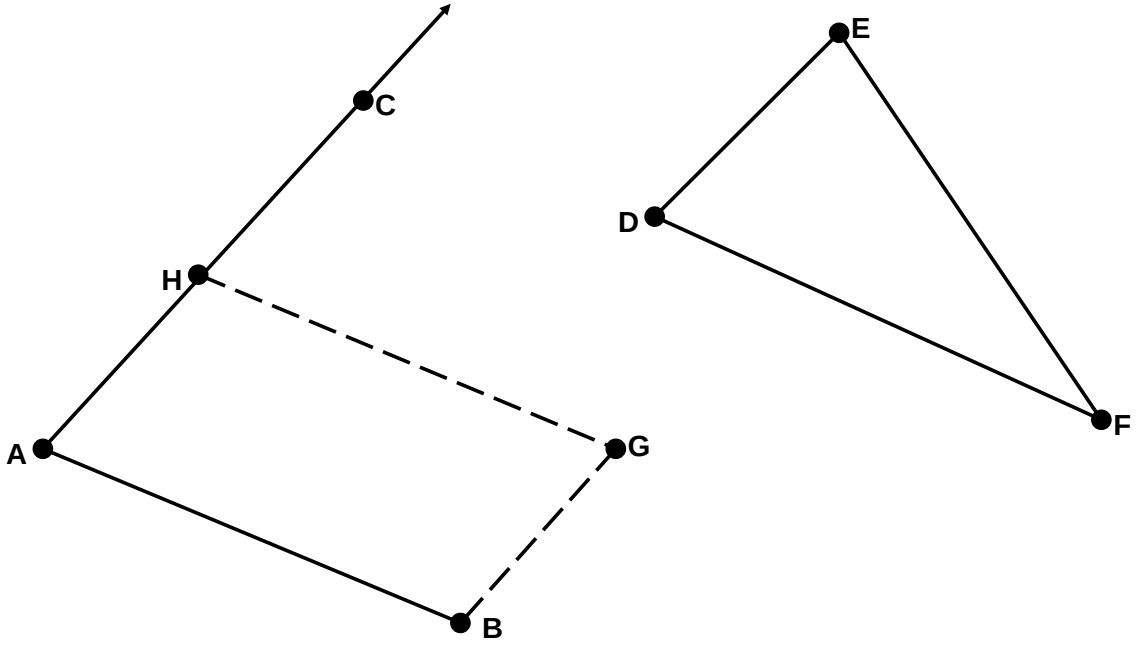
B: Euclid

In one of his notebooks, Euclid gave a complex procedure for solving the following problem. With computers, perhaps there is an easier way.

In a 2D plane, consider a line segment **AB**, another point **C** which is not collinear with **AB**, and a triangle **DEF**. The goal is to find points **G** and **H** such that:

- **H** is on the ray **AC** (it may be closer to **A** than **C** or further away, but angle **CAB** is the same as angle **HAB**)
- **ABGH** is a parallelogram (**AB** is parallel to **HG**, **AH** is parallel to **BG**)
- The area of parallelogram **ABGH** is the same as the area of triangle **DEF**



The Input

There will be several test cases. Each test case will consist of twelve real numbers, with no more than 3 decimal places each, on a single line. Those numbers will represent, in order:

AX AY BX BY CX CY DX DY EX EY FX FY

where point **A** is (**AX**,**AY**), point **B** is (**BX**,**BY**), and so on. Points **A**, **B** and **C** are guaranteed to NOT be collinear. Likewise, **D**, **E** and **F** are also guaranteed to be non-collinear. Every number is guaranteed to be in the range from **-1000.0** to **1000.0** inclusive. End of the input will be signified by a line with twelve **0.0**'s.

The Output

For each test case, print a single line with four decimal numbers. These represent points **G** and **H**, like this:

GX GY HX HY

where point **G** is (**GX**,**GY**) and point **H** is (**HX**,**HY**). Print all values rounded to 3 decimal places of precision (NOT truncated). Print a single space between numbers. Do not print any blank lines between answers.

Sample Input

```
0 0 5 0 0 5 3 2 7 2 0 4
1.3 2.6 12.1 4.5 8.1 13.7 2.2 0.1 9.8 6.6 1.9 6.7
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
```

Sample Output

```
5.000 0.800 0.000 0.800
13.756 7.204 2.956 5.304
```