Problem E

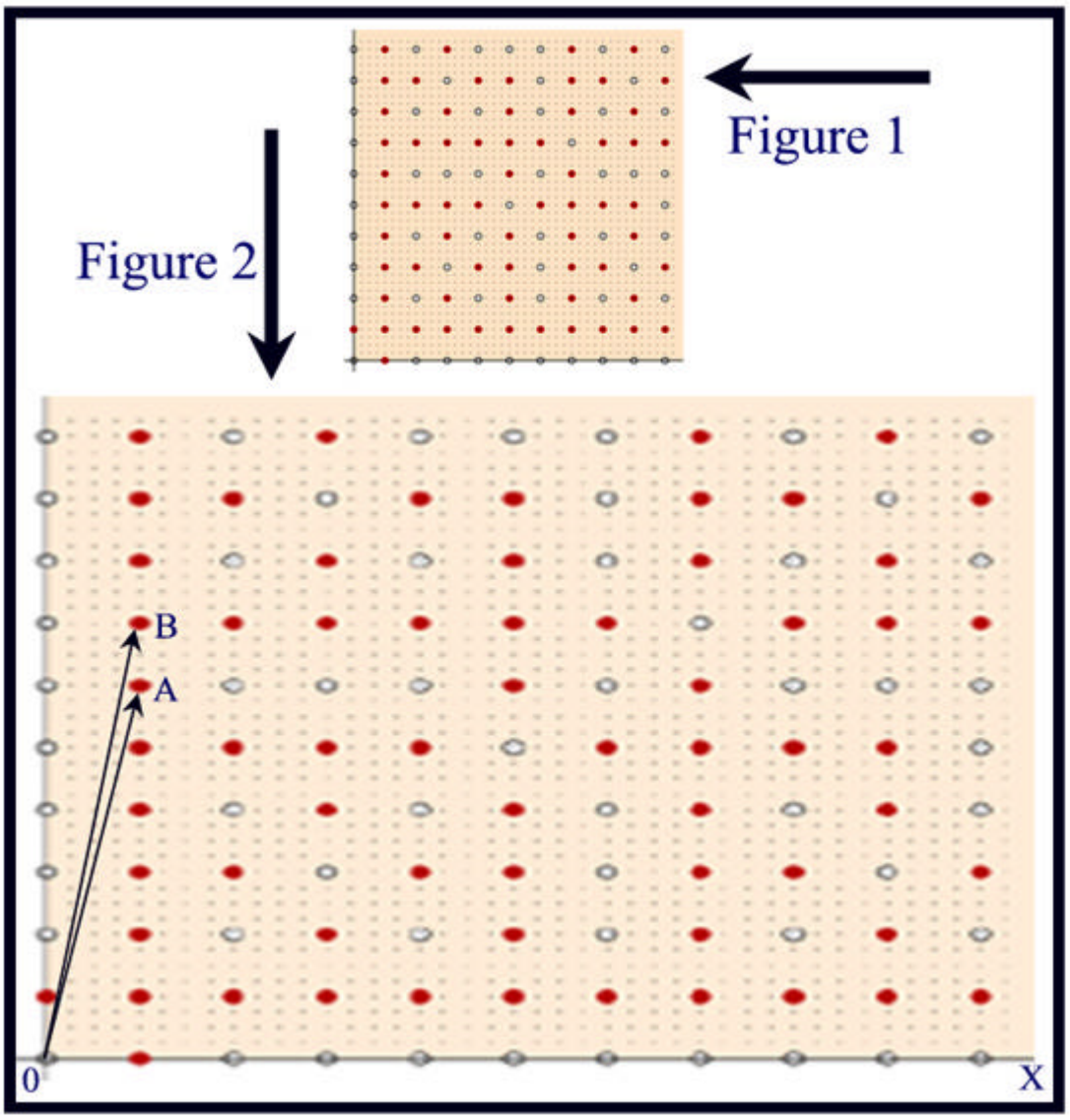
Stretching Geometry

Input: Standard Input
Output: Standard Output
Time Limit: 2 Seconds

A square shaped garden is marked with integer coordinates. The area of the garden is infinite. The lower left corner of the garden is **O (0,0)** and the coordinate system is like normal Cartesian coordinate system. A mad problem setter has planted **(15001*15001)** trees in **15001** rows and **15001** columns. So the area where trees are planted is also a square. Trees are planted in a coordinate **(p,q)** iff the following two conditions are true:

a) **d|p** and **d|q**
b) **p<=15000d** and **q<=15000d**.

Here **d** is an arbitrary integer **(0<d<11)**. In figure **1** below the value of **d** is **4**.



The mad problem setter has drawn a **2D** image of this garden, which looks somewhat like **figure 1** but a lot larger. But the problem is that while manipulating the image with a high precision imaging software he has stretched the image **b(b>0)** times along **x**-axis and **a(a>0)** times along **y**- axis. For example **Figure 2** is found by stretching **figure-1, 3** times along **x**-axis and **2** times along **y**- axis.

The trees in the pictures can be considered point objects. So they remain point objects after any sort of stretching. Before or after this stretching not all trees are visible from the origin **O (0,0)** due to some other trees, which are on the same line with respect to **O**. In the above pictures the visible trees are shown with red. You will be given the coordinate of one of the visible trees in this **stretched figure A (x1, y1)**. There will always be a tree at position **B (x2, y2)** in this stretched figure that is visible from **O** and whose angular distance **ö** from **A** with respect to **O** is minimum (I mean angle **AOB** is minimum) and in the positive direction (Counter clockwise). Your job is to determine the coordinate of **B (x2,y2)**. Of course, the mad problemsetter is looking for a very efficient solution.

Input

The input file contains less than **10001** lines of input. Each line contains four integers **x1 (0<=x1<=15000*d*b)**, **y1 (0<=y1<=15000*d*a)**, **d (0< d<11), ab** (**0<ab<=10000000, ab** means **a*b**) and **ö** (expressed in degree). The meanings of these symbols are described in the problem statement. Input is terminated by a line where the value of **x1** is **–1**. This line should not be processed. **ö** will always be in the format **D.DDDDDDDDDDDDDDeN**, here **D** denotes any decimal digit and **N** is an integer **(-4>N>-16)**. (If you are intelligent and use floating-point number with reasonable precision (Such as **double** in **C/C++**) then you should not have any trouble.)

Output

For each line of input except the last one produce one line of output which contains two integers which are the values of **x2** and **y2**.

Sample Input	Output for Sample Input
152896 108 4 36 1.058827657765851e-6 43492 24 2 6 5.815846810938229e-7 -1 -1 -1 -1 1.000000000000000e-8	203856 144 54364 30

Problemsetter: Shahriar Manzoor, Member of Elite Problemsetters' Panel

> "What makes these students outstanding? The answer is simple. They do! But, they can't do it alone. The ICPC community bands together universities, faculty, government and industry to create an environment where students set performance standards for each other. It is the willingness to challenge the norm and to take the challenge that sets these students apart. The ICPC community is set apart because the challenge is to become great problem solvers!"
>
> -Bill & Marsha