# Problem C
## [kœri]wurstwerfen
### Time limit: 1 second



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Cafeteria food is often lacking in both quality and taste, but the [kœri]werk in Karlsruhe never lets anyone down. They offer vegan [kœri]wurst and fries, and one can choose between six spice mixes for the sauce.

For Conni and her friends, every day is [kœri]wurst day. Today, Conni has already got her food, while her friends are still queueing. Waiting for her friends, Conni is increasingly bored, and she starts throwing pieces of her [kœri]wurst into the air to catch with her mouth. Her throws are getting higher and higher until one piece hits the ceiling and gets stuck there. Oopsie.

Now, she wants to work out for how long the [kœri]wurst can be airborne without getting stuck to the ceiling. For simplicity, Conni assumes that she throws the [kœri]wurst upwards from a height of $1\,\mathrm{m}$ (the height of her hand) and that it is airborne until she catches it with her mouth, also at a height of $1\,\mathrm{m}$. If a [kœri]wurst takes $t$ seconds to reach the apex of its trajectory, then the height difference in metres between its release point and the apex is given by

$$s(t) = \frac{1}{2}gt^2.$$

Assume that the gravitational constant $g$ is $9.81\,\mathrm{m/s^2}$ and ignore atmospheric drag.

Also note that by symmetry the [kœri]wurst spends the same amount of time moving upwards as it does moving downwards. Given the height of the ceiling, how long can the [kœri]wurst stay in the air?

The [kœri]wurst will only get stuck to the ceiling if it still has positive vertical velocity when reaching the height of the ceiling. If the apex of the [kœri]wurst's trajectory is exactly at the height of the ceiling, then it will just graze the ceiling without getting stuck.

## Input

The input consists of:

- One line with an integer $h$ ($2 \leq h \leq 10^{15}$), the height of the ceiling in metres.

## Output

Output the maximum time in seconds that a [kœri]wurst can be airborne without getting stuck to the ceiling.

Your answer should have an absolute or relative error of at most $10^{-6}$.

| Sample Input 1 | Sample Output 1 |
|---|---|
| 6 | 2.0192751 |

| Sample Input 2 | Sample Output 2 |
| --- | --- |
| 5033921 | 2026.1129 |