6411 Ninja Pizza

Ninja Pizza is getting popular because its delivery boys wear ninja costumes pretending to be real ninjas who are renowned for their excellent sword skills. The company advertisements say that a ninja can easily slice two of their perfectly round pizzas, when placed with their interiors non-overlapping on a flat table, into two equal-area halves with one swing of their sword.

The delivery boys are not real ninjas and the shape of each pizza is not really round, but is in the form of a convex polygon with N vertices. $3 \leq N$.

Your task is to write a program that calculates the necessary sword stroke, which a real ninja would instinctively do, for a given two pizzas. A sword stroke is described by a straight line in the form of $y = m * x \pm b$ in the x-y plane.

Input

The input starts with an integer C, on a line by itself, that represents the number of test cases. $1 \leq C$. Each test case contains the specifications of two convex polygons. The first line of a polygon specification consists of an integer N that represents the number of its vertices. Each of the following N lines contains two real numbers, separated by a single space, that are the x- and y-coordinates of one vertex, respectively. The vertices are given in the anti-clockwise order.

The total number of vertices over all test cases is not more than 5000 and values of all x- and y-coordinates are in the range from -1 to 1, inclusive.

There will always be a solution for each case with $-1000 \leq m \leq 1000$.

Output

For each test case the output consists of a single line that contains the equation of a planar straight line that bisects both polygons. The equation is to be printed in the familiar form of '`y`␣=␣m␣`x`␣±␣b', where the symbol '␣' indicates a single space and '±' indicates the sign of b.

The values of m and b must be printed as shown in the sample data below, after rounding off to the hundredths place.

Notes:
Printing of zero

The value of zero should always be printed as 0.00

An output of '`-0.00`' will result in a WRONG-ANSWER.

Rounding off is used to approximate the value of a number to a specified decimal place. After rounding, the digit in the place we are rounding will either stay the same, referred to as rounding down, or increase by 1, referred to as rounding up.

Examples are:

if we round 6.734 to the hundredths place, it is rounded down to 6.73.

if we round 6.735 to the hundredths place, it is rounded up to 6.74.

if we round -6.734 to the hundredths place, it is rounded up to -6.73.

if we round -6.735 to the hundredths place, it is rounded down to -6.74.

Sample Input

```
1
4
0.0 0.2
0.1 0.2
0.1 0.3
0.0 0.3
4
0.1 0.3
0.2 0.3
0.2 0.4
0.1 0.4
```

Sample Output

```
y = 1.00 x + 0.20
```