

International Math Olympiad Handbook

– Grade 5

This handbook covers topics for Grade 5 students (Age 10–11).

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Introduction

Grade 5 students explore decimals, fractions, introduction to percentages, volume, advanced geometry, data interpretation, and reasoning for Olympiad-level thinking.

Curriculum Topics

- Numbers up to 1,000,000
- Advanced Addition, Subtraction, Multiplication, Division
- Fractions, Decimals, Percentages
- Geometry: angles, triangles, quadrilaterals, perimeter, area
- Volume: cubes, cuboids
- Measurement: length, mass, capacity, time
- Data Handling: bar charts, line graphs
- Word Problems
- Patterns, Logical Reasoning, Puzzles

Examples & Explanations

- **Numbers:** Read/write numbers up to 1,000,000

Example: $345,678 = 300,000 + 40,000 + 5,000 + 600 + 70 + 8$

- **Fractions/Decimals:** Add, subtract, multiply, divide

Example: $0.25 \times 8 = 2$

- **Percentages:** Simple calculations

Example: $25\% \text{ of } 80 = 20$

- **Geometry:** Triangles, quadrilaterals, angles

Example: Triangle with sides 3, 4, 5 \rightarrow perimeter = 12

- **Volume:** Cubes and cuboids

Example: Cube 3 cm \rightarrow volume = 27 cm^3

- **Data Handling:** Read graphs

Example: Line graph shows sales 50, 60, 70 \rightarrow total = 180

- **Word Problems:** Solve multi-step problems

Example: 50 candies, eat 12, give 8 \rightarrow how many left?

- **Patterns/Logic:** Find missing number/sequence

Example: 2, 6, 12, 20, ? \rightarrow 30

Practice Problems

1. $345,678 + 123,456 = ?$
2. $800,000 - 245,678 = ?$
3. $0.4 \times 25 = ?$
4. $25\% \text{ of } 200 = ?$

5. Volume of cuboid $4 \times 3 \times 2 = ?$
6. Find area of square side 5 cm
7. Word problem: $60 - 15 + 12 = ?$
8. Pattern: 1, 4, 9, 16, ?