Kingdom of Lesotho
Ministry of Education and Training

EXAMINATIONS COUNCIL OF LESOTHO
Lesotho General Certificate of Secondary Education

CANDIDATE NAME			
CENTRE NUMBER		CANDIDATE NUMBER	

MATHEMATICS
Paper 2 (Extended)

0178/02
October /November 2025
1 hour 30 minutes
Marks: 70

Additional Materials: Geometrical Instruments
Tracing Paper (optional)
Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, centre number and candidate number in all the relevant spaces provided at the top of this paper.
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.

This document consists of **13** printed pages and **3** blank pages.

1 **(a)** Round off 0.9997 correct to one decimal place.

..... [1]

(b) The sides of a rectangular plot are 3 m by 5 m correct to the nearest metre.
Calculate the least possible perimeter of the plot.

.....m [2]

---

2 $m = 2 \times 3^a \times 7^b$ and $n = 3 \times 7^2 \times 11$

(a) Given that $m > 126$, find the smallest value of a and b which make m a multiple of 126.

$a =$ ..... [1]

$b =$ .....[1]

(b) Explain why $33n$ is a perfect square.

.....

..... [1]

3 Given $\frac{5}{6} \times \frac{486}{625} = \frac{x^4}{5^y}$,

find the value of x and the value of y.

$x =$ .....

$y =$ .....[3]

---

4 Express $1.\dot{3}$ as a rational number.

..... [3]

---

5 E varies directly as a square of W.

E	40	f
W	2	5

Use the information in the table to find the value of f.

$f =$ ..... [3]

---

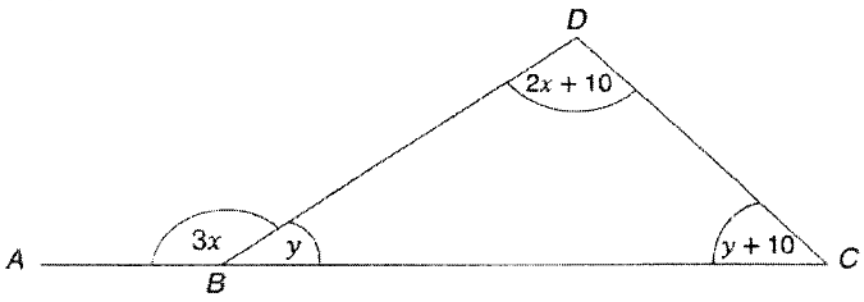
6 Majara bought a laptop for M6 900 including the 15% tax.

Calculate the cost of the laptop before tax.

M .....[3]

7 The diagram shows triangle BCD and line CB is extended to A.

Angle $ABD = 3x°$, angle $DBC = y°$, angle $BCD = (y + 10)°$ and angle $BDC = (2x + 10)°$.



(a) Some of the angles in the diagram are connected by the equation $3x + y = 180$.

Show that some angles are connected by $x + y = 80$. [2]

(b) Find the value of x.

x =.....[2]

8 The table shows the number of T-shirts and their sizes sold in a shop.

sizes	frequency
XS	16
S	36
M	20
L	30
XL	18

(a) State the modal size.

.....[1]

(b) Calculate the sector angle that would represent size M on the pie chart.

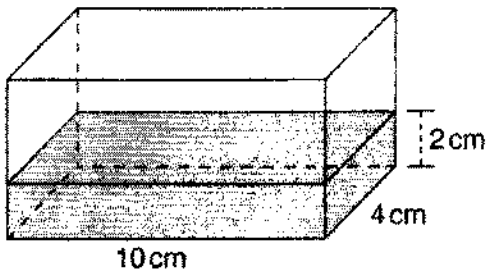
.....° [2]

(c) A T-shirt is chosen randomly from the shop.

Calculate the probability that the T-shirt is XL.

.....[1]

9 The diagram shows a cuboid of volume 300 cm³ containing water to the depth of 2 cm. The length and width of the cuboid are 10 cm and 4 cm respectively.

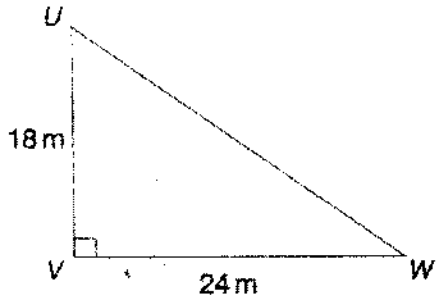


NOT TO SCALE

Calculate the height of the cuboid not in contact with water.

