Homework #5

Heaps, Treaps, ..

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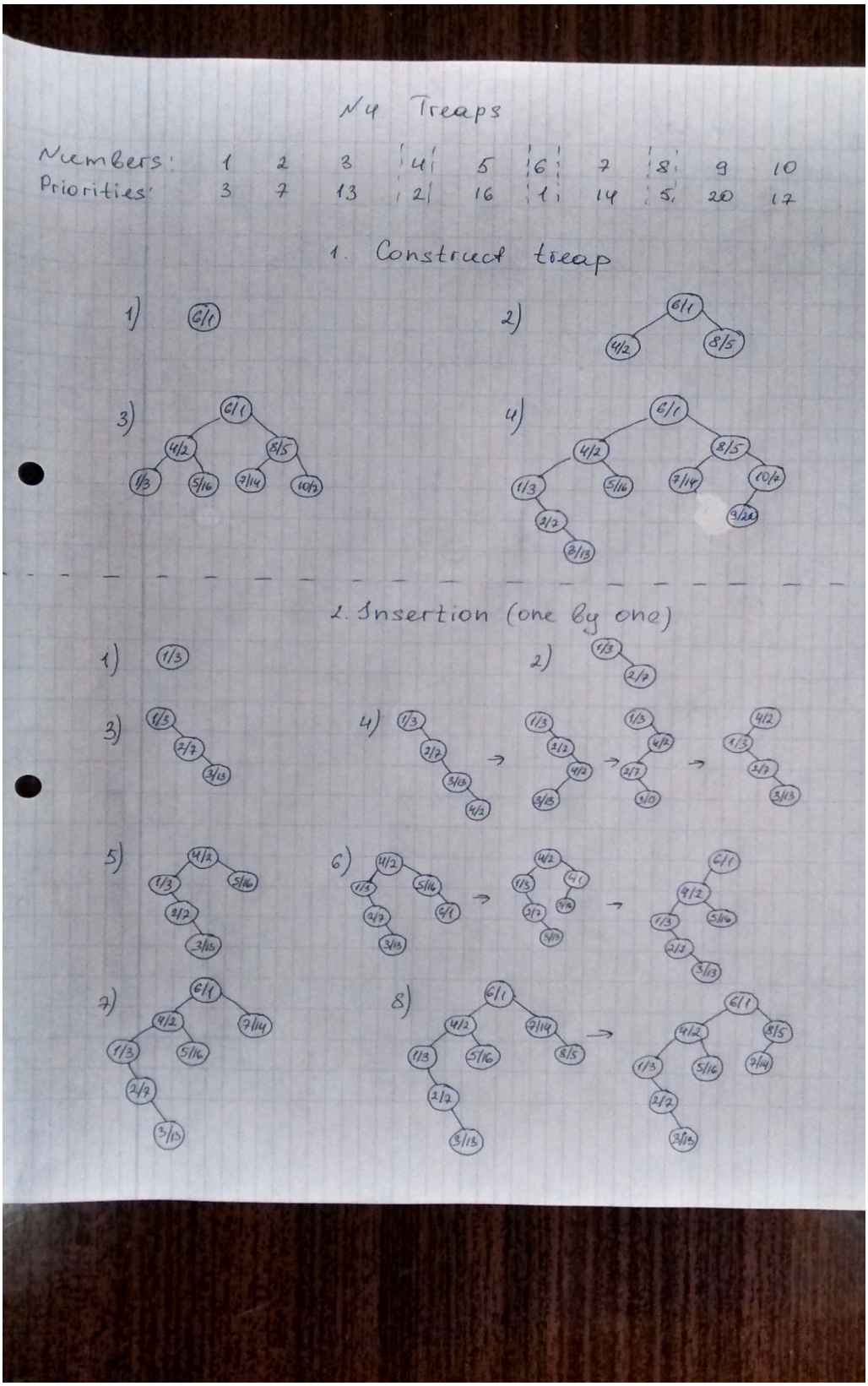
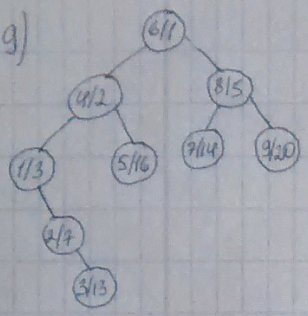
*1. Read: Kamp (CACM 2010 53:7) "You're doing it all wrong." (pdf) What is the main criticism? Discuss how exactly should the Heap use implicit indexing (i => 2*i, 2*i+1; and parent==i/2) be changed according to Kamp's article.*

Due to particularities of working with virtual memory most of operations in different conditions would be better to perform using B-trees instead of binary trees. The difference between b-tree and binary tree is in a way of finding parents/children. I do not know how the formulas should look like.

