E - Shift String

Editorial (/contests/abc430/tasks/abc430_e/editorial)

Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 450 points

Problem Statement

You are given strings A and B of equal length consisting of `0` and `1`.

You can perform the following operation on A zero or more times.

- Move the first character of A to the end.

Find the minimum number of operations required to make $A = B$.
If it is impossible to make $A = B$ no matter how you operate, print -1 instead.

You are given T test cases; find the answer for each of them.

Constraints

- $1 \leq T \leq 10000$
- A and B are strings consisting of `0` and `1`.
- $2 \leq |A| = |B| \leq 10^6$
- For a single input, the sum of $|A|$ does not exceed 10^6.

Input

The input is given from Standard Input in the following format:

$$
\begin{aligned}
&T \\
&\mathrm{case}_1 \\
&\mathrm{case}_2 \\
&\vdots \\
&\mathrm{case}_T
\end{aligned}
$$

Each test case is given in the following format:

$$
\begin{aligned}
&A \\
&B
\end{aligned}
$$

Output

Print T lines.

The i-th line should contain the answer for the i-th test case.

Sample Input 1 Copy

Copy

```
5
1010001
1000110
000
111
01010
01010
0101
0011
10000110111000000101011011000 1
10110001100001101110000001010 1
```

Sample Output 1 Copy

Copy

```
2
-1
0
-1
22
```

This input contains five test cases.

- For the first test case, $A =$ `1010001` and $B =$ `1000110`.
  - By performing the operation on A twice, A becomes `1010001` $\rightarrow$ `0100011` $\rightarrow$ `1000110`, which makes $A = B$.

- For the second test case, no matter how you perform the operation, you cannot change `000` to `111`.
- For the third test case, $A = B$ from the beginning.

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