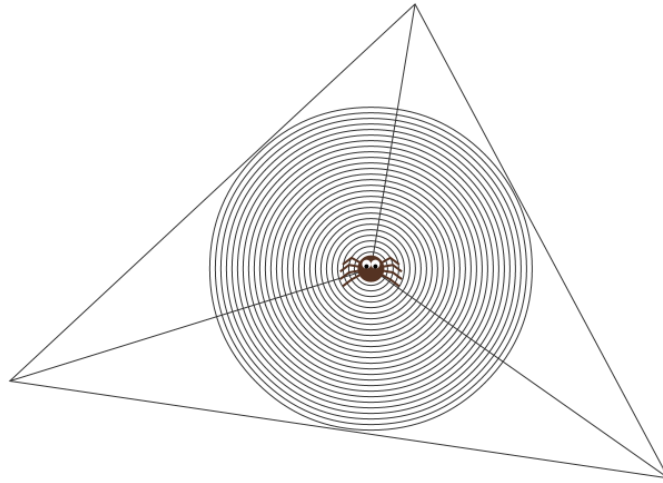


Warmup B - Happy Spider Builds Web



Happy Spider wants to build a web! Happy Spider is very happy because she has found the perfect place to build her web: a triangle! There are some steps to building a web:

1. Happy Spider wants the web to be as big as possible, so she finds biggest circle that fits entirely within the triangle.
2. Happy Spider creates a line of silk from the center of this circle to each vertex of the triangle.
3. Happy Spider creates concentric silk circles of radius 1 mm, 2 mm, 3 mm, etc until it can no longer fit in the web.

Your task is to find out how much silk Happy Spider uses.

Input

The first line contains the integer **T**, then **T** test cases follow.

Each test case consists of six integers: **x1, y1, x2, y2, x3, y3**, denoting the coordinates of the vertices of the triangle, in millimeters.

All inputs are less than 10,000 in absolute value. The radius of the circle that Happy Spider computes in step 1 is not within $1e-4$ of an integer.

Output

Output one floating point number, which is the total length of silk needed by Happy Spider in steps 2 and 3 (notice the circle found in step 1 is a purely theoretical one; there may or may not be a real silk circle that reaches that radius). Your answer will be considered correct if it is within $1e-6$ absolute or relative error of the judge solution.

Sample Input

```
1
0 0 10 0 0 10
```

Sample Output

```
38.299029
```

Happy spider should build her web at (2.92893, 2.92893) with circles of radius 1 and 2.