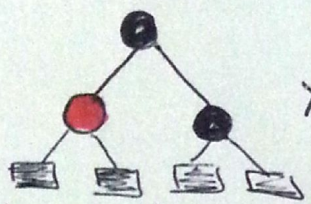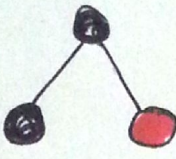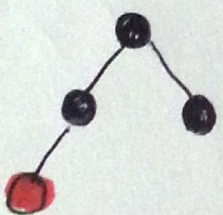1. X
   invalid
   because root
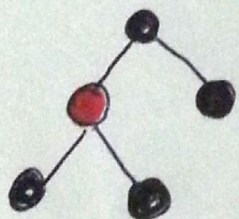   should be black

2. ✓

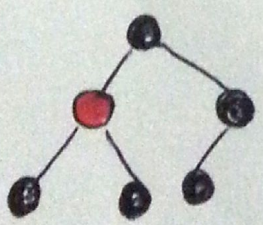3. X
   invalid because
   The hight of black
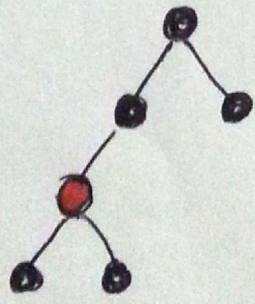   nodes are not equal.

    X
   invalid because
   The height of leaves
   should be equal

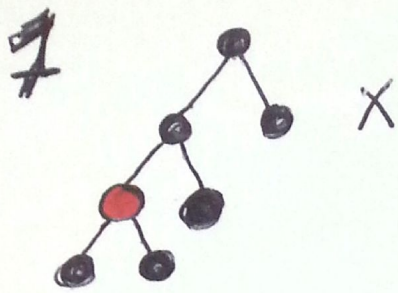   X
   invalid beause
   root should
   be black

4. ✓

5. ✓

6. X
   invalid because
   all leaves doesn't
   have same black
   height

    X
   invalid beause
   all leaves doesn't
   have same black
   height

7

X

invalid
because not all
the leaves have
same height black nodes

num nodes	Does there exist a red-black tree with n nodes that has exactly one red node?
1	no
2	yes
3	no
4	yes
5	yes
6	no
7	no