# Problem I. Portal

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|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 1 second |
| Memory limit: | 256 megabytes |

Alice and Bob are living in "Rectangle Kingdom". There are two portals in the world. Standing at the portal, people can jump into it, and instantly travel to the other portal. Portals do not disappear after you do that. Of course you can walk past a portal and do not jump into it, but why waste such fun?

It's known that Bob dates Alice so frequently that almost everyone in Rectangle Kingdom becomes jealous and wants to do something evil to stop them from seeing each other. You, for instance, want to separate them by moving their apartments to be as far as possible. Hopefully after your plan, Bob should spend much more effort walking to Alice's apartment, making him feel reluctant to do that, until eventually of course, they stop seeing each other and everyone is happy again.

You may assume "Rectangle Kingdom" is a 2D rectangle and Alice and Bob's apartments should be in the rectangle. The distances are Euclidean and walking one distance unit takes one time unit. Bob always chooses the shortest path from his apartment to Alice's apartment.

## Input

The first line is an integer $\mathbf{T}$, which is the number of test cases.

The next $T$ lines each have six space-separated integers $\mathbf{A}, \mathbf{B}, \mathbf{X_1}, \mathbf{Y_1}, \mathbf{X_2}, \mathbf{Y_2}$. $\mathbf{A}, \mathbf{B}$ respectively denote the width and height of the kingdom and the kingdom is defined by 4 points: $(\mathbf{0}, \mathbf{0}), (\mathbf{0}, \mathbf{B}), (\mathbf{A}, \mathbf{B}), (\mathbf{A}, \mathbf{0})$. $(\mathbf{X_1}, \mathbf{Y_1}), (\mathbf{X_2}, \mathbf{Y_2})$ denote the position of two portals.

$1 \leq \mathbf{T} \leq 2000$

$1 \leq \mathbf{A}, \mathbf{B} \leq 10^3$

$0 \leq \mathbf{X_1}, \mathbf{X_2} \leq \mathbf{A}$

$0 \leq \mathbf{Y_1}, \mathbf{Y_2} \leq \mathbf{B}$

## Output

For each test case, output one line containing "Case #x:", where x is the test case number, and next two lines "ax ay" and "bx by", denote the position of Alice's apartment and Bob's apartment after your evil moving of their apartments. The walking time of the shortest path from Bob's apartment to Alice's apartment should be maximum.

You answer is considered correct, if its absolute or relative error does not exceed $10^{-6}$. Namely, let the walking time of your answer be $a$, and the walking time of jury's answer be $b$. Your answer is considered correct, if $\frac{|a-b|}{\max(1,|b|)} \leq 10^{-6}$.

## Example

| standard input | standard output |
|---|---|
| 2<br>2 2 0 0 2 2<br>2 2 0 0 0 2 | Case #1:<br>2.00000000 0.00000000<br>0.00000000 2.00000000<br>Case #2:<br>2.00000000 0.00000000<br>0.50000000 2.00000000 |