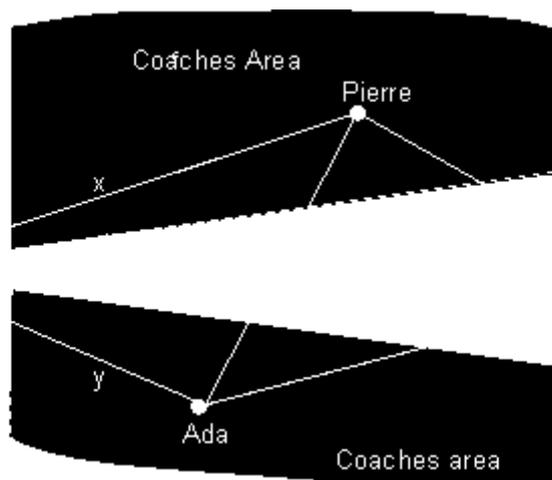


## 2018 If its a Javelin, Duck!

The coaches for the US Olympic Track Team, Pierre A. Noid and Ada Noid, fear that their 16-year-old, 7'2" javelin thrower, Moven van Driver, has not been given a "fair go" by the Olympic referees. They have purchased two distance measuring devices (DMD) to help them check on the accuracy of the measurements made by the referees.

There are several elimination rounds for which each coach positions him/herself in either coaches area (which includes the boundaries), such that the two coaches are on opposite sides of the throwing zone. At the beginning of each round the coaches measure their separation from each other and the distance of each from the launching point. During a round the coaches do not move.

For each throw in each round they record their distances from the landing point, and calculate the distance that should have been awarded to Moven. You may assume that the javelin will always land somewhere in the landing area (which includes its boundary)



The following measurements are made, as indicated in the figure above:

- $x$  Pierre's distance from the launching point
- $y$  Ada's distance from the launching point
- $z$  distance between Ada and Pierre
- $a$  Pierre's distance from the javelins landing point.
- $c$  Ada's distance from the javelins landing point.

Your program is to determine  $b$ , the actual distance traveled by the javelin (in meters, to the nearest hundredth of a meter) from the other measurements (given in meters to the nearest hundredth of a meter).

### Input

There will be several groups of input data, each representing a round. The first line of each group will have an integer and three real numbers,  $n$ ,  $x$ ,  $y$ , and  $z$  separated by white space. The first number  $n$  is the number of throws in the current round, such that  $0 \leq n \leq 5$ . The other distance limits are

$10 \leq x \leq 100$ ,  $10 \leq y \leq 100$ , and  $5 \leq z \leq 100$ . The next  $n$  lines will have pairs of real numbers, representing measurements  $a$  and  $c$ , such that  $0 \leq a \leq 100$ , and  $0 \leq c \leq 100$ . The input data is terminated by a value of  $n = 0$ , followed by three zeros, and this data is not processed.

### Output

The output should be labeled by the number of the round, and followed by the distance of each throw for that round (each on a separate line). Formatting should be as in the sample output.

### Sample Input

```
3 50.00 50.00 75.00
50.00 50.00
60.00 40.00
30.00 75.00
2 30.00 60.00 87.50
55.55 66.66
33.33 88.88
0 0 0 0
```

### Sample Output

```
Round 1
1. 66.14
2. 66.30
3. 69.96

Round 2
1. 52.77
2. 48.81
```