

Problem C. Construct Point

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 256 mebibytes

You have Q triangles, numbered 1 through Q .

The coordinates of the vertices of the i -th triangle are (x_{1_i}, y_{1_i}) , (x_{2_i}, y_{2_i}) and (x_{3_i}, y_{3_i}) in counterclockwise order. Here, x_{1_i} , x_{2_i} , x_{3_i} , y_{1_i} , y_{2_i} and y_{3_i} are all integers.

For each triangle, determine if there exists a grid point contained in its interior (excluding the boundary). If it exists, construct one such point.

Input

Input is given in the following format:

Q
 $x_{1_1} y_{1_1} x_{2_1} y_{2_1} x_{3_1} y_{3_1}$
 $x_{1_2} y_{1_2} x_{2_2} y_{2_2} x_{3_2} y_{3_2}$
...
 $x_{1_Q} y_{1_Q} x_{2_Q} y_{2_Q} x_{3_Q} y_{3_Q}$

Constraints:

All input values are integers, $1 \leq Q \leq 10\,000$, $0 \leq x_{1_i}, x_{2_i}, x_{3_i}, y_{1_i}, y_{2_i}, y_{3_i} \leq 10^9$, (x_{1_i}, y_{1_i}) , (x_{2_i}, y_{2_i}) and (x_{3_i}, y_{3_i}) are listed in counterclockwise order, the triangles are non-degenerate.

Output

Output should contain Q lines.

In the i -th line, if there is no grid point contained in the interior (excluding the boundary) of Triangle i , print “-1 -1”. If it exists, choose one such grid point, then print its x -coordinate and y -coordinate with a space in between.

Example

standard input	standard output
4	3 6
1 7 3 5 5 7	2 3
1 4 1 2 5 4	-1 -1
6 1 7 1 7 6	10 4
11 3 11 4 8 5	