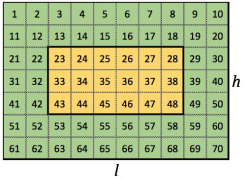
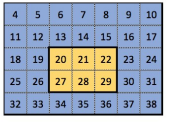
RecXor

Time limit: *500 ms*
Memory limit: *256 MB*

A rectangle of dimensions $l \times h$ $(1 \leq l, h \leq 10^6)$ is filled with numbers sequentially starting from number n $(1 \leq n \leq 10^9)$ till the end of the rectangle. There is a second rectangle that fits inside the first rectangle and is defined by the end points of either of the diagonals, say d_1 and d_2 $(n \leq d1 \leq d2 < n + l * h)$ which denote the numbers the diagonal starts from and ends at respectively. Your task is to find the `xor` of all the numbers that are not common to both of the rectangles. (Images below for better understanding.)



Outer rectangle: 10 (*l*) x 7 *(h)*
Inner rectangle: 23*(d1)*, 48 *(d2)*



Outer rectangle:7 x 5
Inner rectangle: 22, 27

Standard input

Input begins with a single number t $(1 \leq t \leq 100)$, which denotes the number of test cases.

Each test case begins with a line, which contains 5 space-separated integers l, h, n, d_1 and d_2.

Standard output

For each test case output a single number which is the `xor` of all the number that are not common to the rectangles.

Constraints and notes

- $1 \leq t \leq 100$
- $1 \leq l, h \leq 10^6$
- $1 \leq n \leq 10^9$
- $d_1 \leq d_2$
- The sum of l for all the tests in a file is $\leq 10^6$
- The sum of h for all the tests in a file is $\leq 10^6$

Input	Output	Explanation
2 10 7 1 23 48 7 5 4 22 27	80 42	The test cases are for the images above. The `xor` of the uncommon numbers are 80 and 42 respectively.