String Uniqueness Minimization   Problem Code: **TWOPALIN**

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You will get one point for this problem.

You are given two strings, say A and B, of the same length, say N. You can swap A[i] and B[i] for all i between 1 and N, inclusive. You cannot swap two characters within A, or within B. Also, you can only swap a character in A with the character at the same index in B, and with no other character. You can perform this operation zero or more times.

You wish to modify the strings through the operations in such a way that the number of unique characters in the strings is small. In fact if n(A) is the number of unique characters in A and n(B) is the number of unique characters in B; you wish to perform the operations such that max(n(A),n(B)) is as small as possible.

Print the value of max(n(A),n(B)) after all the operations.

Input

The first line of input contains T, the number of test cases. Then follows the description of T test cases. Each test case contains the number N on the first line. The next two lines of the test case contain two N letter strings, A and B respectively. The letters are lowercase engilish letters.
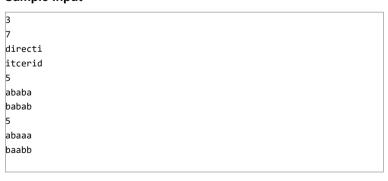
Output

Print a single line for each test case. Print the value of max(n(A),n(B)) after all the operations are performed such that the value is as small as possible.

Constraints

```
1 ≤ T ≤ 100
1 ≤ length(A) ≤ 16
length(B) = length(A)
```

Sample Input

```
3
7
directi
itcerid
5
ababa
babab
5
abaaa
baabb
```

Sample Output

```
4
1
2
```

Explanation

In the first test case, initially max(n(directi),n(itcerid)) = 6. You can modify the two strings
such that they are "iirerii" and "dtcectd". String A has 3 unique characters and String B
has 4 unique characters. Hence answer is 4. You cannot do better.

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Date Added:	30-11-2014
Time Limit:	1 secs
Source Limit:	50000 Bytes
Languages:	C, CPP 4.3.2, CPP 6.3, CPP14, JAVA, PYTH, PYTH 3.5

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