Chef and Two String

Problem code: CHEFTWOS

Tweet

ALL SUBMISSIONS | MY SUBMISSIONS | SUBMIT

Read problems statements in Mandarin Chinese, Russian and Vietnamese as well.

Chef's loves his dog so much! Once his dog created two strings **a** and **b** each of length **n** consisting of digits **1**and **2**, and even a problem about them!

Chef's Dog will tell by barking if a string **x** (also containing only digits **1** and **2** and with length **N**) is **good** or not by performing the following actions.

- It starts at first digit of the string, i.e. at **i = 1**.
- It can move from digit **i** to either **i - 1** or **i + 1** if x_i equals **1** and the corresponding digits exist.
- It can move from digit **i** to either **i - 2** or **i + 2** if x_i equals **2** and the corresponding digits exist.
- It **must** visit each digit **exactly** once.
- It **must** finish at the last digit (x_N).

Chef's dog wants to make both the strings **a** and **b** *good* by choosing some subset **S** (possibly empty) of indices of set **{1, 2, ..., n}** and swapping each index **i ϵ S** between string **a** and **b**, i.e. swapping a_i and b_i. Can you find how many such subsets **S** exist out there? As the answer could be large, output it modulo $10^9 + 7$.

Input

The first line of the input contains an integer **T** denoting the number of test cases. The description of **T** test cases follows.

The first line contains string **a**.

The second line contains string **b**.

Output

For each test case, output a single line containing answer of the problem.

Constraints

- **1 ≤ T ≤ 20**
- **1 ≤ |a| = |b| ≤ 10^5**
- **'1' ≤ a_i, b_i ≤ '2'**

Subtasks

- Subtask #1 (30 points) **|a|, |b|** ≤ 10
- Subtask #2 (70 points) **original constraints**

Example

Input:
2
1111
2211
222
111

Output:
8
0

Explanation

Test case 1. Possible subsets are: **{}**, **{1, 2}**, **{1, 2, 3}**, **{1, 2, 4}**, **{1, 2, 3, 4}**, **{3}**, **{4}**, **{3, 4}**.

Test case 2. There are no possible sets **S** which can make both the strings good.