

Math Quest: From Core Concepts to Advanced Adventures

Level II

Oct 28, 2023 Version

PacFordia Education

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

1 Weekly Schedules

Week 0 - Week 4

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

Week 1: Number Systems

Week 2: Introduction to Proofs: Proof by Contradictions

Week 3: Introduction to Proofs: Inductions

Week 4: Homework Solutions (for Week 1, Week 2, Week 3)

Week 5 - Week 8

Week 5: Quiz 1 + Probabilities and Statistics Fundamentals

Week 6: Probabilities and Statistics Fundamentals

Week 7: Probabilities Using Permutations and Combinations

Week 8: Homework Solutions (for Week 5, Week 6, Week 7)

Week 9 - Week ?

Week 9: Quiz 2 + Number Theory Fundamentals: Integers

Week 10: Number Theory: Integers

Week 11: Number Theory: Division

Week 12: Homework Solutions (for Week 9, Week 10, Week 11)

Week 13 - Week 17

Week 13: Quiz 3 + Absolute Value Inequalities

Week 14: Absolute Value Inequalities

Week 15: Extreme Values

Week 16: (System of) Linear Equations with Absolute Values and (or) Multiple Variables

Week 17: Homework Solutions (for Week 13, Week 14, Week 15, Week 16)

Week 18 - Week 21

Week 18: Quiz 4

Week 19: Extreme Values with Inequalities

Week 20: Setup Inequalities to Solve Application Problems

Week 21: Homework Solutions (for Week 19, Week 20) + Set Theory Fundamentals

Week 22 - Week 24

Week 22: Quiz 5 + Set Theory Fundamentals

Week 23: Inclusion and Exclusion Principle and Applications of Sets

Week 24: Homework Solutions (for Week 22, Week 23, Week 24) + Fundamentals of Polynomials

Week 25 - Week 30

Week 25: Polynomial Identities and Quadratic Equations

Week 26: Factorization and Other Algebraic Manipulations of Polynomials

Week 27: Congruent Triangles

Week 28: Similar Triangles

Week 29: Homework Solutions (for Week 25, week 26, week 27, week 28)

Week 30: Quiz 6 + Introduction to Level III