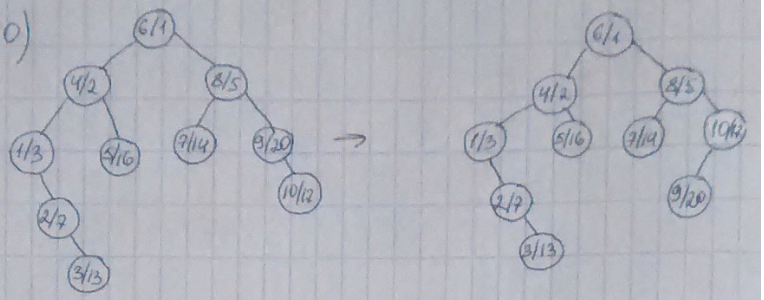
4 - 5. Make an example of Treaps by inserting data with random priorities. Insert 10 data points from (1..10). Describe the bulk operations of split and merge on the above example. Split by inserting 4.5. And then merge the treaps again together. Count the nr of operations needed.



9)

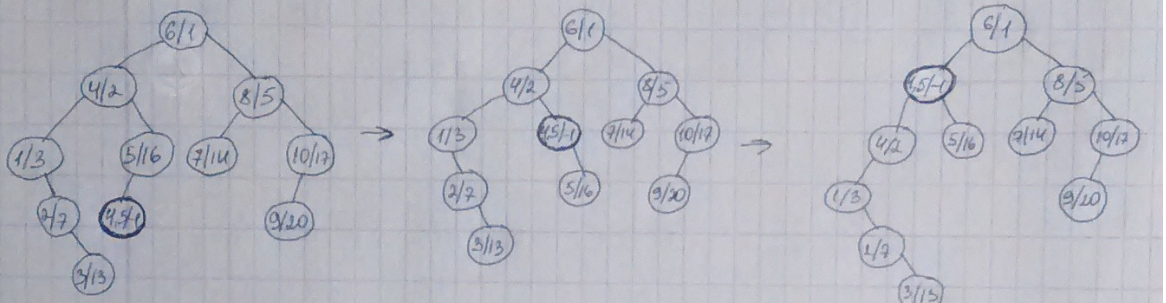


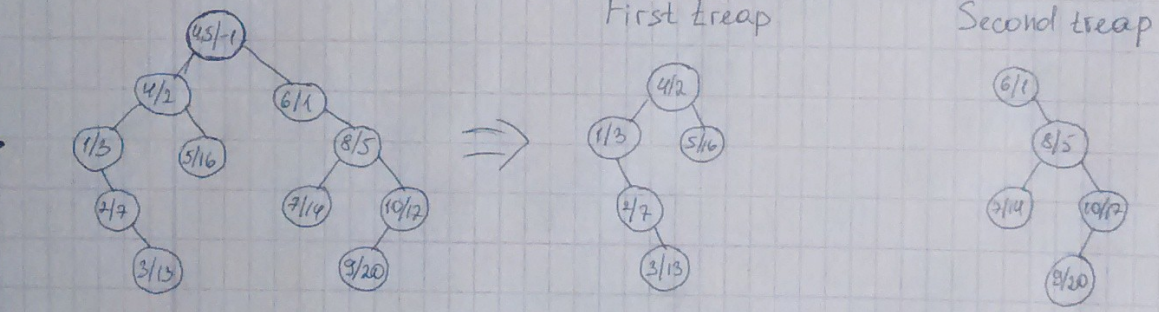
10)



N5 Split and merge

1) Define „splitting node" with highest priority and insert it (4,5/-1)





2) Merge tree find a node with highest priority and make a root, and then adjust a tree