

Novice Problem

Fractions

14 March 2009

Source File	<code>frac.{java,c,cc}</code>
Input File	<code>frac.in</code>
Output File	<code>frac.out</code>

Write a program that will perform exact arithmetic on fractions. Given two fractions separated by an operator, \otimes

$$\frac{n_1}{d_1} \otimes \frac{n_2}{d_2}$$

your program should calculate the result of that equation. The operation \otimes may be any one of the following:

Operation	\otimes
addition	+
subtraction	-
multiplication	*
division	/

Input will come from the above captioned file. The first line will be an integer, $N \geq 0$ indicating the number of arithmetic problems to solve. It will be followed by N lines containing four positive integers and one operation, all separated by whitespace:

$$n_1 \ d_1 \ n_2 \ d_2 \ \otimes$$

For each, one line should be printed to the given output file, of the form

$$n_1/d_1 \ \otimes \ n_2/d_2 = n_r/d_r$$

where n_r and d_r are the numerator and denominator of the result *in lowest terms*. Note that we need one space on each side of the operator and the equality sign, but *no other whitespace*.

Example

An example of an input file is:

```
2
25_45_8_99_+
2_1_1_2_*
```

Note that the answer has been reduced to lowest terms. All answers must be reduced to lowest terms.

Correct output is:

```
25/45+_8/99=_7/11
2/1_*1/2=_1/1
```