<https://atcoder.jp/contests/abc172/tasks/abc172_e>

count the pairs of length sequences consisting of integers from 1 to such that each sequence consists of distinct integers and for all . (can share integers, cannot have same integer multiple times in one sequence)

First thought: enumerate the number of overlapping integers

choose overlapping integers, choose other integers out of remaining integers for the first sequence, choose other integers out of remaining integers for the second one.

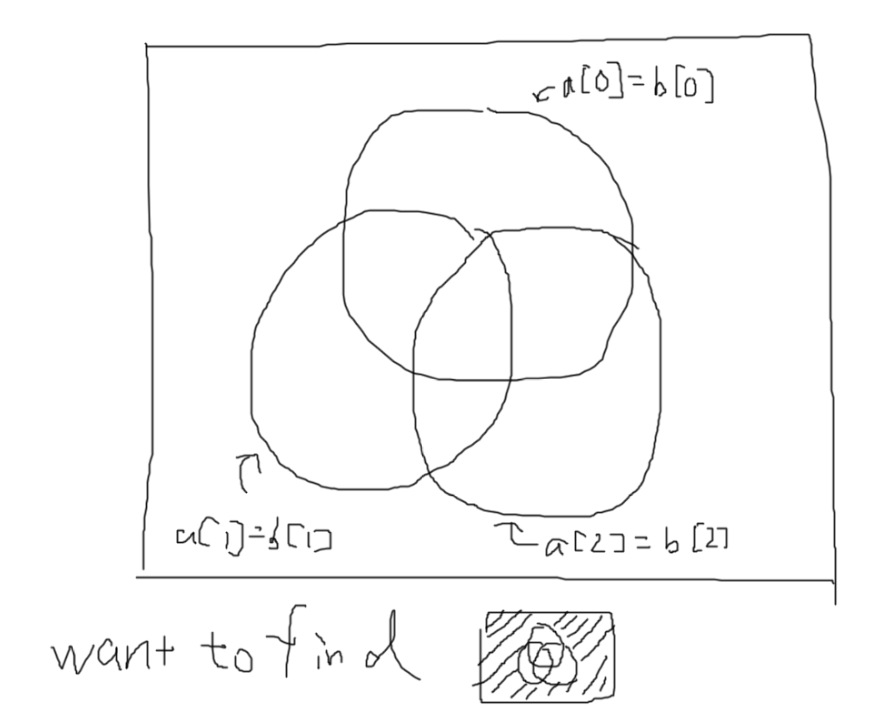
I cant think, maybe enumerate again can simplify stuff? enumerate the number of overlapping positions of the overlapping integers

(too lazy to explain probably wrong anyways)

cant find any simplifications, will , this is so sad

editorial: inclusion-exclusion principle!! (what?)

By inclusion-exclusion principle, #(all not equal) is equal to #(0 def equal) - #(1 def equal) + #(2 def equal) - … +/- #(n def equal)

(i def equal means i of the a[j] and b[j] are equal rest is unsure so can be both)

If still don’t get, heres an example lets say n = 3

therefore, formula is

is number of def equal elements

choose i a[j] = b[j] positions

choose the i same integers (with order as they are sequences)

choose the remaining integers, they may be the same but it is ok.

Wow never really thought of inclusion exclusion when doing combinatorics problem hope I will know how to do when this thing shows up again