21 Roman fractions

13 points

Introduction

Roman numerals are a numeral system that originated in ancient Rome and remained the usual way of writing numbers throughout Europe well into the Late Middle Ages. Integer numbers in this system are represented by combinations of letters from the Latin alphabet. Modern usage employs seven symbols, each with a fixed integer value:

"M", "D", "C", "L", "X", "V", "I"

What's not so widely known is that Romans also used a method to write fractions. It was a very simple method as it only allowed to write 11 possible fractions.

The Romans used a duodecimal rather than a decimal system for fractions, as the divisibility of twelve makes it easier to handle the common fractions of 1/2, 1/3 and 1/4. Notation for fractions is mainly found on surviving Roman coins, many of which had values that were duodecimal fractions of the unit. Fractions less than 1/2 are indicated by a dot (.) for each "twelfth" (uncia in latin).

Therefore, possible fractions in latin were:

```
1/12          which is 0.083    represented by  .
2/12 = 1/6    which is 0.166    represented by  :
3/12 = 1/4    which is 0.25     represented by  :.
4/12 = 1/3    which is 0.333    represented by  ::
5/12          which is 0.416    represented by  ::.
6/12 = 1/2    which is 0.5      represented by  S
7/12          which is 0.583    represented by  S.
8/12 = 2/3    which is 0.666    represented by  S:
9/12 = 3/4    which is 0.75     represented by  S:.
10/12 = 5/6   which is 0.833    represented by  S::
11/12         which is 0.916    represented by  S::.
```

(remember that 12/12 = 1 which is I)

Note: For more information, read wikipedia.

Exercise

You are asked to write a program that transform a decimal number into roman. The number may or may not have a decimal section (therefore it may be an integer).

Given the previous instructions, the program will return the appropiate roman number string.

Note: As the roman fraction system was so weak, only the allowed decimal section will be allowed:

".083", ".166", ".25", ".333", ".416", "0.5", ".583", ".666", ".75", ".833", ".916"

Note: As 1.5 is the same as 1.500, this input will be following and it must return a valid roman value.

Input

Input will consist of an integer or decimal number (represented by a dot as separator, ie: 12.25).

Output

If the input value has a fractional part that cannot be represented as a 1/12 part the output will be:

ERROR

Otherwise, the output will be the appropiate roman number given the previously indicated instructions.

If the integer part is 0 then only the decimal part must be printed.

Example 1

Input

```
1287.916000
```

Output

```
MCCLXXXVIIS::.
```

Example 2

Input

```
0.25
```

Output

```
:.
```

Example 3

Input

```
123
```

Output

```
CXXIII
```