DMOPC '14 Contest 7 P1 - Flare

Time limit: 2.0s   **Memory limit:** 64M

Stranded on an island, Tusk decides to launch a signalling flare, but forgets to angle it towards the water. As a result, it takes off perpendicular to the ground. Its height y in relation to its initial velocity v, Earth's gravitation $g = -9.8\frac{m}{s^2}$ and time t given as:

$$y = vt + \frac{1}{2}gt^2$$

If Ange launches the flare from the ground where $y = 0$ at time $t = 0$, how long does Ange have to get out of the way before the flare comes burning down?

Input Specification

A single integer, v $(1 \le v \le 10^9)$.

Output Specification

The time elapsed until the flare touches the ground, i.e. the value of $t > 0$ such that the expression evaluates to 0. Your answer will be considered correct if it is within an absolute or relative error of 10^{-6}.

Sample Input

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10
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Sample Output

```
2.040816
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Explanation of Output for Sample Input

Substituting in 2.040816 for t, we find that $10 \times 2.040816 + \frac{1}{2} \times (-9.8) \times (2.040816)^2 \approx 0$.

Here is a displacement-time graph of the flare: