EXAMINATIONS COUNCIL OF LESOTHO
Lesotho General Certificate of Secondary Education

CANDIDATE NAME														
CENTRE NUMBER						CANDIDATE NUMBER								

MATHEMATICS **0178/01**

Paper 1(Core) **May/June 2023**

1 hour

Marks: 60

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments
Tracing paper (optional)

READ THESE INSTRUCTIONS FIRST

Write your name, centre number and candidate number in the relevant spaces provided at the top of this page.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
Answer **all** questions.
ELECTRONIC CALCULATORS **MUST NOT** BE USED IN THIS PAPER.
If working is needed for any question it must be shown below that question.
The number of marks is given in brackets [ ] at the end of each question or part question.

1 Work out

(a) $1.2 + \frac{1}{2}$,

..... [1]

(b) $16 + 4 \div 2 - 1$.

..... [1]

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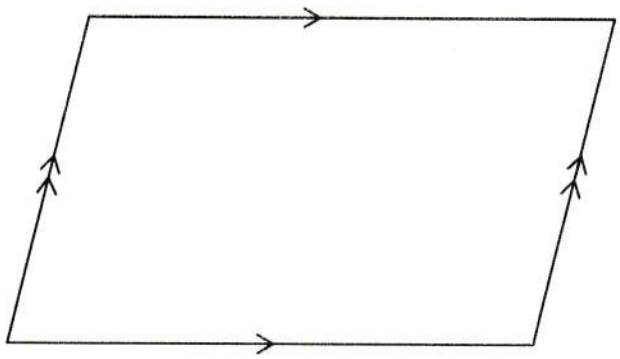
2 State the number of lines of symmetry of the drawn parallelogram.



..... [1]

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3 From the list of numbers, 2.4 5 8% $\sqrt{15}$ $\sqrt{16}$

write

(a) a composite number,

..... [1]

(b) an integer,

..... [1]

(c) an irrational number.

..... [1]

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4 Thato has M800.
She spends $\frac{5}{16}$ of it on food and $\frac{1}{5}$ of the remaining on petrol.

Find the fraction of M800 that Thato has after paying for food and petrol.

..... [3]

---

5 Factorise completely

(a) $2mn + n^2$,

..... [1]

(b) $xy^2 - 9x$.

..... [2]

---

6 Write the reading shown on the scale.

..... [2]

[Turn over

7 **(a)** Given that $a = \sqrt[3]{b^2 + 4c}$,

calculate the value of a when $b = 9$ and $c = 11$.

$a =$ ..... [2]

(b) Given that $x = b^2 + 4ac$,

make a the subject of the formula.

$a =$ ..... [2]

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8 A girl walked 6 km from R to S on a bearing of 105°.
The position of R and a North line have been drawn for you.

Using a scale of 1 cm to 1 km, draw a diagram to represent the girl's journey.

[2]

---

9 There are eight cards each with one letter of the word PAPERONE as follows.

P	A	P	E	R	O	N	E

These cards are placed in a bag.
A card is taken at random from the bag.

(a) Find the probability that the card is **not** labelled **P**.

..... [1]

(b) The card is replaced and another taken at random.
This is repeated 200 times.

Find the number of times that the taken card would be labelled **E**.

..... [2]

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10 The table shows account balances of four men.

Names of Men	Fako	Khotso	Phoka	Thabo
Balance in Maloti (M)	25	−32	0	5

(a) Write the name of the man who has the lowest balance.

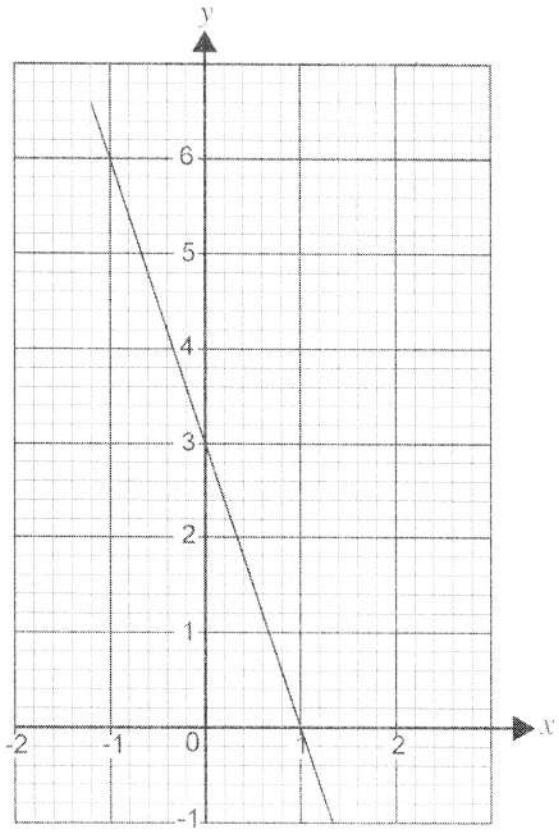
..... [1]

(b) Find the difference between Khotso and Thabo's balances.

