
Bin Packing

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Packing items into a bin is well known as packing problem, and Fish is studying it too. As a beginner, he starts with 2-dimension-version problem with 2 rectangle-shape items. He just wants to find a convex polygon with the smallest area so that these two items can be well included in it. You should notice that these two items can not overlap each other and you can shift or rotate them in the plane if you like.

Please help Fish solve the problem.

Input

The first line of input contains an integer T , representing the number of test cases. Then following T lines, each line representing one test case.

For each test case there are four integers w_1, h_1, w_2, h_2 separated by one space telling the width and length of these two items respectively.

Output

For each test case, you should output **Case x : y** in one line, where x indicates the case number starting from 1 and y represents the smallest area.

Your answers will be consider correct if its absolute error does not exceed 10^{-6} .

Example

standard input	standard output
2	Case 1: 11.5
1 3 2 4	Case 2: 27.0
2 3 4 5	

Note

$$1 \leq T \leq 100$$

$$1 \leq w_1, h_1, w_2, h_2 \leq 100$$