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

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

$1 \leq T \leq 10^3$
$1 \leq N \leq 10^5$
$1 \leq K \leq 10^9$
$A_i = \{0, 1\}$, 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 B for the second time. Hence, the answer is $4+5=9$

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

Save Python 3 (python 3.5.2)

```
'''
# Sample code to perform I/O:

name = input()                    # Reading input from STDIN
print('Hi, %s.' % name)          # Writing output to STDOUT

# Warning: Printing unwanted or ill-formatted data to output will cause the test cases to fail
'''

# Write your code here
def binary_shift(arr):
    return arr[1:len(arr)]+arr[0]

def value(arr):
    arr = arr[::-1]
    result = 0

    for i in range(len(arr)):
        result = result + int(arr[i])*(pow(2,i))
    return result


T = int(input())
while(T>0):
    T = T-1
    string = input().split()
```

vscode

Provide custom input

COMPILE & TEST SUBMIT

Log ID: 163365527 / Apr 13, 2021 11:10 AM IST

RESULT: Sample Test Cases Passed

Refer judge environment

Time (sec)	Memory (KiB)	Language
0.035668	3760	Python 3

Input

```
2
5 2
10101
6 2
010101
```

Output

```
9
3
```

Expected Correct Output

```
9
3
```

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