

B. Lazy Security Guard

time limit per test: 2 seconds
 memory limit per test: 256 megabytes
 input: standard input
 output: standard output

Your security guard friend recently got a new job at a new security company. The company requires him to patrol an area of the city encompassing exactly N city blocks, but they let him choose which blocks. That is, your friend must walk the perimeter of a region whose area is exactly N blocks. Your friend is quite lazy and would like your help to find the shortest possible route that meets the requirements. The city is laid out in a square grid pattern, and is large enough that for the sake of the problem it can be considered infinite.

Input

Input will consist of a single integer N ($1 \leq N \leq 10^6$), the number of city blocks that must be enclosed by the route.

Output

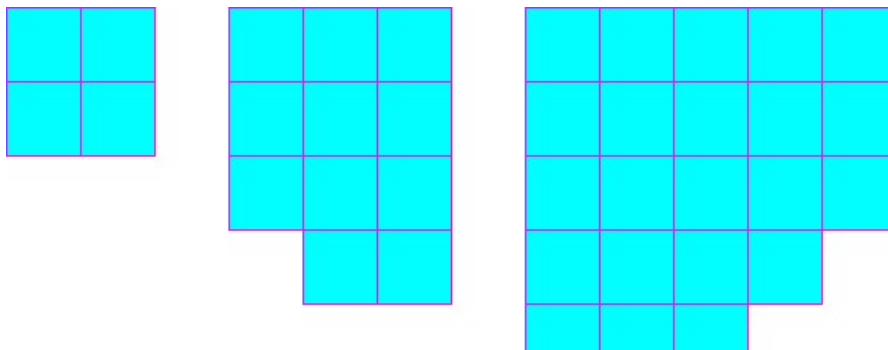
Print the minimum perimeter that can be achieved.

Examples

input
4
output
8
input
11
output
14
input
22
output
20

Note

Here are some possible shapes for the examples:



MemSQL Start[c]UP 3.0 - Round 1

Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Submit?

Language:

Choose file: No file selected.

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.



Submit

→ Problem tags

math

No tag edit access

→ Contest materials

- Announcement 
- Tutorial 



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