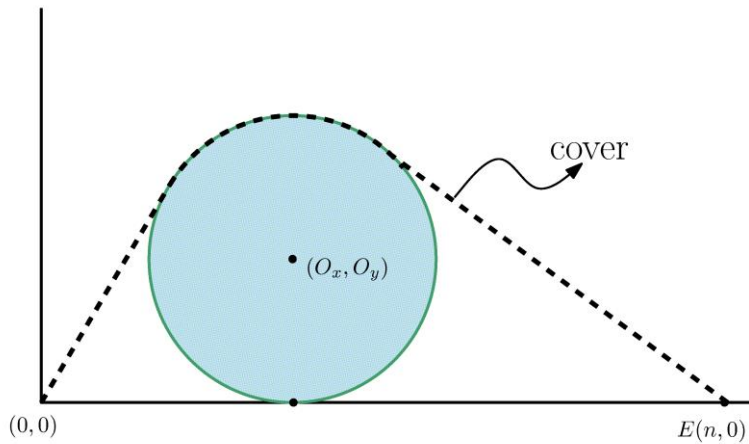


Balloon

We are keeping one big balloon backyard. We have to prepare a covering shield for this balloon to protect the balloon from the rain. Consider this problem in 2 dimensions. As was shown in the figure below, balloon is placed on the ground, i.e., touching the the x-axis. You are given the center coordinate (O_x, O_y) of the circle. You have to drive in two stakes at the points $(0,0)$ and $(n,0)$ to fix the covering rope. We will tie a rope with the end of two stakes at $(0,0)$ and $(n,0)$ in order to cover the balloon completely. You are asked to compute the minimal length of the covering rope for the balloon given. Since the rope sells by the integer meter unit, the rope length of the covering rope should be the minimum integer greater than the real length (floating point number) of the rope. For example if the exact length of the covering rope is '134.56', then the correct answer should be the integer '135'.



[Input] The first line of input file shows an integer K to denote the number of testing cases. Note that $3 \leq K \leq 50$. And each of the following K lines gives three integers ' O_x O_y n ' for the center position of balloon (O_x, O_y) and the x-coordinate of the right stake position. Note that $1 \leq O_x, O_y \leq 100$ and $O_x < n < 500$.

[Output] Print the minimal integer for the length of the covering rope in a line for each input testing case.

[Example]

Input

```
6           // 6 testing cases are given.
96 16 112
84 11 150
59 53 70
91 81 123
47 4 131
49 10 86
```

Output

```
143
157
293
```

435	
133	
96	