ROMAN NUMBERS

Problem

A roman number is a set of alphabet letters. Each letter has a value, as it is shown below:

I -> 1

V -> 5

X -> 10

L -> 50

C -> 100

D -> 500

M -> 1000

Generally, roman numbers are written in descending order, from left to right, and sequentially added. However, certain combinations use a subtracting principle. If any less-valuable symbol precedes a bigger-valuable one, the smallest value is subtracted from the biggest one, and the result is added to the total. This subtracting principle follows the rules:

- *I* can only precede *V* and *X* (for example, *IV*=4).
- *X* can only precede *L* and *C* (for example, *XC*=90).
- *C* can only precede *D* and *M* (for example, *CD*=400).
- *V*, *L* y *D* are always followed by a less-valuable symbol, so they are always added to the total.

The symbols *I*, *X*, *C* y *M* cannot appear more than three times in a row. The symbols *V*, *L* and *D* cannot appear more than once in a row.

Roman numbers do not include zero, and for values over and equal 4000 they use bars over the letters to indicate x1000 multiplication.

You have to write a program that converts from roman numbers to arabics and vice versa. Even lower-case letters were use in the Middle Ages, romans just used upper-case letters. Consequently, we will only consider upper-case letters.

Input

Write a form with two input fields, one for roman numbers and the other for arabics, where 0 < n < 4000.

Output

Just some HTML showing the results of the conversions.

Input example

XXV

4

942

MCMLXXXIII

Output example

25

IV

CMXLII

1983