Problem 5. Autocomplete

Input file:	input.txt
Output file:	output.txt
Time limit:	1 second
Memory limit:	256 megabytes

Two words are considered *similar*, if they are equal when compared in case-insensitive way, but in a case-sensitive comparison they differ in no more than K positions.

A dictionary containing W words as well as Q query-words is given. For each query-word, print a single integer: the number of similar words in the dictionary.

Input

The first line of the input file contains an integer K — the maximum number of positions at which the words can differ by case ($0 \le K \le 5$).

The second line contains an integer W — the number of words in the dictionary ($1 \le W \le 1\,000$).

The following W lines contain the dictionary, one word per line. Each line consists of small and capital Latin letters. All words are non-empty and are no longer than 2 000 symbols.

The following line contains an integer Q — the number of queries ($1 \le Q \le 1\,000$).

The next Q lines contain queries, one word per line. Same as with the words in the dictionary, each query consists of capital and small Latin letters, all queries are non-empty and no longer than 2 000 symbols each.

Output

For each of Q queries from the input file print a single integer: the number of similar words in the dictionary. Answers to the queries must be printed in the same order as the queries are listed in the input.

Example

input.txt	output.txt
2 5 theword TheWord THEWORD thewordandsomeletters theword 4 theword The theword TheWordAndSomeLetters	3 0 3 0