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TCS CodeVita™ Season 12

MockVita questions have been rolled over as
Practice questions.
Register now to participate.
Unite in the arena. Prepare for victory.

Register Now!

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6

Hours to prove your mettle

$ 20000

USD in prize money

1

Global Ranking List to top coders

ABOUT US

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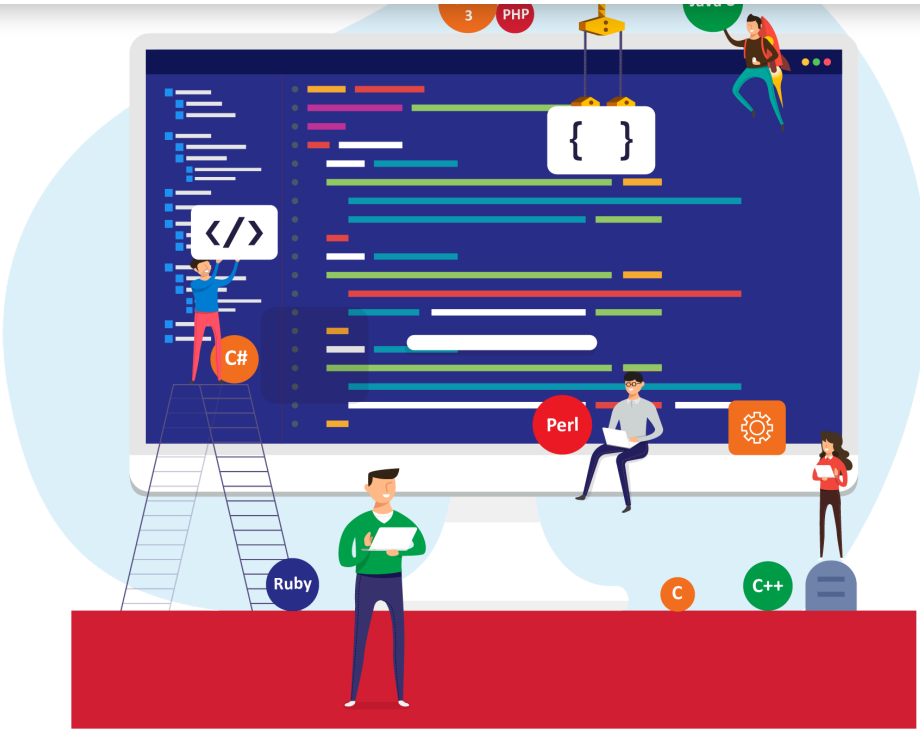


Get ready to unlock the world of programming excitement with CodeVita!

Launched in 2012, TCS CodeVita is a global programming competition designed to identify top coders around the world. It's a dynamic contest that unites people from diverse backgrounds and cultures, shattering boundaries. The "Guinness Book of World Records" listed TCS CodeVita as 'The world's largest programming contest' with registrations from 98 countries/regions, proving it as a true global phenomenon.

In Season 11, participation soared to 444k+ contestants, representing 3,500+ institutes. Imagine participants from 10 regions engaging in an electrifying battle during the grand finale!

This year, we are "United by Code", celebrating a global community bound by the shared passion for programming. This season 12 promises more thrilling challenges and unforgettable experiences, highlighting the unity and diversity of coders worldwide.

Are you intrigued? Brace yourself for another extraordinary journey with TCS CodeVita, where coding transcends boundaries.

What's in it for students?

- Top 3 coders to win total prize money of USD 20,000
- Chance to explore exciting careers* with one of the world's most powerful brands
- Chance to compete with some of the best coders in the world
- Platform to showcase your programming skills
- Finalists stand a chance to travel to India for the season 12 live grand finale experience

*as applicable in the respective geographies

Eligibility

Current graduation or post-graduation students who are

- Studying in any stream of science or engineering
- Expecting to complete their course in the year of 2025, 2026, 2027 or 2028
- From any recognized institute across the globe

THE JOURNEY

Journey of a thousand miles begins with one step.

— *Lao Tzu*

Registration

To get started, click on the register button.

MockVitas

MockVitas are just like actual rounds to give demo of the actual contest.

