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E. Necklace Assembly

time limit per test: 2 seconds

memory limit per test: 256 megabytes

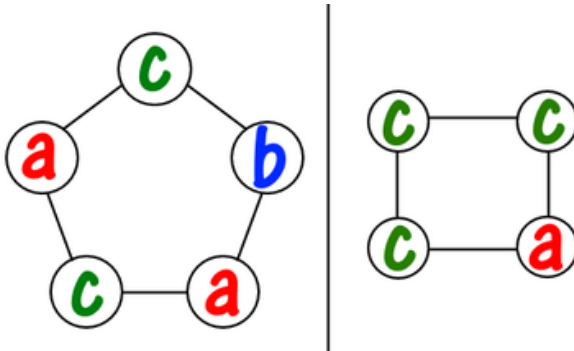
input: standard input

output: standard output

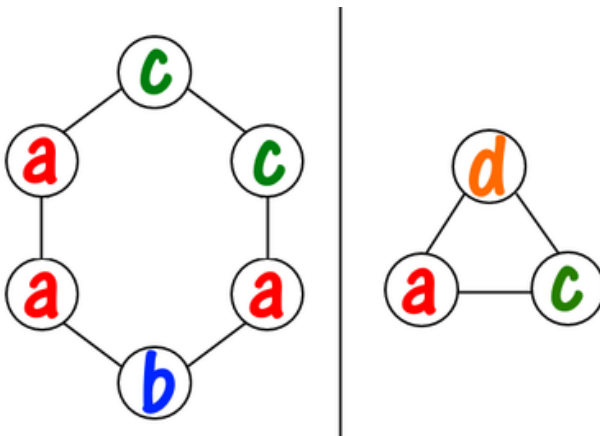
The store sells n beads. The color of each bead is described by a lowercase letter of the English alphabet ("a"–"z"). You want to buy some beads to assemble a necklace from them.

A necklace is a set of beads connected in a circle.

For example, if the store sells beads "a", "b", "c", "a", "c", "c", then you can assemble the following necklaces (these are not all possible options):



And the following necklaces cannot be assembled from beads sold in the store:



The first necklace cannot be assembled because it has three beads "a" (of the two available). The second necklace cannot be assembled because it contains a bead "d", which is not sold in the store.

We call a necklace k -beautiful if, when it is turned clockwise by k beads, the necklace

Codeforces Round #650 (Div. 3)

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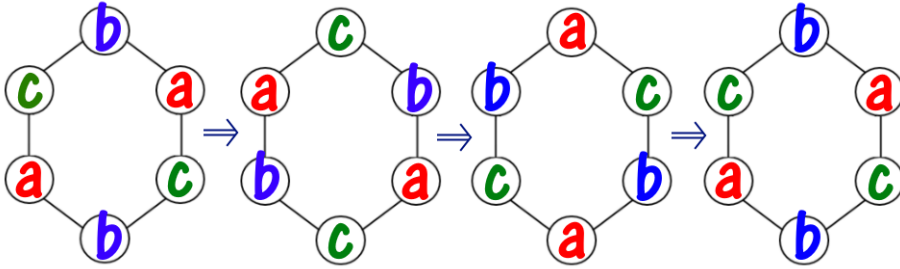
→ Problem tags

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[greedy](#) [number theory](#) *1900
 No tag edit access

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remains unchanged. For example, here is a sequence of three turns of a necklace.



As you can see, this necklace is, for example, 3-beautiful, 6-beautiful, 9-beautiful, and so on, but it is not 1-beautiful or 2-beautiful.

In particular, a necklace of length 1 is k -beautiful for any integer k . A necklace that consists of beads of the same color is also beautiful for any k .

You are given the integers n and k , and also the string s containing n lowercase letters of the English alphabet — each letter defines a bead in the store. You can buy any subset of beads and connect them in any order. Find the maximum length of a k -beautiful necklace you can assemble.

Input

The first line contains a single integer t ($1 \leq t \leq 100$) — the number of test cases in the test. Then t test cases follow.

The first line of each test case contains two integers n and k ($1 \leq n, k \leq 2000$).

The second line of each test case contains the string s containing n lowercase English letters — the beads in the store.

It is guaranteed that the sum of n for all test cases does not exceed 2000.

Output

Output t answers to the test cases. Each answer is a positive integer — the maximum length of the k -beautiful necklace you can assemble.

Example

input	Copy
<pre> 6 6 3 abcbac 3 6 aaa 7 1000 abczyo 5 4 ababa 20 10 aaebdbabdbbdaadaadc 20 5 ecbedecacbcbbccbdec </pre>	
output	Copy
<pre> 6 3 5 4 15 10 </pre>	

Note

The first test case is explained in the statement.

In the second test case, a 6-beautiful necklace can be assembled from all the letters.

In the third test case, a 1000-beautiful necklace can be assembled, for example, from beads "abz_yo".

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