SPECIAL MOCK 2025

MTC GUIDE

LUBEGA JB MATOVU
H.O.D MATHEMATICS
Greenhill Academy

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COMING UP

PRE PLE SERIES(10) sets

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SECTION A: 40 MARKS

Answer all the questions in this section.
*Questions **1** to **20** carry **two** marks each.*

1. Workout: 435 – 232

4 3 5
- 2 3 2
2 0 3

B2 for 203

2. Write in numerals:
"Seven hundred seven thousand seven"

700,000
+ 7,000
7
707,007

M1 for addition

A1 for answer

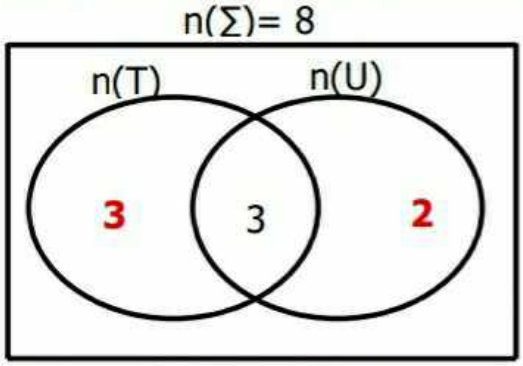
3. Simplify: (2 - 4g) - (g - 3)

2 - 4g - g + 3
2+3-4g-g
5 - 5g

B1 for opening brackets

B1 for answer

4. Given that:
U = {the first five odd numbers}
T = {2, 3, 5, 7, 11, 13}
Use the information above and complete the Venn diagram below:

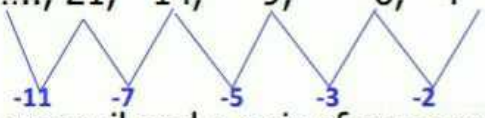


U = {1, ③, ⑤, ⑦, 9}
T = {2, ③, ⑤, ⑦, 11, 13}

B1 for 3

B1 for 2

5. Find the square of the missing number in the sequence below:
32....., 21, 14, 9, 6, 4



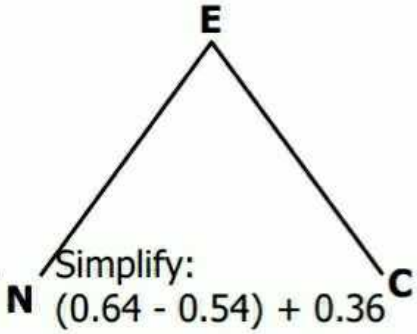
$(32)^2$
32x32
1024

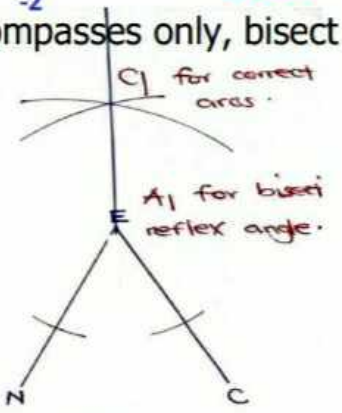
11+21 =32

M1 for 32^2

A1 for 1024

6. Using a pencil and a pair of compasses only, bisect a reflex angle NEC





C1 for arcs

A1 for bisecting

7. Simplify:
(0.64 - 0.54) + 0.36

0.64
-0.54
0.10

0.10
+0.36
0.46

1 for 0.10

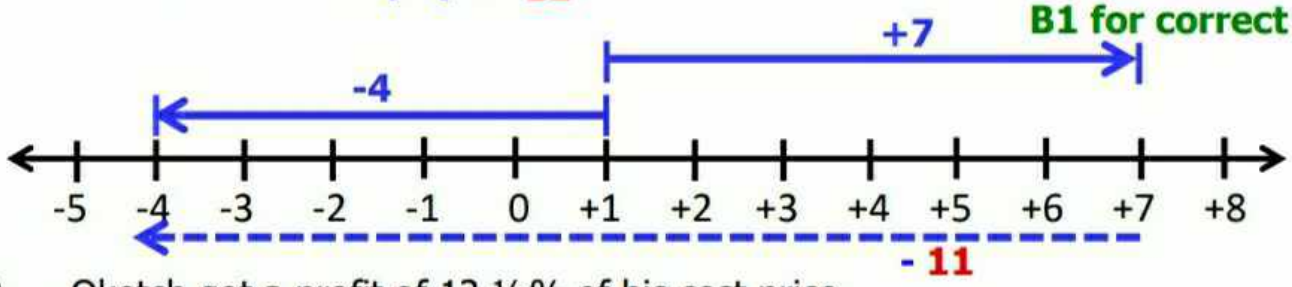
B1 for 0.46

8. Use the number line to work out the statement below:
-4 - +7

-4-⁺7 = ⁻11

B1 for correct 2 lines

B1 for correct answer



9. Oketch got a profit of 13 ½% of his cost price.
If he bought an acre of land in Oyam district at sh. 1200000.
Calculate the amount of money he sold the land after a certain period of time.

