

E - Knapsack 2

Time Limit: 2 sec / Memory Limit: 1024 MB

Score : 100 points

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 Input 1

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```
3 8
3 30
4 50
5 60
```

Sample Output 1

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```
90
```

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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 Input 2

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```
1 1000000000
1000000000 10
```

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Sample Output 2

[Copy](#)

```
10
```

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Sample Input 3

[Copy](#)

```
6 15
6 5
5 6
6 4
6 6
3 5
7 2
```

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Sample Output 3

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```
17
```

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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 $6 + 6 + 5 = 17$.