

Acronym

An acronym is made of up the initial letter(s) of the words in a phrase, such as EU (European Union) and BREXIT (BRitish EXIT). In this problem, we can also either ignore or consider the conjunction "**and**", and the following adpositions "**in**", "**on**", "**at**", "**to**", "**of**", "**from**", "**for**" and "**with**" when making the acronym, such as BENELUX (BEIgium, NEtherlands and LUXembourg) and RADAR (RAdio Detection And Ranging).

Given an acronym **A**, and a list of **N** strings **W₁**, **W₂** ... **W_N**, you would like to find out the number of possible combinations of making the given acronym by using all the N strings following their order. That is, the acronym must be made up of at least one initial letter of each word, except the above-mentioned conjunction and adpositions (either skip or use it). Both A and the N strings only consist of lowercase latin letters.

Input

The first line is the number of test cases **T**. ($1 \leq T \leq 20$)

For each test case, it starts with one integer **N**. ($1 \leq N \leq 200$)

Next line is a string **A**. ($1 \leq |A| \leq 10^4$)

Following N lines, each consisting of one string **W_i**. ($1 \leq |W_i| \leq 50$)

It is guaranteed that **W₁** is neither conjunction nor adposition.

Output

Output one integer indicating the number of possible combinations.

Example

Input:

```
3
3
duckhim
duck
hello
moto

7
natiofforessaa
national
office
for
forest
safety
in
aachen

4
whiskey
```

what
is
secret
key

Output:

0
4
1

Explanation

In case 1, no combination is possible.

In case 2, there are four possible combinations:

- **NATional OFFice for FORESt SAfety in Aachen**
- **NATional OFFice for FORESt Safety in AAchen**
- **NATional Office For FORESt SAfety in Aachen**
- **NATional Office For FORESt Safety in AAchen**

In case 3, only one possible combination exists:

- **WHat Is Secret KEY**