E - Exponential Towers

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}.

Example

input	output

`4^2^2`
`8^12^2`
`8192^8192^8192`
`2^900^576`
	`2`
	`10`
	`1258112`
	`342025379`