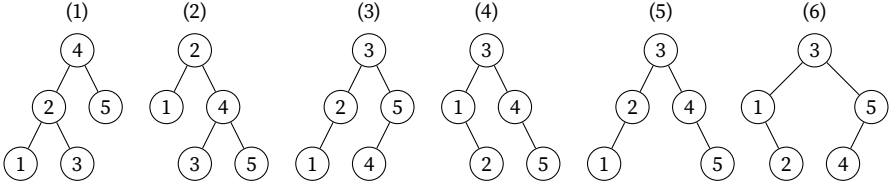
Balanced search trees

The following are all AVL trees that contain the numbers 1 to 5.



(a) Which of the AVL trees above do you get if you enter the numbers 1 to 5 in the order $2, 4, 3, 1, 5$? Enter the answer as a number between 1 and 6.

(b) How many of the trees above can be colored as a red-black tree?

(c) If we add 6 to all the AVL-trees above, in which trees will rotations occur? Enter the answer as the sum of all the trees in question. Thus, if only rotations occur in the first tree, the answer is 1, and if rotations occur in all the trees, the answer is 21 (because $1 + 2 + 3 + 4 + 5 + 6 = 21$).