

STUDENT NUMBER

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FOUNDATION MATHEMATICS

Written examination

Tuesday 14 November 2023

Reading time: 3.00 pm to 3.15 pm (15 minutes)

Writing time: 3.15 pm to 5.15 pm (2 hours)

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	20	20	20
B	12	12	60
			Total 80

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners, rulers, one bound reference and one scientific calculator. Calculator memory DOES NOT need to be cleared.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or correction fluid/tape.

Materials supplied

- Question and answer book of 42 pages
- Formula sheet
- Answer sheet for multiple-choice questions.

Instructions

- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space to verify this.
- Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.
- All written responses must be in English.

At the end of the examination

- Place the answer sheet for the multiple-choice questions inside the front cover of this book.
- You may keep the formula sheet.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions**Instructions for Section A**

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** for the question.

A correct answer scores 1; an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

SECTION B**Instructions for Section B**

Answer **all** questions in the spaces provided.

In all questions where a numerical answer is required, you should only round your answer when instructed to do so.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

SAMPLE
Number of questions and mark allocations
may vary from the information indicated.

**Victorian Certificate of Education
2023**

FOUNDATION MATHEMATICS

Written examination

FORMULA SHEET

Instructions

This formula sheet is provided for your reference.
A question and answer book is provided with this formula sheet.

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Foundation Mathematics formulas

Algebra, number and structure

distributive law	$a(b + c) = ab + ac$
square roots and squares	$a = b^2 \Rightarrow b = \sqrt{a}$
ratios	$a : b = c : d \Leftrightarrow \frac{a}{b} = \frac{c}{d}$
percentage error	$\frac{ \text{measured} - \text{actual} }{\text{actual}} \times 100\%$
a varies directly with b , where k is a constant	$a = kb$
a varies inversely with b , where k is a constant	$a = \frac{k}{b}$

Data analysis, probability and statistics

measures of centre	mean	$\frac{\text{sum of data values}}{\text{number of data values}}$
	median position in an ordered set of sample size, n	$\frac{n + 1}{2}$
measures of spread	range	max – min
	interquartile range	IQR = Q3 – Q1
percentage relative frequency formula		$\frac{\text{frequency of an event occurring}}{\text{total number of trials}} \times 100\%$
long term data trends		experimental probability \approx theoretical probability
probability for a large number of trials of event A		$\Pr(A) \approx \frac{\text{number of times event } A \text{ occurs}}{\text{total number of trials}}$

Space and measurement

Pythagoras' theorem	$c^2 = a^2 + b^2$
area of a triangle	$\frac{1}{2}bh$
area of a trapezium	$\frac{1}{2}(a+b)h$
Heron's formula	$\sqrt{s(s-a)(s-b)(s-c)}$, where $s = \frac{a+b+c}{2}$
circumference of a circle	$\pi d = 2\pi r$
length of an arc	$\pi d \times \frac{\theta^\circ}{360}$
area of a circle	πr^2
area of a sector	$\pi r^2 \times \frac{\theta^\circ}{360}$
volume of a sphere	$\frac{4}{3}\pi r^3$
surface area of a sphere	$4\pi r^2$
volume of a cone	$\frac{1}{3}\pi r^2 h$
volume of a prism	area of base \times height
volume of a pyramid	$\frac{1}{3} \times$ area of base \times height

Financial and consumer mathematics

simple interest	$I = \frac{Pr t}{100}$
compound interest	$A = PR^n$, where $R = 1 + \frac{r}{100}$
GST	10%
Medicare levy	2%
superannuation guarantee	11%
percentage increase	$\frac{\text{final} - \text{initial}}{\text{initial}} \times 100\%$
percentage decrease	$\frac{\text{initial} - \text{final}}{\text{initial}} \times 100\%$
profit	revenue – cost

END OF FORMULA SHEET



VCE FOUNDATION MATHEMATICS
Written Examination
ANSWER SHEET – 2023

STUDENT NAME: JOHN STUDENT

STUDENT NUMBER									
9	9	1	2	3	4	5	6	A	
0	0	0	0	0	0	0	0	0	
1	1	1	1	1	1	1	1	E	
2	2	2	2	2	2	2	2	F	
3	3	3	3	3	3	3	3	G	
4	4	4	4	4	4	4	4	J	
5	5	5	5	5	5	5	5	L	
6	6	6	6	6	6	6	6	R	
7	7	7	7	7	7	7	7	T	
8	8	8	8	8	8	8	8	W	
		9	9	9	9	9	9	X	

INSTRUCTIONS: **USE PENCIL ONLY**

SIGN HERE IF YOUR NAME AND NUMBER ARE PRINTED CORRECTLY.

SIGNATURE: J. Student

If your name or number on this sheet is incorrect, notify the Supervisor.
Use a **PENCIL** for **ALL** entries. For each question, shade the box which indicates your answer.
All answers must be completed like **THIS** example:

A	<input checked="" type="checkbox"/>	C	D	E
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Marks will **NOT** be deducted for incorrect answers.
NO MARK will be given if more than **ONE** answer is completed for any question.
If you make a mistake, **ERASE** the incorrect answer – **DO NOT** cross it out.

SUPERVISOR USE ONLY

USE PENCIL ONLY

Shade the **"ABSENT"** box if the student was absent from the examination.

ABSENT

SUPERVISOR'S INITIALS

OFFICE USE ONLY

ONE ANSWER PER LINE					ONE ANSWER PER LINE						
1	A	B	C	D	E	11	A	B	C	D	E
2	A	B	C	D	E	12	A	B	C	D	E
3	A	B	C	D	E	13	A	B	C	D	E
4	A	B	C	D	E	14	A	B	C	D	E
5	A	B	C	D	E	15	A	B	C	D	E
6	A	B	C	D	E	16	A	B	C	D	E
7	A	B	C	D	E	17	A	B	C	D	E
8	A	B	C	D	E	18	A	B	C	D	E
9	A	B	C	D	E	19	A	B	C	D	E
10	A	B	C	D	E	20	A	B	C	D	E