

## E: Eclipsing Gianik Star

Source file name: gianik.c, gianik.cpp, or gianik.java

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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

$$x(t) = \rho \cdot \cos(\alpha + \beta \cdot t)$$

$$y(t) = \rho \cdot \sin(\alpha + \beta \cdot t)$$

where  $\rho$  is a positive integer denoting the radius of the circular orbit, and  $\alpha + \beta \cdot t$  is a linear function with integer coefficients  $\alpha, \beta$  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  $360^\circ$ .

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  $\rho$ ,  $\alpha$  and  $\beta$ , 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.

*The input must be read from standard input.*

### 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'.

*The output must be written to standard output.*

<b>Sample Input</b>	<b>Sample Output</b>
2 10 90 2 20 0 4 2 10 90 4 20 0 2 2 10 90 2 20 0 2	45 135 GIANIK IS NEVER ECLIPSED