I. Zayin and Coin Game

Zayin is fond of collecting coins. And Zayin has collected n different coins in total. Now he wants to play a game with these coins. He places all these coins on a desk in a **circle**, numbered from 1 to n in clockwise order. In one step Zayin can choose exactly k consecutive coins and flips them at the same time, which means that the heads of these coins which are facing up become facing down and which are facing down become facing up.

Now he wonders whether the original state can reach the final state in finite steps.

Input

The first line contains an integer $T(1 \le T \le 100)$, the number of test cases.

Then each test case contains 3 lines. The first line contains two integers, n and k ($1 \le k \le n \le 10^5, \sum n \le 10^6$), whose meanings have been described above. The next two lines contain two strings, s and t, respectively ($|s| = |t| = n$), which only contain the digits 0 and 1.

String s represents the initial state of the n coins. If the head of the i-th coin faces up, then the i-th character of s is 1. If the head of i-th coin faces down, the i-th character of s is 0. String t represents the desired final state of the n coins in the same way as s.

Output

If it is possible for Zayin to reach the state represented by t from the state represented by s in finite steps, outputs "Yes"; otherwise, output "No" (without the quotes).

Sample

Input	Output
4	No
3 2	Yes
000	No
100	Yes
3 2	
000	
110	
6 3	
100100	
100101	
8 3	
00100100	
00100101	