..... cm [3]

10 The diagram shows a right-angled triangle UVW.
$UV = 18$ m and $VW = 24$ m.



NOT TO SCALE

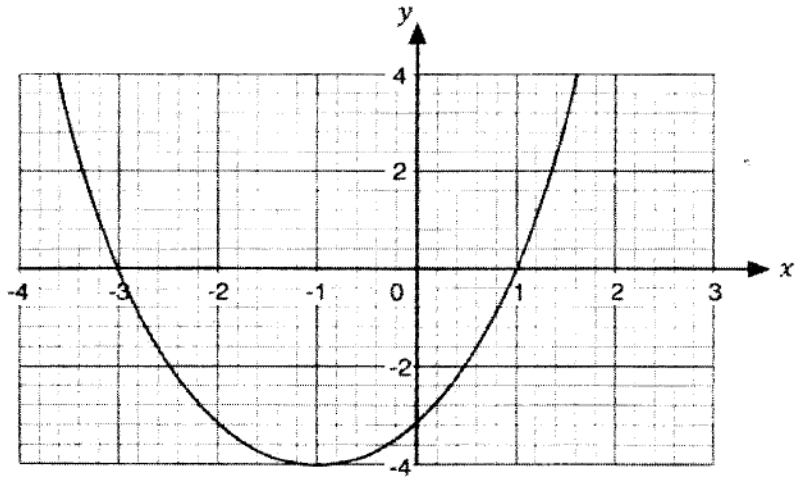
(a) Calculate the length UW.

..... m [2]

(b) Write the value of tan $U\hat{W}V$.

..... [1]

11 The diagram shows graph C on the grid.



State

(a) the roots of the graph,

..... [2]

(b) the equation of the axis of symmetry of the graph.

..... [1]

---

12 In a club of 40 members, 30 prefer a picnic and 25 prefer a party.

Find the greatest number of members who prefer neither picnic nor party.

..... [2]

---

13 $p = \frac{\sqrt{a^2(n^2-b)}}{2}$.

Express a in terms of n, b and p.

$a =$ ..... [3]

---

14 **(a)** $x^2 + kx - 36$ has one root as 4.

Find the value of k.

$k =$ ..... [2]

(b) Factorise fully $2x^2 + 9x - 35$.

..... [2]

---

15 If $\frac{a-b}{b} = \frac{1}{2}$, find the value of $\frac{a}{b}$.

$\frac{a}{b} =$ .....[2]

16 A quadratic equation $ax^2 + bx + c = 0$, where a, b and c are integers, has the roots -3 and $\frac{1}{2}$.

Find the quadratic equation.

..... [3]

17 Given $-7 \leq \frac{2}{3}x - 5 < 8$,

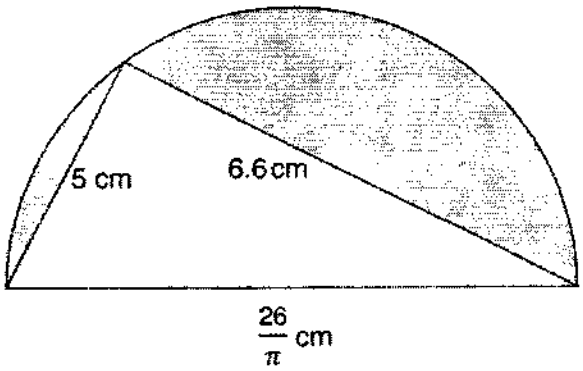
(a) solve the inequality,

..... [3]

(b) find the largest possible integer value of x which satisfies the inequality.

..... [1]

18 The diagram shows a semi-circle with diameter $\frac{26}{\pi}$ cm.
The two chords are 5 cm and 6.6 cm respectively.



NOT TO SCALE

Calculate the perimeter of the shaded part.

