

Contest Duration: 2025-08-30(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250830T2100&p1=248>) - 2025-08-30(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250830T2240&p1=248>) (local time) (100 minutes)

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D - RLE Moving

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 425 points

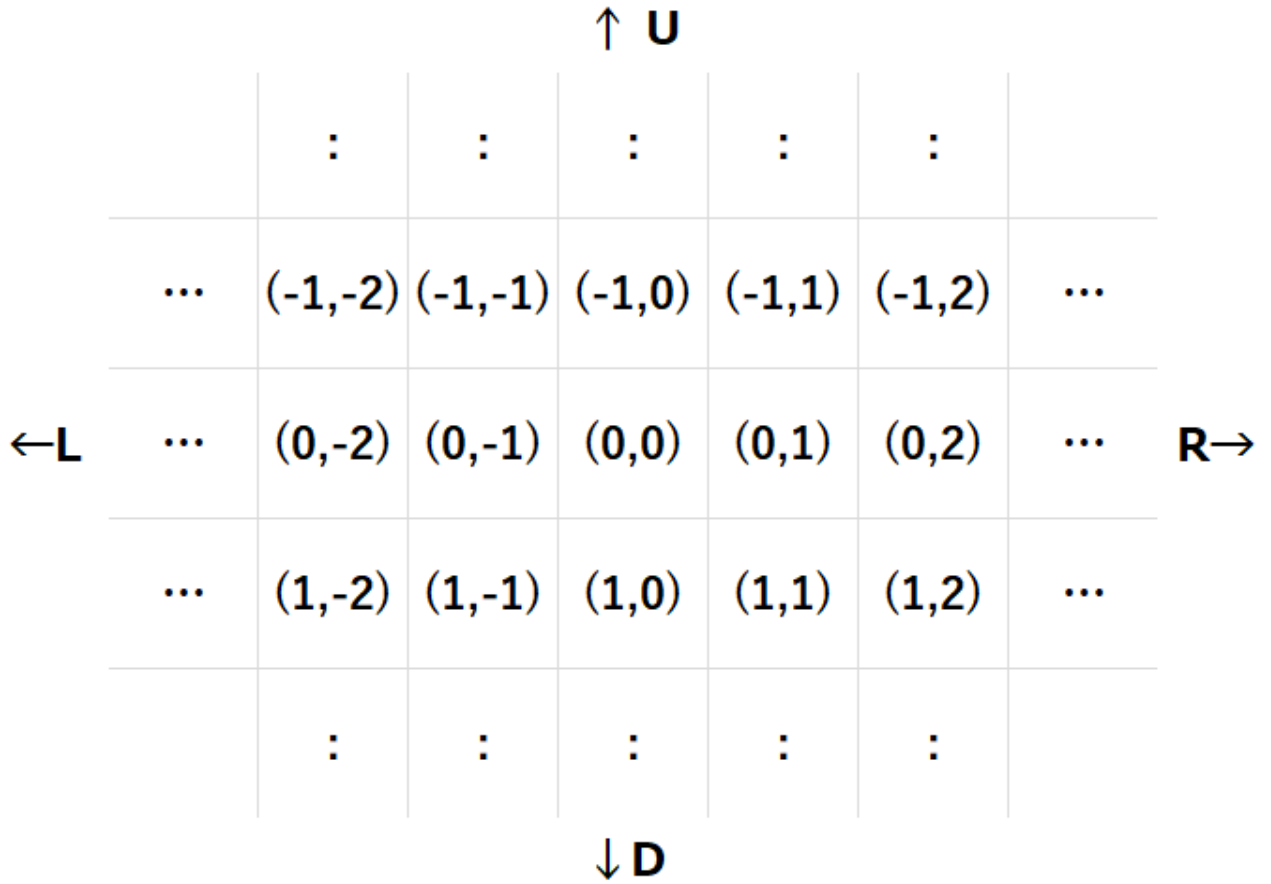
Problem Statement

There is an infinitely large grid. One cell of the grid is named cell $(0, 0)$.

The cell located r cells down and c cells right from cell $(0, 0)$ is called cell (r, c) .

Here, " r cells down" means " $|r|$ cells up" when r is negative, and " c cells right" means " $|c|$ cells left" when c is negative.

Specifically, the cells around cell $(0, 0)$ are as follows:



Initially, Takahashi is at cell (R_t, C_t) and Aoki is at cell (R_a, C_a) . They will each make N moves according to strings S and T of length N consisting of U, D, L, R.

For each i , Takahashi's and Aoki's i -th moves occur simultaneously: Takahashi moves one cell up if the i -th character of S is U, down if D, left if L, and right if R; Aoki moves similarly according to the i -th character of T .

Find the number of times Takahashi and Aoki are at the same cell immediately after a move during the N moves.

Since N is very large, S and T are given in the form $((S'_1, A_1), \dots, (S'_M, A_M))$ and $((T'_1, B_1), \dots, (T'_L, B_L))$, where S is the string obtained by concatenating " A_1 copies of character S'_1, \dots, A_M copies of character S'_M " in this order, and T is given similarly.

Constraints

- $-10^9 \leq R_t, C_t, R_a, C_a \leq 10^9$
- $1 \leq N \leq 10^{14}$
- $1 \leq M, L \leq 10^5$
- Each of S'_i and T'_i is one of U, D, L, R.
- $1 \leq A_i, B_i \leq 10^9$
- $A_1 + \dots + A_M = B_1 + \dots + B_L = N$
- All given values are integers.

Input

The input is given from Standard Input in the following format:

R_t C_t R_a C_a
 N M L
 S'_1 A_1
 \vdots
 S'_M A_M
 T'_1 B_1
 \vdots
 T'_L B_L

Output

Print the answer.

Sample Input 1

Copy

\emptyset \emptyset 4 2
3 2 1
R 2
D 1
U 3

Copy

Sample Output 1

Copy

1

Copy

In this case, $S = \text{RRD}$ and $T = \text{UUU}$, and the movements proceed as follows:

- Initially, Takahashi is at cell $(0, 0)$ and Aoki is at cell $(4, 2)$.
- After the 1st move, Takahashi is at cell $(0, 1)$ and Aoki is at cell $(3, 2)$.
- After the 2nd move, Takahashi is at cell $(0, 2)$ and Aoki is at cell $(2, 2)$.
- After the 3rd move, Takahashi is at cell $(1, 2)$ and Aoki is at cell $(1, 2)$.

Thus, the number of times Takahashi and Aoki are at the same cell immediately after a move is 1.

Sample Input 2

Copy

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05:29:22 +11:00

```
1000000000 1000000000 -1000000000 -1000000000
3000000000 3 3
L 1000000000
U 1000000000
U 1000000000
D 1000000000
R 1000000000
U 1000000000
```

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Sample Output 2

[Copy](#)

```
1000000001
```

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From the 2000000000-th move to the 3000000000-th move, Takahashi and Aoki are at the same cell immediately after a move for 1000000001 times.

Sample Input 3

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```
3 3 3 2
1 1 1
L 1
R 1
```

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Sample Output 3

[Copy](#)

```
0
```

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Sample Input 4

[Copy](#)

```
0 0 0 0
1 1 1
L 1
R 1
```

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Sample Output 4

[Copy](#)

```
0
```

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