

Level 1

Mathematics

Examination 3



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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.

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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 7 Mathematics. Some of these topics are: (not all are necessarily included in this examination)

whole numbers, fractions, decimals, factors, multiples, primes, percentages, working with angles, 2D and 3D shapes, constructions, properties of angles, triangles, quadrilaterals, time, speed, mass, measuring length, area, volume, algebra rules, simplifying expressions, substitution, equations, interpreting graphs, interpreting tables, drawing graphs, Cartesian co-ordinates, Venn diagrams.

- Teachers should examine the questions to judge if they are suitable for their classes
- This is a 1.5 hour examination (total = 60 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 3

LEVEL 1 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	16	16	16
B	6	6	24
C	2	2	20

Directions to students

Materials

Question and answer book of 20 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 60 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.

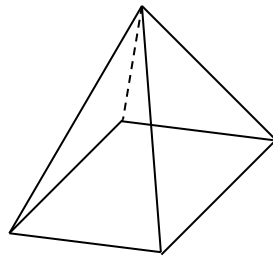
All written responses should be in English.

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SECTION A MULTIPLE CHOICE

There are sixteen multiple choice questions. Write the letter which corresponds to your answer in the box at the right of each question. Each question is worth 1 mark. Show your working in the space provided. Marks will not be deducted for incorrect answers.

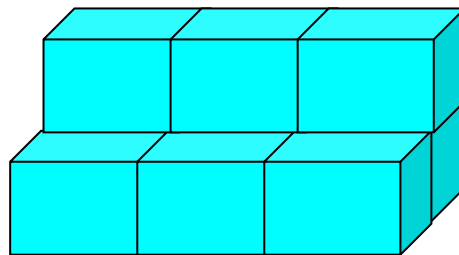
Question 1



The number of edges in the above pyramid is

- A. 2
- B. 3
- C. 5
- D. 6
- E. 8

Question 2



The number of cubes present in the above shape is

- A. 6
- B. 7
- C. 8
- D. 9
- E. 12

SECTION B SHORT ANSWER

There are six short answer questions.
 Answer each question in the space provided. Show all working.
 Write your final answer in the box where this is provided.

Question 1 (4 marks)

a. Write the number which is made up of 3 tens + 2 ones + 5 hundredths.

.....

(1 mark)

b. Round 48625 to the nearest thousand.

.....

(1 mark)

c. Arrange the following decimals in ascending order (from smallest to largest).
 3.217 , 3.12 , 1.327 , 3.71 , 3.2

.....

(1 mark)

d. Simplify $\sqrt{\frac{9}{25}}$

.....

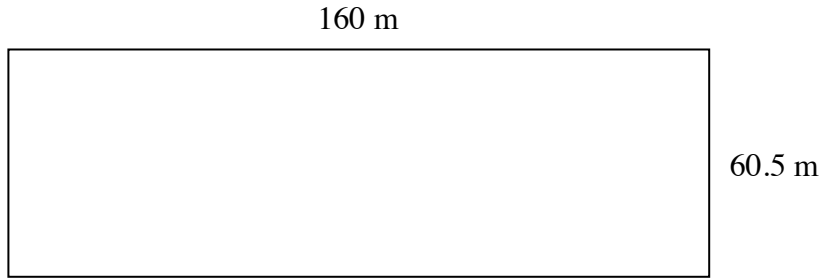
(1 mark)

SECTION C ANALYSIS TASKS

There are two questions worth 10 marks each.
Answer each question in the space provided. Show all working.
Write your final answer in the box where this is provided.

Question 1 (10 marks)

A rectangular block of land is 160 m by 60.5 m.



a. I want to put a fence around the four sides of this block of land. How long will the fence be?

.....
.....

(2 marks)

b. Find the area of the block of land.

.....
.....
.....
.....

(2 marks)

LEVEL 1 MATHEMATICS

EXAMINATION 3

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
---	---	---	---	---

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
11	A	B	C	D	E
12	A	B	C	D	E

13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E

SECTION A

1. Answer E

There are 4 edges on the base and another 4 edges from the top vertex to each of the 4 vertices on the base. This is a total of 8 edges.

2. Answer D

On the right hand edge there are 3 cubes. There are 3 rows each containing this same pattern as the right hand edge. $\therefore 3 \times 3 = 9$ cubes

3. Answer B

A trapezium has one pair of parallel sides.

