[程式實務] - System of Linear Equations

Time: 1 sec / Memory: 256 MB

Problem Statement

In this problem, your task is to find the number of non-negative integer solutions to the following system of linear equations:

$$
\begin{aligned}
a_1 \cdot x_1 + a_2 \cdot x_2 + \cdots + a_n \cdot x_n &= b, \\
x_1 &\geq c_1, \\
x_2 &\geq c_2, \\
&\vdots \\
x_n &\geq c_n.
\end{aligned}
$$

where $a_1, a_2, \ldots, a_n$, $c_1, c_2, \ldots, c_n$, and b are non-negative integers given as input.

For example, for $a_1 = 1$, $a_2 = 2$, $a_3 = 3$, $c_1 = 0$, $c_2 = 1$, $c_3 = 0$, and $b = 4$, there are only 2 distinct non-negative integer solutions, namely,

- $(0, 2, 0)$ and
- $(2, 1, 0)$.

Input

The first line contains an integer n, where $1 \leq n \leq 15$.

The second line contains n non-negative integers $a_1, a_2, \ldots, a_n$ separated by spaces, where $1 \leq a_i \leq 10$

The third line contains n integers $c_1, c_2, \ldots, c_n$ separated by spaces, where $0 \leq c_i \leq 10$.

The fourth line contains an integer b, where $1 \leq b \leq 10$.

Output

Output a single integer, the number of non-negative integer solutions to the equation.

Example

Input:

```
3
1 2 3
0 1 0
4
```

Output:

```
2
```