Coder Or NonCoder

The x% of the students in IUT(International University Of Technology) are Coders. Rest of them are noncoders. A new student got admitted into IUT who has lots of interest in programming. So, he wants to meet some senior coders of IUT. As he does not know who is coder and who is not, but he himself is a coder he has y% possibility of identifying a coder. eg. If he meets Zico_vai, He has a y% possibility that he will identify Zico_vai as coder and (100-y)% possibility that he'll mistake. The similar for non coders is also true. eg. If he meets a noncoder he has y% of possibility to identify him as noncoder and (100-y)% possibility that he'll mistake.

Now, He met a random IUTian, given x and y find the probability that he'll think the guy he met as a coder.

Input

First line of the input contains an integer 0<t<10000, number of testcases.

Next t lines contain two integers each x,y (0<=x,y<=100) described above.

Output

For each testcase in a new line, print the probabality(rounded to 2 digits after decimal point) in persentage with a persentage sign.

Example

Input:
2

5 90

12 25

Output:
14.00%

69.00%