

The 31st Annual ACM International Collegiate Programming Contest ASIA Regional - Seoul

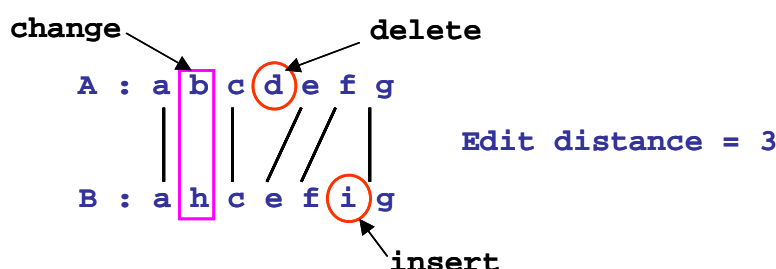


Problem H Period

Given two strings A and B over an alphabet Σ , the *edit distance* between A and B is the minimum number of edit operations needed to convert A into B . The three edit operations are the following:

- (i) *change*: replace one character of A by another single character of B .
- (ii) *deletion*: delete one character from A .
- (iii) *insertion*: insert one character of B into A .

For example, the following figure shows that the edit distance between the strings $A=abcdefg$ and $B=ahcefig$ is 3. The edit operations are a change (i.e., replacing b of A by h of B), a deletion (i.e., deleting d from A), and an insertion (i.e., inserting i of B into A).



We now define a period of a repetitive string as follows: The string p is called the *exact period* of a string x if x can be written as $x = p^k$, where $k \geq 1$ and p is the shortest string. For example, if $x = abababab$ then $x = (abababab)^1 = (abab)^2 = (ab)^4$. Thus, the string ab is the exact period of x .

We define an approximate period similarly. Given two strings x and y , suppose that the string x is partitioned into substrings p_i , $1 \leq i \leq t$, where p_i is not a null string, i.e., $x = p_1 \cdot p_2 \cdot p_3 \cdots p_t$. If the edit distance between a string y and each substring p_i is less than or equal to an integer k , string y is called a *k-approximate period* of string x .

In this problem, given two strings x and y , we want to find the minimum k such that string y is a k -approximate period of string x . For example, suppose that two strings $x = abcdabcabb$ and $y = abc$ are given. Since x may be partitioned into $x = p_1 \cdot p_2 \cdot p_3 = abcd \cdot abc \cdot abb$ and the edit distances between string $y = abc$ and each substring $abcd$, abc , and abb equal to 1, 0, and 1, respectively, y is a 1-approximate period of x . Hence, the minimum k is one.

Input

Your program is to read from standard input. The input consists of T test cases. The number of test cases T is given in the first line of the input. For each test case, a string y is given in the first line and the string x is given in the next line. The length of string y is at least 1 and at most 50, the length of string x is at least 1 and at most 5000, and the alphabet Σ is the set of lowercase English characters.

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Output

Your program is to write to standard output. Print exactly one line for each test case. Print the minimum integer value k such that string y is a k -approximate period of string x .

The following shows sample input and output for three test cases.

Sample Input

```
3
abc
abcdabcabb
abab
abababababab
xyz
abcdefghijklmn
```

Output for the Sample Input

```
1
0
3
```