



discovering
MATHEMATICS
(2nd Edition)



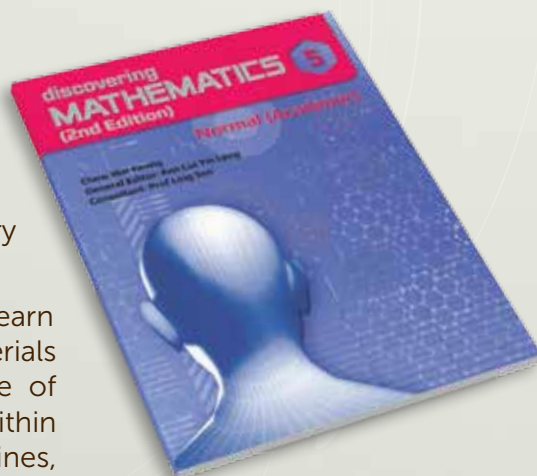
STAR PUBLISHING PTE LTD

INTRODUCTION

Discovering Mathematics 2nd Edition is a series of textbooks designed for students in secondary schools. It is based on the latest syllabus implemented by the Ministry of Education (MOE) from 2013.

The emphasis of this series is on empowering students to learn mathematics independently and effectively. New materials have been added to enhance the learning experience of students, and enable them to make connections within mathematics, between mathematics and other disciplines, and between mathematics and the real world.

The comprehensive and level-specific textbooks, workbooks and support resources aim to the mathematics teaching and learning experience engaging and meaningful. **Discovering Mathematics 2nd Edition** is also the best-selling mathematics textbook series in Singapore.



Concept Development

Chapter Opener

Each chapter begins with an opener, illustrating the concept by establishing a connection between the topic and real-life scenarios. Learning objectives for each chapter are also provided.

Class Activities

Learning through exploration and discovery is emphasized as students are prompted with questions in order to explore the formulation of a concept through class activities. It also fosters group discussions and enriches the overall learning experience for students.

Examples and Try It!

Worked examples demonstrate problem-solving methods and provides sequential guides towards the application of learnt concepts to show how ideas and reasoning can be expressed clearly in mathematical language. A Try It! feature, similarly fashioned after each worked example, is provided to allow students to assess their understanding of the concept(s).

Exercises

Exercises are provided after each section of every chapter within the book. They are sequenced into three levels of difficulty in order to encourage students to think analytically, reason and communicate effectively in mathematical language. A revision exercise is also included at the end of every chapter for students to revise the concepts taught, and to consolidate their learning.

THE TEAM

The Authors

Chow Wai Keung, BSc (Hons), Cert.Ed., M.Soc.Sc. (Applied Statistics)

Chow Wai Keung is an established author and an experienced teacher. He has devoted much of his time to writing a wide variety of mathematics textbooks for use in the region. His expertise in mathematics and his enthusiasm in teaching the subject are reflected in his works. His books seek not only to explain complex mathematical concepts but also to provide practical examples, relevant activities and questions to help maximize students' potential

Chin Yeow Chong, BSc (Computer Science), MA (Instructional Design and Technology), PGDE

Chin Yeow Chong has more than 10 years of teaching experience in secondary schools. He is currently teaching Mathematics and Computer Studies at a local international school. His aim for the book is to make the learning of mathematics relevant and practical through the applications of mathematical concepts in solving problems in real-world contexts.

Yong Fook Meng, B.Soc. Sci. (Hons), PGDE

Yong Fook Meng graduated from the National University of Singapore (NUS) as the top student in the Statistics Honours class. He worked as a statistician in the Department of Statistics (DOS), in the Ministry of Trade and Industry (MTI) for three years and taught mathematics in various secondary schools for eight years. An experienced teacher and statistician, as well as a dedicated mathematics educator, Yong Fook Meng introduces a new perspective to the workbooks.

The Consultant

Professor Ling San, BA, MA, PhD (Mathematics)

Professor Ling San is a Professor of Mathematical Sciences at Nanyang Technological University (NTU). Previously the Founding Head of the Division of Mathematical Sciences at NTU, he is currently Dean of its College of Science. He was one of only nine distinguished scientists to be conferred the prestigious Singapore National Academy of Science (SNAS) Fellowships. His key areas of research include applications of number theory to coding and cryptography. Professor Ling San is also currently President of the Singapore Mathematical Society.

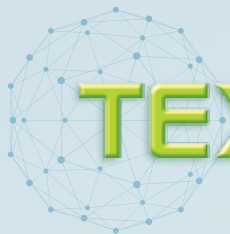
The General Editor

Ann Lui Yin Leng, BSc, FPDE, Dip. Ed

Ann Lui Yin Leng has more than 25 years of experience in secondary education in Singapore, of which, 22 years were spent in school leadership and mathematics department management. She also has experience across a wide spectrum of secondary schools and academic streams, along with more than 10 years of experience reviewing textbooks in the education service.

The Publisher

Star Publishing Pte Ltd was established in Singapore in 2002. Our field of expertise includes publishing, marketing and distributing educational books and materials in Singapore, Brunei, China and Southeast Asia. Textbook publishing is the company's core business. We have an extensive list of textbooks and educational materials covering a wide range of subjects that are in line with the latest teaching methods. Quality content, innovative designs and high editorial standards form the backbone of the company's values. Our aim is to present and deliver a highly effective learning and teaching experience for both educators and learners with our educational materials.



