24 Smart spreadsheet
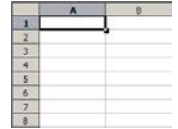*14 points*

Introduction

Spreadsheets are a basic tool used in many jobs from all around the world. These computer applications are heavily used for organization, analysis and storage of data in tabular form. Since we consider it a market segment that has still room for innovation and improvement, at HP we have started the development of our own spreadsheet app and expect it to be released later this year.

However, creating the most awesome printers ever leaves us with too little time to create our own spreadsheet. Particularly, we are stuck with the integration of variables to perform computations. What we want is to be able to store partial results into variables that can be used later in another operation.

More specifically, we want our product to support the basic operators "+", "-", "*" and "/". Moreover, all the operations run by the app will be issued using any of the following formats:

- variable = number op number
- variable = $variable op number
- variable = number op $variable
- variable = $variable op $variable

Where "variable" stands for the name of a variable, "number" for any integer value (including the negative ones) and "op" for any of the aforementioned valid operators. Notice that when we use a variable as an operand, it is preceded by a "$" symbol.

Please, can you help us with this?

Input

The program must read a variable number of lines, each one following any of the previous formats. The program ends when an "end" tag is read.

Output

For each input line representing an operation, the program must print its outcome (the value that is assigned to the variable).

Example 1

Input
```
a = 4 + 3
b = 10 + $a
end
```

Output
```
7
17
```

Example 2

Input
```
hewlett = 27 - 7
packard = $hewlett / 5
hewlett = $packard * $packard
CodeWars = $hewlett + 1971
Palo = $CodeWars - 2018
Alto = -15 - $Palo
end
```

Output
```
20
4
16
1987
-31
16
```