + (2 · 65) = 59 + 130 = 189

54 → Left = 46, Right = 59

54 + 156 + (2 · 189) = 54 + 156 + 378 = 588

21 → Left = 15, Right = 54

21 + 15 + (2 · 588) = 21 + 15 + 1176 = 1212

80 → Right = 87

80 + 0 + (2 · 87) = 80 + 174 = 254

97 → Left = 93

97 + 93 + 0 = 190

92 → Left = 80, Right = 97

92 + 254 + (2 · 190) = 92 + 254 + 380 = 726

60 → Left = 21, Right = 92
60 + 1212 + (2726) = 60 + 1212 + 1452 = 2724

Preorder Traversal : Root, Left, Right

2724, 1212, 15, 588, 156, 110, 37, 189, 65, 726, 254, 87, 190, 93

InOrder Transversal : Left, Root, Right

15, 1212, 110, 37, 156, 588, 189, 65, 2724, 254, 87, 726, 93, 190

b.
NO, it is not a BST the new node values violate the BST property when the left child is greater than the parent in some places.

C.
NO, it is not an AVL because it is not a BST, which needs the structure and height of the tree to be balanced.