

2683. Neighboring Bitwise XOR

Solved

Medium Topics Companies Hint

A **0-indexed** array `derived` with length `n` is derived by computing the **bitwise XOR** (\oplus) of adjacent values in a **binary array** `original` of length `n`.

Specifically, for each index `i` in the range `[0, n - 1]`:

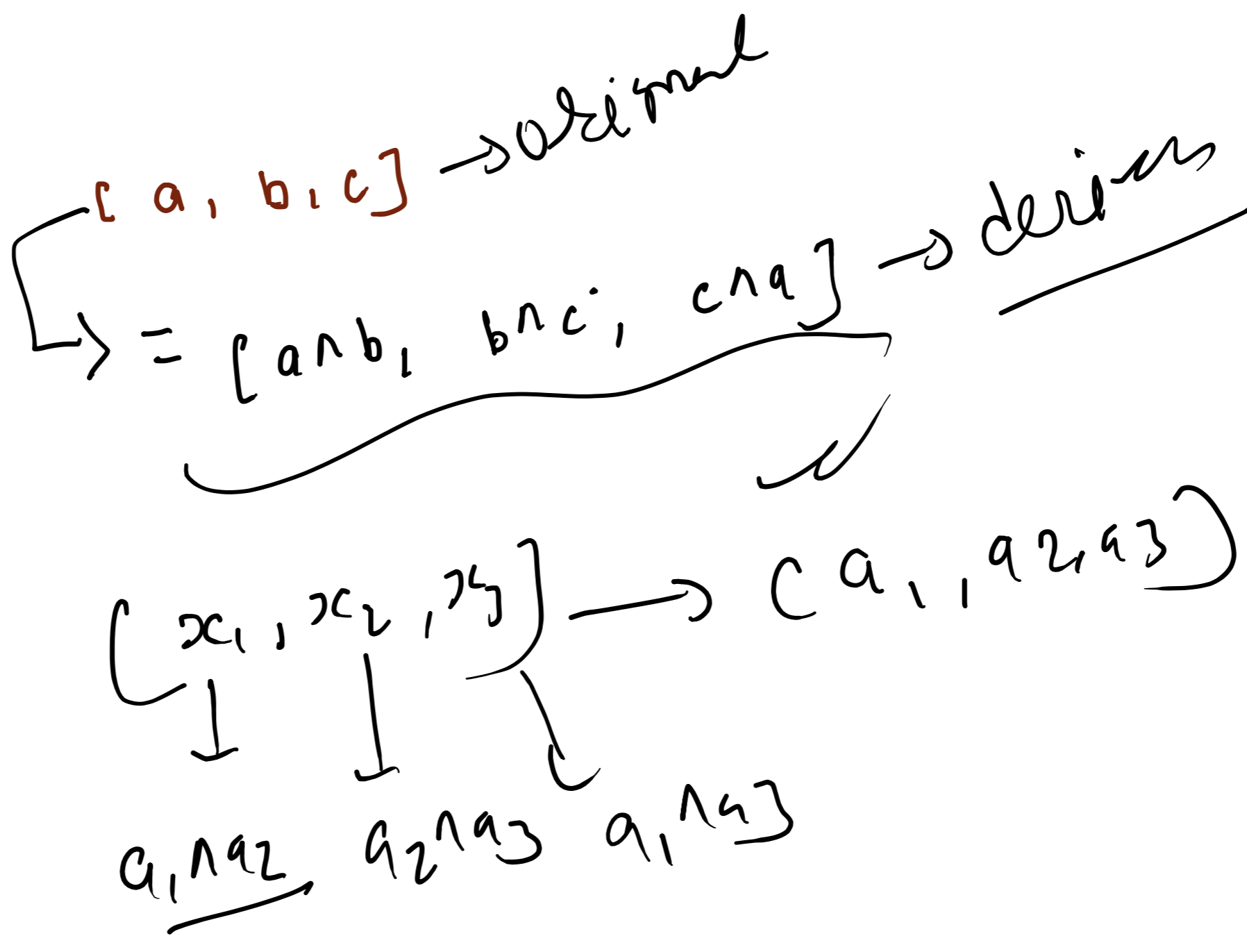
If `i = n - 1`, then `derived[i] = original[i] \oplus original[0]`.

Otherwise, `derived[i] = original[i] \oplus original[i + 1]`.

Given an array `derived`, your task is to determine whether there exists a **valid binary array** `original` that could have formed `derived`.

Return **true** if such an array exists or **false** otherwise.

