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Taxicab Conundrum (10pts)

Aman sir is teaching his students about taxicab geometry and he comes up with a problem that would keep his students engaged. You being a programmer, decide to solve the question by writing an algorithm. The problem has several single character lines, which can either be **N**, **S**, **E**, **W** and **R**. You are to start at coordinates **(0, 0)** and move based on the input. Your program must take this input and then output the final (integer) distance from the center.

Input Key -

N - Move one step north, Ex - **(0, 0) → (0, 1)**

S - Move one step south, Ex - **(0, 0) → (0, -1)**

E - Move one step east, Ex - **(0, 0) → (1, 0)**

W - Move one step west, Ex - **(0, 0) → (-1, 0)**

R - Reset position, Ex - **(4, -5) → (0, 0)**

Example

N

E

R

S

W

The character started at **(0, 0)**, moved N and E, then reset again to **(0, 0)**, moved S and E; and finally stopped at **(-1, 1)**, therefore the distance traveled is $\text{sqrt}((-1)^2 + 1^2) = 1.414...$, which is rounded towards zero to **1**.

Additional Info

1. The distance between two points refers to the euclidean distance between them
2. Each line only contains the direction and the newline character(s)
3. An integer casting function **must** be used to convert a floating point value to an integer. If your programming language does not have an integer casting function, use the **floor** function instead.

Resources

[Taxicab geometry - Mathigon](#)