

D. Fox And Jumping

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Fox Ciel is playing a game. In this game there is an infinite long tape with cells indexed by integers (positive, negative and zero). At the beginning she is standing at the cell 0.

There are also n cards, each card has 2 attributes: length l_i and cost c_i . If she pays c_i dollars then she can apply i -th card. After applying i -th card she becomes able to make jumps of length l_i , i. e. from cell x to cell $(x - l_i)$ or cell $(x + l_i)$.

She wants to be able to jump to any cell on the tape (possibly, visiting some intermediate cells). For achieving this goal, she wants to buy some cards, paying as little money as possible.

If this is possible, calculate the minimal cost.

Input

The first line contains an integer n ($1 \leq n \leq 300$), number of cards.

The second line contains n numbers l_i ($1 \leq l_i \leq 10^9$), the jump lengths of cards.

The third line contains n numbers c_i ($1 \leq c_i \leq 10^5$), the costs of cards.

Output

If it is impossible to buy some cards and become able to jump to any cell, output -1. Otherwise output the minimal cost of buying such set of cards.

Examples

input
3 100 99 9900 1 1 1
output
2

input
5 10 20 30 40 50 1 1 1 1 1
output
-1

input
7 15015 10010 6006 4290 2730 2310 1 1 1 1 1 1 1 10
output
6

input

8
4264 4921 6321 6984 2316 8432 6120 1026
4264 4921 6321 6984 2316 8432 6120 1026

output

7237

Note

In first sample test, buying one card is not enough: for example, if you buy a card with length 100, you can't jump to any cell whose index is not a multiple of 100. The best way is to buy first and second card, that will make you be able to jump to any cell.

In the second sample test, even if you buy all cards, you can't jump to any cell whose index is not a multiple of 10, so you should output -1.