EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

MATHEMATICS **6880/03**

Paper 3 Short-Answer Questions (Extended) **October/November 2023**

2 hours

Candidates answer on the Question Paper.
Additional Materials: Scientific Calculator
Geometric instruments
Tracing paper (optional)

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen in the spaces provided on the Question paper.
You may use a soft pencil for any diagrams or graphs.
Do **not** use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

All working should be clearly shown below that question.
The number of marks is given in brackets [ ] at the end of each question **or** part question.

Scientific calculators should be used.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures.
Give answers in degrees to one decimal place.

For π, use either your calculator value or 3.142.
The total of the marks for this paper is 80.

For Examiner's Use	
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This document consists of **13** printed pages and **3** blank pages.

1 State the reason why:

(a) 4 is not a prime factor of 120,

Answer (a) .....

..... [1]

(b) 7 is not a prime factor of 120.

Answer (b) .....

..... [1]

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2 Find the next two terms of the sequence:

(a) 2 5 8 11,

Answer (a) ..... , ... [2]

(b) $3f - 1$ $3f + 2$ $3f + 5$.

Answer (b) ..... , ... [2]

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3 **(a)** Write 37.012 correct to 3 significant figures.

Answer (a) ..... [2]

(b) Write 4713 correct to the nearest 20.

Answer (b) ..... [2]

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4 Work out, without using a calculator.

[Show all your working]

(a) $\frac{3}{7} - 2 + \frac{5 - 2 \times 3}{8}$

Answer (a) ..... [3]

(b) 11% of 0.75 km. Give your answer in metres

Answer (b) ..... [2]

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5 A regular polygon has 9 sides.

Calculate the size of each interior angle.

Answer ..... [2]

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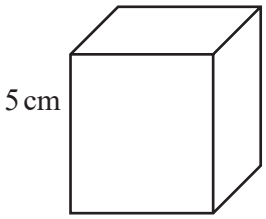
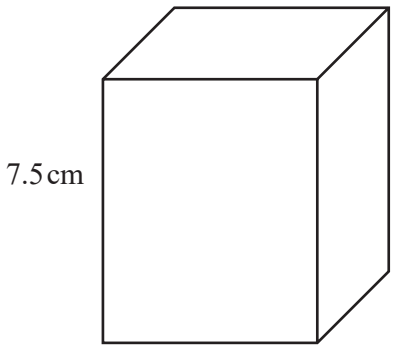
6 The two cuboids are similar.

The volume of the smaller cuboid is 25 cm^3.





Find the volume of the larger cuboid.

Answer: volume = ... cm^3 [3]

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7 A circular field is to be fenced.

The area of the field is $64\,m^2$.

(a) Calculate the radius of the field.

Answer (a) ..... m [2]

(b) Calculate the length of fence needed.

Answer (b) ..... m [1]

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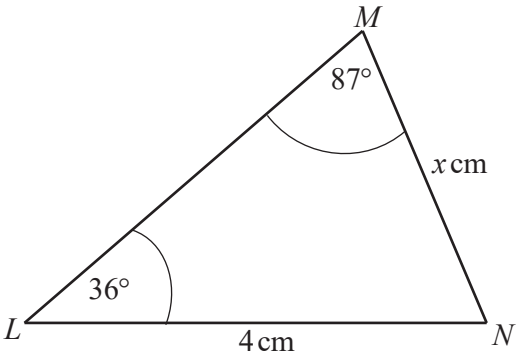
8 Figure *LMN* is a triangle.

$LN = 4$ cm and $MN = x$ cm.

Angle $MLN = 36°$ and Angle $LMN = 87°$.



Calculate the value of x.

Answer x = ... cm [2]

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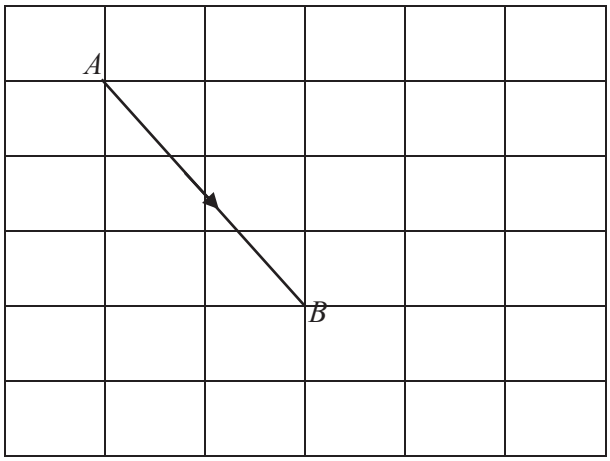
9 **(a)** Write vector $\overrightarrow{AB}$ as a column vector.



