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 ($1 \le N \le 10^6$), 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: