

Artificium

The Shop Owner

Runtime Limit – 3s

Problem Statement

You have to calculate the biggest final cash balance of a shop before d days. For that, you have the initial cash balance c and a list of goods with a length n . Each good has its *unitCost*, its *unitRevenue* and its *quantity*. Each day, you buy first, then, you sell all your goods. When you buy, you can buy one type of good maximum. The quantity is the maximum of goods of this type you can buy in the simulation.

Format

Input

First line : the number of days d

Second line : the initial cash balance c

Third line : the number of goods n

The n next lines : The *unitCost*, the *unitRevenue* and the *quantity* separated by spaces.

Output

A single line containing the biggest final cash balance possible

Constraints

$$0 < d \leq 50$$

$$0 < b$$

$$0 \leq n \leq 10$$

Sample

Input

3

3

2

1 2 25

3 5 50

Output

24