E. Watching Fireworks is Fun

time limit per test: 4 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

A festival will be held in a town's main street. There are n sections in the main street. The sections are numbered 1 through n from left to right. The distance between each adjacent sections is 1.

In the festival m fireworks will be launched. The i-th ($1 \le i \le m$) launching is on time t_i at section a_i. If you are at section x ($1 \le x \le n$) at the time of i-th launching, you'll gain happiness value b_i - $|a_i - x|$ (note that the happiness value might be a negative value).

You can move up to d length units in a unit time interval, but it's prohibited to go out of the main street. Also you can be in an arbitrary section at initial time moment (time equals to 1), and want to maximize the sum of happiness that can be gained from watching fireworks. Find the maximum total happiness.

Note that two or more fireworks can be launched at the same time.

Input

The first line contains three integers n, m, d ($1 \le n \le 150000$; $1 \le m \le 300$; $1 \le d \le n$).

Each of the next m lines contains integers a_i, b_i, t_i ($1 \le a_i \le n$; $1 \le b_i \le 10^9$; $1 \le t_i \le 10^9$). The i-th line contains description of the i-th launching.

It is guaranteed that the condition $t_i \le t_{i+1}$ ($1 \le i < m$) will be satisfied.

Output

Print a single integer — the maximum sum of happiness that you can gain from watching all the fireworks.

Please, do not write the `%lld` specifier to read or write 64-bit integers in C++. It is preferred to use the `cin`, `cout` streams or the `%I64d` specifier.

Examples

input
50 3 1 49 1 1 26 1 4 6 1 10
output
-31

input
10 2 1 1 1000 4 9 1000 4
output
1992