4. Answer B

$$\frac{3}{4} \times \frac{5}{6} = \frac{1 \times 5}{4 \times 2} = \frac{5}{8}$$

5. Answer A

$$0.875 = 87.5\%$$

$$\frac{1}{2} = 50\%$$

$$\therefore 45\%, \frac{1}{2}, 0.875$$

6. Answer B

$$2\frac{3}{8} - 1\frac{3}{4}$$

Using equal addition of $\frac{1}{4} = \frac{2}{8}$ to each of the terms,

$$\therefore 2\frac{5}{8} - 2 = \frac{5}{8}$$

7. Answer C

$$\begin{array}{r} 1.90 \\ 3 \overline{)5.270} \end{array}$$

SECTION B

Question 1

a. $30 + 2 + .05 = 32.05$ [1 mark]	b. $48625 = 49,000$ [1 mark]
c. 1.327 , 3.12 , 3.2 , 3.217 , 3.71 [1 mark]	d. $\sqrt{\frac{9}{25}} = \frac{\sqrt{9}}{\sqrt{25}} = \frac{3}{5}$ [1 mark]

Total = 4 marks

Question 2

a. $365 \div 1000 = 0.365$ [1 mark]	b. $4.5 \times 3 = 13.5$ km [1 mark]
c. 4 hours goes to 21.30 another 30 minutes to 22.00 plus 16 more minutes = 4 hours 46 minutes [2 marks]	

Total = 4 marks

Question 3

a. $4.23 \div 3 = 1.41$ [1 mark]	b. Number of students who go by train = 20 Number of students who cycle = 5 Ratio is $20 : 5 = 4 : 1$ [2 marks]
c. Side of the square = $\sqrt{225} = 15$ cm [1 mark]	

Total = 4 marks

Question 4

a. $p \times p \times p = p^3$ [1 mark]	b. $2x + 7 = 2 \times 5 + 7 = 10 + 7 = 17$ [1 mark]
c. $3x + 5y + 4x + y$ $= (3x + 4x) + (5y + y)$ $= 7x + 6y$ [1 mark]	d. $3 = (2 \times 1) + 1$ $5 = (2 \times 2) + 1$ $7 = (2 \times 3) + 1$ $9 = (2 \times 4) + 1$ $\therefore y = 2x + 1$ [1 mark]

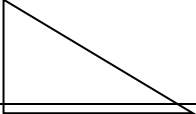
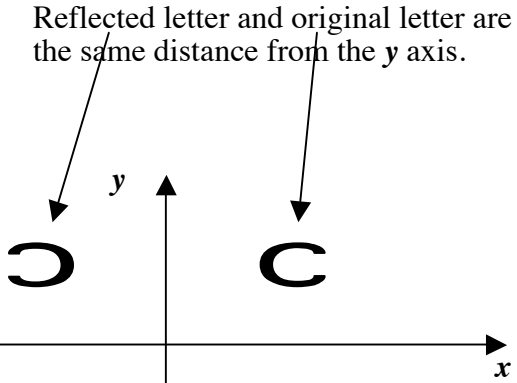
Total = 4 marks

Question 5

a. The temperatures are warmer in June and July and cooler in January. Therefore, more likely to be in the Northern Hemisphere. [1 mark]	b. The height of children is one example of continuous data [1 mark]
c. (i) Mean = $(5 + 7 + 7 + 8 + 9 + 9 + 11) \div 7$ $= 56 \div 7 = 8$ [1 mark]	c. (ii) Range = $11 - 5 = 6$ [1 mark]

Total = 4 marks

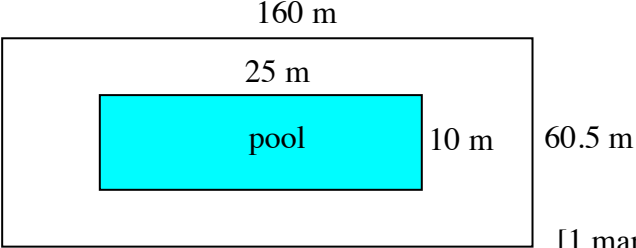
Question 6

<p>a. Only the side of the solid is seen.</p>  <p>[1 mark]</p>	<p>b. A cube has 4 vertices on the top and 4 on the base = 8 [1 mark]</p>
<p>c. (1) A triangular prism has 3 rectangular faces and 2 triangular faces = 5 faces (See diagram in 6a) [1 mark]</p>	<p>c. (2) Reflected letter and original letter are the same distance from the y axis.</p>  <p>[1 mark]</p>

Total = 4 marks

SECTION C

Question 1

<p>a. Length of fence = $2(160 + 60.5)$ = 2×220.5 = 441 m [2 marks]</p>	<p>b. Area of land = 60.5×160 = 605×16 = $(605 \times 6) + (605 \times 10)$ = $3630 + 6050$ = 9680 m^2 [2 marks]</p>
<p>c.</p>  <p>[1 mark]</p>	<p>d. Area to be tiled = $9680 - 250 = 9430 \text{ m}^2$. [2 marks]</p>
<p>e. Area of a tile = $100 \text{ cm}^2 \div 10000 = 0.01 \text{ m}^2$ [2 marks]</p>	<p>f. Number of tiles needed = $\frac{9430}{0.01} = 943,000$ [1 mark]</p>

Total = 10 marks

Kilbaha Education Mathematics Examinations High Schools

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