100% + 13½%

$\frac{113 \times 2 + 1}{2x100}$

$\frac{226 + 1}{200}$

$\frac{227}{200}$

$\frac{227}{200} \times$ **Sh.1,200,000**

227 × Sh.6,000

sh.1,362,000

B1 for correct method

A1 for answer

10. The median of 3 consecutive integers is 5.
Find the product of the third number and a seventh.

Let the median be m

1st no	2nd no	3rd no	Median
m	m + 1	m +2	5

m m+1 m+2

m+1 =5

m+1-1=5-1

m =4

product

$(m+2) \times \frac{1}{7}$

$(4+2) \times \frac{1}{7}$

$\frac{6}{7}$

M1 for correct method

A1 for answer

11. Two quarters of 🍎🍎 cost sh.1200.
At the same rate, how many apples can one buy for sh.8400?
Draw pictograms to represent your answer.

$\frac{2}{4}$ **of 2 apples**

$\frac{2}{4} \times 2$

1

shs.8400

shs.1200

84

12

7 pictos

🍎🍎🍎🍎🍎🍎🍎

B1 for correct method

B1 for pictos

12. Evaluate $\sqrt{\frac{nm}{k}}$, where n = m = $\frac{k}{2}$ = 8

$\sqrt{\frac{(n \times m)}{k}}$

$\frac{k}{2} = 8$

$2 \times \frac{k}{2} = 8 \times 2$

$k = 16$

$\sqrt{\frac{(8 \times 8)}{16}}$

$\sqrt{\frac{64}{16}}$

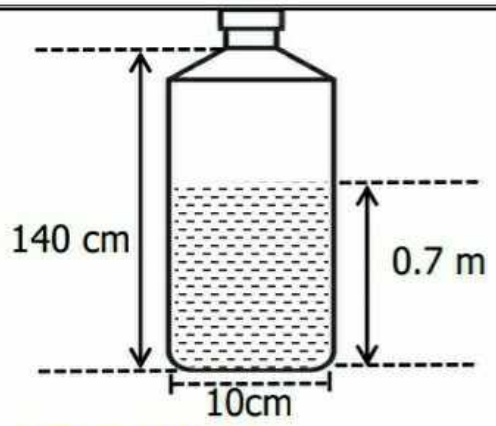
$\frac{8}{4} = 2$

$\sqrt{\frac{nm}{k}} = 2$

M1 for correct method

A1 for answer

13. The cylindrical water bottle below has a volume of **11,000 cm³** when full. How many litres remained in the bottle after Jayden took some of the liquid to his best friend during the 2024 Christmas season?



1m = 100 cm
0.7 m = (0.7 × 100) cm
= ($\frac{7}{10}$ × 100) cm
= (7 × 10) cm
0.7 m = 70 cm
V = πr²h

V = ($\frac{22}{7}$ × $\frac{10}{2}$ × $\frac{10}{2}$ × 70) cm³
V = ($\frac{22}{7}$ × 10 × $\frac{10}{2}$ × 70) cm³
V = (22 × 5 × 5 × 10) cm³
V = (22 × 250) cm³
V = 5,500 cm³
C = V
1000 cm³
C = 5,500 cm³
1,000 cm³
C = 5.5 litres remained

M1 for correct method

A1 for answer

ALTERNATIVE APPROACH

V = ($\frac{314}{100}$ × $\frac{10}{2}$ × $\frac{10}{2}$ × 70) cm³
V = (157 × 5 × 7) cm³
V = 5495 cm³
C = 5495
C = 5495cm³
1000cm³
C = 5.495 litres remained

14. Find the multiplicative inverse of $\frac{3}{7}$

Let the multiplicative inverse be *k*.
***k* of $\frac{3}{7}$ = 1**
$k \times \frac{3}{7}$ = 1

$\frac{3k \times 7}{7}$ = 1x7
3k = 7
k = $\frac{7}{3}$
k = $2\frac{1}{3}$

M1 for correct method

A1 for answer

15. Workout: 4949 ÷ 7

```
      0 7 0 7
   7 | 4 9 4 9
0×4   0
      4 9
7×7   4 9
      0 0 4
0×4       0
          4 9
7×7       4 9
          0 0
```

