

Problem L. Little LCS

Input file: *standard input*
 Output file: *standard output*
 Time limit: 2 seconds
 Memory limit: 512 mebibytes

A string consisting of letters 'A', 'B', 'C' is *good* if every two adjacent letters are different.

A pair of two good strings (s, t) of length $2n + 1$ is *awesome* if the length of their longest common subsequence is exactly n .

You are given two strings, s and t , consisting of letters 'A', 'B', 'C' and question marks ('?'). Find the number of ways to replace each '?' with one of 'A', 'B', 'C', so that the pair (s, t) is awesome, modulo 998 244 353.

Input

The first line contains a single integer t ($1 \leq t \leq 10^5$), the number of test cases.

The first line of each test case contains a single integer n ($1 \leq n \leq 10^6$).

The second line contains a string s of length $2n + 1$ consisting of characters 'A', 'B', 'C', '?'.

The third line contains a string t of length $2n + 1$ consisting of characters 'A', 'B', 'C', '?'.

It is guaranteed that the sum of n over all test cases does not exceed 10^6 .

Output

For each test case, output the number of ways to replace each '?' with one of 'A', 'B', 'C' so that the pair (s, t) is awesome, modulo 998 244 353.

Example

standard input	standard output
5	1
1	3
ABA	24
CBC	0
1	2
A?A	
C?C	
1	
???	
???	
2	
AA???	
????B	
3	
?A?B?A?	
???????	

Note

In the first test case, pair (ABA, CBC) is awesome.

In the second test case, there are 3 ways to replace question marks to get an awesome pair: (ABA, CBC), (ACA, CBC), (ABA, CAC).