

Hard Homework



Aaron is struggling with trigonometric functions, so his teacher gave him extra homework. Given an integer, n , he must answer the following question:

What is the maximum value of $\sin(x) + \sin(y) + \sin(z)$, where x , y , and z are positive integers and $x + y + z = n$?

Help Aaron by finding this maximal value and printing it to a scale of 9 decimal places.

Input Format

A single positive integer denoting n .

Constraints

- $3 \leq n \leq 3 \times 10^6$

Output Format

Print a single real number rounded to a scale of exactly 9 decimal places (e.g., **0.123456789**) denoting the maximum possible value.

Sample Input 0

3

Sample Output 0

2.524412954

Explanation 0

The only possible variant is $x = 1$, $y = 1$, and $z = 1$, which gives us $\sin(1) + \sin(1) + \sin(1) = 2.524412954$