Problem 8C: Words

You have an amazing idea to make math easier, why instead of numbers don't we use words. You want to give a demonstration to convince the world that using words is in fact better than using numbers. You have created a list of n definitions that link unique variable names to unique numbers, furthermore you have created m test calculations. However, you forgot the answers to your own test calculations and need to compute these again.

Input

The input consists out of:

- One line with two integer n and m, where
  - n ($1 \leq n \leq 10^3$) is the number variable names;
  - m ($1 \leq m \leq 10^2$) is the number of test calculations.
- n lines, each containing an unique word w_i and unique integer u_i, where
  - w_i ($1 \leq |w_i| \leq 20$) is the ith word with value u_i.
  - u_i ($-10^5 \leq u_i \leq 10^5$) is the ith integer with variable w_i.
- m lines, each containing an test calculation. Each calculation is a formula made up out of at most 20 variable names separated by a space surrounded addition or subtraction operator. Each formula ends with an equals sign. For example: `foo + bar =`

Output

For each test calculation you should print the variable name that corresponds to the value of the calculation, when there is no variable name assigned to the value you should print `unknown`.

Sample Input 1	**Sample Output 1**
3 2 foo 8 bar 2 hello 10 foo + bar = bar - hello + foo =	hello unknown