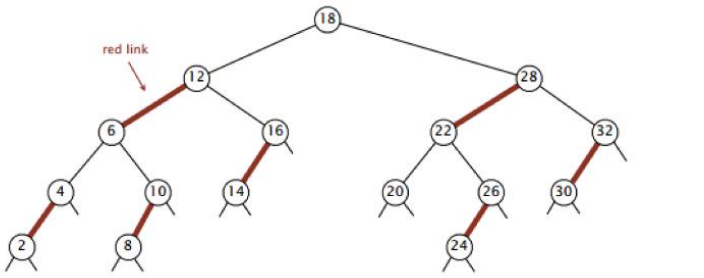
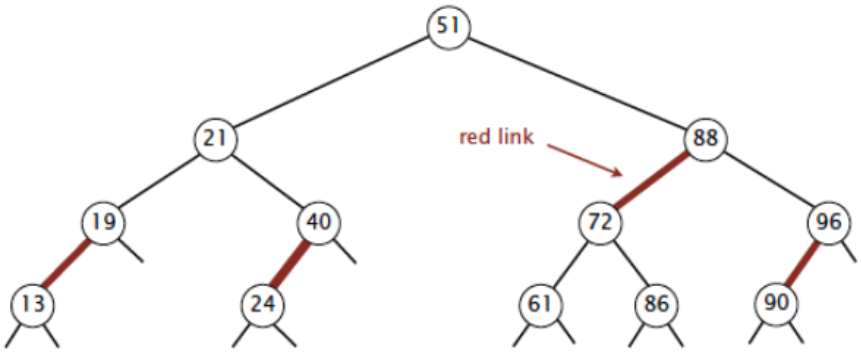
1. Suppose that we have numbers between 1 and 1000 in a binary search tree, and we want to search for the number 363, which of the following sequences could NOT be the sequence of nodes examined?
    a. 925, 202, 911, 240, 912, 245, 363
    b. 2, 252, 401, 398, 330, 344, 397, 363
    c. 924, 220, 911, 244, 898, 258, 362, 363
    d. 935, 278, 347, 621, 299, 392, 392, 358, 363
    e. 2, 399, 387, 219, 266, 382, 381, 278, 363
2. Insert the key 23 into the following left-leaning red-black BST:



3. Consider the "left-leaning" red-black BST in the figure below. The level order traversal is:

51, 21, 88, 19, 40, 72, 96, 13, 24, 61, 86, 90

If we insert 42 into the red-black BST, what would be the level order traversal of the resulting BST?

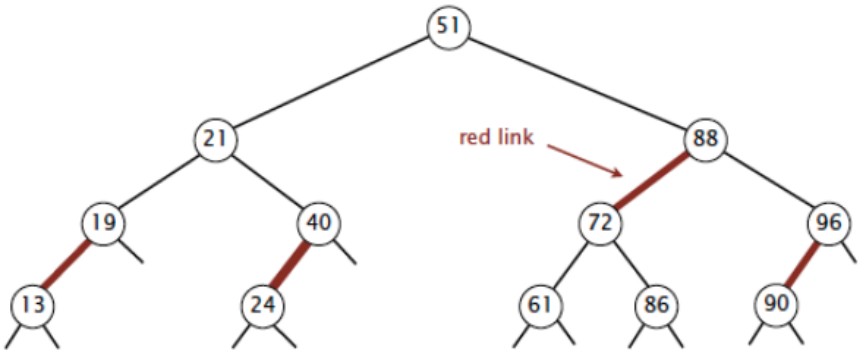


4. Suppose that we “absorb” every red node in a red-black tree into its black parent, so that the children of the red node become children of the black parent. (Ignore what happens to the keys). What are the possible degrees of a black node after all its red children are absorbed? What can you say about the depth of the leaves of the resulting tree?

5. Consider the "left-leaning" red-black BST in the figure below. The level order traversal is:

51, 21, 88, 19, 40, 72, 96, 13, 24, 61, 86, 90

(a) If we insert 93 into the red-black BST, what would be the level order traversal of the resulting BST?



(b) If we insert 85, then insert 87 into the red-black BST, what would be the level order traversal of the resulting BST?

6. Which of the follow are legal balanced red-black BSTs? (note: the thick line is the red edge)