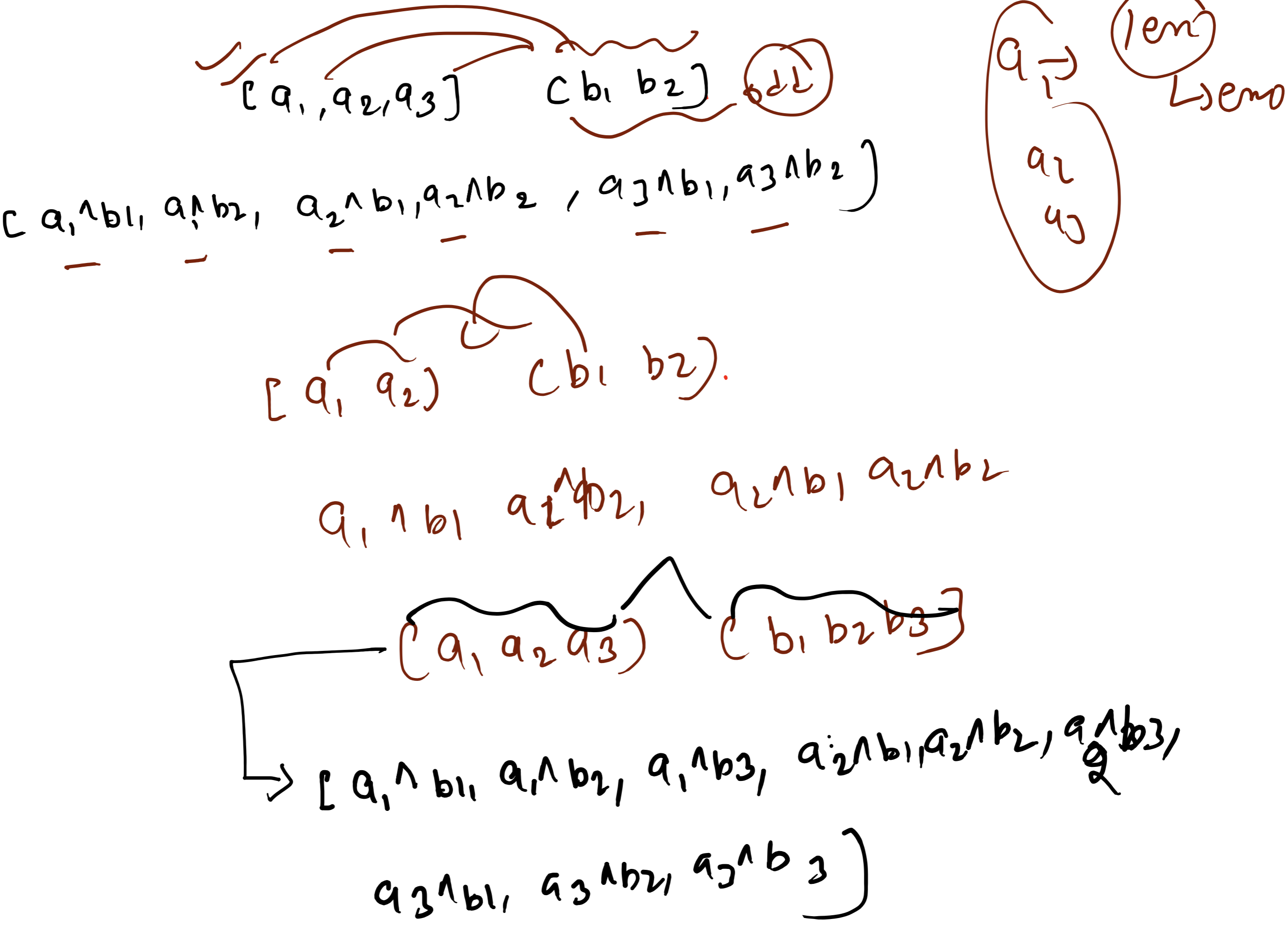
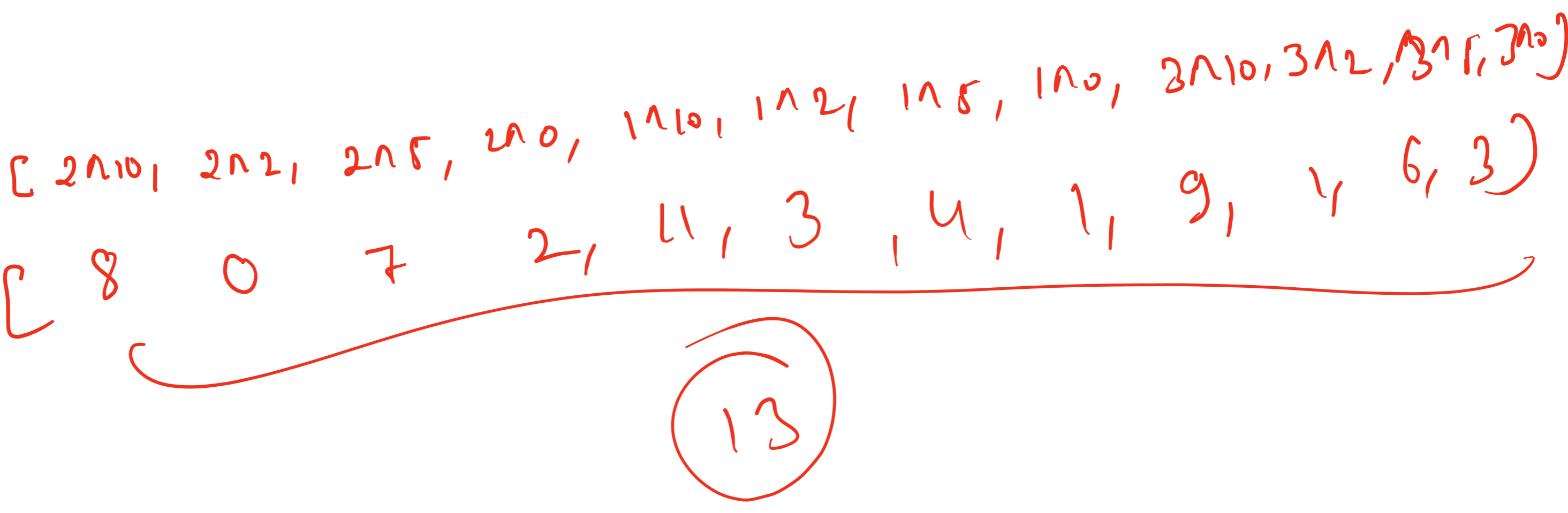
A binary array is an array containing only **0**'s and **1**'s



