

## 3533 The Earth is Flat!

Consider the following language:

$$expression = \begin{cases} c & \text{where } c \text{ is a single, lower-case letter} \\ (e_1 e_2 \cdots e_t n) & \text{zero or more expressions followed by a natural number} \end{cases}$$

The left column of the table below includes sample expressions of this language. Now the flattening of an expression is defined as follows: A single letter is flattened to itself. An expression of the form  $(e_1 e_2 \cdots e_t n)$  is flattened by concatenating  $n$  copies of the concatenation of the flattening of  $e_i$ . In other words, if  $f(e)$  is the flattening of  $e$ , and  $+$  symbolizes concatenation, then  $f((e_1 e_2 \cdots e_t n))$  is:

$$\underbrace{f(e_1) + f(e_2) + \cdots + f(e_t)}_{\text{once}} + \overbrace{f(e_1) + f(e_2) + \cdots + f(e_t)}^{\text{twice}} + \cdots + \underbrace{f(e_1) + f(e_2) + \cdots + f(e_t)}_{\text{the } n^{\text{th}} \text{ time}}$$

The following tables show some sample expressions and the result of flattening each.

expression	flattened expression
w	w
(c 4)	cccc
(a (b c 2) 3)	abcbcabcbcabcbc

Write a program to flatten a given expression.

### Input

Your program will be tested on one or more test cases. Each test case is made of one correctly formed expression written on a separate line. A '\$' character identifies the end of line. The last line of the input, which is not part of the test cases, contains a '\$' by itself (possibly with leading and/or trailing white spaces).

Every expression in the input is grammatically correct according to the grammar specified above. Note that an expression may contain leading, trailing, and/or embedded spaces. Such spaces should be ignored. Letters and numbers are separated from each other by at least one space character.

### Output

For each test case expression, write its flattening on a separate line. There should be no spaces (other than newlines) in the output.

### Sample Input

```
w$
(c 4)$
(a (b c 2) 3)$
$
```

**Sample Output**

```
w  
cccc  
abcbcabcbcabcb
```