

Problem B. Knapsack 2

Time limit 2000 ms

Mem limit 1048576 kB

Problem Statement

There are N items, numbered $1, 2, \dots, N$. For each i ($1 \leq i \leq N$), Item i has a weight of w_i and a value of v_i .

Taro has decided to choose some of the N items and carry them home in a knapsack. The capacity of the knapsack is W , which means that the sum of the weights of items taken must be at most W .

Find the maximum possible sum of the values of items that Taro takes home.

Constraints

- All values in input are integers.
- $1 \leq N \leq 100$
- $1 \leq W \leq 10^9$
- $1 \leq w_i \leq W$
- $1 \leq v_i \leq 10^3$

Input

Input is given from Standard Input in the following format:

```
N W
w1 v1
w2 v2
:
wN vN
```

Output

Print the maximum possible sum of the values of items that Taro takes home.

Sample 1

Input	Output
3 8 3 30 4 50 5 60	90

Items 1 and 3 should be taken. Then, the sum of the weights is $3 + 5 = 8$, and the sum of the values is $30 + 60 = 90$.

Sample 2

Input	Output
1 10000000000 10000000000 10	10

Sample 3

Input	Output
6 15 6 5 5 6 6 4 6 6 3 5 7 2	17

Items 2, 4 and 5 should be taken. Then, the sum of the weights is $5 + 6 + 3 = 14$, and the sum of the values is $6 + 6 + 5 = 17$.