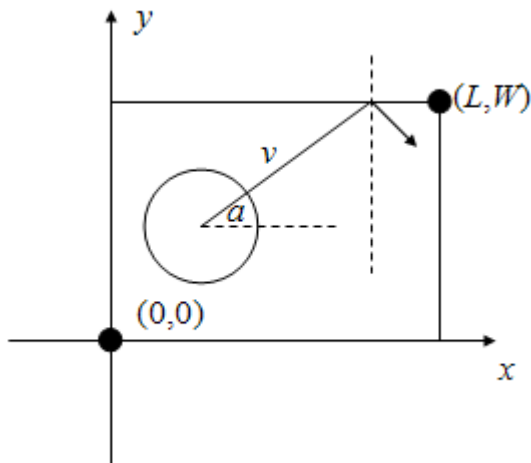


There is a rectangle on the cartesian plane, with bottom-left corner at $(0,0)$ and top-right corner at (L,W) . There is a ball centered at (x,y) , with radius= R , shown below



At time 0, the ball starts to move along a ray with polar angle a (the angle from positive x -axis to the ray, rotating counter-clockwise). When hitting the rectangle boundary, the reflex angle always equals to the incidence angle. The ball's velocity is always v (i.e. it never changes when hitting the rectangle). Where is the center of the ball at time s ?

Input

There will be at most 25 test cases, each contains a line with 8 integers L,W,x,y,R,a,v,s ($100 \leq L,W \leq 10^9$, $1 \leq R \leq 5$, $R \leq x \leq L - R$, $R \leq y \leq W - R$, $0 \leq a < 360$, $1 \leq v$, $s \leq 10^9$), as stated above. The input terminates with $L = W = x = y = R = a = v = s = 0$, which should not be processed.

Output

For each test case, output a line containing two floating-point numbers x , y , rounded to two decimal points, indicating that the center of ball will be at (x,y) at time s .

Sample Input

```
100 100 80 10 5 90 2 23
110 100 70 10 5 180 1 9999
0 0 0 0 0 0 0 0
```

Sample Output

```
80.00 56.00
71.00 10.00
```