MC15F-1
Introduction to Elementary School Math Competitions Part 1

Session 1 : Integers & Arithmetic

- Order of Operations with Integers and four basic operations
- Word problems only using arithmetic with integers without the need of unknowns

Session 2: Rate and Proportion

- Definition of ratio, rate and proportion
- Given the ratio of two numbers and one of the numbers, finding the other one
- Given the ratio of two numbers and their sum (or difference), finding the numbers

Session 3: Fractions

- Different types of fractions (proper, improper, mixed, common)
- Basic arithmetic with fractions and related word problems

Session 4: Decimals

- Arithmetic and applications of decimals and related word problems
- Conversions between fractions and decimals

Session 5: Exam1 & Moems Review

- Exam1 Chapters 1-4
- Mock exam for The Moems

Session 6: Percents

- Conversions between percent and fractions/decimals
- Word problems involving percent (tax, tip, interest, etc.)

Session 7: Exponents

- Basic properties of exponents (multiplying, dividing, raising an exponent to another
- exponent)
- Perfect powers (squares and cubes) and square roots (of perfect squares)

Session 8: Working Backward & Using a bar chart

- Solving word problems using the backward problem-solving technique
- Solving word problems using the bar model (or bar diagram) technique

Session 9: Addition and Multiplication Principles

- Using addition to count the number of ways to accomplish a task
- Using multiplication to count the number of ways to accomplish a task

Session 10 : Exam2 & Noetic Review

- Exam2 Chapters 5-8
- Mock exam for Noetic Learning Mathematics Contest

Session 11 : Permutations

- Definition of the factorial (n!)
- Permutations - Finding the number of ways to choose k items from a set of n items where the ordering of items is important

Session 12 : Combinations

- How to compute n choose k
- Difference between combinations and permutations taken k at a time
- Number of ways to form a committee using combinations

Session 13 : Counting Sets

- Simple definition of a set in mathematics (finite sets, including the empty set)
- Solving word problems using Venn diagrams, and Principle of Inclusion-Exclusion

Session 14 : Counting Shapes & Paths

- Counting the number of shapes or paths systematically (e.g. using combinations)

Session 15 : Exam3 & Moems Review 2

- Exam3 Chapters 9-12
- Mock exam for The Moems

Session 16 : Moems Review 3

- Mock exam for Moems
- Solving Practice Moems Problems