Problem J
Power Consumption
Time Limit: 1 second

Each electronic device has a different electronic signature of power consumption. Using current sensors on breakers in an electric panel, a Smart Sensing Power Monitor can analyse the signatures of power consumption of all devices at every milisecond! By this way, the Smart Sensing Power Monitor can measure the energy consumed by each device in your office continuously.

There are N electronic devices in the building (indexed from 1 to N). In this complex event processing system, the Smart Sensing Power Monitor cannot (and does not need) to store the power consumption indicator of each device for every milisecond. For the i^{th} device, the power monitor simply saves the following two important values for each device:

> E_i: the initial power consumption indicator of the i^{th} device
> A_i: the average energy consumed (per time unit) by the i^{th} device, estimated from a long history of usage.

By this way, the power consumption indicator of the i^{th} device at time instant T can be estimated by the following formula: $V_i = E_i + A_i * T$.

There are Q queries. For the j^{th} query ($1 \le j \le Q$), please identify the index of the device with the largest power consumption indicator at time instant T_j.

Input

The first line of input contains only one positive integer N – the number of devices ($1 \le N \le 10^5$). Each of the next N lines contains two positive integers E_i and A_i ($1 \le E_i, A_i \le 10^9$) – the initial power consumption indicator and the average energy consumed per time unit of each device.

The next line contains one positive integer Q – the number of queries ($1 \le Q \le 10^5$). Each of the last Q lines contains one positive integer $1 \le T_j \le 10^9$ – the time instant of a query.

Output

The output has Q lines. Each line contains one positive number that is the index of the device with the largest power consumption indicator at the time instant of the corresponding query. If there are more than one possible answers, display the minimal one.

Sample Input	Sample Output
3 5 3 1 6 7 2 3 3 2 1	2 2 3