TEXTBOOK FEATURES

4 MATRICES



LET'S LEARN TO

- display information in the form of a matrix
- identify the order of a matrix
- interpret the data in a given matrix
- perform addition, subtraction, scalar multiplication and multiplication of matrices
- solve problems involving the calculation of the sum and product of two matrices

A computer mainboard (also known as motherboard) contains thousands of logic circuits that perform calculations. These circuits can be represented by rectangular arrays of numbers known as matrices. Matrices are also used in encoding/decoding messages and computer graphics transformation.

Chapter Opener

- Introduces a chapter through a real-world context and identifies the learning outcomes.
- Videos are available in the Digital Book.

Maths Web

- Website references are provided to help students gather information about the concepts discussed.

Recall

- Helps students to recall important mathematical concepts and definitions covered previously and relate them to the current topic.

Remark

- Highlights important learning points in the right margin of the textbooks whenever appropriate.

Discuss

- Encourages teachers and students to engage in meaningful classroom interaction by posing thought-provoking questions related to the concepts learnt.

On the other hand, the range is not always a good measure of spread because it is easily affected by the extreme values (the largest and smallest values) of a data set. In addition, the range does not show how the data in a set varies between the largest and the smallest values.

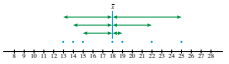
In this section, we learn another measure of spread called **standard deviation** which takes into account all the values in a data set.

For the data set A mentioned earlier, the mean of the data set is

$$\bar{x} = \frac{13 + 14 + 15 + 16 + 18 + 19 + 22 + 25}{8} = 18$$

We consider the deviation, $x - \bar{x}$, of each item, x , of the data set from the mean. The diagram below depicts the deviations of all the items in data set A from the mean.

Spread of each data value in data set A from its mean



Here, the deviation of 13 from the mean = $13 - 18 = -5$,
the deviation of 14 from the mean = $14 - 18 = -4$,
the deviation of 25 from the mean = $25 - 18 = 7$.
Hence, the deviations are $-5, -4, -3, -2, 0, 1, 4, 7$ respectively.

Initially, we may think the mean of all these deviations can be a measure of spread. However, the mean of all the deviations = $\frac{-5 + (-4) + (-3) + (-2) + 0 + 1 + 4 + 7}{8} = 0$.

We can overcome this problem by squaring each deviation and then take the mean. Thus, the proposed measure of spread = $\frac{(-5)^2 + (-4)^2 + (-3)^2 + (-2)^2 + 0^2 + 1^2 + 4^2 + 7^2}{8} = \frac{147}{8} = 18.375$.

This measure is fine by itself. However, the unit of this measure is the square of the original unit. If the unit of the original data is kg or dollar, this measure would have the awkward unit kg² or dollar². In order to have a measure of spread with the same unit as the original data, we take the square root of the above expression.

$$\sqrt{\frac{147}{8}} = 4.27 \text{ (correct to 3 d.p.)}$$

This new measure of spread is called **standard deviation**.

DISCUSS
Range, interquartile range and standard deviation are measures of spread of data. Can you compare the advantages and disadvantages among them?

RECALL
We use the notation $\bar{x}$ to denote the mean of the data $x_1, x_2, \dots, x_n$.
i.e. $\bar{x} = \frac{x_1 + x_2 + \dots + x_n}{n}$

REMARK
We choose the deviations from the mean instead of the deviation itself. This is because the manipulation of formulae involving mean is easier.

Maths Matter

- Enriches the learning process with interesting and fascinating facts related to mathematics.

Examples & Try It!

- Provides worked examples to demonstrate the ideas and reasoning behind the concepts as well as facilitate students' understanding.
- Includes a similar question i.e. Try it! for students to practise and find out how well they have grasped the concepts.

Example 40 The table below shows the monthly telecommunications expenditures of 50 people.

Expenditure (B)	Frequency
$0 < x \leq 10$	7
$10 < x \leq 20$	10
$20 < x \leq 30$	13
$30 < x \leq 40$	14
$40 < x \leq 50$	6

Find the estimated mean and standard deviation of the expenditures.

Solution

We can present the working in a table.

Expenditure (B)	Frequency (f)	Mid-value (x)	fx	fx^2
$0 < x \leq 10$	7	5	35	175
$10 < x \leq 20$	10	15	150	2250
$20 < x \leq 30$	13	25	325	8125
$30 < x \leq 40$	14	35	490	17150
$40 < x \leq 50$	6	45	270	12150
Total	$\Sigma f = 50$		$\Sigma fx = 1270$	$\Sigma fx^2 = 39850$

Estimated mean = $\frac{\Sigma fx}{\Sigma f} = \frac{1270}{50} = 25.40$

Estimated standard deviation = $\sqrt{\frac{\Sigma fx^2}{\Sigma f} - \left(\frac{\Sigma fx}{\Sigma f}\right)^2} = \sqrt{\frac{39850}{50} - (25.4)^2} = \sqrt{797 - 645.16} = \sqrt{151.84} = 12.32 \text{ (correct to the nearest cent)}$

REMARK
The mean and standard deviation calculated from aggregated data are only approximate values of the actual mean and standard deviation of the original ungrouped data. This is because each item in a class interval is taken as the mid-value of each interval.

Try It 40 The table below shows the amount of time (in hours) spent watching television programmes daily by 60 people.

