POCKET ENIGMA

This problem is based on the POCKET ENIGMA, a toy that is functionally equivalent to primitive military ciphering machines. The Pocket Enigma consists of a fixed outer circular disk, marked with the alphabet in clockwise order, and a replaceable inner rotor with 13 wires that pair up the letters for encryption/decryption.

The outer disk and two examples of inner rotors are shown on the reverse. The device is shown here with Rotor I in successive positions (see arrow) D, E.

The disk moves one notch clockwise before encrypting each letter of plaintext. Thus, with Rotor I starting in position D, “CIS” is encrypted to “APO”.

In this problem, you are given a ciphertext (encrypted message) that used an unknown rotor but are in possession of a “crib” (a segment of the source plaintext). Your job is to determine where the crib appeared in the plaintext.

The first line of the input specifies the number \( n \) of ciphertexts to follow. Each of the following \( n \) lines consists of two strings of capital letters, of maximum lengths 50 and 10, respectively, separated by a single space:

\[
\text{CIPHERTEXT \ CRIB}
\]

The \( n \) ciphertexts would all have been created with different inner rotors, and not those shown on the reverse.

For each input, output the number \( m \) if the crib starts at the \( m^{th} \) character, There will be always be just one feasible position.

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\text{(Sample I/O on reverse)}
\]