

3606 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 $f(x_i) = a_i \cdot x_i + b_i$ (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 $f_3(x) = 3 * x + 2$ 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 $x_1 + x_2 + \dots + x_n = M$.

For example, if we have only three test tubes with tube functions $f_1(x) = 3 * x + 5$, $f_2(x) = 4 * x + 3$, $f_3(x) = 1 * x + 7$ 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 $1 \leq a_i \leq 10$ and $1 \leq b_i \leq 1,000$. 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.

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
```

Sample Output

```
23
0
276
```