

A4 ==> Clown

Recently on the news a report about the arrest of a clown who has gone insane because of his job was aired. The clown is now in a mental hospital. Intrigued and bored, Ivancho started wondering whether there isn't a link between insanity and the way people think under the effect of various drugs.

For this, Ivancho will need a program `clown`, which, with a given string `S` of length `N` - the words of the clown, integer `Q` and `Q` strings - the words of some person as a result of drug use - each of length `M[i]`. The program must answer for each of the `Q` strings how many times it has been encountered in `S`. Ivancho will use this data to impact the whole field of psychology and become famous all around the world.

Input

At the first line of the file `clown.in` is the string `S`. At the second - the integer `Q`. At the next `Q` lines there is exactly one string.

Output

You must print in the file `clown.out` `Q` integers - how many times each of the `Q` strings has been encountered - in the same order as the input.

Constraints

$1 \leq N \leq 500000$ ($5 * 10^5$)

$1 \leq Q \leq 20$

$1 \leq M[i] \leq 5000$

Examples

Input (<code>clown.in</code>)	Output (<code>clown.out</code>)
miraclesinmississippihonk	1
5	6
in	2
i	2
mi	0
is	
motherfaygo	
nanananabatman	3
3	4
nana	4
na	
an	