Linux Memory Usage

Problem ID: linuxmemusage

Time limit: 2 seconds

You are an intern in a big IT company. You are currently learning about Linux System Administration. You start by using *ssh* to get into the server. Then you use the *ps* utility to get a list of processes. *ps* (short for *process status*) is basically like the *Task Manager* in windows, it list running processes and their information. It can output variety of information.

You have a special variant of *ps* which output the following information.

- The process id.
- The parent process id.
- The memory usage.

Currently, you needs to know how much memory a process and all its descendant use.

Given the list of all running processes, and some process ids that we want to check their memory usage, output the total amount of memory used by each process and all its descendant combined.

Inputs

The input starts with two integer N, Q $(1 \leq N, Q \leq 10^5)$ where N is the number of process and Q is the number of queries.

The next N lines are present, each represent a process. Each line consist of three integers a, b, c $(0 \leq a, b, c \leq 10^5)$, where a is the *pid* or process id, b is the *ppid* or parent process id, and c is the memory usage.

The next Q line each represent a query. Each line consist of a single integer p $(0 \leq p \leq 10^5)$ which is the process id.

Outputs

For each p output the total amount of memory it and all its descendant is using.

Notes

In the second test case, the first query is for process 1 which is the parent of all other process, so the output is 110, the second query is for process 3 which is the parent of the other 3 process, so the output is 60.

Sample Input 1	Sample Output 1
5 5 1 0 21 2 1 32 4 1 44 100 4 100 101 4 89 1 2 4 100 101	286 32 233 100 89

Sample Input 2	Sample Output 2
5 2 1 0 30 2 1 20 3 2 10 4 3 20 5 4 30 1 3	110 60