Queen

Time limit: *1000 ms*
Memory limit: *256 MB*

Two players are playing on an infinite chess board. In the beginning, a single piece is located at coordinates (a, b).

In a turn, the player must move the piece to new coordinates (c, d) such that:

a) $0 \leq c \leq a$ (no going right),

b) $0 \leq d \leq b$ (no going up), and

c) At least one of the following is satisfied:

- $d = b$ (same row),
- $c = a$ (same column), or
- $|(a-b)-(c-d)| \leq K$ (almost same diagonal).

The player that cannot make a move loses the game. For starting coordinates (a, b) and the value of K, help the first player determine whether or not he has a winning strategy.

Standard input

The first line of input contains an integer t, giving the number of testcases.

The next t lines contain three space separated integers K, a, and b, which are described above.

Standard output

For each testcase, output a single bit on a line by itself: 1 if the first player can assure his victory, and 0 otherwise.

Constraints and notes

- $1 \leq t \leq 10^5$
- $0 \leq a, b \leq 10^9$
- $0 \leq K \leq 10^6$

Input	Output	Explanation
10 0 0 0 0 9 8 0 1 1 0 2 1 0 3 5 0 3 6 0 4 7 0 4 1 0 5 5 0 6 10	0 1 1 0 0 1 0 1 1 0	When $K = 0$, the piece is a regular queen. For $0 \leq a, b \leq 10$, the coordinates such that the first player doesn't have a winning strategy are: $\{(0,0),(1,2),(2,1),(3,5),(5,3),(4,7),(7,4),(6,10),(10,6)\}$.