K: Peppa's Puddles

Time Limit: 1 second

Peppa the Pig loves jumping in puddles. She sees n puddles laid out in a line, numbered from 1 to n from left to right, and she wants to jump in as many of them as possible. She can jump in each puddle at most once.

Unfortunately, jumping in a puddle may splash one or both of its adjacent puddles. If a puddle is splashed before Peppa has jumped in it, she can no longer jump in that puddle. Splashing a puddle that Peppa has already jumped in has no effect.

Help Peppa determine the maximum number of puddles she can jump in, if she chooses an optimal order to jump in them.

Input

The first line of input contains a single integer T ($1 \le T \le 10^4$), representing the number of test cases.

The descriptions of T test cases follow. Each test case starts with a line containing a single integer n ($2 \le n \le 2 \cdot 10^5$), the number of puddles.

The next line contains a binary string s_L ($|s_L| = n - 1$). The i^{th} character of s_L is `1` if jumping in puddle $i + 1$ splashes puddle i, and `0` otherwise.

The next line contains a binary string s_R ($|s_R| = n - 1$). The i^{th} character of s_R is `1` if jumping in puddle i splashes puddle $i + 1$, and `0` otherwise.

The sum of n over all test cases will not exceed $2 \cdot 10^5$.

Output

For each test case, output the maximum number of puddles that Peppa can jump in.

Sample Input 1	Sample Output 1
2 3 11 11 3 00 11	2 3

This page is intentionally left blank.