Answer (a) [2]

(b) Given that $\left|\begin{pmatrix} a \\ 12 \end{pmatrix}\right| = 13$ and $a > 0$.

Find the value of a.

Answer (b) $a =$ ..... [2]

(c) You are given that $\mathbf{i} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$ and $\mathbf{j} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$.

Write down the position vector of D (4, –3), in the form $k\mathbf{i} + h\mathbf{j}$.

Answer (c) ..... [1]

[Turn over

10 Simon leaves home at 0642 hours and walks for 35 minutes to school.

Find the time at which he arrives at school.

Answer ..... [1]

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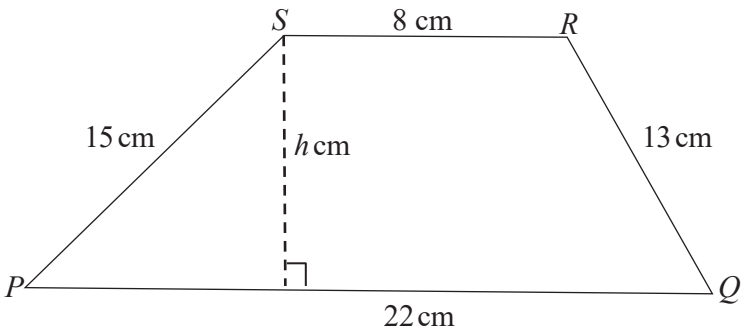
11 Trapezium $PQRS$ has a height of h cm, $PQ = 22$ cm, $QR = 13$ cm, $RS = 8$ cm and $SP = 15$ cm.



(a) Calculate the perimeter.

Answer (a) ..... cm [1]

(b) The area of trapezium $PQRS$ is 180 cm^2.

Calculate the height, h, of the trapezium.

Answer (b) h = ... cm^2 [2]

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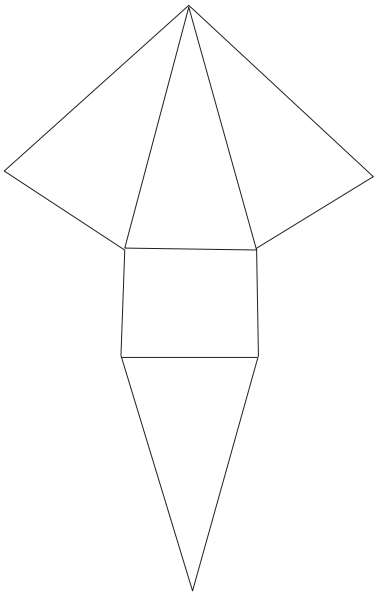
12 The diagram shows the net of a solid.



State the name of the solid.

Answer ..... [1]

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13 Sipho is standing on level ground.

He is 3.6 m away from a vertical pole.

The height of the pole is 5.5 m.

The angle of elevation from the top of Sipho's head to the top of the pole is 47°.

Calculate Sipho's height.

Answer ..... m [3]

[Turn over

14 The eight cards shown below are put into a bag.

J	E	R	E	M	I	A	H

(a) A card is drawn at random from the bag.

Find the probability that the card drawn is

(i) an R,

Answer (a) (i) ..... [1]

(ii) a vowel.

Answer (a) (ii) ..... [1]

(b) All eight cards are put into the bag again.

Three cards are then picked from the bag, one after the other.

They are placed in a row in the order they were picked out.

