Level 1
Mathematics
Examination 1

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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 1

MATHEMATICS EXAMINATION 1

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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 = 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 of you believe you have found an error.

STUDENT NAME _____

Examination 1

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	10	10	10
B	7	7	70

Directions to students

Materials
Question and answer book of 16 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.

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

Each day last week Melanie had a spelling test. The number of words she spelt correctly were:

day	Monday	Tuesday	Wednesday	Thursday	Friday
number of words correct	18	19	16	20	17

Her average mark in these tests was

A. less than 16

B. 16

C. 17

D. 18

E. more than 18

Question 2

Which one of the following represents 360 expressed as a product of its prime factors?

A. $2^3 \times 3^2 \times 5$

B. $3^3 \times 2^2 \times 5$

C. $2^3 \times 9 \times 5$

D. $2^5 \times 3^2$

E. $2^2 \times 3^2 \times 10$

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. Calculate $\frac{4.3+2.5}{3\times1.6}$ correct to two decimal places.

.....

.....

.....

(2 marks)

b. Find the cost of 2.6 kg of meat at \$7.99 per kilogram.

.....

.....

.....

(2 marks)

c. Calculate 24% of \$360

.....

.....

.....

(2 marks)

LEVEL 1 MATHEMATICS

EXAMINATION 1

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

1. Answer D

$$\text{Average} = \frac{\text{total sum of marks}}{\text{number of marks}}$$

$$= \frac{18+19+16+20+17}{5}$$

$$= \frac{90}{5}$$

$$= 18$$

---

2. Answer A

9 is not a prime number ∴ cannot be C
10 is not a prime number ∴ cannot be E

$2^3 \times 3^2 \times 5 = 8 \times 9 \times 5$

$= 360$

$3^3 \times 2^2 \times 5 = 27 \times 4 \times 5$

$= 540$

∴ cannot be B

$2^5 \times 3^2 = 32 \times 9$

$= 288$

∴ cannot be D

---

3. Answer E

Find a common factor = 45

$\frac{4}{5} = \frac{36}{45}$

$\frac{38}{45}$ is halfway between $\frac{36}{45}$ and $\frac{40}{45}$

$\frac{8}{9} = \frac{40}{45}$

---

4. Answer D

oak (3.54 m) $\xrightarrow[\text{is shorter than}]{}$ elm (4.8 m) $\xrightarrow[\text{is shorter than}]{}$ gum

difference between the height of the oak and elm tree = $4.8 - 3.54 = 1.26$ metres
If the elm tree is as much shorter than the gum tree as the oak tree is shorter than the elm tree, ie. 1.26 metres, then:
the height of the gum tree = $4.8 + 1.26 = 6.06$ metres

Question 1

a. $\frac{4.3+2.5}{3\times1.6}=\frac{6.8}{4.8}\approx1.42$ [2]

b. 1kg = \$7.99
$\therefore$ 2.6 kg = \$7.99 × 2.6
= \$20.77
[2]

c. 24% of \$360:
$\frac{24}{100}\times\$360$
$=0.24\times\$360$ [2]
= \$86.40

d. $\frac{8!}{3!}=\frac{8\times7\times6\times5\times4\times3\times2\times1}{3\times2\times1}=6720$
[2]

e. Cost per kilogram for small packet = \$1.60 ÷ 0.375 = \$4.27 [1]
Cost per kilogram for large packet = \$6.45 ÷ 1.5 = \$4.30 [1]
\$4.27 is less than \$4.30
$\therefore$ The small packet is the better buy.

Question 2

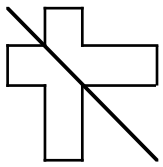
a. Three-quarters of an hour = 0.75 hr
Distance car travels = 95 × 0.75 = 71.25 km [2]

b. The arrow points to the number 4.67. [2]

c. Perimeter = length + width + length + width
Square with perimeter 24cm has 4 equal sides
$\therefore$ Side length of square = 24 ÷ 4 = 6 cm
Area = length × width
Area of square = $6\times6=36$ cm^2 [3]

d. Area of frame = (18.6 cm × 13.6 cm) - (10 cm × 15 cm)
= 252.96 cm ^{2} - 150 cm ^{2}
= 102.96 cm ^{2} [3]

Question 3

a. 

When a line of symmetry is drawn, each side looks identical. [2]

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