

# 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  $\sin(1) + \sin(1) + \sin(1) = 2.524412954$