Problem J: Just Pentagon Perimeter
Time Limit: 5 seconds

Description

Given a set of points in the plane, find the convex pentagon with largest perimeter such that each vertex of the pentagon is a unique point in the point set! Note that convex means no line segment between two points on the boundary of the pentagon ever goes outside the pentagon.

Input

A number of of inputs (≤**100**), each with **N (**$1 \leq N \leq 8500$**),** followed by **N** points with (**x,y**) integer. Each integer fit in 32 bits signed. Note there are no duplicate points.

Output

Output the perimeter rounded to 2 decimal places on each line for each input set. If no such pentagon exists, print -1.

Sample Input

```
1
0 0
6
0 0
0 2
1 2
1 3
2 0
2 2
```

Sample Output

```
-1
8.83
```