

13121 Eclipsing Gianik Star

Gianik is a giant pink star in Canis Major constellation at an approximate distance of 700 light years from our Solar System. Each planet of Gianik's planetary system follows a trajectory described by a circular orbit centered at Gianik, whose coordinates $(x(t), y(t))$ at time t obeys the parametric equations

$$\begin{aligned}x(t) &= \rho \cdot \cos(\alpha + \beta \cdot t) \\y(t) &= \rho \cdot \sin(\alpha + \beta \cdot t)\end{aligned}$$

where ρ is a positive integer denoting the radius of the circular orbit, and $\alpha + \beta \cdot t$ is a linear function with integer coefficients α, β describing the angle subtended by the planet's trajectory from time 0 to time t . All angles are measured in degrees ($^\circ$), where one full rotation around Gianik takes 360° .

An eclipse occurs when Gianik and two distinct planets are located at collinear coordinates at the same time t , so that Gianik is not visible from the farthest planet because it is eclipsed by the other planet. May you determine the minimum non-negative integer t such that an eclipse occurs at time t ?

Input

The input consists of several test cases. The first line of each test case contains a single integer N indicating the number of planets of Gianik's planetary system ($2 \leq N \leq 300$). Each of the next N lines contains three blank-separated integers ρ , α and β , indicating the parameters that describe the planet's trajectory around Gianik according to the statement ($1 \leq \rho \leq 1000$, $-1000 < \alpha < 1000$, $-1000 < \beta < 1000$). You may assume that the orbits of all N planets have distinct radiuses.

Output

For each test case, print a single line with a non-negative integer indicating the minimum time in which an eclipse occurs in Gianik's planetary system. If no eclipse occurs at any non-negative time, then print the text 'GIANIK IS NEVER ECLIPSED'.

Sample Input

```
2
10 90 2
20 0 4
2
10 90 4
20 0 2
2
10 90 2
20 0 2
```

Sample Output

```
45
135
GIANIK IS NEVER ECLIPSED
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