

Tiling Problems

Veteran Track

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Problem 1

In **Linova and Kingdom**, show that if a node is picked, then everything in its subtree must be picked. No need to be overly formal. As long as you convince me, it's fine ^^

Problem 2

There are n chess matches to be scheduled in the PSHS-MC ASTB. Each chess match has a starting time s_i and an ending time e_i . Two chess matches i and j are said to be in conflict if they occur simultaneously for some time t . Specifically, they are in conflict if $[s_i, e_i] \cap [s_j, e_j] \neq \emptyset$ (you may clarify this in the Discord server).

You must schedule a subset of these chess matches such that none of them are in conflict with one another. What is the maximum number of chess matches that you could schedule?

Your task: **Describe** an algorithm that solves this problem in linear or linearithmic ($O(n \log n)$) time. Then, prove the correctness of your algorithm using the ideas discussed in this week's lesson. You may refer to section 3 of [this learning guide](#).