

Week 10 ADS

Problem ① - a

1/ [B, black / R, red] 13R \rightarrow root, see we change color

2/ 13B

44R

3/

13B

mit

44R

37R

Red Red violation, \rightarrow

black uncle (triangle) \rightarrow rotate parent to right

13B

4/

mit

37R

44R

\rightarrow left rotate the GP

and change color of GP and parent

37B

13B

44B

5/

violation with red uncle

see we do recoloring

7R

37B

13B

44B

7R

22R

6/

37B

13B

44B

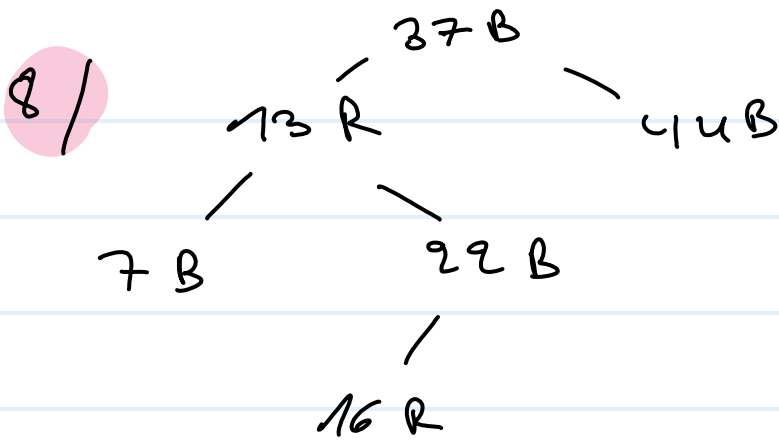
7R

22R

16R

7/

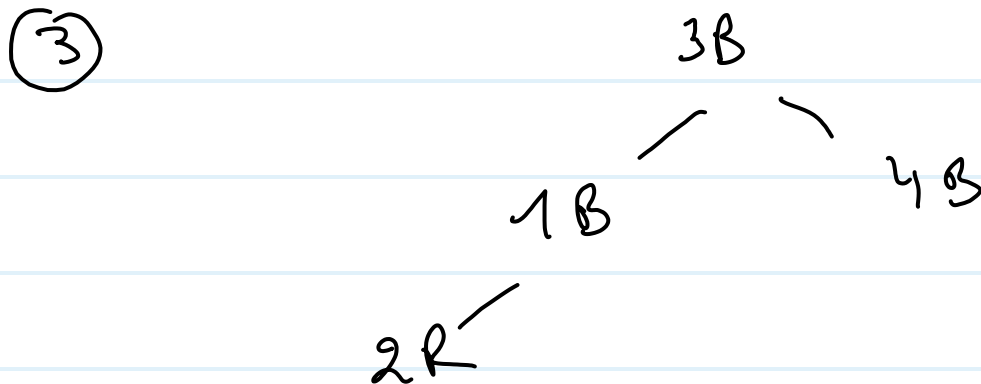
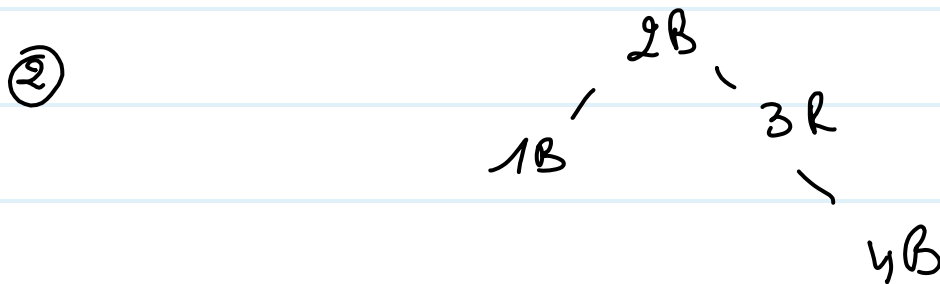
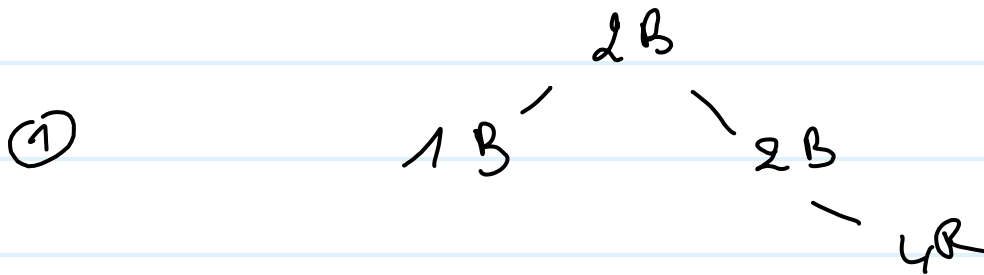
RR violation with red uncle



final leaf of
the RB tree.

Problem 1 b.

all valid trees:



⑤

