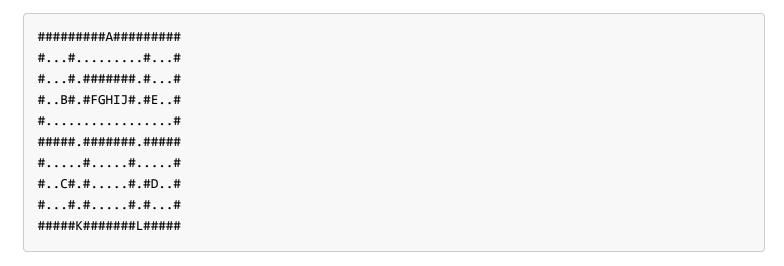
DWITE '08 R1 #3 - School's a maze

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

DWITE Online Computer Programming Contest, October 2008, Problem 3



Given this overly imaginative layout of a tiny 5 room (1 of which happens to be missing a door) floorplan; letters

ABCDEFGHIJKL mark the points of interest. Given a daily schedule, as a sequence of letters, how much would one have to walk, while taking the most optimal paths?

The input will contain 10 lines, a copy of the **same map** as presented above. It will be followed by 5 more lines, each a string made up of mentioned capital letters (ABCDEFGHIJKL), $1 \le N < 20$ in length, describing the schedule.

The output file will contain 5 lines – optimal distance travelled, for the plan specified.

Sample Input

Sample Output

0
11
25
4
38

Problem Resource: **DWITE**