Time (t hours)	Frequency
$0 < t \leq 2$	11
$2 < t \leq 4$	18
$4 < t \leq 6$	15
$6 < t \leq 8$	9
$8 < t \leq 10$	7

Find the estimated mean and standard deviation of the amount of time spent watching television programmes daily.

CLASS ACTIVITY 4

Objectives: To use matrix multiplication to encode and decode a message.



In military communication and the Internet, we often need to change a message to a series of codes, called an **encrypted message**, before sending it out to a recipient. Should the encrypted message be intercepted by a third party, it will be difficult to decipher its contents. The process of converting a message to an encrypted message is called **encoding**, while the reverse process is called **decoding**. The sender and the recipient have to know their encoding/decoding system. One of such systems is using matrix multiplication. Let us explore how it is done for a simple message, 'GOOD MAN'.

Task

1. We first set up a letter and number correspondence table as shown below, where space is assigned to 0, A to 1, B to 2, and so on.

Space	A	B	C	D	E	F	G	H	I	J	K	L	M
0	1	2	3	4	5	6	7	8	9	10	11	12	13
1	14	15	16	17	18	19	20	21	22	23	24	25	26

Complete the table below:

G	O	D	S	P	A	C	E
7	15	15	4	0			

2. Write the numbers corresponding to 'GOOD MAN' one by one to form the columns of a matrix M with two rows. If necessary, add a zero at the end to fill out the last column.

$$M = \begin{pmatrix} 7 & 15 & 0 & 4 \\ 15 & 4 & 0 & 0 \end{pmatrix}$$

Local Bits

- Cultivates within students a sense of belonging to Singapore by infusing local contexts within the content and questions.

Review Exercises

- Integrates questions after several chapters to reinforce students' mastery of the concepts they have previously learnt.

Problems in Real-World Contexts

- Connects mathematical learning with real-world problems by getting students to understand the real-world situations and devise mathematical models to solve them. This enables students to interpret their solution, opening their minds to a deeper understanding of mathematics and its real world applications.

REVISION EXERCISE 2

1. The readings of the Air Pollution Index (API) of a city on 15 days were recorded as follows.

82 76 53 47 90 42 73 58
77 91 102 68 75 89 56

(a) Find the mean and median of the data.
(b) Find the lower quartile and upper quartile of the data.

2. The diagram below shows the cumulative frequency curve for the durations of 200 pop songs.

(a) Use your graph to find the median, lower quartile and upper quartile of the data.
(b) Find the range and interquartile range of the data.
(c) The box-and-whisker plot for the data is shown below.

(d) State the values of x_1 and x_5 .
(e) What does $x_3 - x_2$ represent?

3. A survey was conducted to find the volume of water a person drinks per day. The results of the survey are shown in the cumulative frequency curve.

(a) Find the median and the interquartile range of the data.
(b) Find the percentage of people who drink more than 15 litres of water per day.

4. Find the 10th percentile of the data.

Daily volume of water drunk

5. A survey of the annual incomes of 600 office staff in a city is represented by the box-and-whisker plot below.

(a) Find the lower quartile, median and upper quartile of the distribution.
(b) Find the range of the distribution.
(c) If the annual income of each staff in the survey is increased by \$1000, what would be the new interquartile range of the distribution?

6. Four numbers are in the ratio 1 : 2 : 3 : 4. The mean of these numbers is 7.5.
(a) Find the four numbers.
(b) Find the standard deviation of these numbers.
(c) If each number is increased by 5, find the new mean and the new standard deviation.

Graded Exercises

- Consists of questions with 3 levels of difficulty
- **Level 1** Straightforward questions involving direct application of concepts
- **Level 2** More challenging questions involving direct application of concepts
- **Level 3** Questions involving real-life applications, thinking skills and open-ended answers

Class Activities

- Hands-on activities for students to learn mathematical concepts through exploration and discovery.

Problem-solving Processes & Heuristics

- Provides a list of general processes and heuristics used in problem-solving.

Go Further

- Provides students with more challenging questions and extends their mastery of the subject.

Standard Deviation for Ungrouped Data

Definition: Standard deviation = $\sqrt{\frac{\sum(x_i - \bar{x})^2}{N}}$
where $\bar{x}$ = mean = $\frac{\sum x_i}{N}$
and N = total number of observations.

Formula: Standard deviation = $\sqrt{\frac{\sum x_i^2}{N} - \left(\frac{\sum x_i}{N}\right)^2}$

When the ungrouped data is in a frequency table,
mean = $\frac{\sum fx}{\sum f}$
standard deviation = $\sqrt{\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^2}$

Standard Deviation for Grouped Data

Definition: Estimated standard deviation = $\sqrt{\frac{\sum f_i(x_i - \bar{x})^2}{N}}$
where $\bar{x}$ = estimated mean = $\frac{\sum fx}{\sum f}$
and $\sum f = N$ = total number of observations.

Formula: Estimated standard deviation = $\sqrt{\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^2}$

Using Mean and Standard Deviation to Compare Two Sets of Data

- Higher mean indicates higher average value of the data set.
- Higher standard deviation indicates:
 - wider spread of data
 - lower consistency of data
 - higher variability of data

Chapter 7 Data Analysis - Measures of Spread

Flashback

- Recalls previously learnt mathematical concepts for students to build on in the current topic.

