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Hard Homework

by [shef_2318](#)

Problem

Submissions

Leaderboard

Discussions

Your submission will run against only preliminary test cases. Full test cases will run at the end of the day.

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

[f](#) [t](#) [in](#)

Contest ends in a day

Submissions: [1217](#)

Max Score: 75

Difficulty: Expert

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Current Buffer (saved locally, editable)

C#



```
1 using System;
2 using System.Collections.Generic;
3 using System.IO;
4 class Solution {
5     static void Main(String[] args) {
6         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be
           named Solution */
7
8         double n = double.Parse(Console.ReadLine());
```

```
9      double max = 0;
10
11      for (double i = 1; i < n; i++)
12      {
13          for (double j = 1; j < n; j++)
14          {
15              double resto = n - i - j;
16
17              double suma = Math.Sin(i) + Math.Sin(j) + Math.Sin(resto);
18
19              max = Math.Max(max, suma);
20          }
21      }
22
23      Console.WriteLine(max.ToString("0.000000000"));
24
25
26  }
27 }
```

Line: 24 Col: 60

 [Upload Code as File](#)☐ Test against custom input[Run Code](#)[Submit Code](#)Testcase 0 **Congratulations, you passed the sample test case.**Click the **Submit Code** button to run you code against all the test cases.**Input (stdin)**

3

Your Output (stdout)

2.524412954

Expected Output

2.524412954

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