Jenny the GeoLover

You may imagine a right-angle triangle by the name of Pythagoras. Geonty (a geometry lover) is a disciple of Mr. Pythagoras, found a problem for young programmers like you. In this problem, you are given the smallest side **X (in cm)** and the smallest angle **Y (in degree)** of a right-angle triangle. You have to calculate the length **(in cm)** of the hypotenuse of that triangle.

Input

Input starts with an integer **T (<= 10),** denoting the number of test cases. Each case can contain two real numbers **X** and **Y.**

Output

For each case, print the case number and the length of the hypotenuse of that triangle. **Print six digit after the decimal point.**

Example

Input:
3
7 30
15 30
10 18

Output:
Case 1: 14
Case 2: 30
Case 3: 32.360680