Go Further

- Let $A = \{1, 2, 3, 4, 5\}$, $B = \{2, 4, 6\}$ and $C = \{2, 6, 8, 9\}$.
(a) Find:
(i) $(A \cup B) \cap C$
(ii) $(A \cap B) \cup C$
(iii) $(A \cup C) \cap (B \cup C)$
(iv) $(A \cap C) \cup (B \cap C)$
(b) What can you observe from the results in (a)? Verify your findings using Venn diagrams.
- It is given that A and B are finite sets and $A \cap B \neq \emptyset$. Let the number of elements in A , B , $A \cap B$ and $A \cup B$ be m , n , p and q respectively. Express q in terms of m , n and p .
(a) In a group of 60 students, 36 students like Korean pop stars, 34 students like US pop stars and 20 students like both Korean and US pop stars. Find the number of students who:
(i) only like Korean pop stars,
(ii) like other Korean pop stars or US pop stars, or both,
(iii) do not like both Korean pop stars and US pop stars.

Write in Your Journal

The photo shows some items on a desk. Define a universal set and two sets for the items. Is the intersection of your two sets an empty set? Explain your answer.

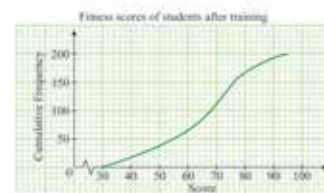
Chapter 7 Set Language and Reasoning

Summative Assessment Questions

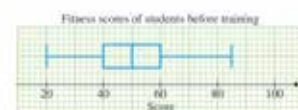
These questions assess students on the application of mathematical concepts, the interpretation of the contexts, problem-solving skills, and the ability to justify and reason with mathematical concepts. These questions have been carefully crafted to assess students' ability to provide qualitative answers, sometimes applying two or more concepts to solve a problem. Gaining positive ground in examinations, summative assessment questions would greatly assist in preparing students for examinations.

4. (a) The mass of an orange is measured to be 260 g correct to the nearest 10 g. What is the maximum possible mass of the orange?
- (b) The volume of the orange is measured to be 280 cm^3 correct to the nearest 5 cm^3 . What is the minimum possible volume of the orange?
- (c) Estimate the maximum possible mass per cm^3 of the orange, giving your answer to a reasonable degree of accuracy.

10. The cumulative frequency curve below shows the distribution of the fitness scores of 200 students after an intensive training boot camp.



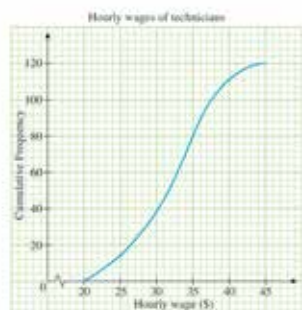
- (a) Use the graph to find
- the median score,
 - the range,
 - the interquartile range,
 - the 80th percentile.
- (b) If the lowest 10% of the students need to go for extra training, find the cut-off score for the students who do not need extra training.
- (c) The distribution of the fitness scores of these 200 students before the training camp is shown by the box-and-whisker plot below.



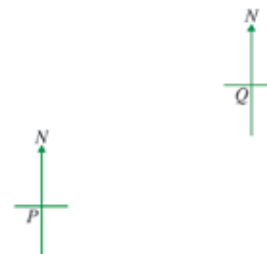
Would you consider the training effective? Explain briefly.

17. The cumulative frequency curve shows the distribution of the hourly wages of 120 technicians.

- (a) Use the curve to estimate
- the median hourly wage,
 - the range of the data,
 - the upper quartile of the data,
 - the interquartile range of the data.
- (b) Find the percentage of technicians whose hourly wages are over \$40.
- (c) Two technicians are selected at random from these 120 technicians, one by one, with replacement. Find the probability that the hourly wage of one technician is more than \$40 and the other is less than or equal to \$40.



7. The following scale diagram shows two schools, P and Q. The scale of the drawing is 1 cm represents 2 km.



- (a) Find, by measurement and calculation,
- the bearing of P from Q,
 - the actual distance of P from Q.
- (b) A library L is 6 km from Q on a bearing of 305° . Mark and label on the diagram the position, L, of the library.
- (c) Using the above measurements and $\triangle PQL$, find the bearing of the library from P.

Questions With Real-World Contexts

These questions are designed to convey to students the relevance of mathematics in familiar real-life situations. Students will be guided on how to apply mathematical knowledge obtained from these problems, thus enabling them to gain new perspectives on how mathematics affects the world around them.

PROBLEMS IN REAL-WORLD CONTEXTS

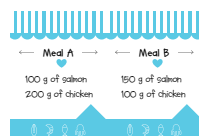
F Food Nutrition

The following table provides the energy and nutrition content of salmon and chicken.

Items	Energy (kcal)	Protein (g)	Total Fat (g)
Salmon (100 g)	204	19.9	13.90
Chicken (100 g)	260	17.6	10.64

Source: Health Promotion Board

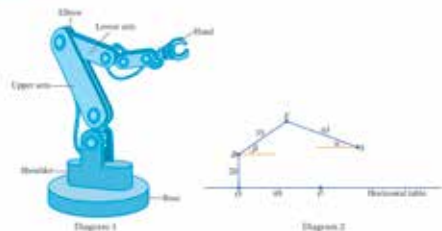
A shop provides two set meals as follows.