∴ 4949 ÷7 = 707

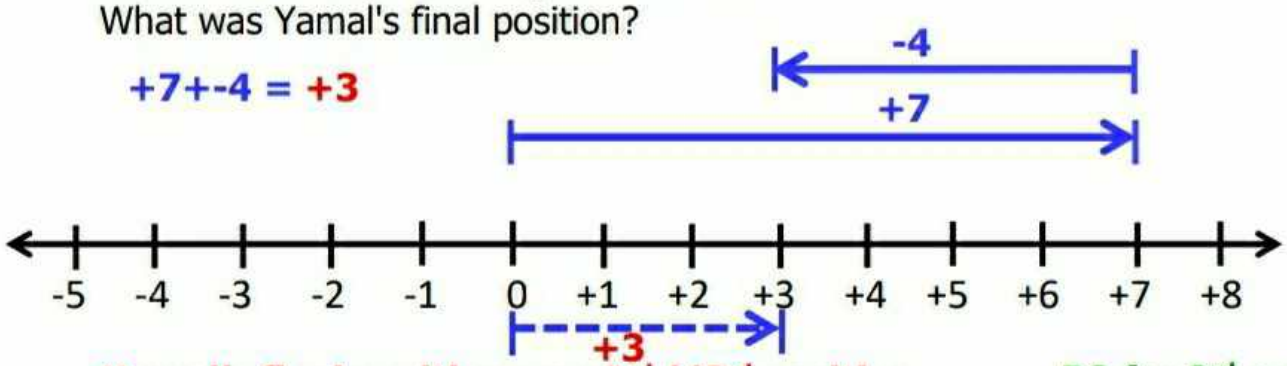
$\frac{707}{\cancel{4949}}$
$\cancel{7}_{1}$
707

M1 for dividing

B1 for 707

16. Yamal climbed 7 steps from his flat upwards and later descended 4 steps to the ground floor.
What was Yamal's final position?

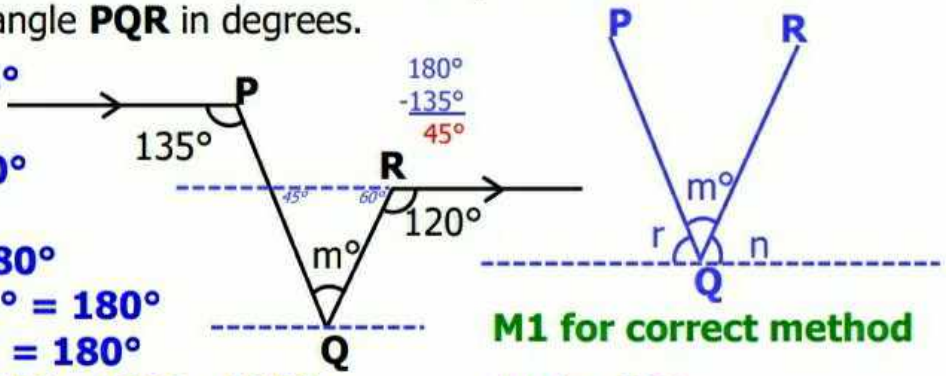
+7+-4 = +3



Yamal's final position was 3rd //3rd position **B2 for 3rd position**

17. Study the figure below carefully and answer question that follow:
Find the size of angle **PQR** in degrees.

r = 180° – 135°
r = 45°
n = 180° – 120°
n = 60°
r+ m° + n = 180°
45° + m° + 60° = 180°
m + 45° + 60° = 180°
m° + 105°- 105°= 180° - 105°
m° = 75°
∠PQR = 75°



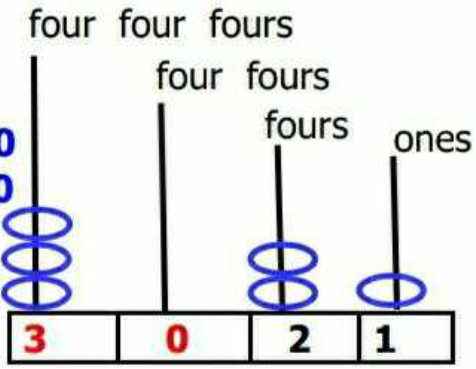
M1 for correct method

A1 for 75°

Reject without degrees

18. Complete the abacus below and find the value of 3 in the number given.

3x4 x4x4
12 x 16
192 ten
192 ÷ 4 =48 rem0
48 ÷ 4 =12 rem0
12 ÷ 4 =3 rem0
3 ÷ 4 =0 rem 3
3000 four



B1 for 192_{ten}

B1 for 3000_{four}

B2 for 3000_{four}

19. The ratio of the mass of two girls Joselin and Aisha is 2:5.
If Joselin weighs 45kg less than Aisha, Workout their total mass.

