7797 Package Weights

Acme Component Manufacturing creates packages of fasteners for companies that produce assemble-yourself furniture. These packages contain fasteners of various types that are used in the assembly process. The packages are put together by machines that dispense the desired quantities of each fastener.

The machines reliably select the required fastener types for the packages. However, during the packaging process these machines sometimes dispense one too few or one too many of each fastener type. As a check on the process, the resulting packages are weighed. Each type of fastener has an expected weight and a tolerance — one fastener of that type will have a weight within the specified range. (For example, if a nut weighs 0.2 ounces plus-or-minus 0.01 ounce, the weight will be in the range 0.19 to 0.21 ounces inclusive.) The desired number of each fastener is known, therefore the total weight of a correct package can be determined.

However, given the number of fastener types available, it is possible that in some cases the weight might be in range, but the contents might still not be correct, due to possible dispensing errors as described above.

Your team is to write a program that will, given a set of fastener types and desired quantities, take package weights and determine if the package:

- definitely contains the proper fasteners,

- definitely does not contain the proper fasteners, or

- the weight is ambiguous—the package might or might not contain the proper fasteners.

Input

The input file contains several test cases, each of them as described below. **There is an empty line between two consecutive cases**.

Input to your program will consist of several sections. The first section is a list of between 1 and 50 fastener types, one per line, with the following fields separated by commas:

- *Fastener Name*: string of 1..36 alphanumeric characters, possibly including spaces and/or hyphens.

- *Fastener Standard Weight*: floating point value in the range 0.01 to 20000.00 inclusive.

- *Fastener Weight Tolerance*: floating point value in the range 0.0001 to 100.0000 inclusive.

This list will end with an empty line.

The second section contains a list of expected fastener package contents. There will be 1 to 20 fastener packages. The first line for each package contains a package name of 1..36 alphanumeric characters, possibly including spaces and/or hyphens. The remaining 1..14 lines for that package contain a fastener name, a comma, and a fastener quantity. The fastener name will appear in the fastener type list. The same fastener type will not appear more than once in the list for any given package. Package lists will appear one after another in the input. The total expected weight of a package will not exceed 100,000. The list of packages will also end with an empty line.

The remainder of the input will be a list of package names and actual package weights, one per line. The package name will be separated from the actual package weight by a comma.

This input ends with the end-of-file. No leading or trailing whitespace will appear on any input line.

Output

For each test case, the output must follow the description below. **Print an empty line between two consecutive cases**.

For each weighed package your program is to determine whether the package is correct or not—if that can definitely be determined. If the package is definitely correct for the given package name, print a line containing only the word '`pass`'. If the package is definitely not correct, print a line containing only the word '`fail`'. If it cannot be determined if the package is correct or not, print a line containing only the word '`ambiguous`'. No leading or trailing whitespace is to appear on an output line.

Sample Input

```
Bolt,10.0,0.1
Bracket,17.0,0.2
Mounting Plate,35.0,1.0
Nut,8.0,0.1

Package A
Bolt,4
Nut,4
Bracket,2
Mounting Plate,1
Package B
Bolt,2
Nut,2
Bracket,1

Package A,141
Package A,145.5
Package B,52.87
```

Sample Output

```
ambiguous
fail
pass
```