- Express by a 3×2 matrix N the energy, protein and total fat contents for 100 g of salmon and chicken each, with each column representing the energy and nutrition content of each item.
 - Express by a 2×2 matrix L the masses of salmon and chicken (unit: 100 g) in each set meal, with each column representing the information of each meal.
- Calculate $M = NL$. What do the elements in the matrix M represent?
- The recommended daily dietary allowances for a 16-year old boy of moderate physical activity are 3120 kcal of energy and 80 g of protein.
 - If the boy takes meal A for lunch, what percentages of the daily allowances of energy and protein are provided by this meal?
 - How much more energy and protein does he need from the meals for the rest of the day in order to meet the daily dietary allowances?

150

Robotic Arm



Robotic arms are widely used to achieve automation in the production industry. They can be programmed to complete tasks such as of spot welding, parts rotation and placement, etc. Diagram 1 shows a single robotic arm. The motions of its upper arm and lower arm are controlled by motors at its shoulder and elbow.

Diagram 2 is a model of the robotic arm placed on a horizontal table. The height of the base O is 20 cm. The lengths of the upper arm BE and the lower arm AE are 33 cm and 43 cm respectively. The angles that AE and BE make with the horizontal are α and β respectively. We are considering only the motions of the arm in a vertical plane.

As an engineer, you are to determine the position of the tip A in terms of α and β . If the robotic arm is programmed to pick up an object at point P on the table, where $OP = 40$ cm, what should the angles α and β be?

You may consider the following points.

- Assume Diagram 2 is on a coordinate plane, where should we place the axes and the origin?
- The position of the tip A can be determined by the position vector of the point A . How can we express the position vector of A in terms of α and β ?
- When the arm is going to pick up an object at P , the tip A coincides with the point P . We can use trigonometry to calculate the required angles, α and β .

Note: Students may refer to https://www.starpub.com.sg/edu/ke/welthinks_4th.html to watch the motion of a robotic arm and to get more information about robotic arms.

151

Revision Topics

Revision topics are a comprehensive end-syllabus package consisting of integrated examples and revision practice. These components work in tandem to help students recap key concepts and methods, make connections between different topics and ultimately reinforce their mathematical concepts and skills through practice.

3.3 Multiplication of Probabilities

A Independent Events

Two events are said to be **independent events** when the occurrence or non-occurrence of one event will not affect the probability of occurrence of the other event.

For example, in tossing a fair coin twice, the event A that the first toss shows a head and the event B that the second toss shows a head are independent. That is, event A does not affect how likely event B will occur, and vice versa.

On the other hand, if the occurrence or non-occurrence of an event affects the occurrence of another event, then these two events are said to be **dependent events**.

For example, in tossing a fair coin twice, the event C that the first toss is a tail and the event D that both tosses are tail are dependent events. This is because the occurrence of event C determines the occurrence of event D .



CLASS ACTIVITY 3

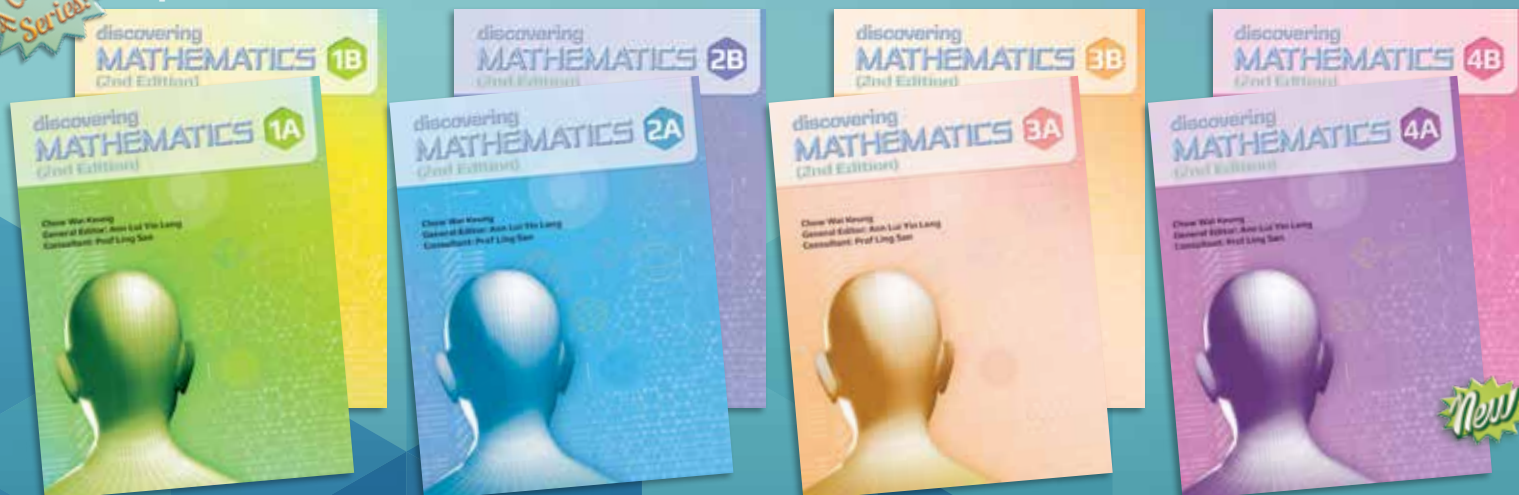
Objectives: To discuss and differentiate between independent events and dependent events.

