Problem D: Delicate Display

Sarah has a small factory for *Incredibly Crispy Praline Chocolate*. Every day she produces different kinds of chocolate. Her favourite are the hearts filled with salted caramel and her customers especially like the chocolate hazelnut balls. She also enjoys creating more exotic flavours such as honey-parsley or paprika-papaya.

While Sarah is busy producing the chocolate, it is your job as store clerk to present it in an attention grabbing manner. For the chocolate balls you are given a square plate on which you are requested to stack the balls into a pyramid at the start of each work day.
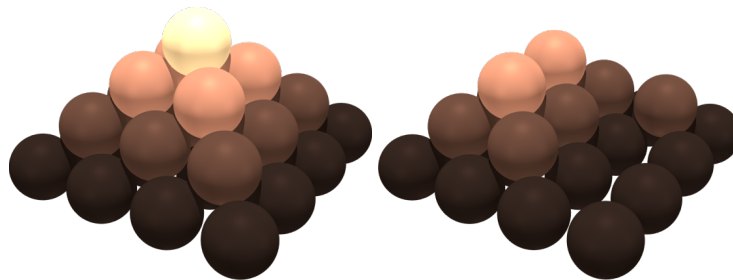

Figure D.1: Optimal solutions for sample 1 and 2. The layers of the pyramids are depicted in different colours to make them easier to distinguish.

The balls all have the same radius. A pyramid consists of several layers of balls arranged along a regular square grid parallel to the edges of the plate. In each layer, adjacent balls must have the same distance between them and it is allowed for balls within the same layer to touch. Each ball in the lowest layer must rest directly on the plate and, for safety reasons, may not extend past the edge of the plate. Each ball in one of the other layers must rest on exactly four balls from the previous layer. For the pyramid to look impressive, the number of layers must be at least 3, and there are always enough balls to make this possible. Note that it is not necessary for each layer to be a complete square (as depicted in sample 2) or for the pyramid to fill out the plate.

Whenever a customer requests some chocolate balls, you need to pick them up from the pyramid without it collapsing. As a result, you have to pick the balls up from the very top of the pyramid most of the time.

After an extraordinarily busy day of stretching to reach to the top of the chocolate ball pyramid you decide to be smarter the very next work day and stack the chocolate balls in such a way that the the height of the pyramid is as low as possible.

Input

The input consists of:

- One line with three integers n, w and r ($14 \leq n \leq 10^{18}, 1 \leq w, r \leq 10^{18}$), where n is the number of chocolate balls you need to stack, w is the side length of the plate, and r is the radius of the balls.

Output

If it is not possible to stack all the chocolates on the plate, output `impossible`. Otherwise, output the minimal possible height of a pyramid consisting of n balls and matching all the criteria above. Your answer will be accepted if the absolute or relative error does not exceed 10^{-6}.

Sample Input 1	Sample Output 1
30 9 1	5.391164991562633

Sample Input 2	Sample Output 2
25 9 1	4.260776661041755

Sample Input 3	Sample Output 3
15 6 1	impossible

Sample Input 4	Sample Output 4
15 1000000 3	12.0