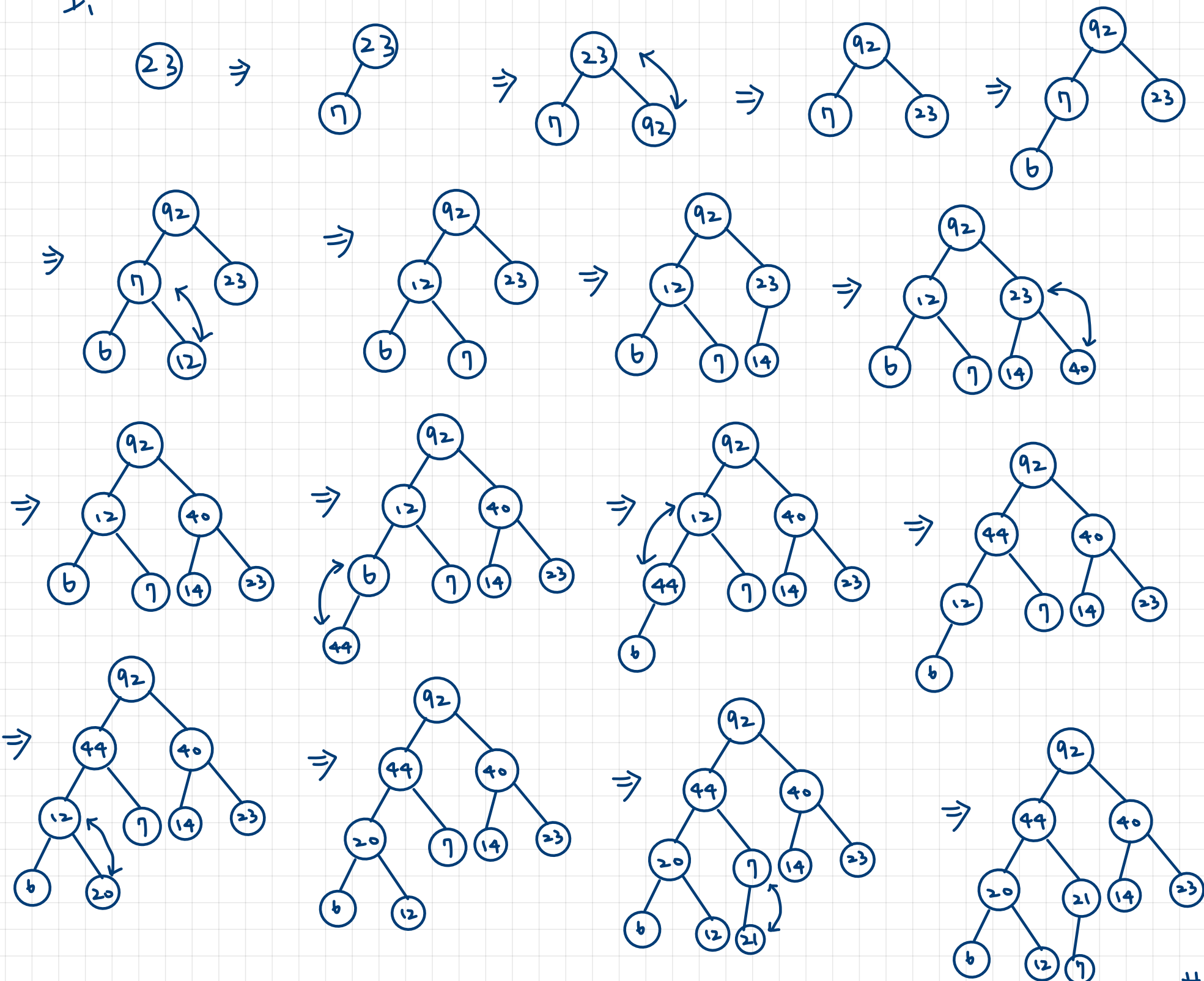


HW9

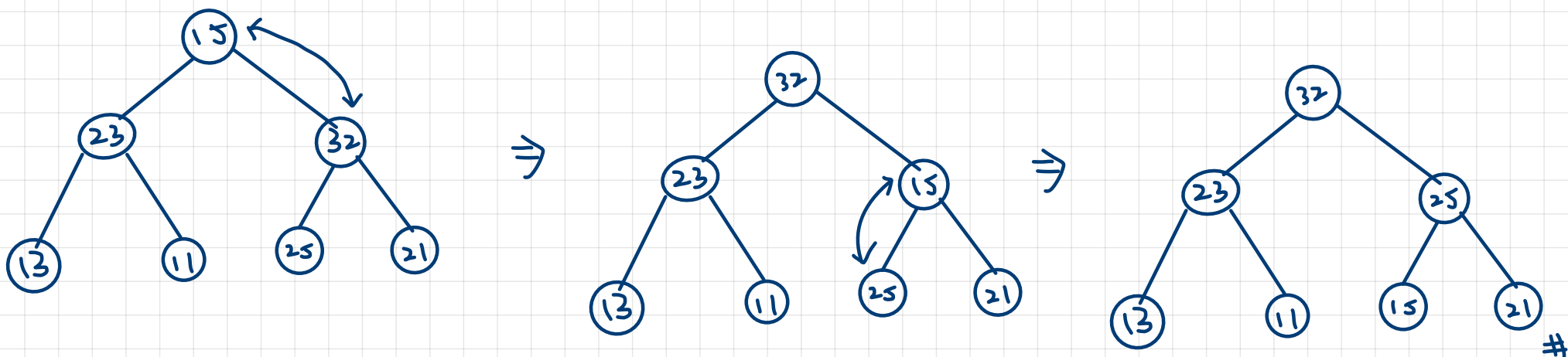
109511207

算法实现

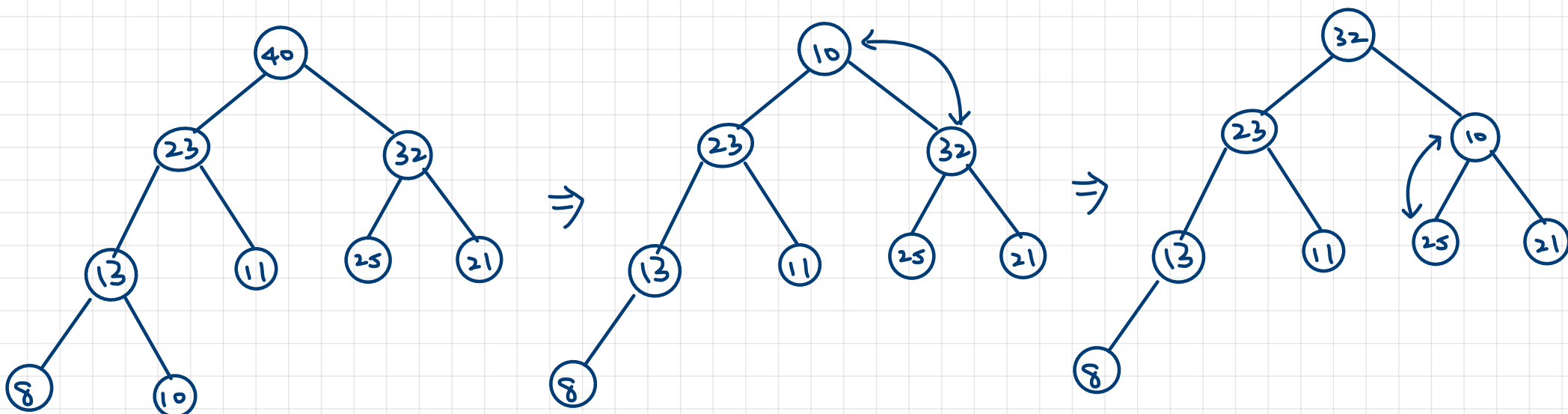
1、

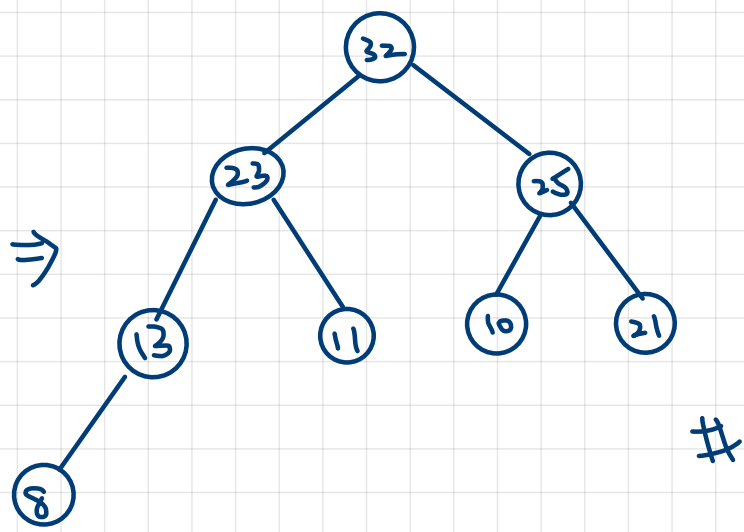


2、

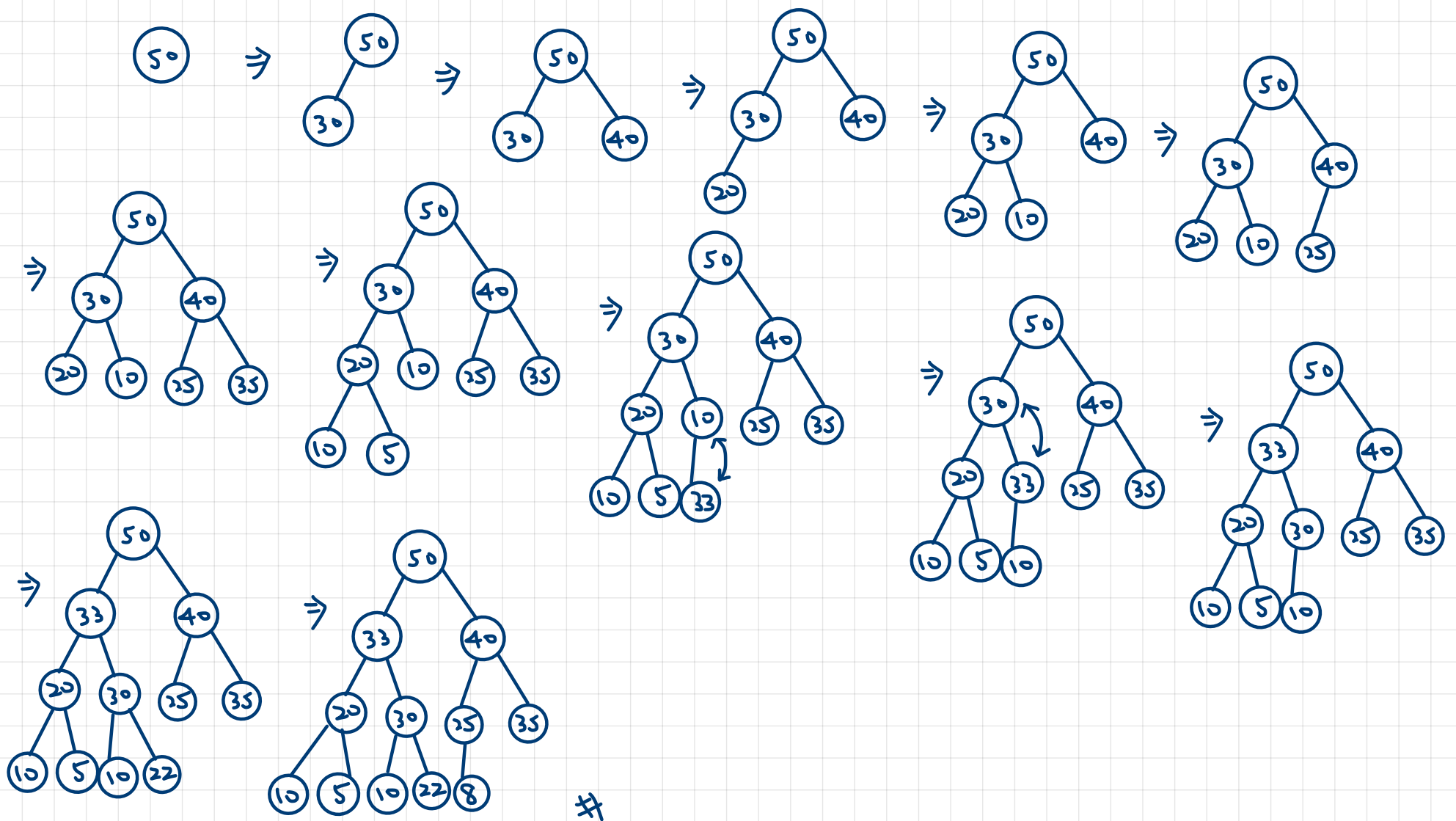


3、





4.



5.

(1)

For  $n = 1000$   
 $t = 0.001344s$   
 $n = 10000$   
 $t = 0.010465s$   
 $n = 100000$   
 $t = 0.532835s$   
 $n = 300000$   
 $t = 3.01735s$   
 $n = 1000000$   
 $t = 11.3678s$

Big-O:  $O(n \log n)$  #

(2) reheapUp:  $O(\log n)$ , reheapDown:  $O(\log n)$  #

```
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ g++ HW9_5_109511207.cpp -o HW
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ ./HW
0.001344s
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ g++ HW9_5_109511207.cpp -o HW
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ ./HW
0.010465s
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ g++ HW9_5_109511207.cpp -o HW
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ ./HW
0.532835s
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ g++ HW9_5_109511207.cpp -o HW
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ ./HW
3.01735s
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ g++ HW9_5_109511207.cpp -o HW
therealczr@DS-HW:~/Desktop/DS-HW/HW09$ ./HW
11.3678s
```