1. A red six-sided die and a green six-sided die are rolled.
Let A be the event that the red die shows a 3,
 B be the event that the green die shows a 6,
 C be the event that the sum of both dice is 9.
Determine whether each of the following pair of events is independent or dependent.
Explain your answer.
 - (a) A and B
 - (b) A and C
 - (c) B and C
2. Two students are selected at random from a class.
Let P be the event that the height of the first student is above 170 cm,
 Q be the event that the heights of both students are above 170 cm,
 R be the event that the height of the second student is below 165 cm.
Determine whether each of the following pair of events is independent or dependent.
Explain your answer.
 - (a) P and Q
 - (b) P and R
 - (c) Q and R
3. Give an example of two independent events in an experiment.
4. Give an example of two dependent events in an experiment.

discovering MATHEMATICS (2nd Edition)

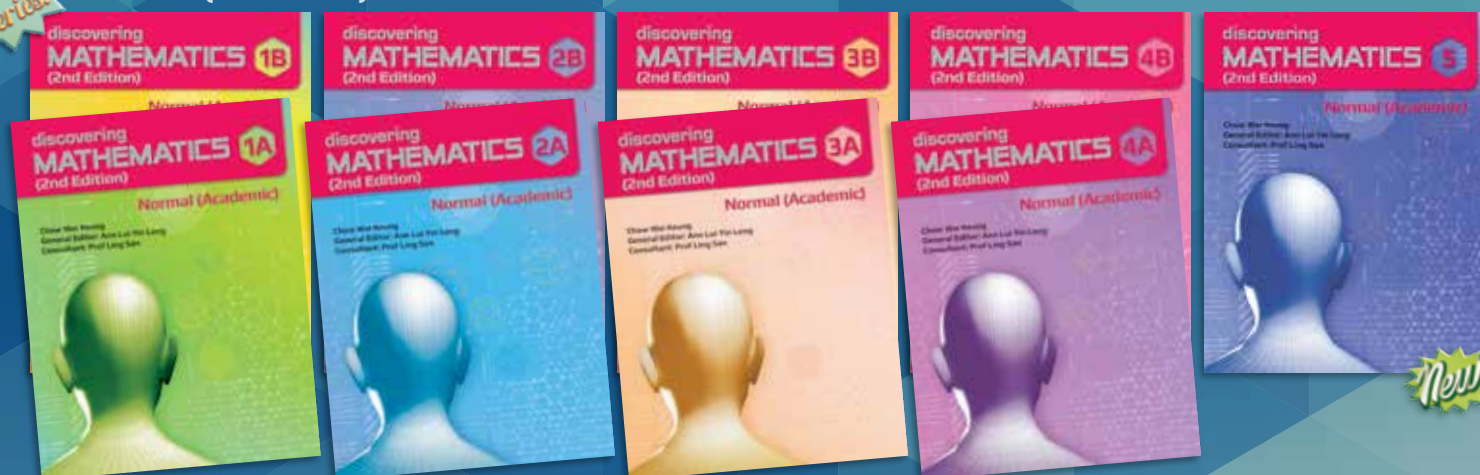
Express

*Complete
A Series!*



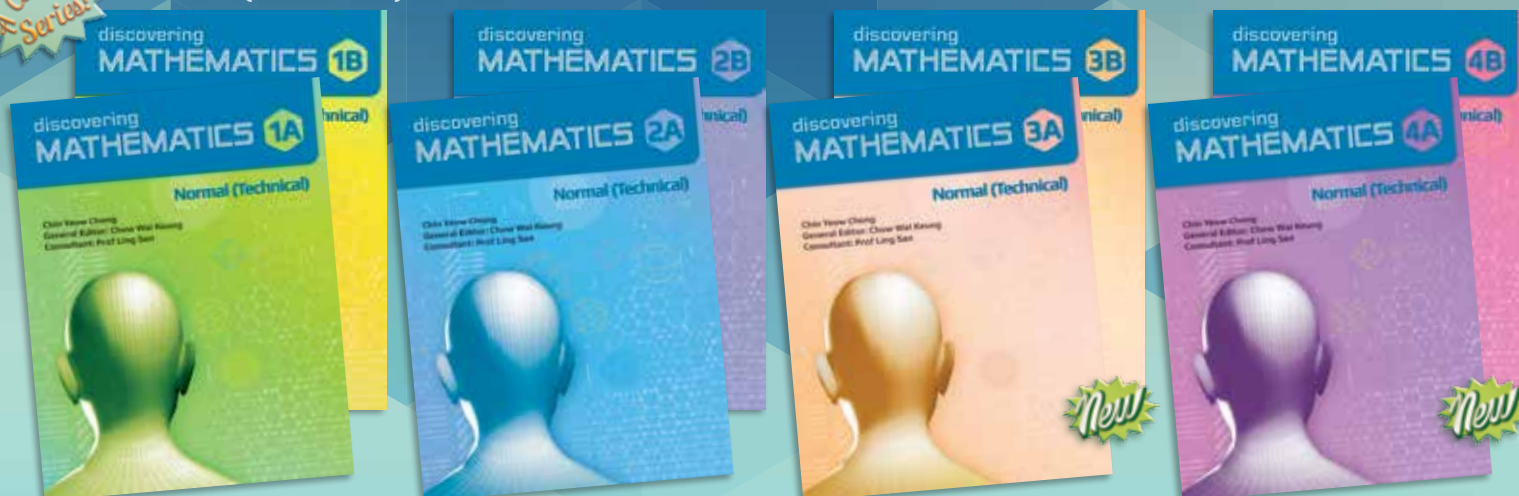
Normal (Academic)

