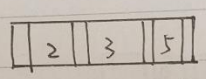


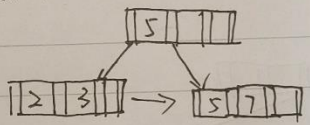
14.3. (a) (2, 3, 5, 7, 11, 17, 19, 23, 29, 31)

$n=4$

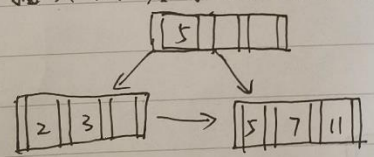
首先 2 3 5. 叶节点未满. 直接插入.



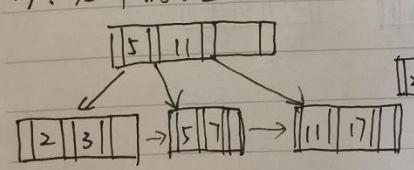
插入 7. 满, 中间节点 5 上 - 层.



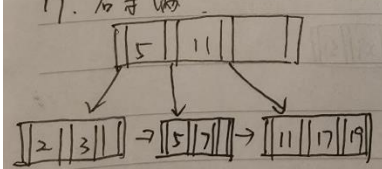
插入 11. 右未满. 插入.



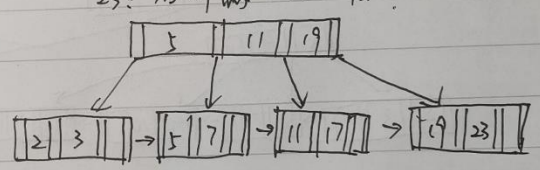
17. 右叶满. 上 1



19. 右未满

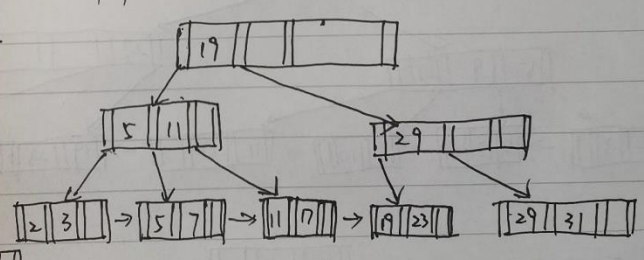


23: 右叶满. 上 - 层.



29. 直接插入最右叶.

31: 最右满. 上 1. 第一层满. 再上 1.

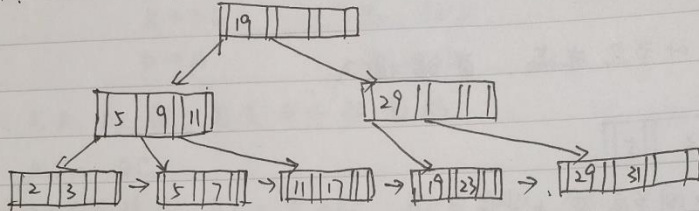


最终生成的 B+ 树.

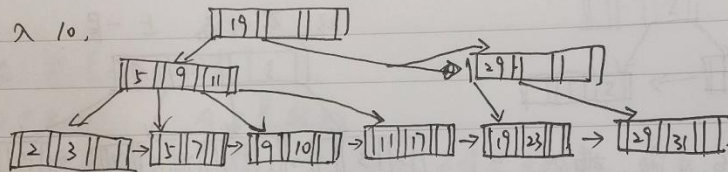
No.

Date

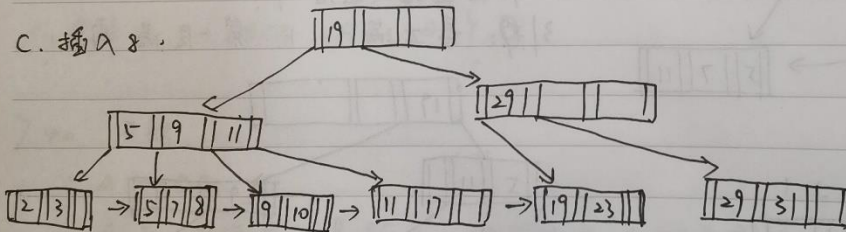
14.4 a. 插入 9. 第2层左边未满, 直接插入即可.



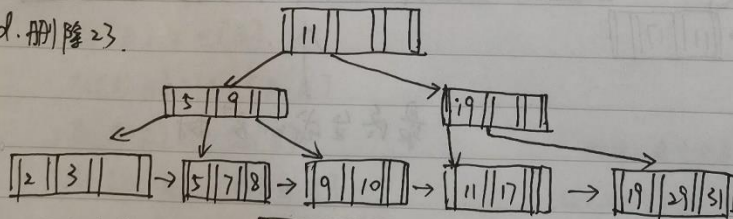
b. 插入 10.



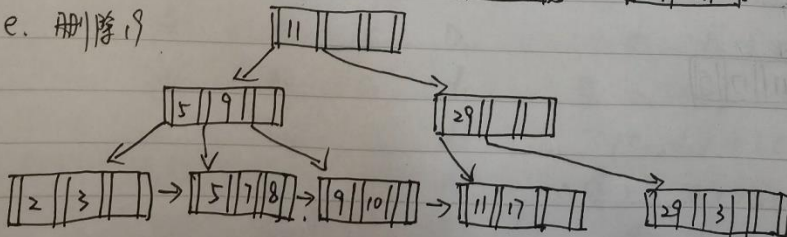
c. 插入 8.



d. 删除 23.



e. 删除 19.



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