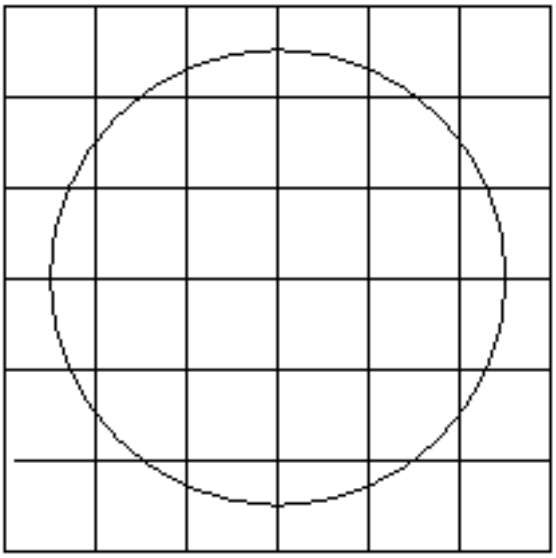
UVa Online Judge

356 Square Pegs And Round Holes

A circle $2n-1$ units in diameter has been drawn centered on a $2n$ by $2n$ chessboard. The construction for $n=3$ is illustrated below.



Write a program that will determine the number of cells of the board which contain a segment of the circle and the number of cells of the board which lie entirely inside the circle.

Input

Each line of the input file will contain a positive integer no greater than 150.

Output

For each input value n, write two statements on consecutive lines of the output file in the format indicated in the sample output. Follow this with a blank line to separate your output for successive inputs.

Sample input

```
3
4
```

Sample output

```
In the case n = 3, 20 cells contain segments of the circle.
There are 12 cells completely contained in the circle.

In the case n = 4, 28 cells contain segments of the circle.
There are 24 cells completely contained in the circle.
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