*Complete
A Series!*



Normal (Technical)

*Complete
A Series!*

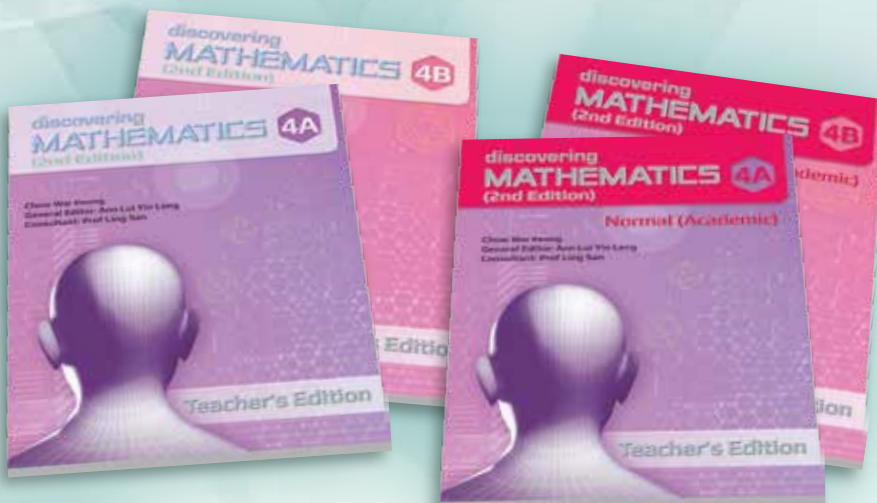




SUPPORT RESOURCES

Teacher's Editions

Include answers printed in red for all exercise questions to facilitate teachers to view the answers at a glance.



Teacher's Guides

Consist of

- **Scheme of Work**
Assist with lesson planning by cross-referencing lesson objectives with relevant activities and resources.
- **Notes on Teaching**
Suggest teaching approaches to each chapter and section.
- **Fully Worked Solutions**
Include both questions and detailed answers for all exercises in the textbooks.

Workbooks

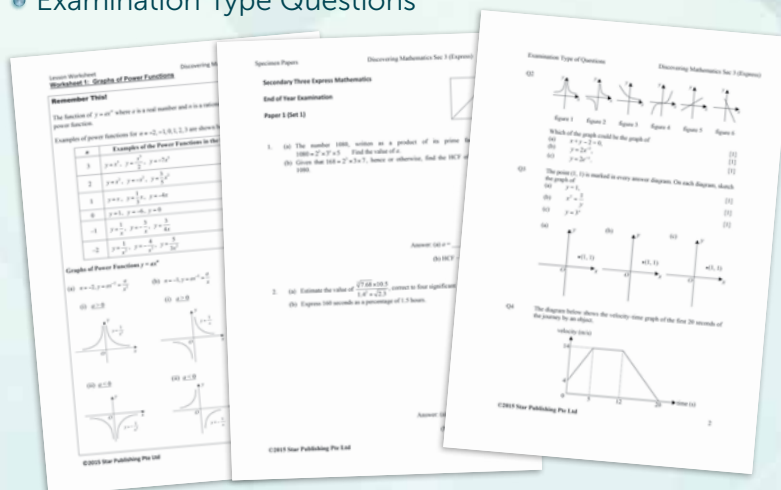
The workbooks supplement the textbooks by providing students with more opportunities to practice and reinforce the concepts learnt.



Online Resources

Consist of

- Classroom Printable Worksheets
- Specimen Test Papers for mid-year and end-of-year examinations
- Examination Type Questions

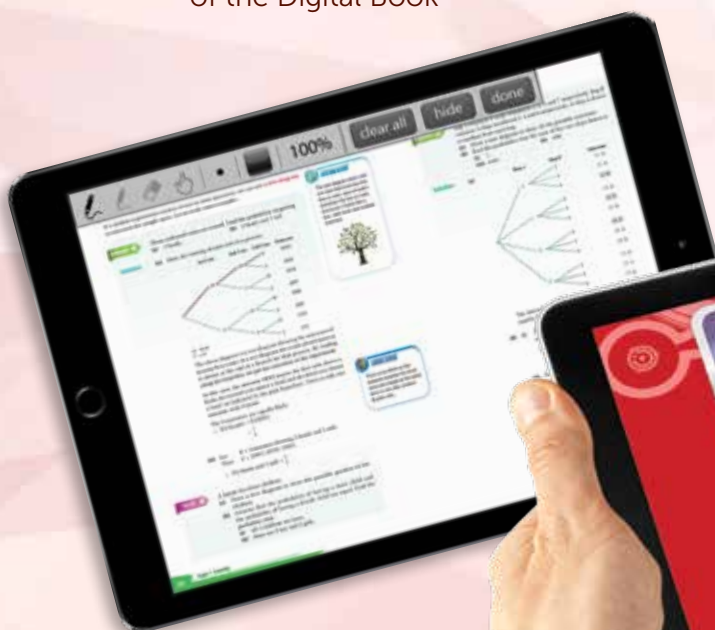
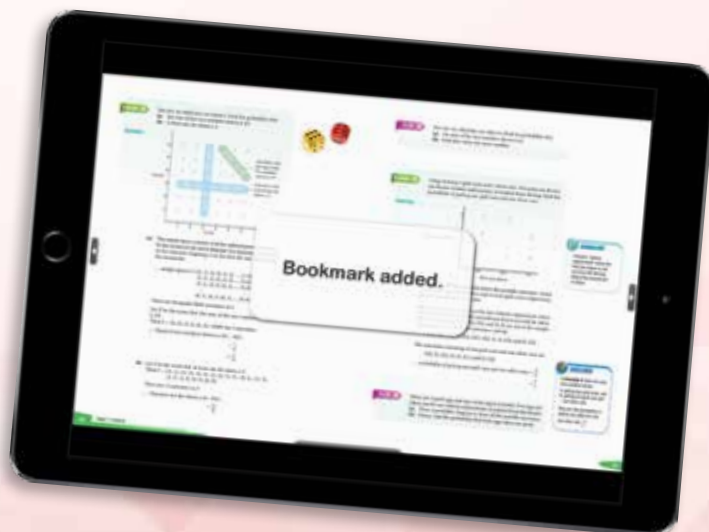


