A cow is grazing in the field. A rope in the field is tied with two pillars. The cow is kept tied wi the rope with the help of a ring. So the cow can be considered to be tied with any point of the rop Your job is to find the area of the field where the cow can reach and eat grass. If required assume th $\pi = 2 * \cos^{-1}(0)$ (Here angle is measured in radians). You can also assume that the thickness of t rope is zero, the cow is a point object and the radius of the ring and the thickness of the pillars a negligible. Please use double precision floating-point data type for floating-point calculations.

Input

First line of the input file contains an integer ($N \leq 100$), which indicates how many sets of inputs a there. Each of the next N lines contains two integers D ($0 \leq D \leq 1000$) and L ($D < L \leq 1500$). T first integer D denotes the distance in feet between the two pillars and the second integer L denot the length of the rope in feet.

Output

Your program should produce N lines of output. Each line contains a single floating-point numb which has three digits after the decimal point. This floating-point number indicates the area of t field which the cow can reach and eat grass.

Sample Input

```
3
10 12
23 45
12 18
```

Sample Output

```
62.517
1366.999
189.670
```