M..... [1]

[Turn over

11 The diagram shows a line drawn on the grid.



Find the equation of the line.

..... [2]

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12 The original price of a cell phone is M2500.

Calculate the price of the cell phone when it is sold at 20% discount.

M..... [2]

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13 Arrange the following fractions in order of size starting with the **smallest**.

$\frac{2}{3}, \frac{5}{6}, \frac{7}{9}, \frac{9}{12}$.

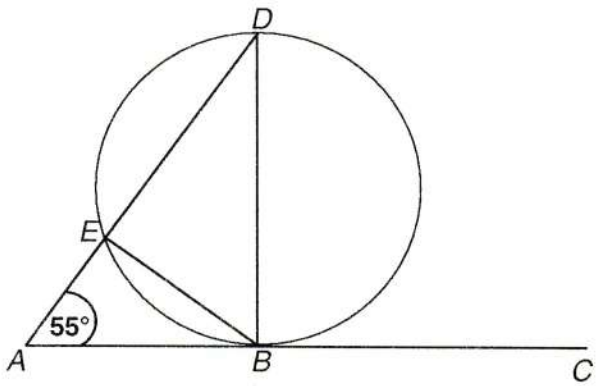
.....<.....<.....<..... [2]

---

14 The diagram shows points *B*, *D* and *E* lying on a circle.

AC is a tangent at *B* and angle *EAB* = 55°.

AD is a straight line and *BD* is a diameter.



NOT TO SCALE

(a) State the reason why angle *DEB* = 90°.

..... [1]

(b) Calculate the size of angle *EBD*.

.....° [2]

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15 Work out

(a) $2.4 \times 10^2 + 3.25 \times 10^4$,

..... [2]

(b) $3^2 + \sqrt{4} - 9^0$.

..... [2]

---

16 Solve

(a) $3w - 13 = 8$,

$w =$ ..... [2]

(b) $\frac{2x-1}{3} - \frac{x-2}{2} = 1$.

$x =$ ..... [3]

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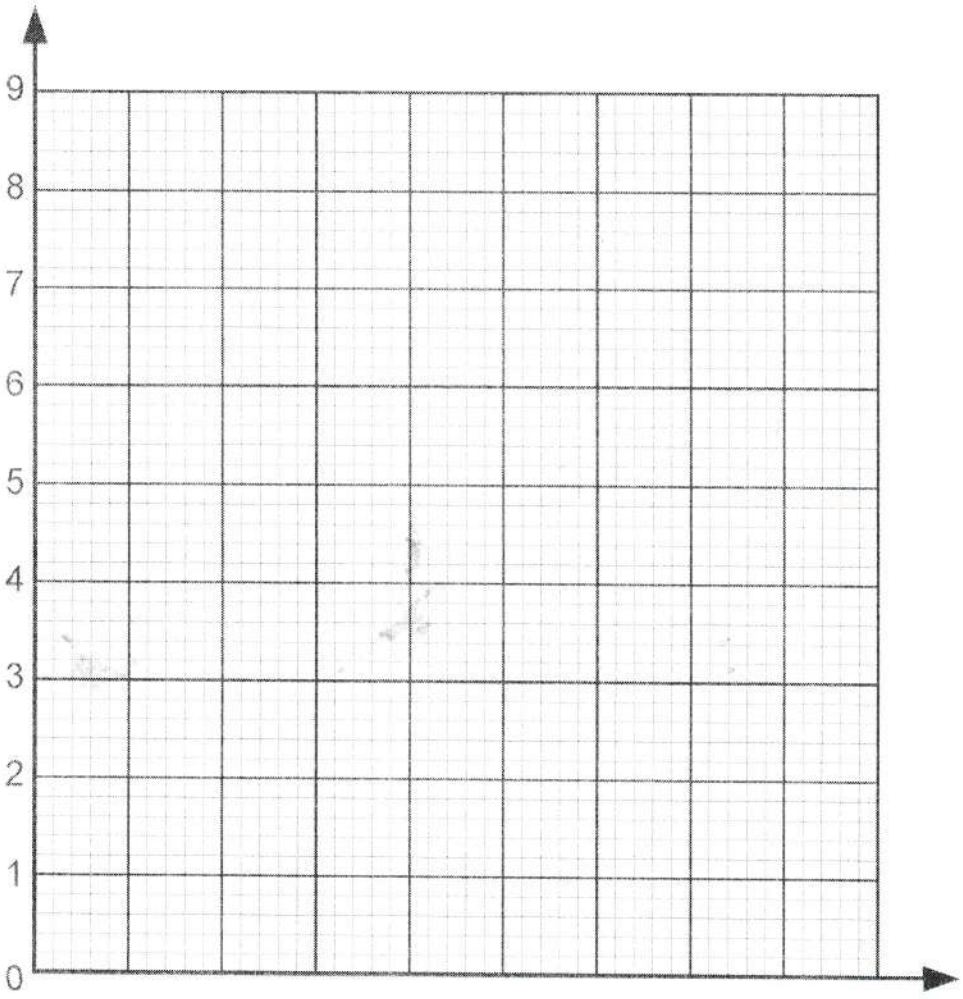
17 The table shows the sizes of trousers of 15 men.

