C: **Sub-expression Counting**

Source file name: `counting.c`, `counting.cpp`, *or* `counting.java`

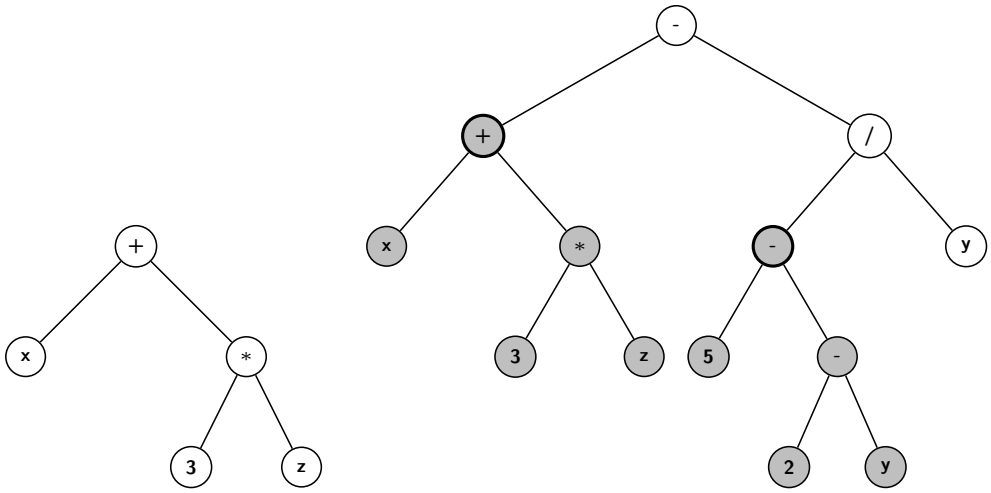
Suppose we want to search arithmetic expressions for sub-expressions of certain shape. We are considering only fully parenthesized expressions with binary operators, numerical constants, and variables, as defined in the following BNF-like notation:

$$
\begin{aligned}
\langle expr \rangle &::= \langle var \rangle \mid \langle num \rangle \mid \texttt{(}\langle expr \rangle \langle binop \rangle \langle expr \rangle\texttt{)} \\
\langle var \rangle &::= \texttt{a} \mid \texttt{b} \mid \cdots \mid \texttt{z} \\
\langle num \rangle &::= \langle digit \rangle \mid \langle digit \rangle \langle num \rangle \\
\langle digit \rangle &::= \texttt{0} \mid \texttt{1} \mid \cdots \mid \texttt{9} \\
\langle binop \rangle &::= \texttt{+} \mid \texttt{-} \mid \texttt{*} \mid \texttt{/}
\end{aligned}
$$

For example, consider the arithmetic expressions α and β defined as follows:

$$
\begin{aligned}
&\alpha : (x + (3 * z)) \\
&\beta : ((x + (3 * z)) - ((5 - (2 - y))/y)).
\end{aligned}
$$

The syntax tree associated to each one of these arithmetic expressions is shown below:



α β

We want to report *all* nodes v in β such that the sub-tree rooted at v is structurally identical to α, ignoring all labels in the nodes. In this case, there are 2 such nodes because: *(i)* expression α is a sub-expression of β and *(ii)* sub-expression $(5 - (2 - y))$ of β has the same tree structure as α. The corresponding sub-trees have been shaded in the syntax tree of β depicted above.

Your task is to write an efficient computer program that, given inputs α and β, computes the number of nodes v in β such that the sub-tree rooted at v is structurally identical to α.

Input

The input consists of several test cases. Each test case consists of two lines: the first line describes the expression α and the second one the expression β. You can assume that $1 \leq |\alpha| \leq 400000$ and $1 \leq |\beta| \leq 400000$, and that these expressions do not contain any blanks.

The input must be read from standard input.

Output

For each test case, output the number of nodes v in β such that the sub-tree rooted at v is structurally identical to α.

The output must be written to standard output.

Sample Input	**Sample Output**
1978 ((x+0)+z) (x+(3*z)) ((x+(3*z))-((5-(2-y))/y))	3 2