Total ratio
2 + 5
7
Difference in ratio
5 -2
3

Total weight of the girls
3 parts rep 45kg
1 parts rep $\frac{45}{3}$
7 parts rep $\frac{45}{3} \times 7$
(15 x 7)
105kg

B2 for 105kg

20. A ten-month-old baby was crawling on the sitting room floor, moving 0.5 millimeters every second, and covered a total distance of 10 metres.
How long did the baby take to for this exercise?

$(\frac{5}{10} \div \frac{1000}{1})$m
$(\frac{5}{10} \times \frac{1}{1000})$m
$(\frac{5}{10000})$m

Time

$10 \div \frac{5}{10000}$

$10 \times \frac{10000}{5}$

2 x 10,000

20,000 seconds

M1 for correct method

A1 for answer

Accept: 333.33 minutes

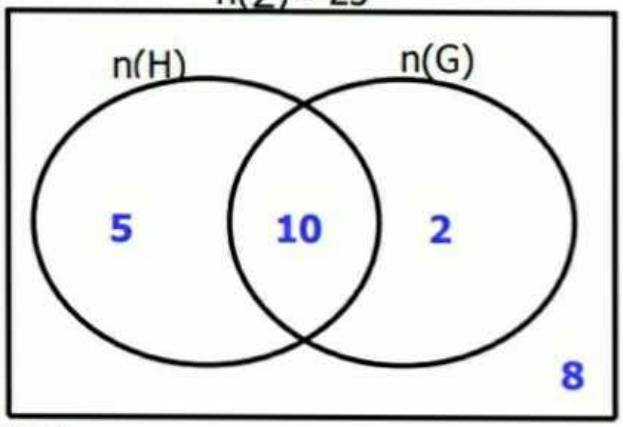
OR **5.55 hours**

SECTION B: 60 MARKS

Answer all questions in this section.
Marks for each question is indicated in brackets.

21. Given that n(G)′ = 13, n(H)′ = 10, n(G ∪ H) = 17 and n(∑) = 25.
Use the above information to complete the Venn diagram below.

(04 marks)



B1 for 5

B1 for 10

B1 for 8

Find;

(i) n (G ∩ H)'

5+2+8

7+8

15

B1 for 15

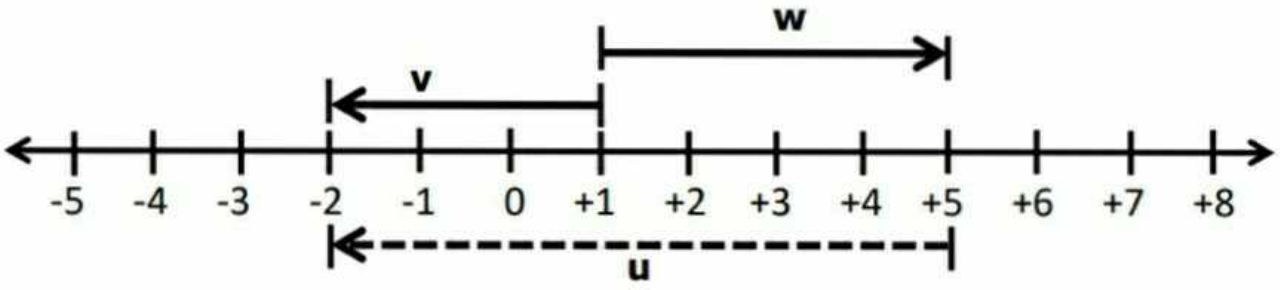
(ii) n (H - G)'

10+2+8=20

B1 for 20

(01 mark)

22. Study the number line below carefully and answer questions that follow.



(a) Write the mathematical statement shown on the above number line.

(02 mark)

v-w =u

-3 – 4= -7

B2 for correct statement

(b) Find the additive inverse of the integer represented by letter u. (01 mark)

U = -7
Let the additive inverse of u be p
p+u =0
p+(-7) =0
p-7 =0
p-7+7 = 0+7
p = 7

B1 for 7

(c) Complete the table below in finite 8. (02 marks)

