Problem 56: Scrambled Equations

Difficulty: Hard

Originally Published: Code Quest 2017

Problem Background

You will be given a set of positive integers and operators. It will be your job to write a program to determine if the integers and operators can be arranged to produce a specific result.

Problem Description

The possible operators are: +, -, *, and /. These specify addition, subtraction, multiplication, and division respectively. Basic order of operations should be applied when evaluating any equation! There are no parentheses or exponents allowed.

Sample Input

The first line of your program's input, received from the standard input channel, will contain a positive integer representing the number of test cases. Each test case will include a single line containing:

- A positive integer, representing the result you are trying to attain.
- A colon (:)
- A list of positive integers and mathematical operators, separated by spaces. Integers and operators may be repeated within a test case, and may be presented in any order.

```
4
12:4 3 9 * /
14:8 122 - 17 *
2133:+ + 5 6 7 20 -
1:* 7 7 1 /
```

Sample Output

For each test case, your program should output either:

- TRUE if the entire set of integers and operators can be combined to evaluate to the given solution.
- FALSE if they cannot.

```
TRUE
TRUE
FALSE
TRUE
```