Size	26	28	30	32	34
Frequency	3	5	4	2	1

(a) Find the median size.

..... [2]

(b) On the grid, draw the bar chart to represent the data.



[3]

[Turn over

18 **(a)** A polygon has seven sides.

Write down the mathematical name of this polygon.

..... [1]

(b) A regular polygon has an exterior angle of 40°.

Find

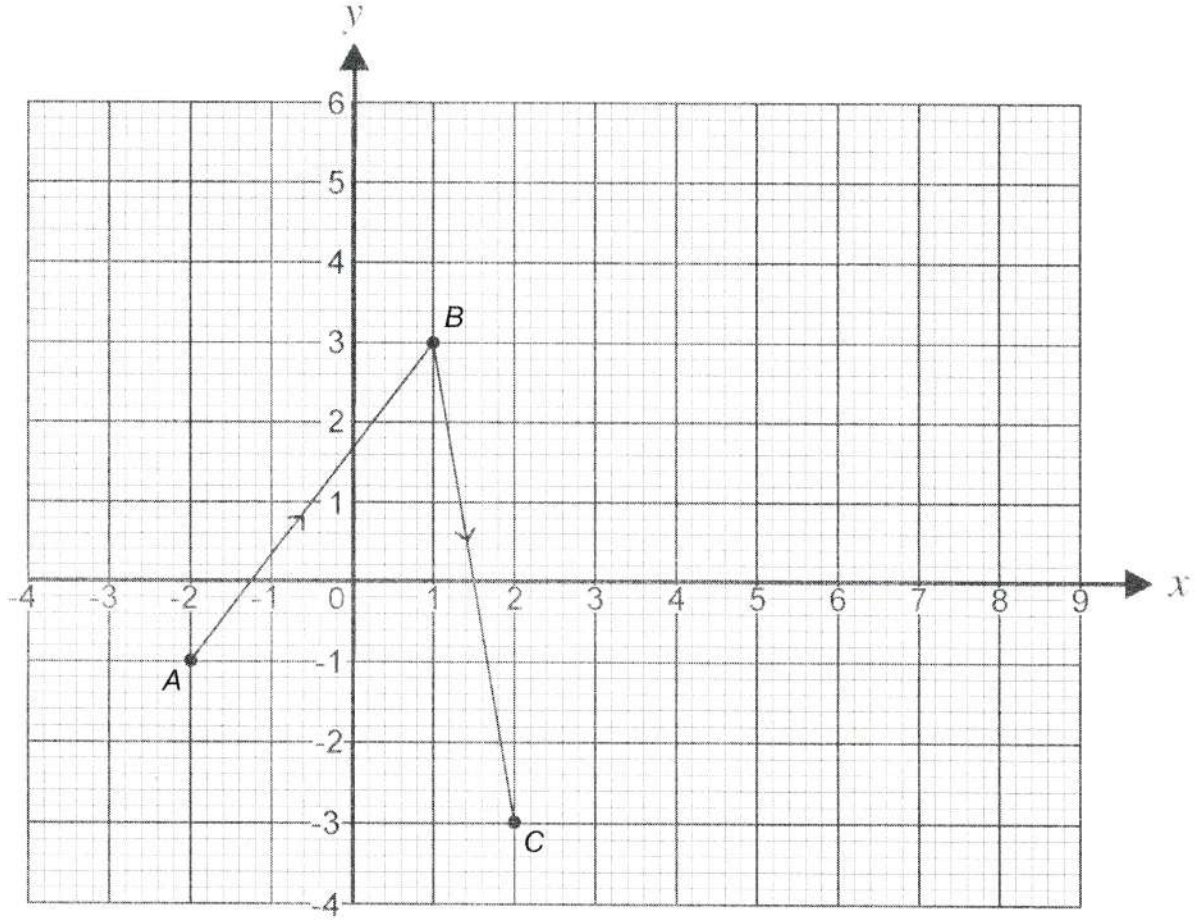
(i) the size of an interior angle of the polygon,

..... ° [1]

(ii) the number of sides of the polygon.

