DWITE '07 R5 #4 - Train ride

Time limit: 1.0s   **Memory limit:** 64M

DWITE Online Computer Programming Contest, February 2008, Problem 4

You are trying to navigate a complicated train system to arrive at your destination in the quickest time possible. Given a system's schematic with start and end points, calculate the shortest length possible.

The schematic will be made up of a number of characters:

- S - start point
- E - end point
- just about any other character - path connecting the stations

It doesn't really matter what character represents the path. Consider the schematic to be a 2D array where every character with the exception of space and x is a valid path point. **Diagonal moves are allowed.** So every point has 8 possible connection points, and that connection is made if both characters are valid.

The input will contain 5 sets of data – N lines per set, 10 characters in length, each set separated by a line of characters x. $1 \le N \le 5$. Each set represents a system schematic as described above.

The output will contain 5 lines – a minimum travel length between S and E points.

Note: the dataset will contain a lot of whitespace, instead of typical dots. Make sure you can handle this data properly.

Sample Input

```
 .-
S    .-E
  `-o
xxxxxxxxxx
    -S---
   `      `
   E      |
   |      |
   `-----`
xxxxxxxxxx
```

Sample Output

```
6
3
```