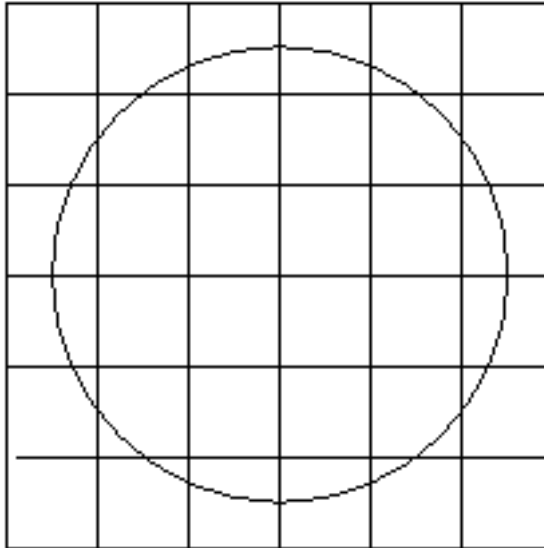


5250 Square Pegs And Round Holes

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.
```