

CPCTriangle

My Brother Imtiaz is little afraid of Geometry. Is it too hard!! Can you help him to understand how easy geometry is!! .

Consider the following picture of ABC triangle with "a" side,"b" base and "y" angle.

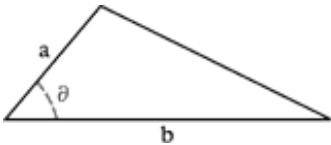
Now you have to help me to find the area of the given triangle. Note that the valid angel for the given triangle is $0 < y < 180$.

Input

First line of input will contain test case **T** ($1 \leq T \leq 1000$). Each of the next **T** line contains 3 variable **a** , **b**, **y** ($1 \leq a , b \leq 1000$) , here **a** is the side of the triangle , **b** is base and **y** is angel .

Output

For each case test you have to print the area of the triangle, if the angle of the triangle is not valid then print – "**not a valid angle**"(without Quote).



In this picture there is angle we can call it "y" angle .

Example

Input:	Output:
3	Case 1: 12.727922
12 3 45	Case 2: not a valid angle
2 1 181	Case 3: 0.390731
2 1 23	