



Brick Tower

Mouse Stofl has x identical bricks. With these he built a brick tower with height x . Unfortunately this tower was not very robust and after a gust of wind the bricks were scattered all over the ground.

Now he wants to build a new (hopefully more robust) tower which is more than one brick wide (but still one brick long). To make the tower visually appealing, the top of the tower should form a staircase. This means that if the tower is b bricks wide and k bricks tall on the left side, it should be $k + 1$ bricks tall one to the right and $k + b - 1$ bricks tall on the right side of the tower.

To make the tower as tall as possible (and look like a proper tower), Stofl wants to keep it as narrow as possible. In addition, he wants to use every one of his x bricks in the tower.

Help mouse Stofl by calculating the width of the new tower.

Input

A single number $x > 0$.

Output

A positive number, the width of the new tower; or "IMPOSSIBLE" if it is not possible to build a tower that satisfies all conditions.

Limits

There are 5 test groups, each is worth 20 points.

- Group 1 holds $x \leq 10^5$ applies, and it is guaranteed that it is possible.
- Group 2 holds $x \leq 10^7$.
- Group 3 holds $x \leq 10^{14}$ and x odd.
- Group 4 holds $x \leq 10^{14}$.
- Group 5 holds $x < 2^{63}$.

Examples

Input	Output
9	2

The tower has heights of 4 | 5. Note that you can also reach the staircase shape with 2 | 3 | 4, but the tower would not have the smallest possible width.

Input	Output
4	IMPOSSIBLE

Here it is not possible to build a tower that meets Stofl's expectations.