

## B. Sail

time limit per test: 1 second  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

The polar bears are going fishing. They plan to sail from  $(s_x, s_y)$  to  $(e_x, e_y)$ . However, the boat can only sail by wind. At each second, the wind blows in one of these directions: east, south, west or north. Assume the boat is currently at  $(x, y)$ .

- If the wind blows to the east, the boat will move to  $(x + 1, y)$ .
- If the wind blows to the south, the boat will move to  $(x, y - 1)$ .
- If the wind blows to the west, the boat will move to  $(x - 1, y)$ .
- If the wind blows to the north, the boat will move to  $(x, y + 1)$ .

Alternatively, they can hold the boat by the anchor. In this case, the boat stays at  $(x, y)$ . Given the wind direction for  $t$  seconds, what is the earliest time they sail to  $(e_x, e_y)$ ?

### Input

The first line contains five integers  $t, s_x, s_y, e_x, e_y$  ( $1 \leq t \leq 10^5$ ,  $-10^9 \leq s_x, s_y, e_x, e_y \leq 10^9$ ). The starting location and the ending location will be different.

The second line contains  $t$  characters, the  $i$ -th character is the wind blowing direction at the  $i$ -th second. It will be one of the four possibilities: "E" (east), "S" (south), "W" (west) and "N" (north).

### Output

If they can reach  $(e_x, e_y)$  within  $t$  seconds, print the earliest time they can achieve it. Otherwise, print "-1" (without quotes).

### Examples

input
5 0 0 1 1 SESNW
output
4

input
10 5 3 3 6 NENSWESNEE
output
-1

### Note

In the first sample, they can stay at seconds 1, 3, and move at seconds 2, 4.

In the second sample, they cannot sail to the destination.