2022 年「學而思盃」P6 比賽大綱

本次比賽分為甲、乙、丙三部分。
甲部有 15 題，每題 2 分
乙部有 15 題，每題 4 分
丙部有 10 題，每題 6 分
比賽時間 60mins，共 40 題，滿分 150 分。

板塊	知識點
計算板塊	1. 平方差公式 2. 錯位思想求和 3. 次方數列求和 4. 分數方程 5. 換元法與繁分數 6. 湊整巧算 7. 乘法分配律巧算 8. 分數裂項
計數板塊	1. 容斥原理 2. 加乘原理 3. 排列組合
應用題板塊	1. 盈虧問題 2. 雞兔同籠 3. 平均數問題 4. 經濟問題 5. 分數應用題 6. 分數方程應用題
圖形板塊	1. 圓與扇形的面積 2. 等積變形 3. 等高模型 4. 蝴蝶模型 5. 長方體與正方體 6. 立體染色
數論板塊	1. 分解質因數 2. 同餘問題 3. 剩餘問題 4. 不定方程
組合板塊	1. 邏輯推理
行程板塊	1. 火車過橋 2. 流水行船 3. 比例法解行程

*英文版僅作參考，以中文版爲準。

2022「*Think Mathematics Competition*」P6's Outline

The competition is divided into three parts: *A*, *B* and *C*.

Section *A*: 1st to 15th Question (Each carries 2 marks)

Section *B*: 16th to 30th Question (Each carries 4 marks)

Section *C*: 31th to 40th Question (Each carries 6 marks)

The time is 60mins, with a total of 40 questions and a full score of 150 marks.

Modules	**Knowledge**
Calculation Modules	1. Difference of Squares 2. Sum of Fibonacci Sequence 3. $1^2+2^2+3^2+\ldots\ldots+n^2=1/6n(n+1)(n+2)$； $1^3+2^3+3^3+\ldots\ldots+n^3=(1+2+3+\ldots\ldots+n)^2$ 4. Equations with Fractions 5. Substitution of Complex Fractions 6. Creating Integers 7. Distributive Property of Fractions 8. Splitting Terms of Fractions
Counting Modules	1. Inclusion-Exclusion Principle 2. Law of Addition and Multiplication 3. Permutations and Combinations
Word Problem Modules	1. Distribution Problems 2. Chicken-Rabbit Problems 3. Questions Involving Average 4. Word Problems in Economics 5. Application of Fractions 6. Application of Equations with Fractions
Geometry Modules	1. Circles and Sectors 2. Different Shapes with the Same Base and Height 3. Models of Different Shapes with Equal Height 4. Butterfly Model 5. Cuboids and Cubes 6. Coloring Problems of Cubes
Number Theory Modules	1. Prime Factorization 2. Congruence Problem 3. Remainder Problem 4. Indefinite Equations
Combinatorics	1. Logical Reasoning
Distance Word Problems	1. Train Passing the Bridge 2. Travel Word Problems of Boats 3. Solving Travel Word Problems with Proportions

**English version is for reference only, the Chinese version shall prevail.*