CCC '12 S2 - Aromatic Numbers

Canadian Computing Competition: 2012 Stage 1, Senior #2

This question involves calculating the value of *aromatic* numbers which are a combination of Arabic digits and Roman numerals.

An aromatic number is of the form $ARARAR\ldots AR$, where each A is an Arabic digit, and each R is a Roman numeral. Each pair AR contributes a value described below, and by adding or subtracting these values together we get the value of the entire aromatic number.

An Arabic digit A can be 0, 1, 2, 3, 4, 5, 6, 7, 8 or 9. A Roman numeral R is one of the seven letters I, V, X, L, C, D, or M. Each Roman numeral has a base value:

Symbol	I	V	X	L	C	D	M
Base value	1	5	10	50	100	500	1000

The value of a pair AR is A times the base value of R. Normally, you add up the values of the pairs to get the overall value. However, wherever there are consecutive symbols $ARA'R'$ with R' having a *strictly bigger* base value than R, the value of pair A' must be *subtracted* from the total, instead of being *added*.

For example, the number $3M1D2C$ has the value $3 \times 1000 + 1 \times 500 + 2 \times 100 = 3700$ and $3X2I4X$ has the value $3 \times 10 - 2 \times 1 + 4 \times 10 = 68$.

Write a program that computes the values of aromatic numbers.

Input Specification

The input is a valid aromatic number consisting of between 2 and 20 symbols.

Output Specification

The output is the decimal value of the given aromatic number.

Sample Input 1

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3M1D2C
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Output for Sample Input 1

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3700
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Sample Input 2

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2I3I2X9V1X
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Output for Sample Input 2

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-16
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