

Barrelrider

Description

Bilbo the Barrelrider is attempting to elude Smaug the Terrible in the treasure-filled halls of Erebor.

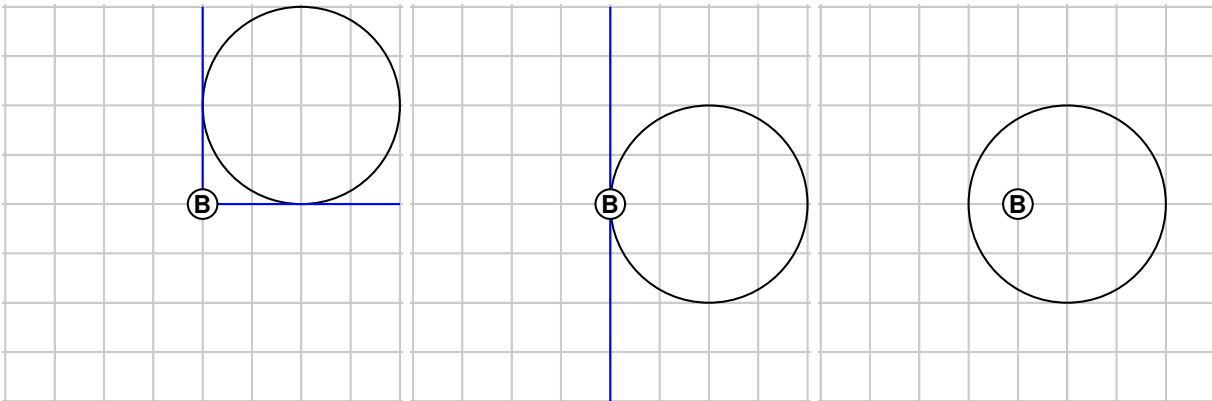
He uses the obstacles (piles of gold, columns, etc.) in the room to hide from Smaug's view. These obstacles can be approximated by circles.

Smaug may approach Bilbo from any direction. Bilbo's *concealment* is the proportion of directions for which an obstacle would be between himself and the dragon.

In total, how much concealment do the obstacles offer Bilbo?

In the example below to the left, the obstacle affords him 90 degrees (25%) concealment. In the middle example, Bilbo is right next to the obstacle, and it offers 180 degrees (50%) concealment.

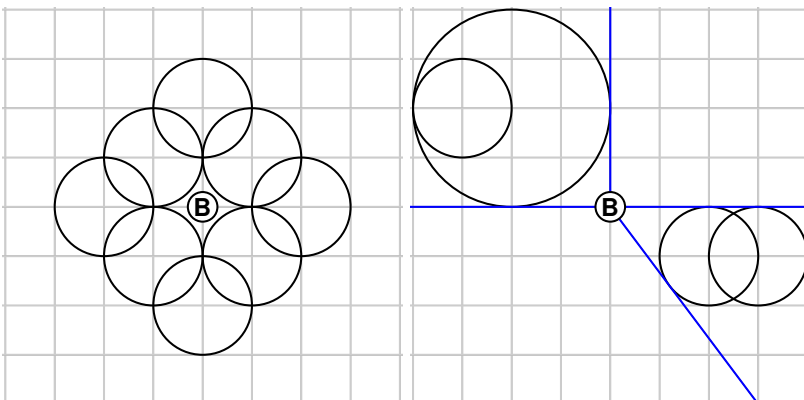
If Bilbo is inside an obstacle (say, inside a pile of gold), he cannot be seen at all.



Obstacles can overlap.

In the example below to the left, Bilbo has 100% concealment.

In the right example, he has $90 + 53.1 = 143.1$ degrees (40%) concealment.



Input

The first line is $0 \leq N \leq 1000$, the number of obstacles.

The next N lines are the obstacles, each represented by 3 space-separated integers. The first two integers are $-5000 \leq X \leq 5000$ and $-5000 \leq Y \leq 5000$, which are the x - and y -coordinates, respectively, of the center of the obstacle. (Bilbo is standing at $(0,0)$.) The third

integer is its radius $0 < R \leq 1000$.

Output

Print the percentage of concealment the obstacles offer Bilbo, rounded to the nearest whole percent.

Input

1
2 2 2

Input

1
2 0 2

Input

1
1 0 2

Input

8
0 -1 1
-1 0 1
-2 1 1
-1 2 1
0 -1 1
1 -2 1
2 -1 1
1 0 1

Input

4
-3 2 1
-2 2 2
2 -1 1
3 -1 1

Output

25%

Output

50%

Output

100%

Output

100%

Output

40%