1. What are the worst case runtime complexities of the methods

bh() – $O(\log n)$
because this function goes from the root to a leaf, an operation that is **guaranteed** by the Red-Black tree property to be at worst $O(\log n)$
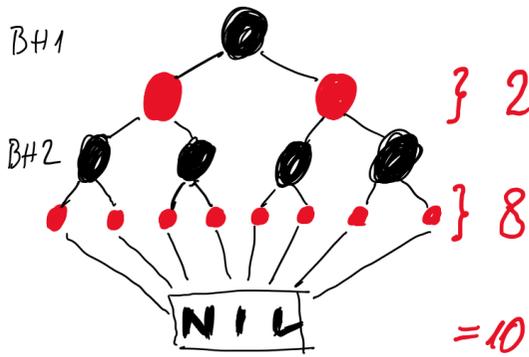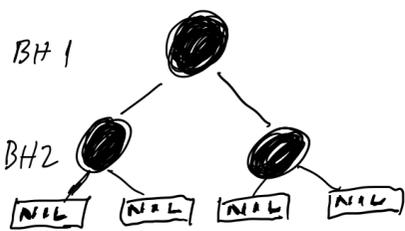
maxBlackKey()
maxRedKey()
    – $O(n)$
because all n nodes must be visited in order to guarantee a correct maximum of a certain **color**

2. What are the minimum and maximum number of red nodes in a red-black tree with black height 2?

3. MINIMUM   4. MAXIMUM

BH 1
BH 2
NIL NIL NIL NIL

BH 1
BH 2
} 2
} 8
= 10
NIL

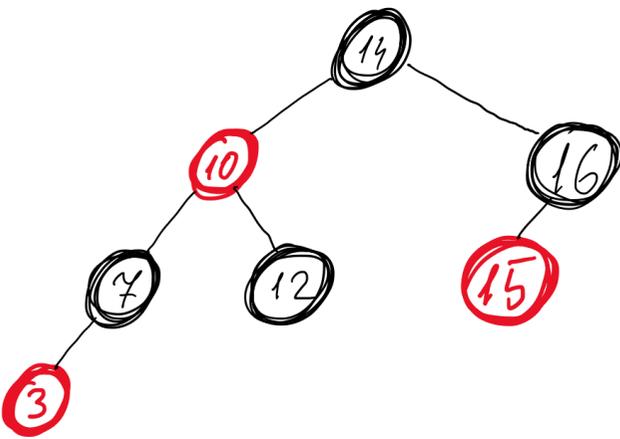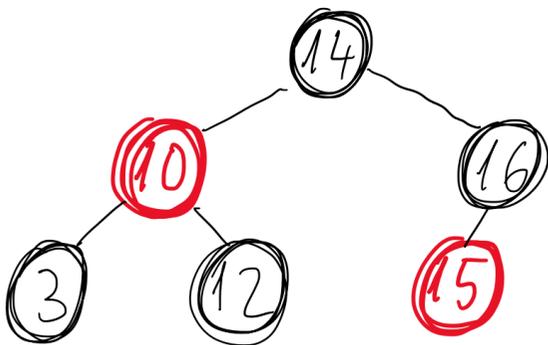0 red nodes   10 red notes

5.

a) height: 3

b) black height: 2

c) delete 7

d) insert   11