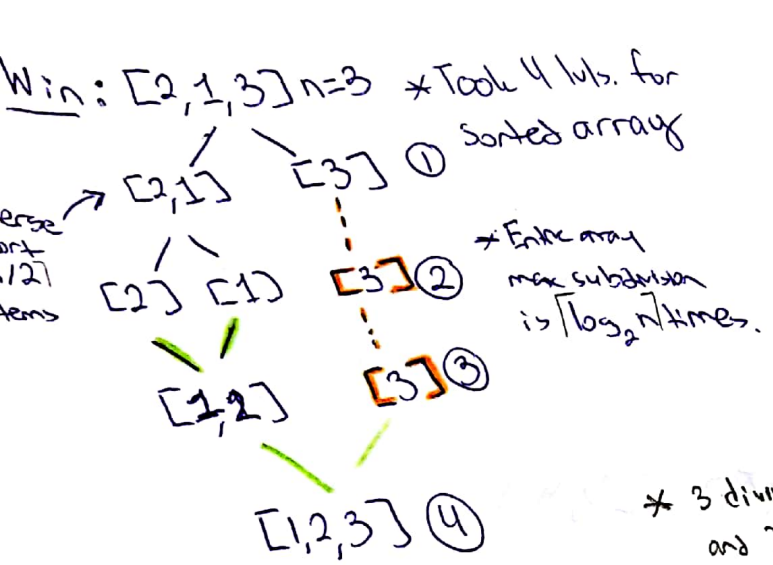
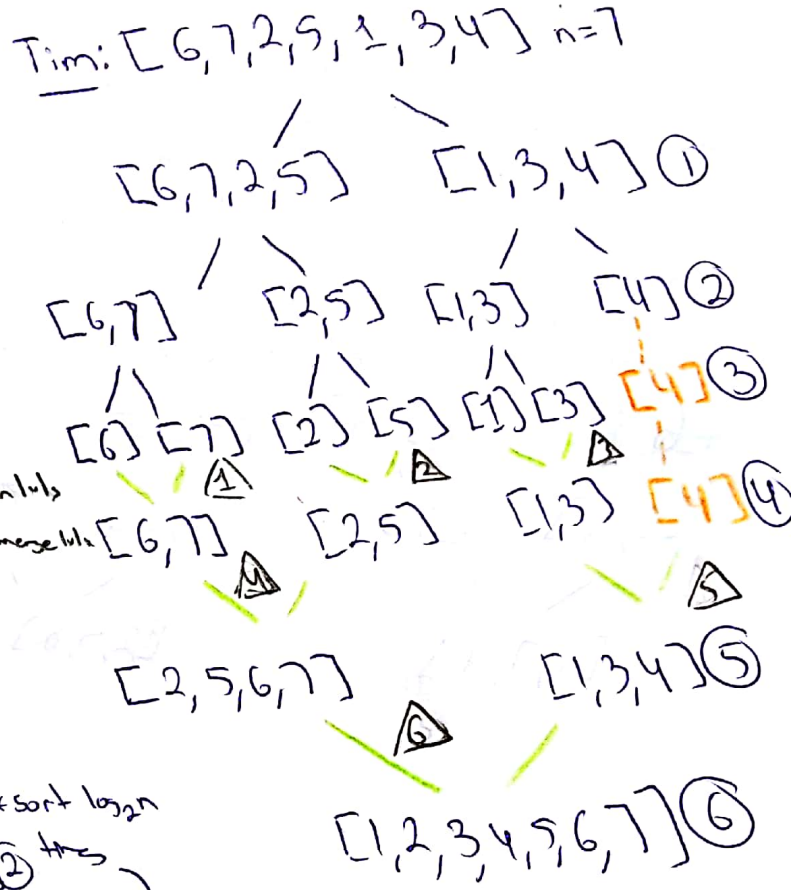