..... [2]

19 Vectors $\overrightarrow{AB}$ and $\overrightarrow{BC}$ are shown on the grid.



Find $\overrightarrow{AB} + \overrightarrow{BC}$.

( )

..... [2]

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20 Calculate the volume of a cube that has a cross-sectional area of 36 cm^2.

.....cm^3 [2]

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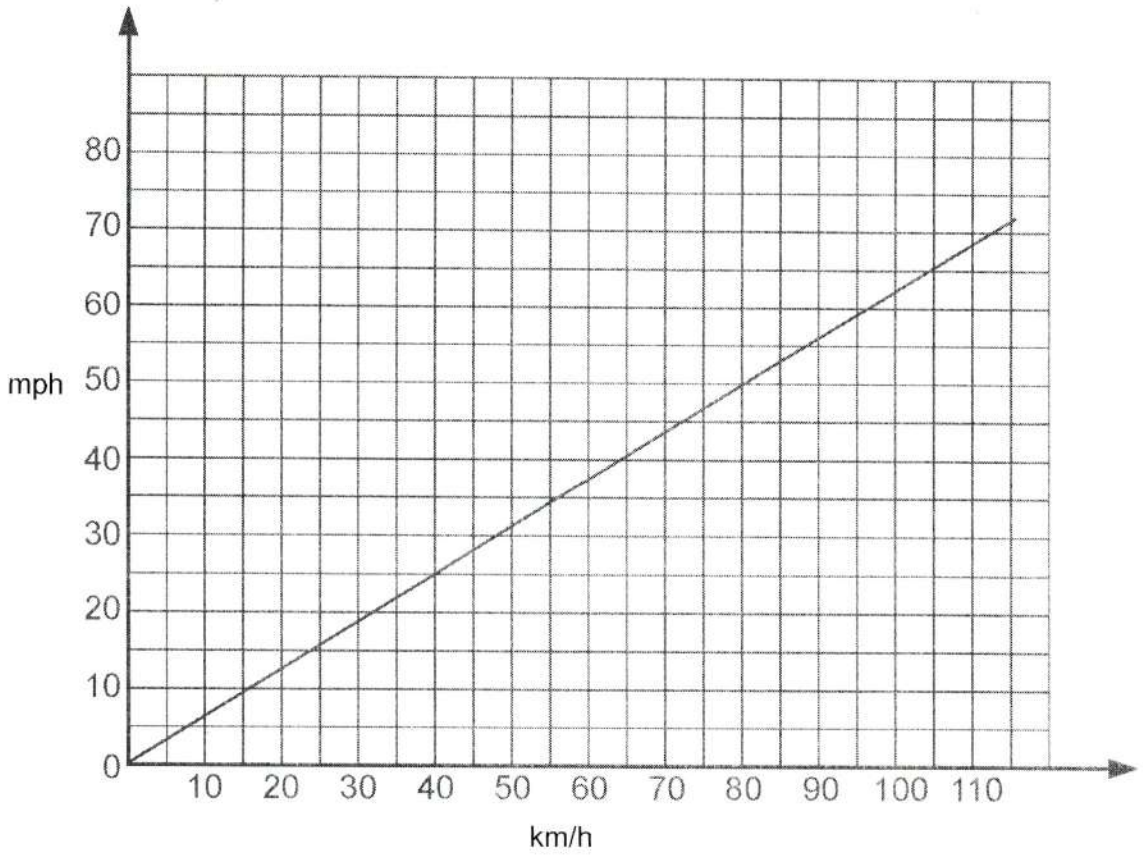
21 The graph shows conversion of speed between kilometres per hour (km/h) and miles per hour (mph).



Use the graph to convert 160 kilometers per hour (km/h) to miles per hour (mph).

..... mph[2]

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22 The length of a field is 80 m measured correct to the nearest metre.

Find the maximum possible length of the field.

.....m [2]