

Level 2

Mathematics

Examination 2



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About the Authors: Barbara Healy BSc BEd and William Paul Healy BSc BA Dip Ed are principal writers for Kilbaha Education. They are experienced classroom teachers of mathematics with specialised skills in writing assessment questions and detailed answers for all levels of mathematics. Together they have been creating mathematics content for Australian schools for more than 30 years. Teachers and parents use their highly regarded educational content on a regular basis.

LEVEL 2

MATHEMATICS EXAMINATION 2



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Notes to Teachers

This is a Digital Publication supplied in both PDF and WORD formats with a school site licence to reproduce for students in both print and electronic formats.

- This examination is based on a syllabus containing topics for Year 8 Mathematics. Some of these topics are: (not all are necessarily included in this examination)

whole number and directed number, fractions and decimals, ratio, percentages, angle properties, triangle geometry, quadrilateral properties, constructions and transformations, perimeter, area, volume, time, capacity and mass, equations, simplification and indices, factorisation and fractions, substitution in algebra, set language and Venn diagrams, statistics and chance, Cartesian plane, drawing graphs.

- Teachers should examine the questions to judge if they are suitable for their classes
- This is a 1.5 hour examination (total = 80 marks)
- The examination can be shortened if required by removing some of the questions
- A set of detailed answers with a marking scheme is supplied with this examination
- A multiple-choice answer sheet is supplied with this examination
- While every effort has been made to ensure the correctness of each question and answer, there is no guarantee of perfection. Please advise if you believe you have found an error.

STUDENT NAME _____

Examination 2

LEVEL 2 MATHEMATICS

Reading time: 15 minutes
Total writing time: 1.5 hours

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of Marks
A	10	10	10
B	7	7	70

Directions to students

Materials

Question and answer book of 21 pages.

Working space is provided throughout the book.

You may use an approved calculator, ruler, protractor, set square and aids for curve sketching.

The Examination.

Ensure that you write your **name** in the space provided on the cover of this book.

Answer **all** questions.

There is a total of 80 marks available for the examination.

The marks for each part of each question are shown.

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

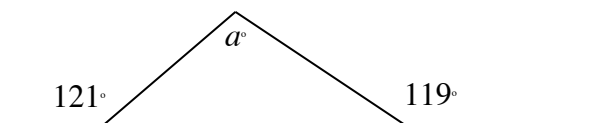
Angles in all diagrams are measured in degrees.

All written responses should be in English.

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SECTION A consists of ten multiple choice questions. Write the letter which corresponds to your answer in the box at the right of each question. Each question is worth 2 marks. Show your working in the space provided. Marks will not be deducted for incorrect answers.

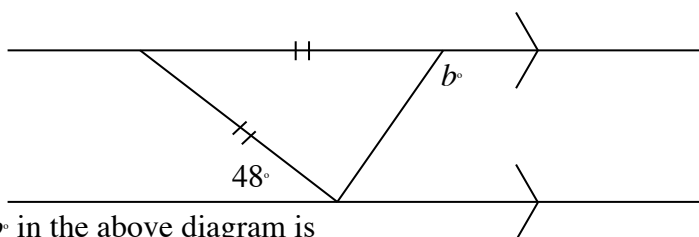
Question 1



The value of a° in the above diagram is

- A. 40°
- B. 50°
- C. 60°
- D. 80°
- E. 120°

Question 2



The value of b° in the above diagram is

- A. 48°
- B. 66°
- C. 109°
- D. 114°
- E. 132°

SECTION B consists of seven short answer questions.
 Answer each question in the space provided. Show all working.
 Write your final answer in the box provided.
 Each question is worth 10 marks.

Question 1 (10 marks)

a. Simplify the following, giving your answers as fractions or mixed numbers.

i. $\left(\frac{3}{5}\right)^2$

.....

(1 mark)

ii. $\sqrt{1\frac{7}{9}}$

.....

(1 mark)

b. Simplify the following.

i. $16 - -7 + 3 \times -2$

.....

(2 marks)

LEVEL 2 MATHEMATICS

EXAMINATION 2

ANSWER SHEET



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NAME _____

INSTRUCTIONS

- Write your name in the space provided above.
- Marks will **NOT** be deducted for incorrect answers.
- **NO MARK** will be given if more than **ONE** answer is completed for any question.
- All answers must be completed like **THIS** example.

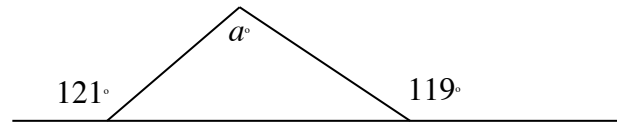
A	B	C	D	E
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SECTION A

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E

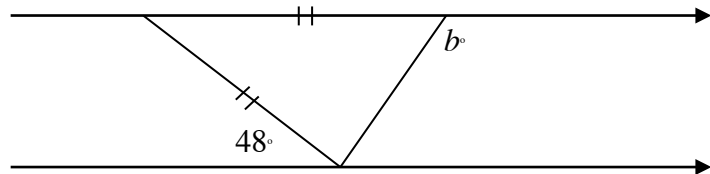
1. Answer C

$$\begin{aligned}180^\circ - 119^\circ &= 61^\circ \text{ (angles in a straight line)} \\180^\circ - 121^\circ &= 59^\circ \text{ (angles in a straight line)} \\a + 59^\circ + 61^\circ &= 180^\circ \text{ (angles in a triangle)} \\a + 120^\circ &= 180^\circ \\a &= 60^\circ\end{aligned}$$



2. Answer D

Apex angle of triangle = 48° (alternate angles are equal)
Base angles of triangle are equal
Therefore, each base angle
 $= \frac{1}{2}(180^\circ - 48^\circ) = \frac{1}{2}(132^\circ) = 66^\circ$
 $b + 66^\circ = 180^\circ$ (angles in a straight line)
 $b = 180^\circ - 66^\circ = 114^\circ$



3. Answer D

$$\frac{4x^6}{8x^4} = \frac{1}{2}x^2$$

4. Answer E

$$\begin{aligned}A &= \pi 6^2 - \pi 4^2 \\&= \pi(36 - 16) \\&= \pi \times 20 \\&= 62.83 \text{ cm}^2\end{aligned}$$

5. Answer C

$$\begin{aligned}\frac{-7 - 4 + 5}{x} &= 2 \\ \Rightarrow \frac{-6}{x} &= 2 \\ \Rightarrow x &= -3\end{aligned}$$

6. Answer C

Number of students = $1 + 5 + 7 + 8 + 2 + 1 = 24$

Question 1

a. i $\frac{3}{5} \times \frac{3}{5} = \frac{9}{25}$ [1 mark]

a. ii. $\sqrt{\frac{16}{9}} = \frac{\sqrt{16}}{\sqrt{9}} = \frac{4}{3} = 1\frac{1}{3}$ [1 mark]

b. i. $16 + 7 + (3 \times -2)$
 $= 16 + 7 - 6$ [1 mark]
 $= 17$ [1 mark]

b. ii. $\frac{-9}{-18} = \frac{1}{2}$ [2 marks]

b. iii. $(-7.1)^2$
 $= -7.1 \times -7.1$ [1 mark]
 $= 50.41$

c. $3.4 - 0.6 = 2.8$ [1 mark]

d.
 $8\% \equiv 24$
 $\Rightarrow 1\% \equiv 3$ [2 marks]
 $\Rightarrow 100\% \equiv 300$ students

Kilbaha Education Mathematics Examinations High Schools

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