You are given two **0-indexed** arrays, `nums1` and `nums2`, consisting of non-negative integers. Let there be another array, `nums3`, which contains the bitwise XOR of **all pairings** of integers between `nums1` and `nums2` (every integer in `nums1` is paired with every integer in `nums2` **exactly once**).

Return the **bitwise XOR** of all integers in `nums3`.

Input: `nums1 = [2,1,3]`, `nums2 = [10,2,5,0]`
Output: 13



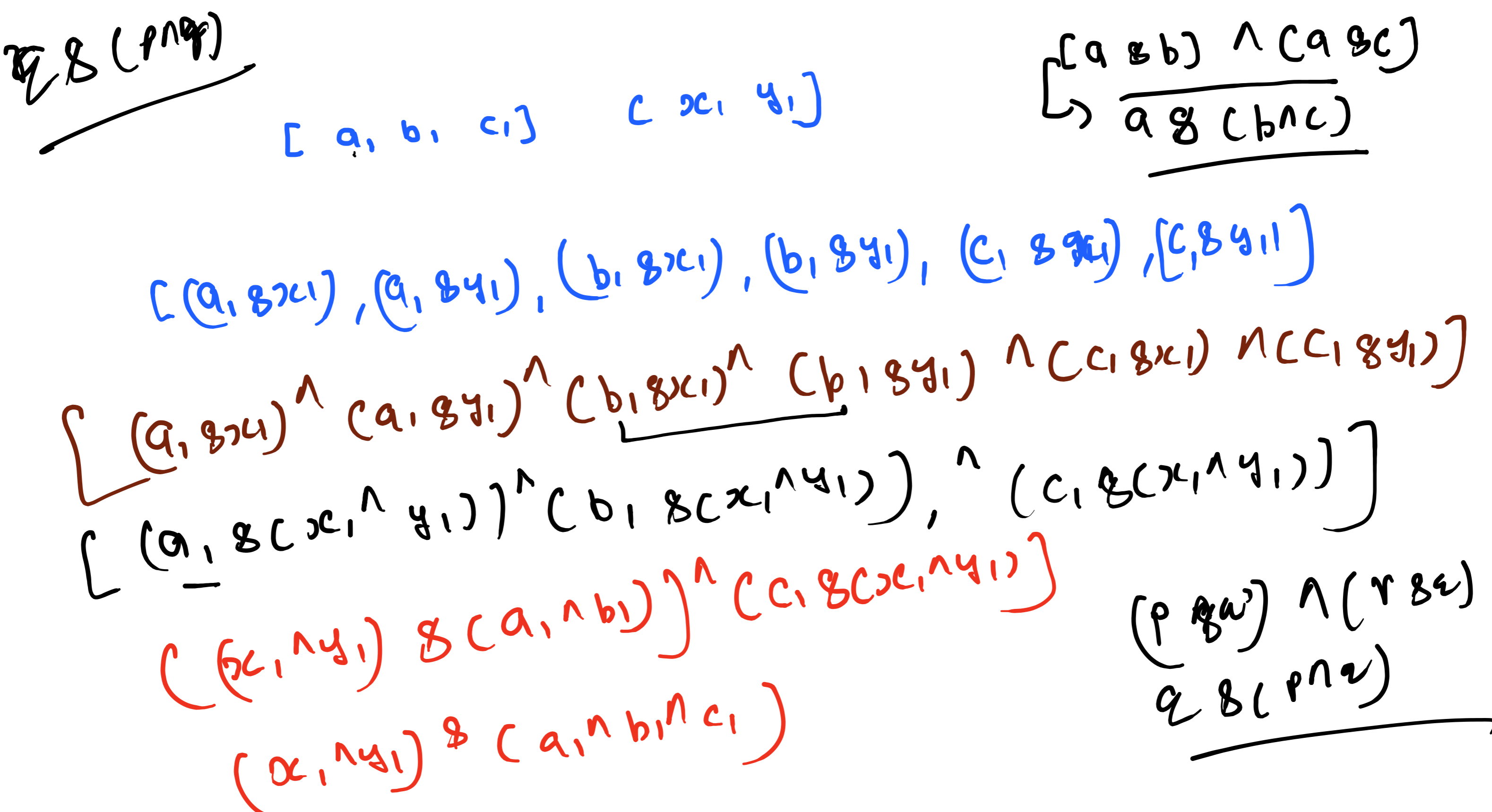
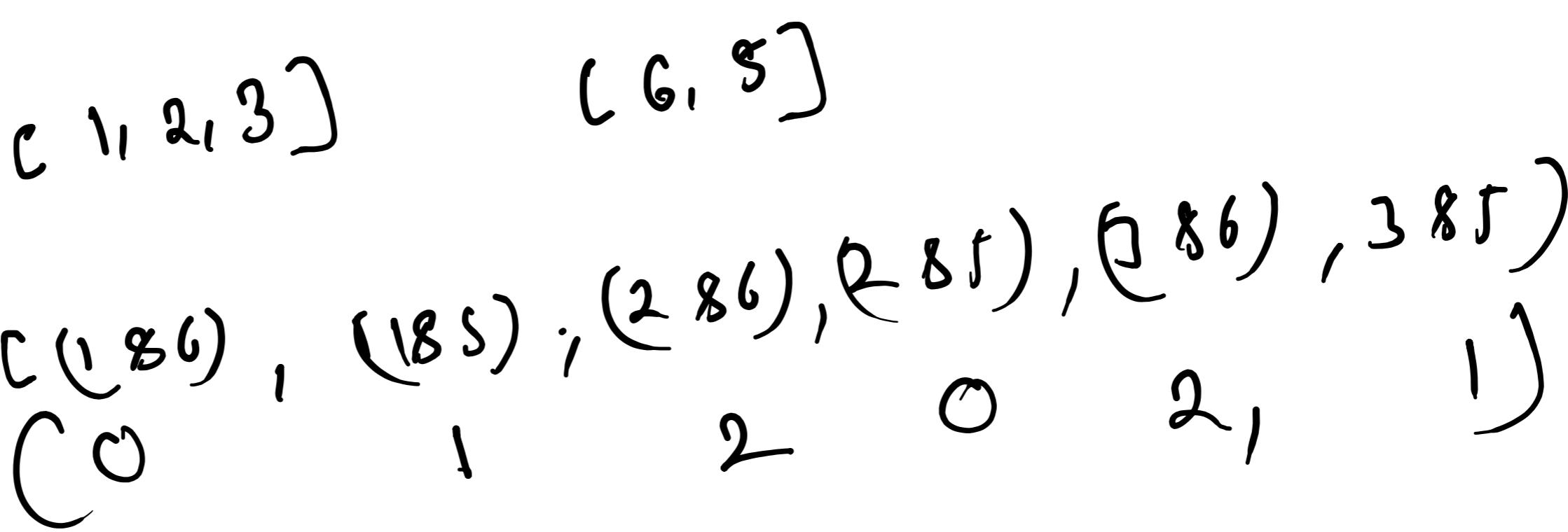
The **XOR sum** of a list is the bitwise **XOR** of all its elements. If the list only contains one element, then its **XOR sum** will be equal to this element.

For example, the **XOR sum** of `[1,2,3,4]` is equal to `1 XOR 2 XOR 3 XOR 4 = 4`, and the **XOR sum** of `[3]` is equal to `3`.

You are given two **0-indexed** arrays `arr1` and `arr2` that consist only of non-negative integers.

Consider the list containing the result of `arr1[i] AND arr2[j]` (bitwise **AND**) for every `(i, j)` pair where `0 <= i < arr1.length` and `0 <= j < arr2.length`.

Return the **XOR sum** of the aforementioned list.



Given two positive integers `num1` and `num2`, find the positive integer `x` such that:

- `x` has the same number of set bits as `num2`, and
- The value `x XOR num1` is **minimal**.

Note that **XOR** is the bitwise XOR operation.

Return the **integer** `x`. The test cases are generated such that `x` is **uniquely determined**.

The number of **set bits** of an integer is the number of **1**'s in its binary representation.

