Divide Bill

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Farmer John opened up a new restaurant called "FJ's Farm."n cows (with names 1, 2, ..., n) flocked to the grand opening of the restaurant for a taste of his specialty filet mignon dish. Cows sit at the same table as their friends. The cows finish eating and being the good friends they are, each table wants to split the entire table's bill evenly. The n cows leave the restaurant in increasing order of their name and tell you the names of the cows they remember at their table (which may not be the entire table), as well as the cost of the food they ordered. For each cow, in order of their name, output the number of dollars they should be billed.

Input

The first line contains an integer n ($1 \leq n \leq 10^5$), the number of cows.

For each of the next n lines, there are several space-separated integers. The first integer on the line is s_i ($1 \leq s_i \leq 10^9$), the cost of the ith cow's food in dollars. The second integer of each line is p_i ($0 \leq i \leq n$), the number of cows that the cow named i remembers at their table. The next p integers on the same line are the names of the cows that ith cow remembers sitting with.

The sum of all p_i is guaranteed to be less than 10^6.

Output

Print n space-separated floating-point numbers on a single line, where the ith integer represents the number of dollars that the ith cow must be billed.

The floating point numbers will be graded within 10^{-4} accuracy.

Example

standard input	standard output
3 32 1 2 41 1 1 20 0	36.5 36.5 20.0