Project Euler #58: Spiral primes

This problem is a programming version of Problem 58 from projecteuler.net

Starting with 1 and spiralling anticlockwise in the following way, a square spiral with side length 7 is formed.

$$\begin{array}{ccccc} \textbf{37} & 36 & 35 & 34 & 33 & 32 & \textbf{31} \\ 38 & \textbf{17} & 16 & 15 & 14 & \textbf{13} & 30 \\ 39 & 18 & \textbf{5} & 4 & \textbf{3} & 12 & 29 \\ 40 & 19 & 6 & 1 & 2 & 11 & 28 \\ 41 & 20 & \textbf{7} & 8 & 9 & 10 & 27 \\ 42 & 21 & 22 & 23 & 24 & 25 & 26 \\ \textbf{43} & 44 & 45 & 46 & 47 & 48 & 49 \end{array}$$

It is interesting to note that the odd squares lie along the bottom right diagonal, but what is more interesting is that 8 out of the 13 numbers lying along both diagonals are prime; that is, a ratio of $8/13 ≈ 62\%$.

If one complete new layer is wrapped around the spiral above, a square spiral with side length 9 will be formed. If this process is continued, what is the side length of the square spiral for which the ratio of primes along both diagonals first falls below $N\%$?

Input Format
Input contains an integer N

Output Format
Print the answer corresponding to the test case.

Constraints
$8 \le N \le 60$

Sample Input

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60
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Sample Output

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5
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