There are a few 7 digit positive numbers whose reverse number is a prime number and less than 10^6. For example: 1000070, 1000090 and 1000240 are first few reverse prime numbers because all of the numbers are 7 digit numbers whose reverse number is a prime number and less than 10^6. You have to find out all the 7 digit reverse prime numbers and also its number of prime factors. Prime factors of a positive integer are the prime numbers that divide into that integer exactly, without leaving a remainder. For example, prime factors of 24 are 2, 2, 2 and 3.

Input

In this problem, youll encounter 2 types of input:

Query: This type of input will be formatted like this — '`q` i'.

Deletion: This type of input will be formatted like this '`d` *reverse_prime*'.

It is guaranteed that i will be a valid index and *reverse_prime* will be a valid 7 digit reverse prime number. It is also guaranteed that no two *reverse_prime* will be same.

There will be at most 71000 query lines and 3500 deletion lines in the data set. The program will terminated by EOF.

Output

For **Query** type input, you have to calculate the cumulative summation of the number of prime factors of reverse prime numbers from 0-th to i-th index.

For **Deletion** type input, you have to delete *reverse_prime* from the set and update your summation. No output is required in such cases.

Sample Input

```
q 0
q 1
q 2
d 1000070
d 1000090
q 0
d 1000240
q 0
q 1
```

Sample Output

```
4
10
16
6
3
7
```