DIGITAL BOOK

The Digital Book is a complete library of electronic resources that brings the whole lesson together in one platform. Based on the printed textbook, it provides support that gives teachers access to electronic resources and add their own teaching notes.

The Digital Book includes the digital version of the textbook, animations, video clips, worked solutions and step-by-step video guide for solving problems. In addition, there are hundreds of differentiated questions to cater for students of various learning abilities, ensuring ample practice for all students. Fully worked solutions are provided for parents and teachers to check the answers conveniently.

- Extraction/ Zooming Function in Textbook content
- Video chapter openers
- Fully worked solutions for all exercises
- Step-by-step video guide on solving problems
- Bookmarks for easier navigation
- Embedded calculator for instant use
- Interactive whiteboard
- Drawing pen for user to write freely on any part of the Digital Book



REQUEST FOR PRESENTATION/ADOPTION FORM

DISCOVERING MATHEMATICS (2ND EDITION)

For a presentation, or to adopt this series for your school, please fax this form to us at **6474 1080** or call us at **6479 6800**. You may also email us at **contactus@starpub.com.sg**.

NAME (Mr/Mrs/Ms)			
SCHOOL			
DEPARTMENT/DESIGNATION			
ADDRESS			
TELEPHONE	FAX	MOBILE	EMAIL
SCHOOL STAMP		SIGNATURE/DATE	

YES! OUR SCHOOL WOULD LIKE TO ADOPT THE *DISCOVERING MATHEMATICS (2ND EDITION)* SERIES.

Book Title	ISBN	Price	Qty	Book Title	ISBN	Price	Qty
Textbook 1A E	978-981-4250-72-6	14.30		Textbook 3A E	978-981-4448-46-8	15.10	
Textbook 1B E	978-981-4250-73-3	14.30		Textbook 3B E	978-981-4448-47-5	12.30	
Workbook 1 E	978-981-4250-78-8	9.60		Workbook 3 E	978-981-4448-66-6	9.60	
Textbook 1A N(A)	978-981-4250-74-0	11.35		Textbook 3A N(A)	978-981-4448-48-2	12.20	
Textbook 1B N(A)	978-981-4250-75-7	14.65		Textbook 3B N(A)	978-981-4448-49-9	12.20	
Textbook 1A N(T)	978-981-4250-76-4	10.70		Textbook 3A N(T)	978-981-4448-87-1	TBC	
Textbook 1B N(T)	978-981-4250-77-1	9.90		Textbook 3B N(T)	978-981-4448-88-8	TBC	
Workbook 1A N(T)	978-981-4250-79-5	5.05		Workbook 3A N(T)	978-981-4448-89-5	TBC	
Workbook 1B N(T)	978-981-4250-80-1	5.15		Workbook 3B N(T)	978-981-4448-90-1	TBC	
Textbook 2A E	978-981-4448-00-0	13.90		Textbook 4A E	978-981-4448-83-3	TBC	
Textbook 2B E	978-981-4448-01-7	11.90		Textbook 4B E	978-981-4448-84-0	TBC	
Workbook 2 E	978-981-4448-08-6	9.60		Workbook 4 E	978-981-4448-95-6	TBC	
Textbook 2A N(A)	978-981-4448-02-4	13.90		Textbook 4A N(A)	978-981-4448-85-7	TBC	
Textbook 2B N(A)	978-981-4448-03-1	11.90		Textbook 4B N(A)	978-981-4448-86-4	TBC	
Textbook 2A N(T)	978-981-4448-04-8	11.20		Textbook 4A N(T)	978-981-4448-91-8	TBC	
Textbook 2B N(T)	978-981-4448-05-5	9.60		Textbook 4B N(T)	978-981-4448-92-5	TBC	
Workbook 2A N(T)	978-981-4448-06-2	4.90		Workbook 4A N(T)	978-981-4448-93-2	TBC	
Workbook 2B N(T)	978-981-4448-07-9	5.00		Workbook 4B N(T)	978-981-4448-94-9	TBC	

Prices are correct at the time of going to print, but are subject to change.

YES! I WOULD LIKE MORE INFORMATION ON THE *DISCOVERING MATHEMATICS (2ND EDITION)* SERIES.

I will be available on the following dates/time to meet with a **Star Publishing** representative:

1	2	3	4
SAMPLE COPIES REQUIRED			



STAR PUBLISHING PTE LTD

115A Commonwealth Drive #05-12 Tanglin Halt Industrial Park Singapore 149 596
www.starpub.com.sg