Advanced Problems

Problem 9: Scientific Notation

20 minutes, 200 points
Filename: prob09 *(e.g. prob09.c, prob09.cpp, prob09.java, prob09.py2, prob09.py3)*

Description
Scientific notation is a way of expressing numbers that are too big or too small to be conveniently written in decimal form. It is commonly used by scientists, mathematicians and engineers, in part because it can simplify certain arithmetic operations.

Here is an example of a number written in scientific notation and it's decimal equivalent.

```
6.9105 x 10^2 = 691.05
```

Write a program that will read in a scientific number as a coefficient m and an exponent, then calculate and output the equivalent decimal value. Your program must convert the coefficient (M) and the exponent (E) to decimal w/ two places.

Each line of input will contain a decimal coefficient and a positive or negative integer exponent. Stop processing the input when you receive zero values for both the coefficient and the exponent.

Each line of output should contain the decimal equivalent value. Return two decimal places. Round the result as necessary (e.g. 8675.309 = 8675.31). Pad zeroes as necessary (e.g. 470 = 470.00).

Sample Input

```
6.9105 2
113.8 −2
4.7 2
867.5309 1
0 0
```

Sample Output

```
691.05
1.14
470.00
8675.31
```

Learn More
In scientific notation all numbers are written in the following form, where the coefficient m is any real number, and the exponent n is an integer.

$$m \times 10^n \qquad \text{(m times ten raised to the power of n)}$$

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