Submissions

Moist

4pt Not attempted **31/48 users** correct (65%)

6pt Not attempted **31/31 users** correct (100%)

Captain Hammer

22pt Not attempted **13/18 users** correct (72%)

Bad Horse

12pt Not attempted **15/20 users** correct (75%)

21pt Not attempted **13/15 users** correct (87%)

Professor Normal

12pt Not attempted **2/5 users** correct (40%)

23pt Not attempted **1/2 users** correct (50%)

Top Scores

6502	68
mgedmin	65
florentxicluna	65
koniiiik	65
kurazu	65
pts	65
fox91	65
harutune	65
mgax	44
spyyy	43

Problem B. Captain Hammer

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the Quick-Start Guide to get started.

Small input
22 points

Solve B-small

Problem

The Hamjet is a true marvel of aircraft engineering. It is a jet airplane with a single engine so powerful that it burns all of its fuel instantly during takeoff. The Hamjet doesn't have any wings because who needs them when the fuselage is made of a special Wonderflonium isotope that makes it impervious to harm.

Piloting the Hamjet is a not a job for your typical, meek-bodied superhero. That's why the Hamjet belongs to Captain Hammer, who is himself impervious to harm. The G-forces that the pilot endures when taking a trip in the Hamjet are legen-dary.

The Hamjet takes off at an angle of θ degrees up and a speed of **V** meters per second. **V** is a fixed value that is determined by the awesome power of the Hamjet engine and the capacity of its fuel tank. The destination is **D** meters away. Your job is to program the Hamjet's computer to calculate θ given **V** and **D**.

Fortunately, the Hamjet's Wondeflonium hull is impervious to air friction. Even more fortunately, the Hamjet doesn't fly too far or too high, so you can assume that the Earth is flat, and that the acceleration due to gravity is a constant 9.8 m/s^2 down.

Input

The first line of the input gives the number of test cases, **T**. **T** lines follow. Each line will contain two positive integers -- **V** and **D**.

Output

For each test case, output one line containing "Case #x: θ", where x is the case number (starting from 1) and θ is in degrees up from the the horizontal. If there are several possible answers, output the smallest positive one.

An answer will be considered correct if it is within 10^{-6} of the exact answer, in absolute or relative error. See the FAQ for an explanation of what that means, and what formats of floating-point numbers we accept.

Limits

$1 \le \mathbf{T} \le 4500$;
$1 \le \mathbf{V} \le 300$;
$1 \le \mathbf{D} \le 10000$;
It is guaranteed that each test case will be solvable.

Sample

Input	Output
3 98 980 98 490 299 1234	Case #1: 45.0000000 Case #2: 15.0000000 Case #3: 3.8870928