

Valentine's Day (valentinesday)

Valentine's Day is approaching, and you want to surprise your partner with a box of chocolates. The supermarket offers N different boxes of chocolates, labeled from 0 to $N - 1$. Each box i :


- Contains C_i chocolates.
- Costs P_i money.



Figure 1: One of the boxes?

You can buy **exactly one** box, but to share the chocolates equally, the box must contain an **even** number of chocolates.

Given a budget of M money, determine the maximum number of chocolates you can buy while meeting these conditions.

 Among the attachments of this task you may find a template file `valentinesday.*` with a sample incomplete implementation.

Input

The input file consists of:

- A line containing integers N, M , the number of choices, and the available budget.
- A line containing the N integers C_0, \dots, C_{N-1} , the number of chocolate pieces in each box.

- A line containing the N integers P_0, \dots, P_{N-1} , the price of each box.

Output






Print the maximum number of chocolate pieces you can get by purchasing a suitable box.

Constraints

- $1 \leq N \leq 100\,000$.
- $1 \leq M \leq 1000$.
- $1 \leq C_i \leq 1000$ for each $i = 0 \dots N - 1$.
- $1 \leq P_i \leq 1000$ for each $i = 0 \dots N - 1$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

- **Subtask 1** (0 points) Examples.

- **Subtask 2** (10 points) $N \leq 100$, C_i is even and $P_i \leq M$ for each $i = 0 \dots N - 1$.

- **Subtask 3** (20 points) $N \leq 100$ and $P_i \leq M$ for each $i = 0 \dots N - 1$.

- **Subtask 4** (30 points) C_i is even for each $i = 0 \dots N - 1$.

- **Subtask 5** (40 points) No additional limitations.


Examples

input	output
5 15 11 18 20 13 10 15 40 70 20 100	0
10 20 11 14 13 19 23 30 20 18 16 16 10 32 50 19 23 21 31 99 19 21	16

Explanation

In the **first sample case**, you can only afford the box with 11 chocolate pieces. Since this is not even, there is no box satisfying every requirement, so you can not buy anything.