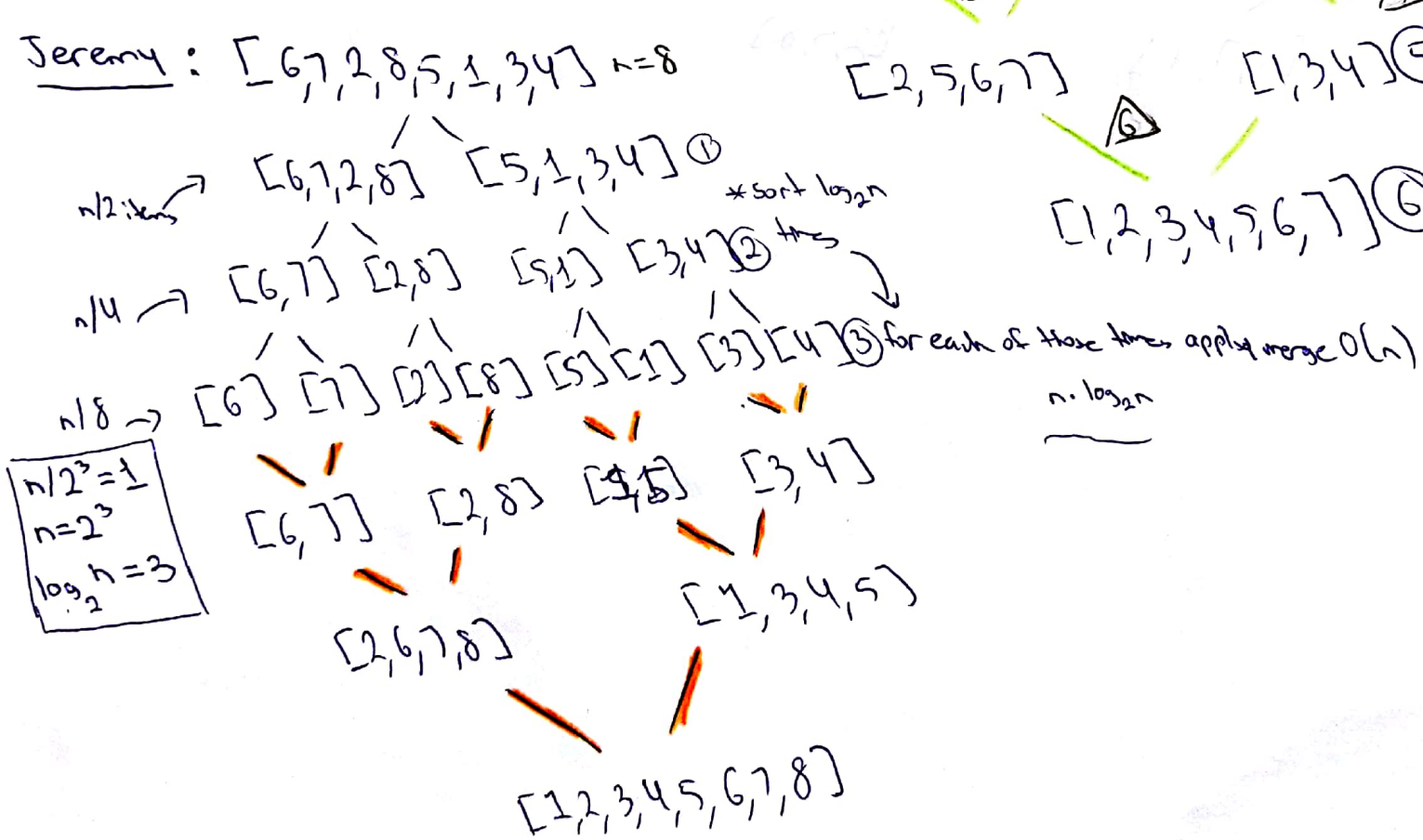
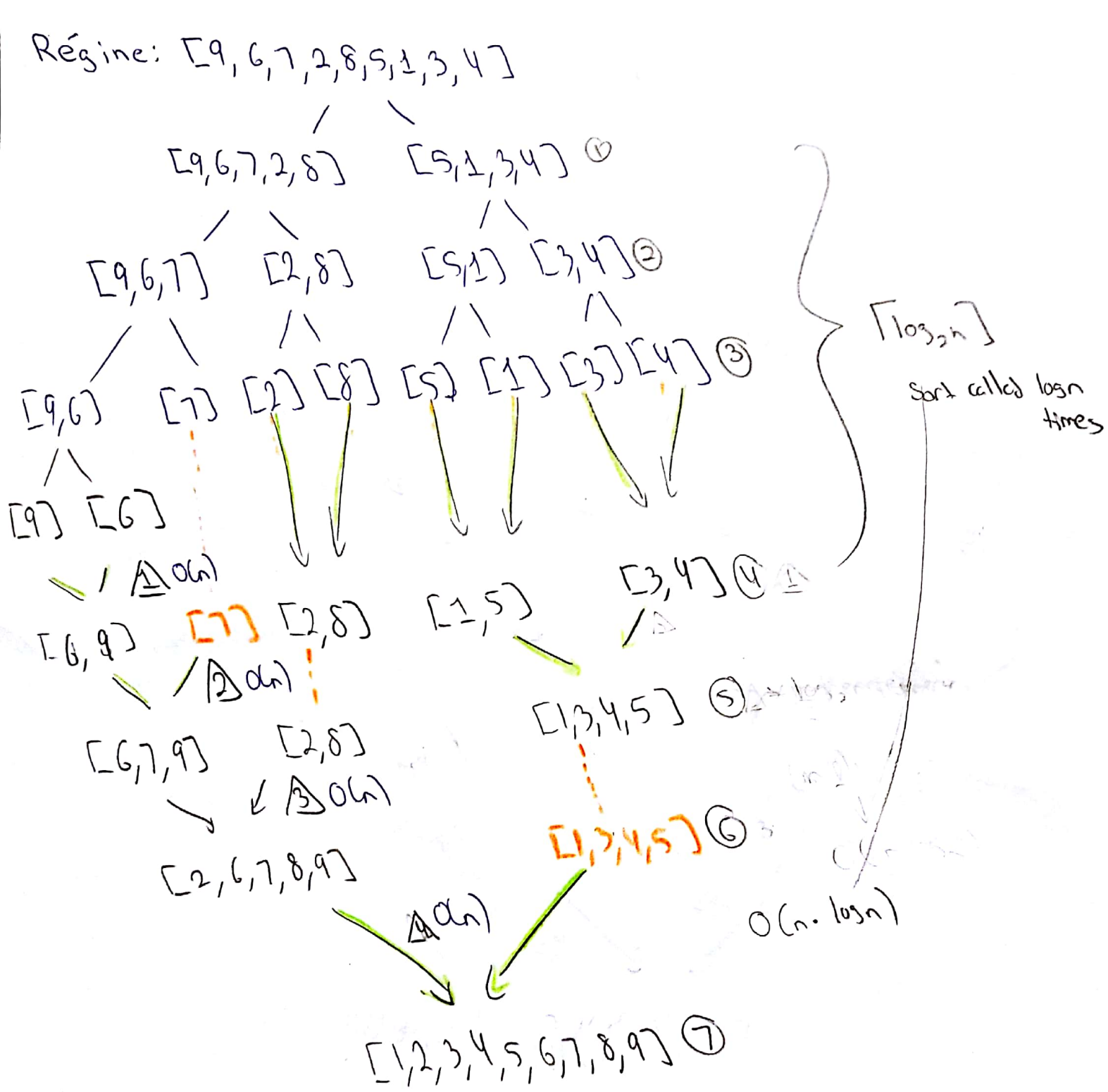
Daniel Gelfand
APCS2 pd2
HW#06 -- How Fast Are Your Turtles?
