Sky Lift

We can represent a grid of skyscrapers by an NxN matrix of their positive heights. A skyscraper is made out of square blocks, and you may travel through them using a special elevator that can move as any other, but also sideways (four possible directions on a fixed floor). They may move anywhere as long as they don't exit the skyscrapers. In other words, if the elevator is inside a skyscraper, it may move to the neighboring skyscraper only if its height is greater or equal to the current level the elevator is at.

Moving sideways (in one of the 4 directions, that is, N, E, S, W...) is done for free when using this elevator, but moving one floor up or down costs exactly one unit.

Given the positions of two skyscrapers, find the cost of moving from the **top block** of the first to the **top block** of the second using the described elevator.

Input

The first line of input contains a single integer N (1 <= N <= 1000). The next line contains four integers, x_a, y_a, x_b, y_b, (between 1 and N), representing the positions of the two skyscrapers.

The next line contains three integers: A, B and C ($1 <= A, B, C <= 10^9$).

Generate the height of the skyscraper at coordinates (i, j) using the formula $h_{ij} = (((i-1)*N+j-1)*A + B)$ mod C (indicies are 1-based).

Output

To the first and only line of input output the solution.

Example

Input:
3
1 1 3 3
5 5 7

Output:
2