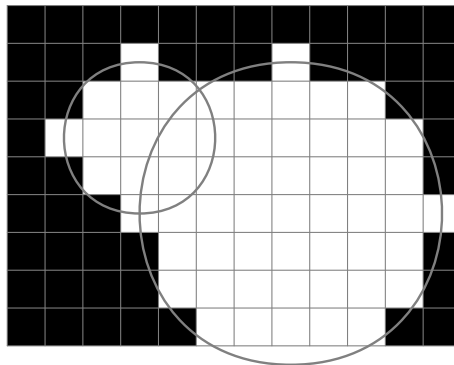


IOITC 2016 Practice Test Day 2

Circles

Yesterday Tanuj wrote a program that draws n white circles on a black screen. The screen is monochrome and it has a resolution $w \times h$ pixels. Pixels are numbered from upper left corner $(0, 0)$ to bottom right one $(w - 1, h - 1)$.

A circle with the center at pixel (x_c, y_c) and the radius r consists of the pixels with coordinates (x, y) such that $\sqrt{(x_c - x)^2 + (y_c - y)^2} \leq r$. If the circle does not fit on the screen, it is truncated. If some pixel belongs to one or more circles, it is white.



The resulting picture was very nice, so Tanuj decided to copy it to his wall. He has white wallpaper and he can only draw some parts of wall into black. Now he wants to know the amount of paint he needs. He copies the picture exactly pixel-to-pixel, so you should write a program that calculates the number of black pixels left on a screen after drawing n circles.

Input

In the first line of input file there are three integers: w , h , and n . Each of the following n lines contains descriptions of the circle. In $i + 1$ -th line there are three integers: x_i , y_i , r_i ($0 \leq x_i < w$; $0 \leq y_i < h$; $0 \leq r_i \leq 40\,000$). They denote a circle with the center at pixel (x_i, y_i) and radius r_i .

Output

You should output exactly one number — the number of black pixels left on the screen.

Test Data

In all the subtasks,
 $1 \leq n \leq 100$

Subtask 1 (20 Points): $1 \leq w, h \leq 1000$

Subtask 2 (80 Points): $1 \leq w, h \leq 20\,000$

Sample Input1

```
5 3 2
1 1 1
3 1 1
```

Sample Output1

6

Sample Input2

12 9 2

3 3 2

7 5 4

Sample Output2

51

Limits

Time: 3 seconds

Memory: 256 MB