RAM Maths Circle
February 8, 2026
Nagpur

Introduction

The session was conducted to enhance analytical and logical reasoning skills through the discussion of the Cyclist and Fly problem and the Pizza problem. These problems were used to demonstrate systematic problem-solving approaches, covering concepts such as relative motion, optimization, and decision-making under constraints. The session emphasized clarity of assumptions, step-wise analysis, and critical thinking to solve analytical problems.

Cyclists and fly

Two bicyclists are moving towards each other along a straight road, each with a constant speed of 10 km h^{-1}. Initially, the bicyclists are 20 km apart.

A fly starts to fly from one bicyclist towards the other at a constant speed of 15 km h^{-1}. The fly continuously flies back and forth between the two bicyclists until the bicyclists meet, at which moment the fly gets squashed.

Calculate the total distance travelled by the fly before it gets squashed.

Pizzeria Problem

You walk into a pizzeria that offers a *too* good-to-be-true offer. Two choices are available at the same price:

- **Deal A:** One large pizza
- **Deal B:** One medium pizza and one small pizza

There is a catch. You are given **no ruler, no measuring tape, and no weighing scale**. The **only tool** at your disposal is a **protractor**.

Assume that all pizzas are **perfect circles** and have **uniform thickness**.

Challenge: Using only the protractor and your knowledge of geometry, determine which deal provides a greater quantity of pizza. Clearly explain your method and justify your conclusion.