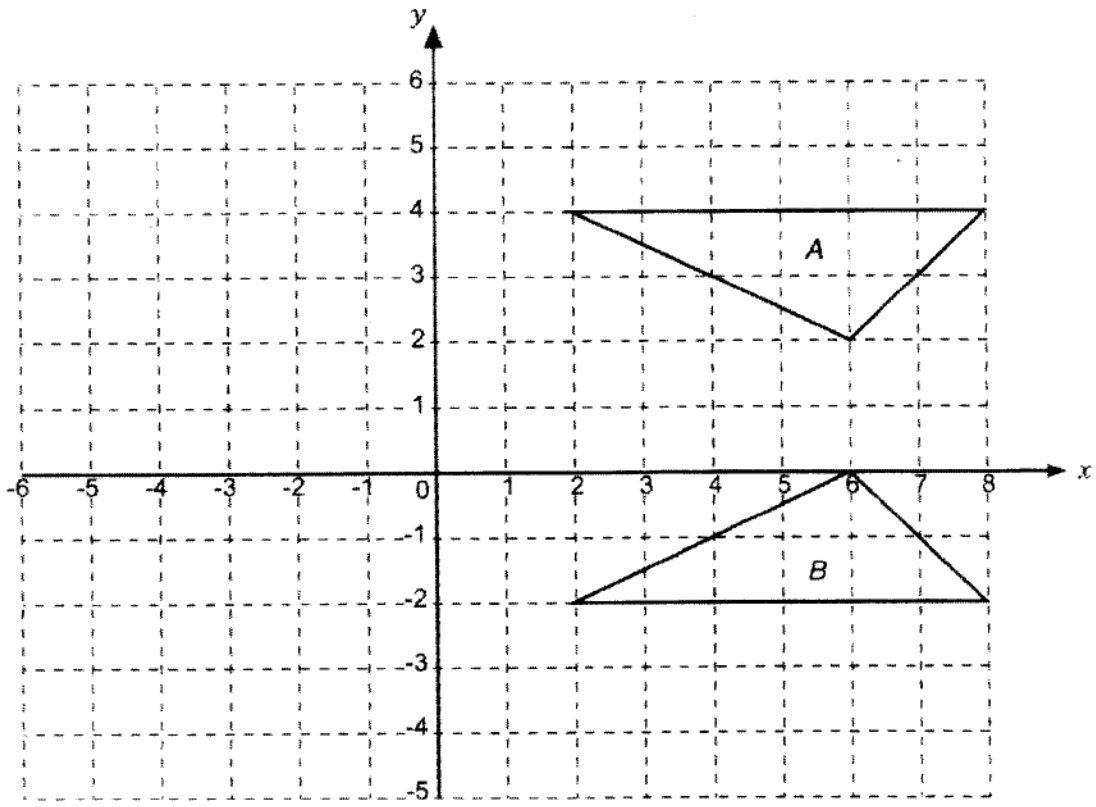
..... cm [3]

19 Seeta has 5 mint and 4 chocolate favoured sweets wrapped alike.
He chooses two sweets at random and eats them one after the other.

Find the probability that Seeta ate sweets of different flavours.

..... [3]

20 The $x - y$ plane shows triangles A and B.



(a) Describe a single transformation that maps A onto B.

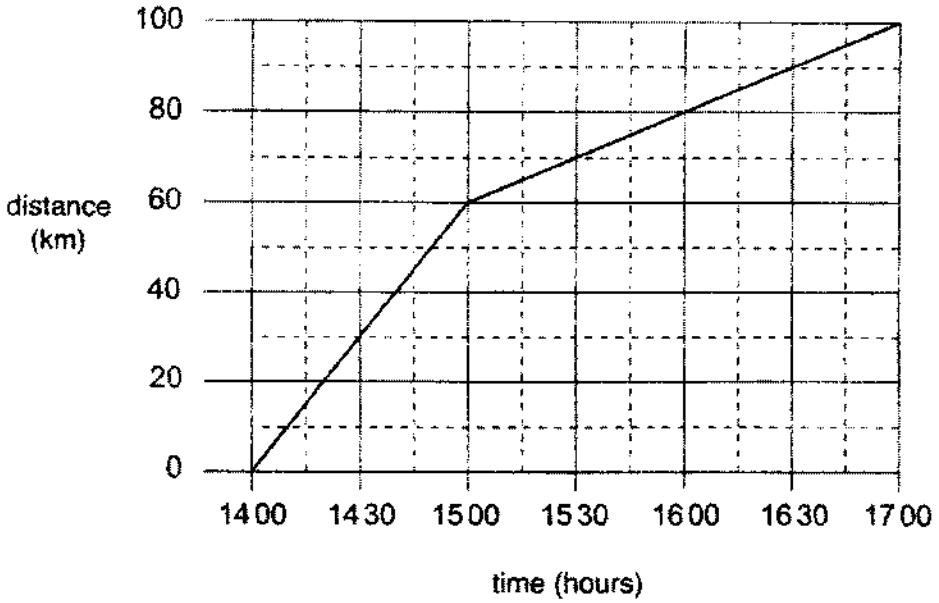
.....

