5700 Advanture of Xiaoxingxing

Fat Xiaoxingxing was so fat that he couldn't walk with his feet. But he didn't care about it. "Sphere is also a shape of body." He always said and somehow he was a bit happy with that.

The only thing he cared was his Lost Piece (LP). He was born with some imperfection. He felt depressed with that. Not does he become complete until he could find his LP. "I will find my LP." As he declared, he set off for his LP. He couldn't walk, so he could only move by rolling. He had to bear the hard sunshine or the heavy rain. However, he still sang songs on his way, "La... la... la... I am going to find my LP..." After a long journey of adventure, he found where his LP lay. It was not far away from him.

Now given the positions of Xiaoxingxing and his LP, you are asked to calculate the minimum degree he needed to roll to reach his LP.

Input

There are multiple test cases. The first line contains an integer n ($0 < n \leq 100$). The body of Xiaoxingxing can be decribed as a polygon of n points. Each of the following n lines contains two integers x_i and y_i ($|x_i| \leq 10000$, $0 \leq y_i \leq 10000$), describing a point of the polygon clockwise or counter-clockwise. The first point of the polygon is always the origin and the polygon will not be self-crossed. The last line of each test case contains two integers X and Y ($x_i < X \leq 10000$, $0 \leq Y \leq 10000$), descrbing the position of the Lost Piece.

Xiaoxingxing can only roll with some point fixed on the ground where $y = 0$.

Output

For each test case, first output one line containing '`Case` x`:`' where x is the case number (starting from 1). If it is possible for Xiaoxingxing to reach his LP, output the minimum angel in degrees he has to roll before he can reach his LP. The result should be accurate up to 2 decimal places. Otherwise, output '`Impossible`' instead.

Sample Input

```
4
0 0
0 1
-1 1
-1 0
1 0
4
0 0
0 3
-4 3
-4 0
3 6
```

Sample Output

```
Case 1: 90.00
```

Case 2: Impossible