2018-02-12

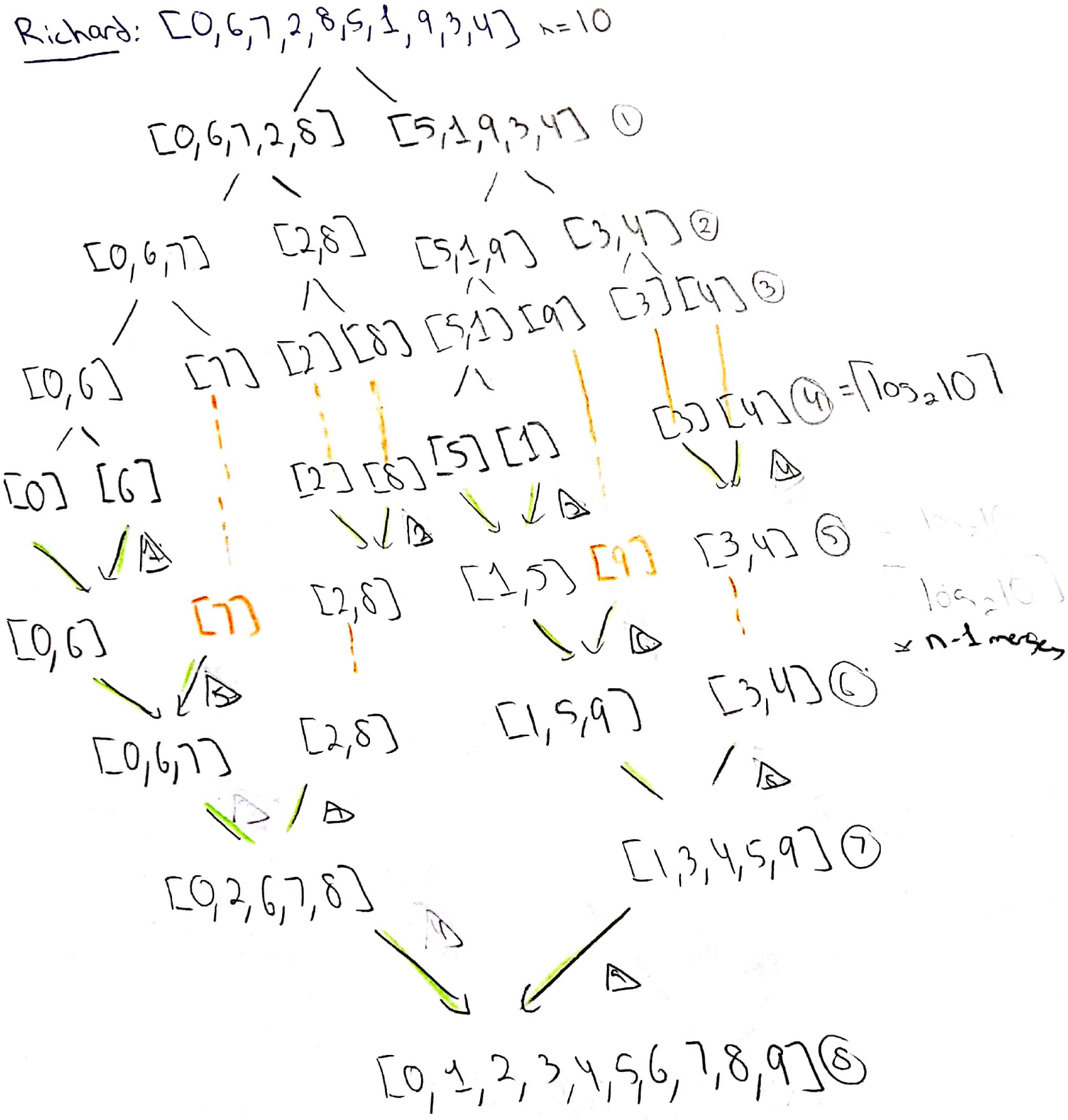




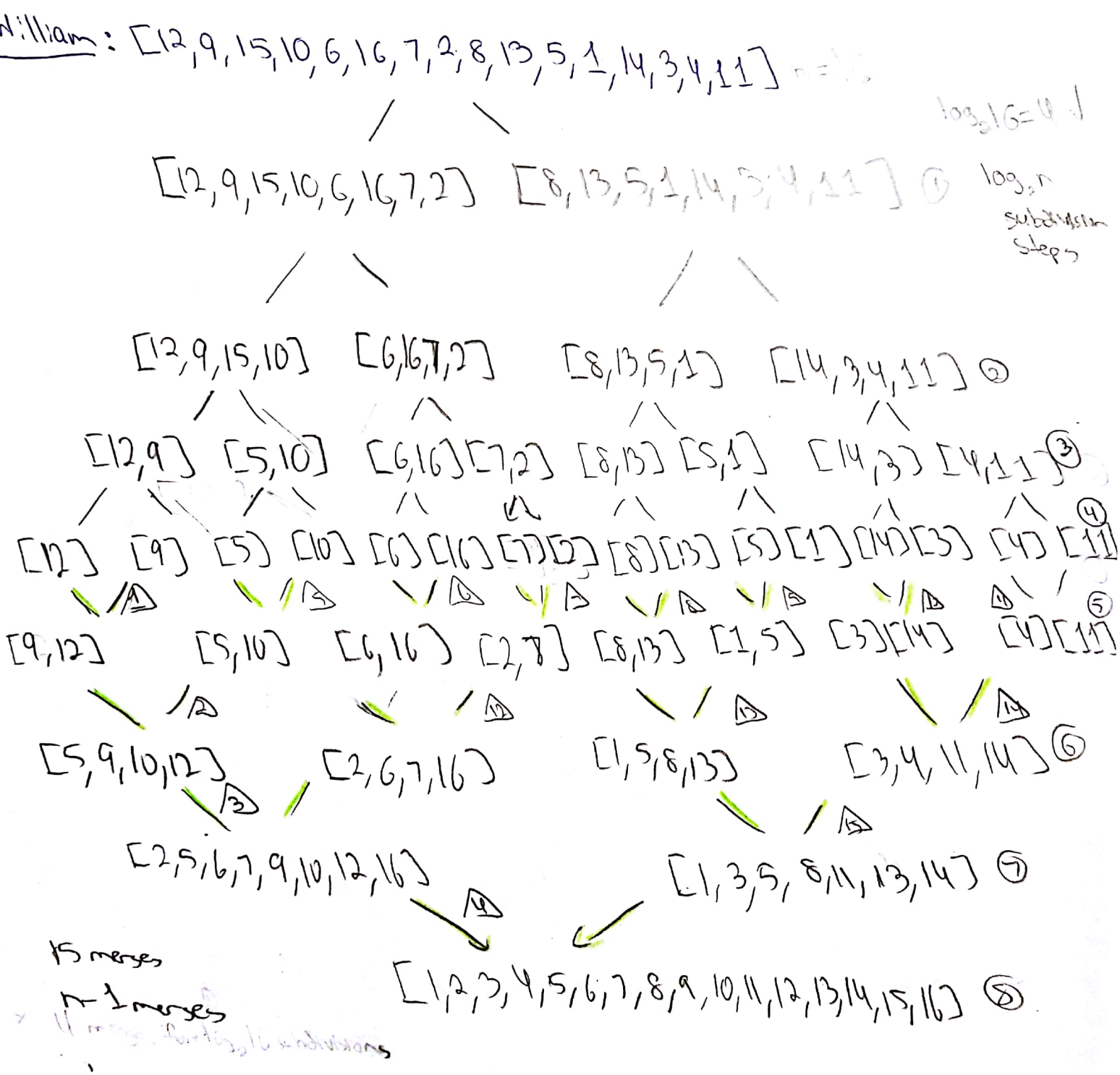




*Merging n one-item arrays



William: [12,9,15,10,6,16,7,2,8,13,5,1,14,3,4,11]



15 merges

n-1 merges

Explanation: From the traces it can be seen that the max possible divisions before reaching all sorted arrays is $\lceil \log_2 n \rceil$. Merge will be called n-1 times for merge n elements. Sorting runs in $O(\log n)$ and merging in $O(n)$. Since, one is working during the other, merge sort is $O(n \log_2 n)$.