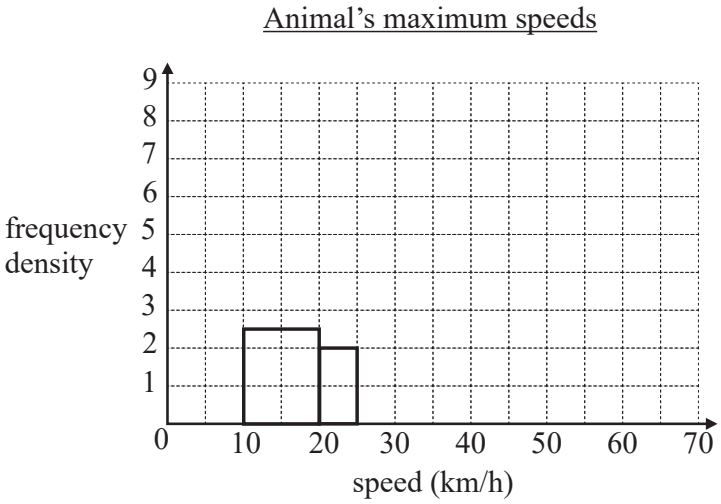
Find the probability that they spell H E M.

Answer (b) ..... [2]

15 The maximum speeds, x km/h, of 30 different animals at a game reserve in Eswatini are shown in the frequency table.

Maximum speed (km/h)	Number of animals
$10 < x \leqslant 20$	5
$20 < x \leqslant 25$	2
$25 < x \leqslant 30$	4
$30 < x \leqslant 50$	16
$50 < x \leqslant 60$	1
$60 < x \leqslant 70$	2

The information is to be presented in the histogram shown.



(a) Use the frequency table to complete the histogram. [3]

(b) Find the interval that contains the median.

Answer (b) ..... [1]

(c) Find the number of animals whose maximum speeds is more than 50 km/h.

Answer (c) ..... [1]

16 In a group, 45 learners were asked what their favourite beverage was.

The results were shown in a pie chart.

(a) It is given that 18 learners' favourite beverage was tea.

Find the sector angle for those whose favourite beverage was tea.

Answer (a) ..... [2]

(b) The sector angle for those whose favourite beverage was cocoa was 96°.

Find the number of learners whose favourite beverage was cocoa.

Answer (b) ..... [2]

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17 Simplify the following expressions.

(a) $3(p + 4) - 7(y - 4p)$

Answer (a) ..... [2]

(b) $\frac{7}{2b} - \frac{3}{4b}$

Answer (b) ..... [2]

(c) $\frac{x^2 - 2x}{x^2 - 7x + 10}$

Answer (c) ..... [3]

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18 Factorise

(a) $18x^2 - 98y^2$

Answer (a) ..... [3]

(b) $2ax + bx - 2ay - by$

Answer (b) ..... [3]

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19 Make r the subject of each formula.

(a) $3 - 4r = 6r + y$

Answer (a) $r =$ ..... [2]

(b) $2v = r^2 - 5$

Answer (b) $r =$ ..... [2]

(c) $t = \dfrac{3r - 4}{7}$

Answer (c) $r =$ ..... [3]

[Turn over

20 Given that $f(x) = 3x$ and $g(x) = 5x - 2$

find

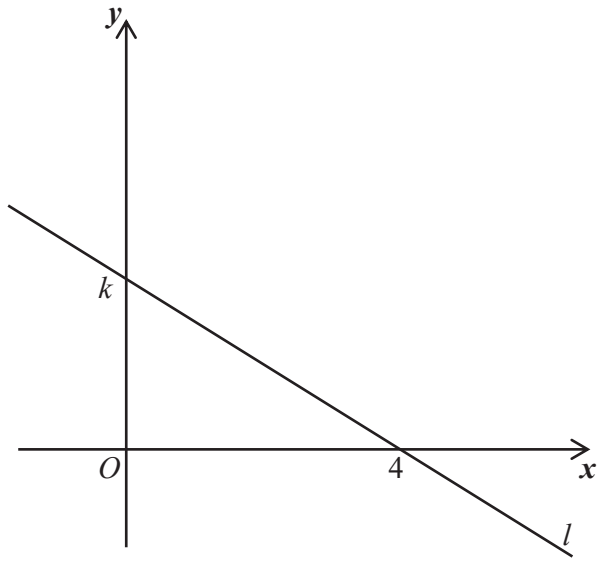
(a) $f(x) - 3g(x)$,

Answer (a) ..... [2]

(b) $gf(x)$.

Answer (b) ..... [2]

21



(a) The gradient of the line l is $-\frac{3}{4}$.

Find the value of k.

Answer (a) k = ... [1]

(b) Another line S, perpendicular to line l, passes through the point (0 , 1.5).

Write down the equation of line S.

Answer (b) ..... [2]

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22 Solve the inequality $-3 < 5x + 2 < 7$.

Answer ..... [2]

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