



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!](#)



6

Hours to prove your mettle



20000

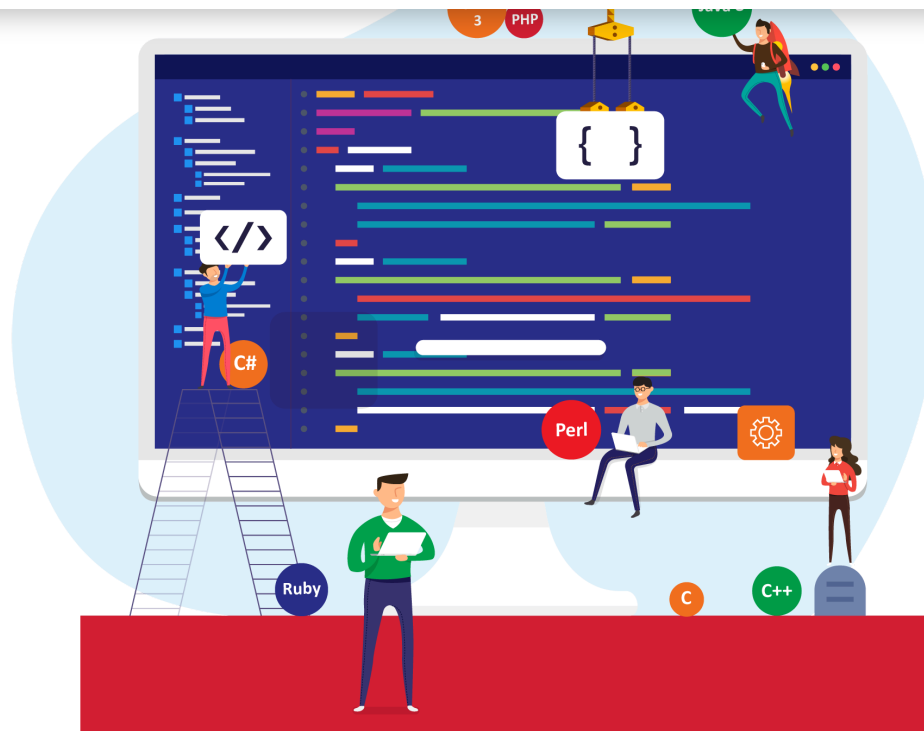
USD in prize money



1

Global Ranking List to top coders

ABOUT US



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

On A Cube

Sorting Boxes

Sport Stadium

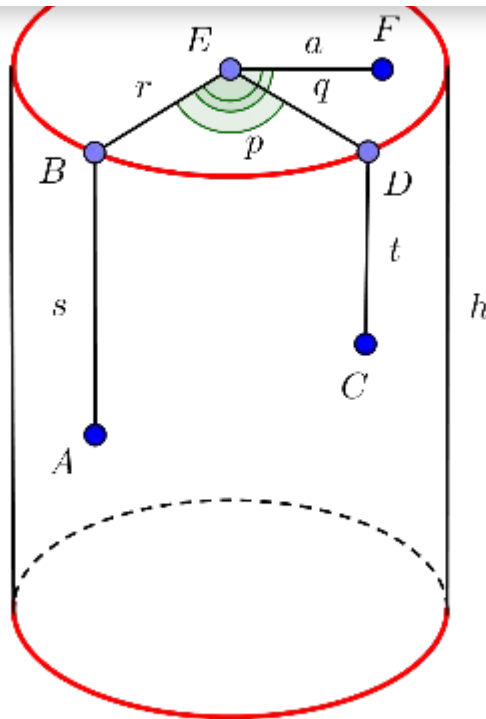
Water Cistern

Square Free Numbers

Codu and Sum Love

Obstacle Game

A cylindrical water cistern was built in an apartment complex in Aquatown. The bottom rests on concrete and is not accessible. It has a height h and a radius r .



Problem Description

A cylindrical water cistern was built in an apartment complex in Aquatown.

The bottom rests on concrete and is not accessible. It has a height h and a radius r ,

A mathematical bug is sitting on the cistern at point A, and has established a coordinate system to cover the entire accessible area. The bug is sitting a distance s from the top of the cistern, and the nearest point at the top is B.

For a point C on the curved surface, the nearest point D on the top is determined, and the distance CD is taken as t . The angle p (in degrees) subtended at the centre of the circle E by the arc BD is measured (in a counterclockwise manner). The coordinates of C are taken as the pair (t, p) , with t being greater than 0 and less than h , and with p being between 0 and 359 (inclusive).

For a point on the top surface, F, the distance to the centre E is taken as a , and the counterclockwise angle (in degrees) between EF and EB is taken. The coordinates of the point F are then taken as $(-a, q)$. The value of a is between 0 and r , and the value of q is between 0 and 359.



surface of the cylinder, the first coordinate is positive.

From its starting point A, the bug needs to go to its destination, which is a point (like C or F) either on the curved surface or the top surface. The coordinates of the destination are given. The bug would like to go by the shortest path to its destination.

The goal is to determine the length of the shortest path the bug can take.

Input

The first line has three comma separated positive integers giving r (the radius), h (the height of the cylinder) and s (the distance from the top of the starting point of the bug)

The next line has two comma separated integers (d and g) giving the coordinates of the destination. If the first integer (d) is negative, it is on top surface of the cylinder, and else it is on the curved surface of the cylinder

Output

The output is a single integer giving the shortest distance that the bug can travel. The computed distance must be rounded to the nearest integer

Constraints

$$40 < s \leq h < 10000$$

$$r < 100$$

$$0 \leq g \leq 359$$

If d is negative, $d > -r$

If d is positive, $d < h$

Difficulty Level

Complex

Time Limit (secs)



Example 1

Input

100,500,200

200,180

Output

314

Explanation

The value of r is 100, and h is 500. The distance of the bug from the top surface is 200.

The coordinates of the destination are (200,180). As the first coordinate is 200, the destination is on the curved surface (like point C), and at the same distance from the top surface as the bug. As the second coordinate is 180, the destination is exactly on the other side of the cylinder at the same height as the bug, The distance is half the circumference of the cylinder, or 314. This is the output.

Example 2

Input

100,500,200

-50,180

Output

350

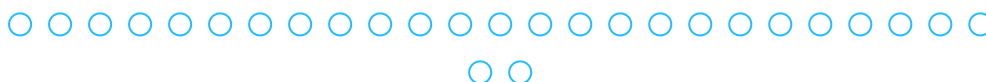
Explanation

The value of r is 100, and h is 500. The distance of the bug from the top surface is 200.

The coordinates of the destination are (-50,180). As the first coordinate is negative (-50), the point is on the top surface of the cylinder (like point F), and EF is 50. As the second coordinate is 180,



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?

What if I accidentally delete my Microsoft Authenticator account?

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



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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