Problem A. Minimal Product

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

You are given an array of integers $a_1, \ldots, a_n$. Find two indices i and j such that $i < j$, $a_i < a_j$, and the product $a_i \cdot a_j$ is as small as possible.

Input

The input consists of several tests. The first line contains a single integer t — the number of tests ($1 \le t \le 10^4$). Each of the following t lines describes one test.

Each test is generated using the following algorithm. The test is described by integers n, l, r, x, y, z, b_1, b_2 ($2 \le n \le 10^7$, $-2 \cdot 10^9 \le l \le r \le 2 \cdot 10^9$, $0 \le x, y, z, b_1, b_2 < 2^{32}$), where n is the length of the array.

First, the sequence b_i of length n is generated. Elements b_1 and b_2 are given. For $i > 2$ let $b_i = (b_{i-2}x + b_{i-1}y + z) \bmod 2^{32}$. For each i between 1 and n, $a_i = (b_i \bmod (r - l + 1)) + l$ (thus, $-2 \cdot 10^9 \le a_i \le 2 \cdot 10^9$).

It is recommended to use 64-bit integers to generate the sequence to avoid integer overflow.

The sum of n in all tests does not exceed $2 \cdot 10^7$.

Output

For each test, print the smallest possible product $a_i \cdot a_j$ in a separate line. If there are no such i and j that $i < j$ and $a_i < a_j$, print "`IMPOSSIBLE`".

Example

standard input	standard output
2 4 -5 5 11 13 17 0 3 5 0 100 0 1 0 42 42	-15 IMPOSSIBLE

Note

Let us consider the generation of the array in the first test.

First, the sequence b is generated.

- $b_1 = 0$
- $b_2 = 3$
- $b_3 = (11 \cdot 0 + 13 \cdot 3 + 17) \bmod 2^{32} = 56$
- $b_4 = (11 \cdot 3 + 13 \cdot 56 + 17) \bmod 2^{32} = 778$

Then it is used to generate a.

- $a_1 = (0 \bmod (5 - (-5) + 1)) + (-5) = (0 \bmod 11) - 5 = -5$
- $a_2 = (3 \bmod 11) - 5 = -2$
- $a_3 = (56 \bmod 11) - 5 = -4$
- $a_4 = (778 \bmod 11) - 5 = 3$

Thus, $a = [-5, -2, -4, 3]$. The answer is $-5 \cdot 3 = -15$.

In the second test the array is $[42, 42, 42, 42, 42]$.