## UESTC 2016 Summer Training #13 Div.2

2:00:44                                                                          5:00:00

Overview | Problem | Status | Rank (56) | Discuss

A | B | C | D | E | F | G | H | I

### H - H

**Time Limit:**1000MS    **Memory Limit:**262144KB    **64bit IO Format:**%I64d & %I64u

Submit | Status

## Description

standard input/output

Alpha is a modern and very well-planned city. The city is arranged in a grid shape with all the streets are one-way and parallel to the North-South axis or East-West axis. There are $V$ vertical streets (parallel to North-South axis) and $H$ horizontal streets (parallel to East-West axis). $V$ vertical streets are numbered $1$ to $V$ from West to East. $H$ horizontal streets are numbered $1$ to $H$ from South to North.

If we represent this city in a 2D plane, the first vertical street is on the line $x = 0$, the first horizontal street is on the line $y = 0$. The $ith$ vertical street is $VG_i$ meters from the $(i+1)th$ vertical street. The $jth$ horizontal street is $HG_j$ meters from the $(j+1)th$ horizontal street.

Vertical streets are either Northbound (go from South to North) or Southbound (go from North to South). The directions of these vertical streets are given in a string $VD$ where $VD_i$ is either 'N' or 'S'. Horizontal streets are either Westbound (go from East to West) or Eastbound (go from West to East). The directions of these horizontal streets are given in a string $HD$ where $HD_j$ is either 'W' or 'E'.

Given $K$ queries $x_1, y_1, x_2, y_2$, you are to calculate the shortest path from $(x_1, y_1)$ to $(x_2, y_2)$.

## Input

The first line is the number $T(T \leq 20)$ denotes the number of test cases. Then $T$ test cases follow:

- The first line of each test is integers $V, H, K.(1 \leq V, H \leq 5000, 1 \leq K \leq 1000)$
- The second line of each test is $VG$ - an array of length $V$ - $1(1 \leq VG_i \leq 1000)$
- The third line of each test is $HG$ - an array of length $H$ - $1(1 \leq HG_j \leq 1000)$
- The fourth line of each test is $VD$ - a string of length $V$
- The fifth line of each test is $HD$ - a string of length $H$
- Then $K$ queries follow. Each query consists of $4$ non-negative integers $x_1, y_1, x_2, y_2$. It is guarantee that each points lies on a street.

## Output

For each query, print the shortest distance. If it is not possible to go from $(x_1, y_1)$ to $(x_2, y_2)$, print -1 instead.
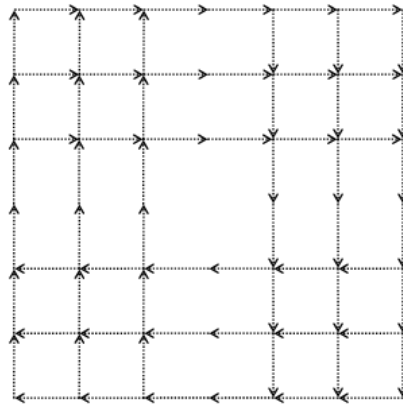
## Sample Input

| Input |
| --- |
| 1 |
| 6 6 4 |
| 1 1 2 1 1 |

```
1 1 2 1 1
NNNSSS
WWWEEE
5 4 5 4
2 2 4 4
3 2 3 0
6 6 5 5
```

**Output**

```
0
4
10
14
```

## Hint



The city map with directions: