**Toke’s Game**

**Time Limit: 1.0 second**

**Problem Description:**

Tokey has been very passionate about game programming. He always thinks about new ideas for creating game from dawn to dusk. One night he dreams about a game and waking up from bed, he starts developing this game without wasting any time. It’s a little big game and needs help from others. Therefore, he is looking for someone who can solve one of the logical parts of his game. Now, here is the chance for you to join his team.

The problem is quite simple. In this game, there are N numbers of triangles are placed vertically (from equal height) maintaining the middle point of base in same vertical line. Each triangle is placed horizontally (Look at the picture. The base of T2 is placed below the base of T1 and vice versa. Here the depth is T1-T2-T3 from top to bottom). You only know the length of the base (B) and height (H) (length from the middle point of the base) of the triangles. A spherical ball needs to be passed through each of the triangles. Your task is to find the maximum radius (R) of the ball that passes through all the triangles.

**T3**

**T1**

**T2**

**Input Format:**  
There will be number of test cases **T** in first line. In each of the test cases there will be **N (1 < N < 30)**. After that there will be **N** lines. Each line has space separated integer value of **B (1 < B < 100)** and integer value of **H (1 < H < 100)** where **B** denotes the length of the base and **H** denotes the height of the triangle from the middle point of the base.

**Output Format:**

Print the output in a single line for each test cases as the following format **“Case T : R”** where **T** will be replaced by the case number and R will be replaced by the maximum radius of the spherical ball that will pass through all the triangles. **(Note: print three digit after the decimal point)**

**Sample Input:**

2

1

16 15

4

20 100

15 85

50 35

25 55

**Sample Output:**

Case 1 : 4.800

Case 2: 6.867