Level 2

Mathematics
Examination 1

SAMPLE

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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 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 of you believe you have found an error.

Examination 1
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 17 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.
Unless otherwise specified, give answers correct to two decimal places.
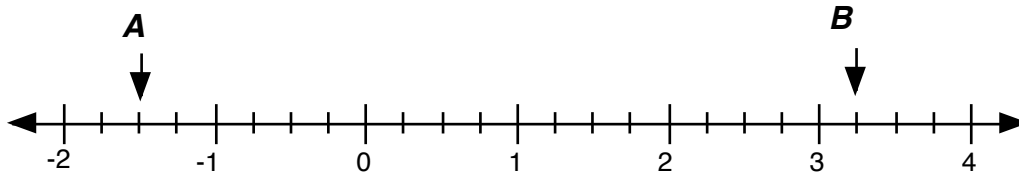Angles in all diagrams are measured in degrees.
All written responses should be in English.

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Question 1
Calculate the difference between *A* and *B* which are shown on the number line below.

A. $1\frac{3}{4}$

B. $2\frac{1}{4}$

C. $2\frac{1}{2}$

D. $4\frac{1}{3}$

E. $4\frac{3}{4}$

Question 2
The expression $6 + 4 \times 8 - 3 = 50$ requires brackets to be correct.
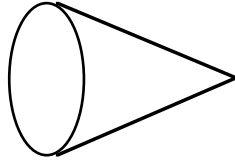
The correct alternative is:

A. $(6+4)\times 8 - 3$

B. $6+(4\times 8)-3$

C. $6+4\times(8-3)$

D. $(6+4)\times(8-3)$

E.   none of the above

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.   Name the common three dimensional shapes below.

i.

ii.

....
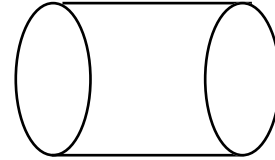
iii.
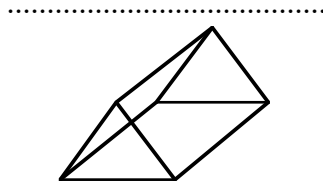
iv.
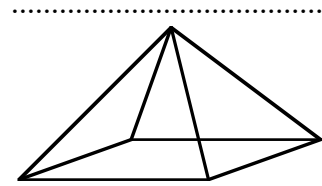
....
                                                              (2 marks)

b.   **i.**   A regular octagon is drawn below.
                 Join each corner to the one diagonally opposite so that eight triangles are formed.
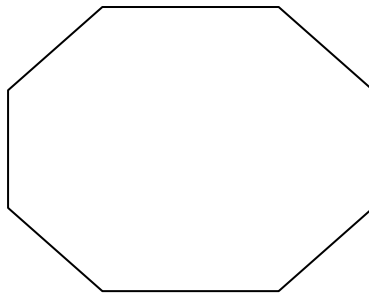
                                                              (2 marks)

ii.   Calculate the size of each angle formed by the triangles at the centre of the octagon.

…………………………………………………………………………………………

…………………………………………………………………………………………

                                                              (2 marks)

LEVEL 2 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.   E
Difference $= 3\frac{1}{4} - {}^{-}1\frac{1}{2} = 3\frac{1}{4} + 1\frac{1}{2} = 4\frac{1}{4} + \frac{2}{4} = 4\frac{3}{4}$

2.   D
$(6+4) \times (8-3) = 10 \times 5 = 50$

3.   D
Lowest mark $= 6$ Highest mark $= 8$
Average of remaining marks $= \dfrac{7+7+6.5+7.5}{4} = \dfrac{28}{4} = 7$

4.   A
$\frac{4}{12} = \frac{1}{3} = 33\frac{1}{3}\%$ $\frac{4}{20} = \frac{20}{100} = 20\%$ $\frac{9}{30} = \frac{3}{10} = \frac{30}{100} = 30\%$

$\frac{6}{25} = \frac{24}{100} = 24\%$ $\frac{3}{10} = \frac{30}{100} = 30\%$ $\frac{10}{40} = \frac{1}{4} = 25\%$

The lowest percentage occurs between 11am and 12pm.

5.   C
740 km $\xrightarrow{\div 74}$ 10 km $\xrightarrow{\times 10}$ 100 km

60 litres $\xrightarrow{\div 74}$ 0.81 litres $\xrightarrow{\times 10}$ 8.1 litres
Approximately 8 litres of petrol would be used when travelling 100 km.

6.   B
$4\,\mathrm{m}^2 = 40000\,\mathrm{cm}^2$ $\therefore$ Each side of the square piece of cardboard $= 200\mathrm{cm}$

Number of 6cm lengths in 200cm $= 33$
Number of 4cm lengths in 200cm $= 50$
Number of tickets $= 33 \times 50 = 1650$

7.   E
Number of four intervals in one day $= 24 \div 4 = 6$
Number of tablets $= 2 \times 6 \times 14 = 168$

8.   C
Angle is slightly larger than $90°$. Best estimate is $110°$.

9.   A
Cost of one apple $= x$ Cost of four apples $= 4 \times x = 4x$
Cost of one pineapple $= x + 100$ Cost of three pineapples $= 3x + 300$
Total cost $= 4x + 3x + 300 = 7x + 300$

10.   D
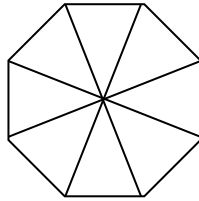Number of children who are at least 3 year old $= 12 + 16 + 13 = 41$
Therefore, D is incorrect.

$(10 \times 2 = 20 \text{ marks})$

Question 1

a.   **i.**   cone   [1/2]   **ii.**   cylinder   [1/2]

       iii.   triangular prism   [1/2]   **iv.**   rectangular pyramid   [1/2]

b.   **i.**

[2]

       ii.   Angle at centre $= 360° \div 8 = 45°$ [2]

       iii.   Each equal angle $= \frac{1}{2}(180° - 45°) = \frac{1}{2} \times 135° = 67.5°$ [2]

       iv.   Interior angle $= 67.5° + 67.5° = 135°$ [2]

Question 2

a.

Date	Details	Withdrawals	Deposits	Balance
5 Feb	Opening Balance			528.71
15 Feb	Cash deposit		68.00	596.14
19 Feb	Auto teller withdrawal	50.00		546.14
23 Feb	Cash withdrawal	150.50		395.64
25 Feb	Cheque deposit		38.85	434.49
28 Feb	Government charges	1.75		432.74

[3]

b.   **i.**   Minimum balance $= \$395.64$ [1]

       ii.   Interest $= 2\%$ of $\$395.64 = 0.02 \times 395.64 = \$7.91$ [2]

       iii.   Let a denote the amount of money required
              2% of $a = \$10$

              $\therefore 0.02a = 10$

              $\therefore \quad a = \frac{10}{0.02}$ [2]

                   $= \$500$

c.   Let m denote mothers age now
       $\therefore 3 : 1 = m : 15$ [1]

       $\therefore m = 3 \times 15 = 45$ years

       In five years time the son will be 20 years old and the mother 50 years old.
       The ratio of the mother's age to the son's age $= 50 : 20 = 5 : 2$ [1]

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Mathematics Examinations
High Schools

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Please mark (X) those required.

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