Rounds

Clear the actual rounds to move further in your CodeVita journey.

SAMPLE QUESTIONS

A solid cube of 10 cm x 10cm x 10 cm rests on the ground. It has a beetle on it, and some sweet honey spots at various locations on the surface of the cube. The beetle starts at a point on the surface of the cube, and goes to the honey spots in order along the surface of the cube.

Problem Description

cube, and goes to the honey spots in order along the surface of the cube.

1. If it goes from a point to another point on the same face (say X to Y), it goes in an arc of a circle that subtends an angle of 60 degrees at the centre of the circle

2. If it goes from one point to another on a different face, it goes by the shortest path on the surface of the cube, except that it never travels along the bottom of the cube

The beetle is a student of Cartesian geometry, and knows the coordinates (x, y, z) of all the points it needs to go to. The origin of coordinates it uses is one corner of the cube on the ground, and the z axis points up. Hence, the bottom surface (on which it does not crawl) is z=0, and the top surface is z=10. The beetle keeps track of all the distances travelled, and rounds the distance travelled to two decimal places once it reaches the next spot, so that the final distance is a sum of the rounded distances from spot to spot.

Input

The first line gives an integer N, the total number of points (including the starting point) the beetle visits

The second line is a set of 3N comma separated non-negative numbers, with up to two decimal places each. These are to be interpreted in groups of three as the x, y, z coordinates of the points the beetle needs to visit in the given order.

Output

One line with a number giving the total distance travelled by the beetle accurate to two decimal places. Even if the distance travelled is an integer, the output should have two decimal places.

Constraints

None of the points the beetle visits is on the bottom face (z=0) or on any of the edges of the cube (the lines where two faces meet)

Complex

Time Limit (secs)

1

Examples

Example 1

Input

3

1,1,10,2,1,10,0,1,9

Output

4.05

Explanation

There are three points visited by the beetle (N=3). The beetle starts on the top face of the cube (z=10) at point (1,1,10) and goes to another point on the same face (2,1,10). Though the straight line distance is 1, it travels on the arc of a circle subtending an angle of 60 degrees at the centre of the circle, and hence travels (2*pi)/6 or 1.05 (note that it rounds the distance at each leg of the journey). It then travels from (2,1,10) on the face z=10 to (0,1,9) on the face x=0 along the surface of the cube. This is a distance of 3. The total distance travelled is 1.05+3=4.05. The output is 4.05

Example 2

Input

3

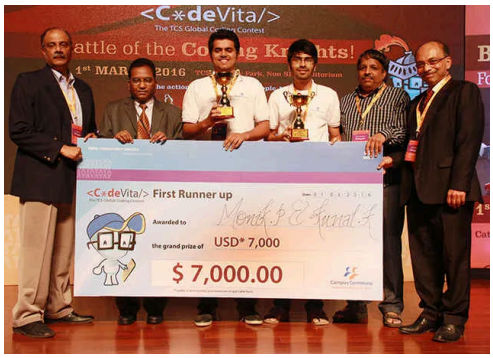
1,1,10,2,1,10,0,5,9

Output

6.05

on the top face of the cube (z=10) at point (1,1,10) and goes to another point on the same face (2,1,10). As before. This distance is 1.05. It then travels from (2,1,10) on the face z=10 to (0,5,9) on the face x=0 along the surface of the cube. The shortest distance on the surface of the cube between these points is 5. The total distance travelled is 1.05+5=6.05. The output is 6.05.

GALLERY



FREQUENTLY ASKED QUESTIONS

In doubt? Don't worry! Check out our Frequently Asked Questions enclosed below.

How do I register and login for the contest?

Can I go back to the welcome page after starting to answer the coding problems?

Do I have to attempt the questions in serial order?

Where can I see the list of languages and compilers with their version?

If I move to question no. 2 without submitting question 1, does the timer continue for Question 1?

If I have referred/used a code from the internet, do I have to declare the same?

Where can I check the status of questions submitted by me?

If I close my browser will the codes written be saved on the system?

How long before a session will expire?

I closed my browser without logging out. I am unable to login.

What is the purpose of Code Attribution?

What do different answer statuses mean?

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