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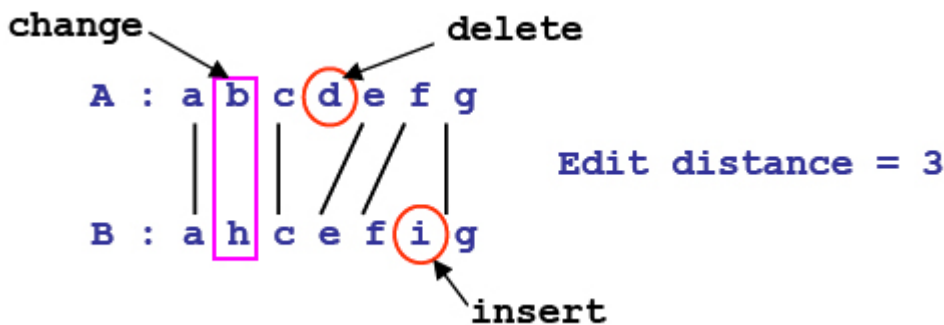
We now define a period of a repetitive string as follows: The string p is called the *exact period* of a string x if x can be written as $x = p^k$, where $k \geq 1$ and p is the shortest string. For example, if x =ababababab then $x = (\mathtt{abababab})^1 = (\mathtt{abab})^2 = (\mathtt{ab})^4$. Thus,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

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
ababababababab
xyz
abcdefghikjlmn
```

Sample Output

```
1
0
3
```