..... [2]

(b) Draw the image of B after stretch, y –axis invariant and stretch factor $-\frac{1}{2}$.

[2]

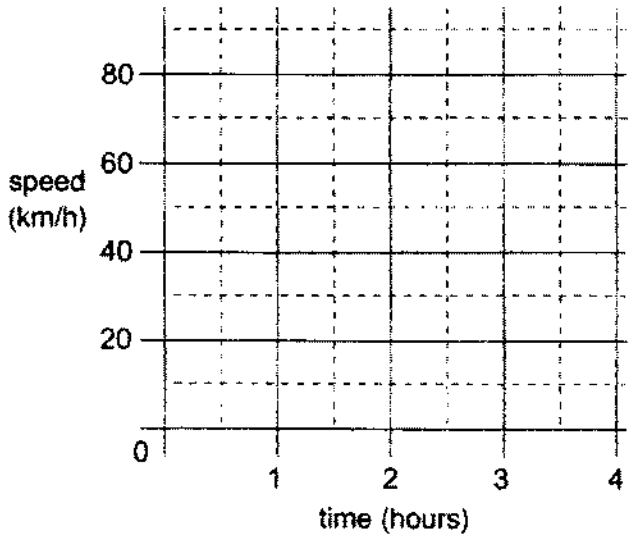
21 The distance-time graph shows the distance travelled by a car from 1400 to 1700 hours.



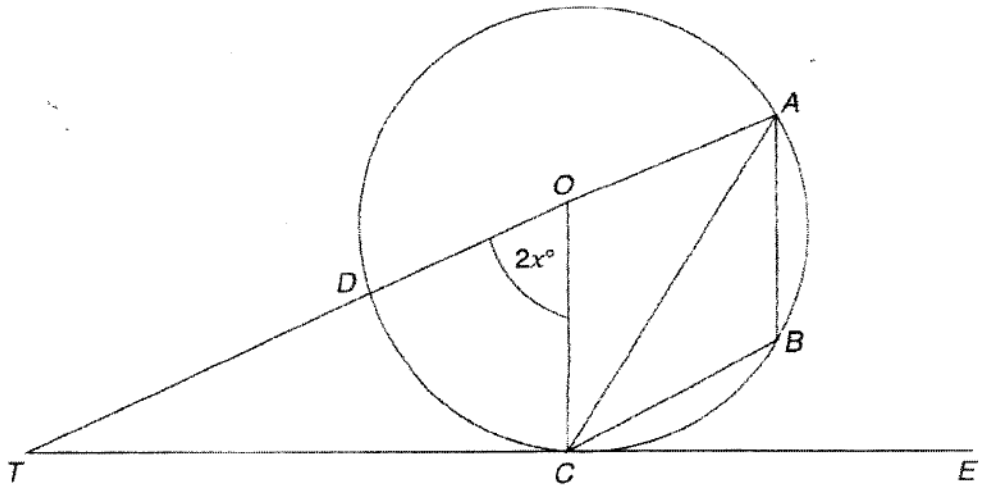
(a) Calculate the speed at 1630 hours.

..... [2]

(b) Represent the distance-time graph above on a speed-time graph. [2]



22 The diagram shows points A, B, C and D on the circle with centre O.
The straight line TCE is a tangent to the circle at C.
Line AB is equal to line BC and angle $DOC = 2x°$.



Expressing each angle in terms of x, find

(a) the size of angle OAC,

..... [1]

(b) the size of angle ABC,

..... [1]

(c) the size of angle BCE.

..... [1]

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