

Lab 7, Problems 4, 5

4. For each integer $n = 1, 2, 3, \dots, 7$, determine whether there exists a red-black tree having exactly n nodes, with *all of them black*. Fill out the chart below to tabulate the results:

Num nodes n	Does there exist a red-black tree with n nodes, all of which are black?
1	Yes
2	No
3	Yes
4	No
5	No
6	No
7	Yes

5. For each integer $n = 1, 2, 3, \dots, 7$, determine whether there exists a red-black tree having exactly n nodes and exactly one red node. Fill out the chart below to tabulate the results:

Num nodes n	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