

## IZBORNİK

Carry out the instructions in the problem statement.

For every command in the menu, first in one pass see if there is a starting letter for a word which is not already used as a shortcut for a previous command. A letter is a starting letter for a word if it is the first letter of the command or if it is preceded by a space.

If the starting letters of all words are used, then in another pass from left to right we look for the first unassigned letter.

## KUPUS

Because the area of the roof is small enough, we can divide it into squares of area 1. The area of the roof covered by sprinklers can be calculated one square at a time.

For a single square, the area covered by sprinklers is calculated by considering if there are sprinklers in the four vertices of the square. There are four cases:

- Two diagonally opposite vertices contain sprinklers – the entire square is covered.
- Two neighbouring vertices contain sprinklers – the area is  $\frac{\pi}{6} + \frac{\sqrt{3}}{4}$ .
- Only one vertex contains a sprinkler – the area is  $\frac{\pi}{4}$ .
- None of the vertices contain sprinklers – the area is 0.

## PARK

Call the paths connecting the outer fountains outer paths, and paths connecting the outer fountains with the central fountain inner paths. A sequence of usable outer paths, along with the fountains it connects, we will call a group.

For a group  $G$  we define its weight  $w(G)$  as the number of usable inner paths that connect the central fountain to fountains in group  $G$ .

Then the number of different walks which go through the central fountain and at least one path in group  $G$  is  $\frac{w(G) * (w(G) - 1)}{2}$ . The total number of walks is equal to the sum of numbers for all groups.

A special case is that of there being a single group  $G_0$  i.e. when all outer paths are usable. The total number of walks is then  $1 + w(G_0) * (w(G_0) - 1)$ .