Math Quest: From Core Concepts to Advanced Adventures
Level IV
Oct 31, 2023 Version

PacFordia Education

Note: the syllabus may be subject to change depending on the background and the needs of the students.

1 Weekly Schedules

Week 0 - Week 3

Week 0: Pre-Class Survey + Exploring the Beauty of Mathematics: A Level IV Overview

Week 1: How to Solve Problems I: How to Generate Ideas

Week 2: How to Solve Problems II: Strategies When You Get Stuck

Week 3: Homework Solutions (for Week 1, Week 2) + Enumeration Method

Week 4 - Week 7

Week 4: Quiz 1 + Enumeration Method

Week 5: Proof by Contradiction

Week 6: Using Structured Approach

Week 7: Homework Solutions (for Week 4, Week 5, Week 6)

Week 8 - Week 11

Week 8: Quiz 2 + Simplification Method

Week 9: Simplification Method

Week 10: Induction Method

Week 11: Homework Solutions (for Week 9, Week 10, Week 11) + Integer and Its Properties

Week 12 - Week 16

Week 12: Quiz 3 + Integer and Its Properties

Week 13: Floor and Ceiling Functions

Week 14: Modulus Equations

Week 15: Several Theorems in Number Theory

Week 16: Homework Solutions (for Week 12, Week 13, Week 14, Week 15)

Week 17 - Week 21

Week 17: Quiz 4 + Binary System

Week 18: Binary Systems and More

Week 19: Diophantine Equations

Week 20: Polynomials

Week 21: Homework Solutions (for Week 18, Week 19, Week 20)

Week 22 - Week 25

Week 22: Quiz 5 + Inequality: Fomulas

Week 23: Inequality: Strategies

Week 24: Inequality: Advanced Methods

Week 25: Homework Solutions (for Week 22, Week 23, Week 24)

Week 26 - Week 30

Week 26: Quiz 6 + Complex Number

Week 27: Complex Number and Geometry

Week 28: Combinatorics Counting Strategies

Week 29: Homework Solutions (for Week 27, Week 28)

Week 30: Quiz 7 + Introduction to Level V