Bouncing DVD (`bouncing`)

One of Valerio's hobbies is watching the DVD logo bounce around the screen. He enjoys it so much that he starts mimicking the motion in his living room!

Figure 1: Valerio's TV screen.

Valerio's living room is a $W \times H$ axis-aligned **rectangular space**. He starts at position (x_1, y_1) with an initial velocity (vx, vy), meaning that each second, he moves vx units along the x-axis and vy units along the y-axis. Whenever he hits a wall, he bounces off, reversing direction along the corresponding axis while maintaining the same speed.

However, Valerio accidentally left the TV remote on the floor at position (x_2, y_2). Every time he steps on this point, he unintentionally presses the off button on the remote, stopping the bouncing DVD logo – and making Valerio frustrated!

Valerio has exactly T seconds to enjoy his bouncing before he must stop and return to his duties. Count how many times he steps on the remote and presses the off button during this time.

> ☞ Among the attachments of this task you may find a template file `bouncing.*` with a sample incomplete implementation.

Input

The input file consists of:

- A line containing integers W, H and 64-bit integer T, the width and height of the room and the available time.

- A line containing integers x_1, y_1, vx, vy, Valerio's initial position and velocity.

- A line containing integers x_2, y_2, the remote's position.

Output

The output file must contain a single line consisting of 64-bit integer `ans`, the number of times Valerio will press the off button over T seconds.

Constraints

- $3 \le W \le 10^7$.
- $3 \le H \le 10^7$.
- $1 \le T \le 10^{13}$.
- $1 \le x_1, x_2 \le W - 1$.
- $1 \le y_1, y_2 \le H - 1$.
- $(x_1, y_1) \ne (x_2, y_2)$.
- $0 \le |vx|, |vy| \le 10\,000$.
- $(vx, vy) \ne (0, 0)$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points)   Examples.

– **Subtask 2** (10 points) $vy = 0$.

– **Subtask 3** (15 points) $|vx|, |vy| \le 1$.

– **Subtask 4** (21 points) $T \le 100\,000, |vx|, |vy| \le 100$.

– **Subtask 5** (22 points) $W \le 100, H \le 100$.

– **Subtask 6** (32 points)   No additional limitations.

Examples

input	output
3 4 3 1 1 -3 2 1 3	1
4 4 80 1 1 3 3 3 3	60
8 9 1000000000000 5 3 123 9899 1 5	27777777778

Explanation

In the **first sample case**, Valerio presses the off button once, after bouncing off the walls three times.
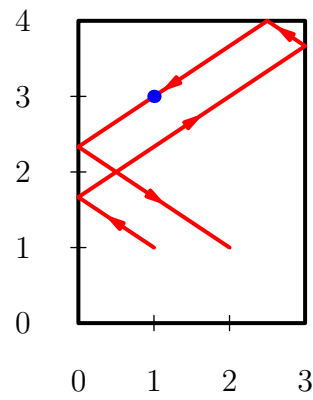
In the **second sample case**, Valerio repeatedly bounces between two corners, pressing the remote once after each bounce, for a total of 60 times. Note that in some instances, he steps on the remote at a moment when the elapsed time is not a whole number of seconds.