

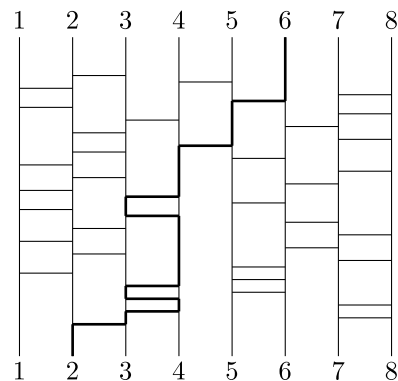
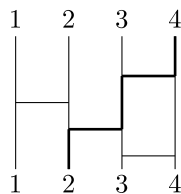
Amida Kuji

Timelimit: 5 sec

Problem description

There are n vertical lines numbered from $1, \dots, n$ and several horizontal bars between adjacent lines (that never touch each other).

If you start at the top at some number, you can follow the lines downwards while traversing the bars whenever possible. If you start at number k at the top, which number will you reach at the bottom?



Input

The number n ($n \leq 10^5$) of lines and the number m of bars are in the first line of the input. Then m lines follow describing the bars ($0 \leq m \leq 10^6$). A bar is described by two numbers h and k ($0 < h < 1000$, $h \in \mathbf{R}$, $1 \leq k < n$, $k \in \mathbf{N}$). The height above the baseline of the bar is h and it connects the k th line with the $k + 1$ st line.

Then a number t ($1 \leq t \leq 10^6$) follows denoting the number of queries followed by t lines containing the queries $k_1, \dots, k_t$. A query is a number k_i with $1 \leq k_i \leq n$.

Output

The output consists of t lines containing the answers $k'_1, \dots, k'_t$ to the queries. The answer to k_i is k'_i if you reach k'_i when starting at line k_i at the top and moving down as explained in the problem description and shown in the pictures.

Sample input/output

Input	Output
4 4	
0.5 1	
0.3 2	
0.7 3	
0.1 3	
2	
2	1
4	2