Backpack with weights and values P27895_en

You have a backpack that can bear up to w units of weight. Given n objects, each with a weight w_i and a value v_i, compute the maximum sum of values achievable, in such a way that the sum of weights does not exceed w. Take into account that objects cannot be cut: either you pick them, or you discard them.

Input

Input consists of several cases. Every case begins with w and n, followed by n pairs of integer numbers w_i v_i. Assume $1 \leq w \leq 1000$, $1 \leq n \leq 1000$, $1 \leq w_i \leq p$, and $1 \leq v_i \leq 10^6$.

Output

For every case, print the maximum value of the objects that can be stored in the backpack.

Sample input 1

```
10 3
7 3000
8 4000
3 2000

10 3
7 3000
8 6000
3 2000

2 4
1 3
1 5
1 7
1 7
```

Sample output 1

```
5000
6000
14
```

Problem information

Author: Salvador Roura
Translator: Salvador Roura

Generation: 2026-01-25T10:33:43.516Z