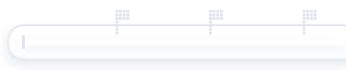




Codemonk

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Cyclic shift

A large binary number is represented by a string A of size N and comprises of 0 s and 1 s. You must perform a cyclic shift on this string. The cyclic shift operation is defined as follows:

- If the string A is $[A_0, A_1, A_2, \dots, A_{N-1}]$, then after performing one cyclic shift, the string becomes $[A_1, A_2, \dots, A_{N-1}, A_0]$.

You performed the shift infinite number of times and each time you recorded the value of the binary number represented by the string. The maximum binary number formed after performing (possibly 0) the operation is B . Your task is to determine the number of cyclic shifts that can be performed such that the value represented by the string A will be equal to B for the K^{th} time.

Input format

- First line: A single integer T denoting the number of test cases
- For each test case:
 - First line: Two space-separated integers N and K
 - Second line: A denoting the string

Output format

For each test case, print a single line containing one integer that represents the number of cyclic shift operations performed such that the value represented by string A is equal to B for the K^{th} time.

Constraints

$$1 \leq T \leq 10^3$$

$$1 \leq N \leq 10^5$$

$$1 \leq K \leq 10^9$$

$$A_i = \{0, 1\}, \text{ for each } i$$

Note: Sum of N overall test cases does not exceed 10^5

Sample Input	Sample Output
2 5 2 10101 6 2 010101	9 3

Explanation

For the 1st test case, the value of B is $(11010)_2$. After performing 4 cyclic shifts the value represented by array A becomes equal to B for the first time. After performing additional 5 cyclic shifts the value represented by array A becomes

For the 2nd test case, the value of **B** is **(101010)₂**. After performing **1** cyclic shifts the value represented by array **A** becomes equal to **B** for the first time. After performing additional **2** cyclic shifts the value represented by array **A** becomes **B** for the second time. Hence, the answer is **1 + 2 = 3**

Time Limit: 1.0 sec(s) for each input file

Memory Limit: 256 MB

Source Limit: 1024 KB

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Java 8 (oracle 1.8.0_131)
⌵
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⚙

```

1  /* IMPORTANT: Multiple classes and nested static classes are supported */
2
3
4  import java.io.BufferedReader;
5  import java.io.InputStreamReader;
6
7  import java.util.*;
8
9
10 class TestClass {
11     public static void main(String args[] ) throws Exception {
12
13
14         //BufferedReader
15         BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
16         String name = br.readLine();          // Reading input from STDIN
17         System.out.println("Hi, " + name + "."); // Writing output to STDOUT
18
19
20
21
22         // Write your code here
23
24     }
25 }
26

```

1:1 vscode

☒ Provide custom input

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