

# 25 Where is Luke?

10 points

## Introduction

Luke Skywalker has vanished. In these difficult times of galactic wars it is critical to find him and count on him to help fight the sinister First Order. Three known droids, R2-D2, C-3PO and BB-8, which are at the base of the brave Resistance in the planet D'Qar, are responsible for locating Luke.

The astromech droids R2-D2 and BB-8 stored in their memory two sets of data with the galactic Cartesian coordinates of different planets of the galaxy. An old ally of the Resistance discovered a clue to Luke's whereabouts: Luke is at the midpoint of the pair of the closest planets stored in the droids memories.

C-3PO, as a good protocol droid, must write a program that quickly finds the closest pair of Cartesian coordinates and calculate the intermediate coordinates where Luis is supposed to be hiding.

May the force (or the 4<sup>th</sup>) be with you!

The distance between two points is the length of the path connecting them. In the plane, the distance between points  $(x_1, y_1)$  and  $(x_2, y_2)$  is given by the Pythagorean theorem,

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

## Input

The input of the program includes the content of the memory of the droids following this structure twice (one per each droid):

Droid name; Number of pair of galactic Cartesian coordinates

First pair of galactic Cartesian coordinates separated by space

Second pair of galactic Cartesian coordinates separated by space

...

Nth pair of galactic Cartesian coordinates separated by space

R2-D2; 4

5.0 9.0

9.0 3.0

2.0 0.0

8.0 4.0

BB-8; 6

7.0 4.0

9.0 10.0

1.0 9.0

8.0 2.0

10.0 10.0

9.0 6.0

## Output

Just the pair of galactic Cartesian coordinates where Luke can be found, accurate up to one decimal.

7.5 4.0

