FOREWORD

I first met Terry when he approached SAP to explore the possibility of publishing Mathematical Olympiad type questions that he had researched, wrote and compiled. What struck me at our first meeting was not the elaborate work that he had consolidated over the years while teaching and training students, but his desire to make the materials accessible to *all* students, including those who deem themselves "not so good" in mathematics. Hence the title of the original series was most appropriate: *Maths Olympiad – Unleash the Maths Olympian in You!*

My understanding of his objective led us to endless discussions on how to make the book easy to understand and useful to students of various levels. It was in these discussions that Terry demonstrated his passion and creativity in solving non-routine questions. He was eager to share these techniques with his students and most importantly, he had also learned alternative methods of solving the same problems from his group of bright students.

This follow-up series is a result of his great enthusiasm to constantly sharpen his students' mathematical problem-solving skills. I am sure those who have worked through the first series, *Maths Olympiad – Unleash the Maths Olympian in You!*, have experienced significant improvement in their problem-solving skills. Terry himself is encouraged by the positive feedback and delighted that more and more children are now able to work through non-routine questions.

And we have something new to add to the growing interest in Mathematical Olympiad type questions — *Olympiad Maths Trainer* is now on *Facebook*! You can connect with Terry via this platform and share interesting problem-solving techniques with other students, parents and teachers.

I am sure the second series will benefit not only those who are preparing for mathematical competitions, but also all who are constantly looking for additional resources to hone their problem-solving skills.

Michelle Yoo
Chief Publisher
SAP

A word from the author ...

Dear students, teachers and parents,

Welcome once more to the paradise of Mathematical Olympiad where the enthusiastic young minds are challenged by the non-routine and exciting mathematical problems!

My purpose of writing this sequel is twofold.

The old adage that "to do is to understand" is very true of mathematical learning. This series adopts a systematic approach to provide practice for the various types of mathematical problems introduced in my first series of books.

In the first two books of this new series, students are introduced to 5 different types of mathematical problems every 12 weeks. They can then apply different thinking skills to each problem type and gradually break certain mindsets in problem-solving. The remaining four books comprise 6 different types of mathematical problems in the same manner. In essence, students are exposed to stimulating and interesting mathematical problems where they can work on creatively.

Secondly, the depth of problems in the Mathematical Olympiad cannot be underestimated. The series contains additional topics such as the Konigsberg Bridge Problem, Maximum and Minimum Problem, and some others which are not covered in the first series, *Maths Olympiad – Unleash the Maths Olympian in You!*

Every student is unique, and so is his or her learning style. Teachers and parents should wholly embrace the strengths and weaknesses of each student in their learning of mathematics and constantly seek improvements.

I hope you will enjoy working on the mathematical problems in this series just as much as I enjoyed writing them.

Terry Chew

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Worked Solutions (Week 1 to Week 50)

WEEK 1

Name: _____ Date: _____

Class: _____ Marks: _____/20

Solve these questions. Show your working clearly. Each question carries 4 marks.

1. Complete each number pattern by filling in the blanks with correct answers.

(a) 1, 2, 4, 5, 7, 8, ( ), ( ), ...

(b) 3, 4, 7, 12, 19, ( ), ( ), ...

(c) 2, 3, 5, 8, 12, ( ), ( ), ...

(d) 2, 3, 5, 8, 13, ( ), ( ), ...

2. A lesson starts at 8.10 am. It lasts for 1 hour 10 minutes. At what time does the lesson end?

3. Given that A and B are two different single digit numbers, find the values of A and B in each of the following.

(a)

$$\begin{array}{r} A \\ \times\ A \\ \hline 4\ B \\ \hline \end{array}$$

A = ( )

B = ( )

(b)

$$\begin{array}{r} A \\ \times\ B \\ \hline 3\ A \\ \hline \end{array}$$

A = ( )

B = ( )

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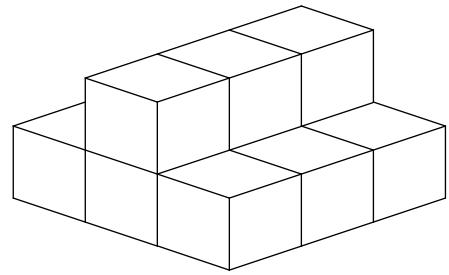
4. Find the number of cubes in the figure below.



5. The sum of two numbers is 16. The difference between the two numbers is 2. Find the two numbers.

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