Problem 1 Thirsty tourists

A large group of tourists set out on a long journey that will take them back and forth across the country. They planned the trip for June to beat the summer heat but the delay in the onset of the monsoon has meant that their journey is extremely hot and uncomfortable. Moreover, the price of mineral water has skyrocketed because of the acute shortage of water.

Totally, the tourists consume a litre of water every hour. Between them, they have enough muscle power to carry C litres of water.

Thanks to the miracle of mobile telephones, they have found out the price of water at various shops along the route they are going to travel. Being both thrifty and thirsty, they would like to minimize the amount they spend on water by scheduling their water purchases optimally. They have to ensure that they never run out of water between shops. It is permissible, however, to arrive at a shop with no stored water.

They begin their journey without any water. There is a shop at the starting point where they can buy water.

You are given the number of hours that they have to travel totally. You are also provided with the locations, in terms of hours of travel, of the different shops that sell water along their route, as well as the price of a litre of water at each of these shops, in paise. Your task is to find the minimum amount that they need to spend on water to arrive at their destination without dying of dehydration. *You are guaranteed that the input values always admit at least one feasible solution.*

For instance, suppose they plan to travel for 400 hours and can carry 200 litres of water. Initially, they can buy water at 1000 paise a litre. 100 hours down their route, there is a shop selling water at 1300 paise a litre. 150 hours down their route, there is a shop selling water at 1200 paise a litre. 300 hours down their route, there is a shop selling water at 1100 paise a litre. Under these circumstances, their best strategy is to initially buy 200 litres and go upto the shop 150 hours down their journey, by which time they have only 50 litres in stock. At this shop, they buy 100 litres at 1200 paise, which is just enough to take them to the shop at the 300 hour mark. Here, they buy 100 litres at 1100 paise to take them through to their destination. The total amount they spend is $200000 + 120000 + 110000 = 430000$ paise.

Input format

The first line of the input contains three integers H, N and C. H indicates the length of their journey, in hours. N indicates the number of shops where they can buy water along their route. C is the amount of water the tourists can carry between them, in litres.

The next N lines, lines $2, 3, \ldots, N+1$, describe the N shops en route. Each line contains two integers. The first integer is the distance, in hours, of the shop from their starting point. The second integer is the cost of water per litre at this shop, in paise. You may assume that the shops are enumerated in increasing order of distance from the starting point of the tour. The cost of a litre of water is always non-zero.

Output format

A single integer giving the minimum amount that the tourists need to spend on water during their trip.

Test Data

You may assume that $1 \leq N \leq 5000$, $1 \leq H \leq 1000000$ and $1 \leq C \leq 10000$. You may further assume that in at least 30% of the inputs $1 \leq 500$ and $1 \leq H \leq 10000$.

Examples

Here are sample inputs and outputs corresponding to the example discussed above.

Sample input

```
400 4 200
0 1000
100 1300
150 1200
300 1100
```

Sample output

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430000
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Time and memory limits

The time limit for this task is 2 seconds. The memory limit is 44 MB (actual limit 32 MB, plus 12 MB buffer for 64-bit compilation).