The number 729 can be written as a power in several ways: 3^6, 9^3 and 27^2. It can be written as 729^1, of course, but that does not count as a power. We want to go some steps further. To do so, it is convenient to use '^' for exponentiation, so we define $a\hat{}b = a^b$. The number 256 then can be also written as `2^2^3`, or as `4^2^2`. Recall that '^' is right associative, so `2^2^3` means `2^(2^3)`.

We define a *tower of powers* of *height* k to be an expression of the form $a_1\hat{}a_2\hat{}a_3\hat{}\ \ldots\ \hat{}a_k$, with k >1, and integers $a_i > 1$.

Given a tower of powers of height 3, representing some integer n, how many towers of powers of height at least 3 represent n?

Input

The input file contains several test cases, each on a separate line. Each test case has the form $a\hat{}b\hat{}c$, where a, b and c are integers, $1 < a, b, c \leq 9585$.

Output

For each test case, print the number of ways the number $n = a\hat{}b\hat{}c$ can be represented as a tower of powers of height at least three.

The magic number 9585 is carefully chosen such that the output is always less than 2^{63}.

Sample Input

```
4^2^2
8^12^2
8192^8192^8192
2^900^576
```

Sample Output

```
2
10
1258112
342025379
```