Problem F. Rikka with Nice Counting Striking Back

Input file: `standard input`
Output file: `standard output`

As we know, Yuta is poor at counting numbers. Rikka is worrying about this situation, so she gives Yuta some counting tasks to practice. Here is one of them:

In computer programming, a string is traditionally a sequence of characters and a substring of a string is a contiguous sequence of characters within the string. For instance, `snowball` is a string, `now` is a substring of `snowball` and `bow` is not a substring of `snowball`. Moreover, the concatenation of two strings U and V is named as UV, that is, if U is `snow` and V is `ball`, then UV is `snowball`.

Rikka has a string S of length n and she wants Yuta to count how many distinct *nice* strings in total. Here, she calls a non-empty string T *nice* if

- T is a substring of S; and
- TP is not a substring of S for any non-empty string P meeting the condition that TP and PT are the same string.

It is too difficult for Yuta. Can you help him?

Input

The input contains several test cases, and the first line contains a single integer T ($1 \leq T \leq 1000$), the number of test cases.

For each test case, the only line contains a single string S of length n ($1 \leq n \leq 2 \times 10^5$) with only lowercase letters.

The input guarantees that the sum of n in all test cases is at most 5×10^6.

Output

For each test case, output a single line with a single integer, the answer.

Example

standard input	standard output
6 rikkasuggeststoallthecontestants thisisaproblemdesignedforgrandmasters ifyoudidnotachievethat youdbetterskiptheproblem wishyouahighrank enjoytheexperience	500 679 244 290 132 163

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