UVa Online Judge

1371 Period

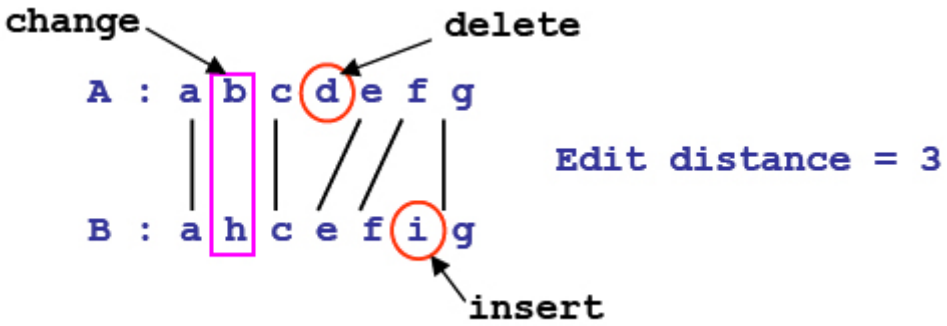
Given two strings A and B over an alphabet Σ, the *edit distance* between A and B is the minimum number of edit operations needed to convert A into B. The three edit operations are the following:

(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` · `abc` · `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.

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.

Sample Input

```
3
abc
abcdabcabb
abab
abababababab
xyz
abcdefghikjlmn
```

Sample Output

```
1
0
3
```