The 31st Annual

ACM International Collegiate Programming Contest ASIA Regional - Seoul

Problem F
Gas

We have n test tubes $\{t_i\}$ containing different liquid chemicals. And we have M *mg* (milligram) of another chemical C in a beaker. If we put x mg of C into a test tube t_i, then G (a sort of gas) is produced in t_i. The amount of G produced in each t_i is determined by a linear *tube* function $f(x_i) = a_i \bullet x_i + b_i$ (unit is *mg*), where x_i is the amount of C put into t_i. Note that we can only measure integer amount of C, and so every x_i should be an integer.

Assume that $f_3(x) = 3 \bullet x + 2$ for test tube t_3. If we put x=40 *mg* of C into t_3, then 122 *mg* of G is produced. This experiment has a requirement, that is, we must equalize the amount of G produced in every t_i by carefully distributing M over all n tubes, that is $x_1 + x_2 + \ldots + x_n = M$.

For example, if we have only three test tubes with tube functions $f_1(x) = 3 \bullet x + 5$, $f_2(x) = 4 \bullet x + 3$, $f_3(x) = 1 \bullet x + 7$ and M = 27, then we can make 23 *mg* of G in each tube by assigning $x_1 = 6, x_2 = 5, x_3 = 16$. But it is impossible to equalize the amount of G produced in each tube if we are given M = 26.

Input

Your program is to read from standard input. The input consists of T test cases. The number of test cases T is given in the first line of the input. Each test case starts with a line containing an integer n<20, the number of integer pairs, a_i and b_i. A pair of two integers, a_i and b_i, is given in the following n lines. And finally M, the initial amount of C is given in the next line. There is at least a single space between a_i and b_i, where $1 \le a_i \le 10$ and $1 \le b_i \le 1{,}000$. And M is a positive integer less than 10,000.

Output

Your program is to write to standard output. Print exactly one line for each test case. Print the amount of G produced in each tube, if it is possible to equalize the amount of in each tube. Print `0`, if it is impossible to equalize the amount of G in each tube.

The following shows sample input and output for three test cases.

Sample Input	Output for the Sample Input
3 3 3 5 4 3 1 7 27 3 3 5 4 3 1 7 26 8 2 156 2 2 2 216 4 12 3 24 5 36 1 96 3 6 695	23 0 276