C. Buns

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

Lavrenty, a baker, is going to make several buns with stuffings and sell them.

Lavrenty has n grams of dough as well as m different stuffing types. The stuffing types are numerated from 1 to m. Lavrenty knows that he has a_i grams left of the i-th stuffing. It takes exactly b_i grams of stuffing i and c_i grams of dough to cook a bun with the i-th stuffing. Such bun can be sold for d_i tugriks.

Also he can make buns *without stuffings*. Each of such buns requires c_0 grams of dough and it can be sold for d_0 tugriks. So Lavrenty can cook any number of buns with different stuffings or without it unless he runs out of dough and the stuffings. Lavrenty throws away all excess material left after baking.

Find the maximum number of tugriks Lavrenty can earn.

Input

The first line contains 4 integers n, m, c_0 and d_0 ($1 \le n \le 1000$, $1 \le m \le 10$, $1 \le c_0, d_0 \le 100$). Each of the following m lines contains 4 integers. The i-th line contains numbers a_i, b_i, c_i and d_i ($1 \le a_i, b_i, c_i, d_i \le 100$).

Output

Print the only number — the maximum number of tugriks Lavrenty can earn.

Examples

input
10 2 2 1 7 3 2 100 12 3 1 10
output
241

input
100 1 25 50 15 5 20 10
output
200

Note

To get the maximum number of tugriks in the first sample, you need to cook 2 buns with stuffing 1, 4 buns with stuffing 2 and a bun without any stuffing.

In the second sample Lavrenty should cook 4 buns without stuffings.