

# The Simplex Algorithm

*Filename: simplex*

Your instructor Danny recently started working on linear algebra homework and is working on a system of linear equations. There are 2 algorithms that are well known to work on systems of linear equations depending on the type of problem. For right out solving a system of linear equations to find solutions can be done with Gaussian Elimination. For maximization or minimization problems on a system of linear equations conditioned to another linear equation can be done using the Simplex Method. These algorithms are very complicated and advanced for Danny, who thought that the “Simplex Method” was simply a typo and that it was supposed to be the “Simple X Method.” He believed that the solution to these equations was simply the coefficient of the x variable in the equation. If there wasn’t an x variable than the equation had no solutions. Danny really hates doing these problems by hand so he wrote a simple program that would convert an arbitrary equation into text and he now needs your help to take that text and output the coefficient of the x variable in the equation.

## **The Problem**

Given a linear equation determine the coefficient of the x variable.

## **The Input**

The first line of the input will contain a single positive integer,  $n$ , containing the number of linear equations that Danny would like solved according to the Simple X Method. Following these will be the right hand side of a linear equation in the form of a set of variables with coefficients attached to them and each. Successive terms will have a space, a plus sign and another space in between them, exactly. All of the coefficients will be positive integers between 1 and 1000. All variables will have coefficients and be lower case letters and x will appear at most once in each equation.

## **The Output**

For each linear equation that has an x term, output the coefficient of x on a line by itself. For the linear equations without an x term, output "x not found" on a line by itself.

## **Sample Input**

```
3
3x + 4y + 5z + 10a
1x + 9y + 5z + 1b
8y + 2z + 10a + 4c
```

## **Sample Output**

```
3
1
x not found
```