

Submissions

Quake Live

5pt Not attempted
30/48 users correct
(63%)

10pt Not attempted
28/28 users correct
(100%)

Shoot the Target

8pt Not attempted
1/4 users correct
(25%)

12pt Not attempted
0/1 users correct
(0%)

Bejeweled Befuddlement

10pt Not attempted
1/3 users correct
(33%)

20pt Not attempted
0/1 users correct
(0%)

Technology Planning

15pt Not attempted
13/16 users correct
(81%)

20pt Not attempted
12/13 users correct
(92%)

Top Scores

andreidd	50
tlotze	50
alexamici	50
errebepe	50
almost	50
pts	50
bucko	50
r3m0t	43
eseriva	35
mumino	35

Problem B. Shoot the Target

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input 1
8 points

Solve B-small-1

Small input 2
12 points

Solve B-small-2

Problem

Kazuki is playing Worms. There is a target above the ground which he has to hit. However, it is slanted so that it is not perpendicular to the ground. Kazuki is allowed to shoot from anywhere on the ground and he wants to find the best place to stand to maximize the visible angle of the target. Find this maximum visible angle in degrees.

The world is a 2D plane, with the y-axis pointing up towards the sky. The ground can be considered as the x-axis. You will be given the coordinates of the two endpoints of the target -- $(X1, Y1)$ and $(X2, Y2)$. The target is a line segment between those two points.

Note that the visible angle of the target that Kazuki wants to maximize is the angle formed by the points $(X1, Y1)$, $(X, 0)$ and $(X2, Y2)$. The optimal X will not necessarily be an integer.

Input

The first line of the input gives the number of test cases, T . T lines follow. Each line consists of 4 integers $X1$, $Y1$, $X2$ and $Y2$ separated by spaces, where $(X1, Y1)$ and $(X2, Y2)$ are the coordinates of the two ends of the target.

Output

For each test case, output one line containing "Case #t: Z", where t is the case number (starting from 1) and Z is the maximum visible angle of the target in degrees that Kazuki can achieve. Answers accurate to within an absolute or relative error of 10^{-4} will be accepted.

Limits

$1 \leq T \leq 100$.

$X1 \neq X2$

Small dataset

$1 \leq Y1, Y2 \leq 10$

$-10 \leq X1, X2 \leq 10$

Large dataset

$1 \leq Y1, Y2 \leq 100000$

$-100000 \leq X1, X2 \leq 100000$

Sample

Input	Output
3	Case #1: 90
1 1 3 1	Case #2: 45
-2 1 -1 2	Case #3: 63.8059
0 2 3 3	

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