Problem 2—Jai Alai

Tron is playing a game of Jai Alai in a cubic cage. The cage is 10x10x10, with corners at (±5,±5,5±5). The floor of the cube is therefore located at corners (±5,±5,0). If a ball starts at a certain point in the interior of the cube and is struck so that it moves along a certain vector, the ball will ricochet on the faces of the cube until it hits the floor. You are to compute the number of ricochets made by the ball before it hits the floor (hitting the floor does not count as a ricochet) and the point on the floor that the ball hits.

You will not be given a starting condition that will cause the ball to ricochet indefinitely without hitting the floor at all. You will not be given a starting condition that will cause the ball to hit an edge or corner of the cube.

INPUT SPECIFICATION. Each input case consists of six floating point numbers separated by one space and followed by <**EOLN**>. The first three numbers represent the initial vector of motion; the next three numbers represent the starting point in the interior of the cube. The last input case will be followed by “0 0 0<**EOLN**>”.

OUTPUT SPECIFICATION. The output cases should appear in same order as the input. Each output case should be of the form “Case *c*: The ball ricocheted *r* times before hitting the floor at (*x*,*y*)” where *c* is the case number, *r* is the number of ricochets, and (*x*,*y*) is the point on the floor hit by the ball. (Actually, the ball hits at (*x*,*y*,0) but don't print the third coordinate.) *x* and *y* should be rounded to one place after the decimal point. Each output case should be followed by <**EOLN**>.

SAMPLE INPUT.

```
0·0·1·0·0·5<EOLN>
0·0·-1·0·0·5<EOLN>
0·1·0.1·-1·2·5<EOLN>
0·0·0<EOLN>
<EOF>
```

SAMPLE OUTPUT.

```
Case·1:··The·ball·ricocheted·1·times·before·hitting·the·floor·at·(0.0,0.0)<EOLN>
Case·2:··The·ball·ricocheted·0·times·before·hitting·the·floor·at·(0.0,0.0)<EOLN>
Case·3:··The·ball·ricocheted·16·times·before·hitting·the·floor·at·(-1.0,-2.0)<EOLN>
<EOF>
```