B. MOVE

You have a number **m**, a starting number **s_0** and two sequences of numbers a_i and b_i. Your goal is to go from s_0 to 0 in as few moves as possible. In each move, you choose an i, then multiply your current number by a_i, add b_i to it, and reduce the result modulo m. That is

$s_j = (s_{j-1} * a_{ij} + b_{ij}) \% m$.

INPUT

The first line of input contains three integers $0 < m \le 1000000$, $0 \le n \le 10$, and $0 < s_0 < m$. The next n lines each contain two integers, a pair $0 \le a_i \le 1000000000$ and $0 \le b_i \le 1000000000$.

OUTPUT

Output the shortest number of moves needed to reach 0 starting from s_0. If it is not possible to reach 0 in any number of moves, output -1.

Sample Input	Sample Output
5 2 1	2
2 1	
3 1	