

Problem I

Unit Conversion

A (measurement) unit is here represented by a single word containing only lower-case letters. All units are written as singular both in input and in output. A conversion fact relates the size of two units.

You are to convert a quantity in one unit to the equivalent quantity in a different unit using only a given set of conversion facts. These conversion facts are self consistent; there is never more than one conversion chain from any unit to any other unit.

Input

The input will start with a number of lines, each containing a conversion fact in the form:

$\langle v1 \rangle \langle u1 \rangle = \langle v2 \rangle \langle u2 \rangle$

The elements $\langle v1 \rangle$ and $\langle v2 \rangle$ are positive real numbers (a sequence of decimal digits, containing at most one decimal point), and $\langle u1 \rangle$ and $\langle u2 \rangle$ are strings containing only lower case letters representing the name of a unit. The elements are separated by single spaces. The conversion fact asserts that the quantity $\langle v1 \rangle \langle u1 \rangle$ is equal to the quantity $\langle v2 \rangle \langle u2 \rangle$.

There will then a number of lines each representing a conversion request in the form:

$\langle v3 \rangle \langle u1 \rangle = ? \langle u2 \rangle$

The elements $\langle u1 \rangle$ and $\langle u2 \rangle$ are again unit names, which may or may not have occurred in the conversion facts. All elements on the line are separated by single spaces (the equality sign and question mark are surrounded by single spaces too). The end of data is represented by end-of-file.

Output

For each conversion request there should be either the line

No conversion is possible.

if insufficient conversion facts have been given, or a line of the form

$\langle v3 \rangle \langle u1 \rangle = \langle v4 \rangle \langle u2 \rangle$

- where all elements are as in the conversion request, except that the ‘?’ has been replaced by a decimal number $\langle v4 \rangle$, and is calculated, using only the given conversion facts previously given, so that the left and right-hand side quantities are equal. There should be a single space between all elements in the line. The numbers $\langle v3 \rangle$ and $\langle v4 \rangle$ must be formatted as follows:
- If $\langle v4 \rangle$ is greater than or equal to 1,000,000 or less than 0.1, it must be printed in scientific notation: a number between 1.000000 and 9.999999 printed with exactly six digits after the decimal point, followed by “ $e+nn$ ” or “ $e-nn$ ”, where “ e ” represents “times ten to the power of”, and “ nn ” is a two digit number.
- Otherwise, $\langle v4 \rangle$ must be printed in standard decimal notation, with a decimal point followed by exactly six digits.

- In both cases, the number printed must be the closest such number to the true answer, i.e. round, don't truncate.

Sample Input:

```
7200.0 second = 2 hour
10.0 glob = 1 decaglob
1 day = 24.0 hour
1 minute = 60 second
1 glob = 10 centiglob
1 day = 24 hour
1 year = 365.25 day
50 centiglob = ? decaglob
5.6 second = ? hour
3 millisecond = ? hour
5.6 second = ? day
1 day = ? glob
1 hour = ? second
1 year = ? second
```

Sample Output (corresponding to sample input)

```
50.000000 centiglob = 0.500000 decaglob
5.600000 second = 1.555556e-03 hour
No conversion is possible.
5.600000 second = 6.481481e-05 day
No conversion is possible.
1.000000 hour = 3600.000000 second
1.000000 year = 3.155760e+07 second
```