+	2	5
3	5	0
4	6	1

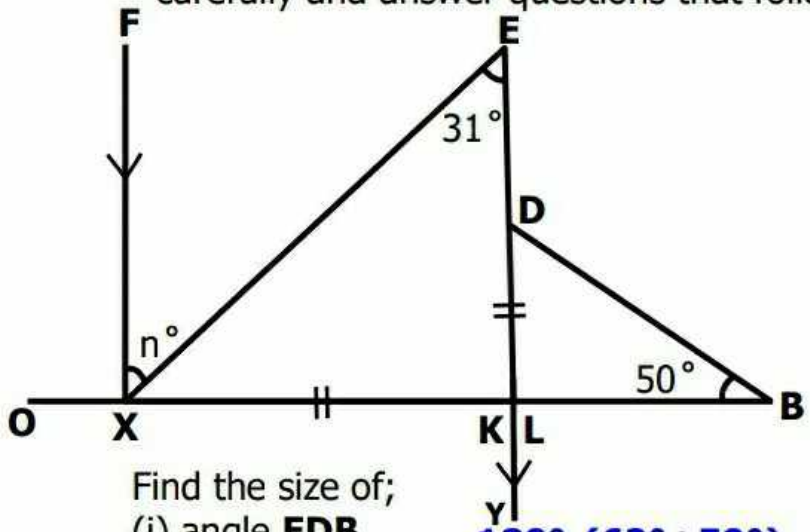
3+2 =5
3+5 = 8
8÷8 = 1 rem 0
4+2 = 6
4+5 =9
9÷8=1 rem 1

B1 for 5 and 0

B1 for 6 and 1

23.

(a) In the figure below, triangle **DKB** is a scalene triangle. Study the it carefully and answer questions that follow.



Find the size of;

(i) angle **EDB** (02 marks)

180° – (31°+31°)
180° – 62°
118°
180°-118°
62°

180°-(62°+50°)
180°-112°
68°
180°-68°
112°

M1 for correct method

B1 for 68°

B1 for 112°

(ii) angle **BKY** (02 marks)

180° – 62°
118°

B1 for 118°

B2 for 118°

(iii) angle **EXO** (02 marks)

Angle EKX = angle EXO (corresponding angles)
118

24. The District Agriculture Ministry organized a massive animal dosing exercise to fight against a disease outbreak. During a one-week survey in a certain district, **2,492 goats** and **1,512 cows** were each given liquid substance every day for seven days.

(a) Without dividing, show your working and find out which group of animals did not complete the full dose for the week. (03 marks)

2492 goats
2492
249 – (2+2)
249-4
245
24 – (5+5)
24 -10
14

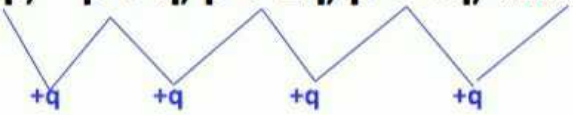
1512 cows
151-(2+2)
151 – 4
147 -0
14 –(7+7)
14- 14
0

None or zero **All groups completed the dose**

M1 for correct method
B1 for zero
A1 for final answer

(b) Find the sum of the least and the next algebraic expressions shown in the sequence below:

p, p + q, p + 2q, p + 3q, ... p+4q (02 marks)



M1 for correct method
A1 for answer

p+3q+q
p+4q

Sum
p+4q+p
p+p+4q
2p+4q

25. Epodoi bought some books at sh. 50000 and later sold them at a loss of 25%.

(a) How much did he sell the books? (02 marks)

buying price = shs.50,000
percentage loss =25%
selling price = buying price – loss
loss = shs.50000x $\frac{25}{100}$
sh. 12500
selling price = shs.50,000-12500
sh. 37500

M1 for correct method
B1 for sh. 12500
A1 for 37500

(b) If Oto gave her the percentage loss as the profit made, How much money would he have paid for the books? (02 marks)

Percentage profit = 100% + 25%
125%
Selling price = shs.50,000x125%
shs.500x125
sh. 62500

M1 for correct method
A1 for sh. 62500

26. Soroti Town Clerk spent his December salary of last year as follows: $\frac{1}{6}$ on rent, $\frac{1}{4}$ on food, $\frac{1}{3}$ on transport, $\frac{1}{2}$ of the remainder on fees and saved the rest.

(a) Find the fraction he saved. (04 marks)

Rent+food+ transport

$\left(\frac{1}{6}\times 12\right)+\left(\frac{1}{4}\times 12\right)+\left(\frac{1}{3}\times 12\right)$

$\frac{(1X2)+(1X3)+(1X4)}{12}$

$\frac{2+3+4}{12}$

$\frac{9}{12}$

$\frac{3}{4}$

Remainder

$1-\frac{3}{4}$

$\frac{4}{4}-\frac{3}{4}$

$\frac{4-3}{12}$

$\frac{1}{4}$

Fees

$\frac{1}{2}X\frac{1}{4}$

$\frac{1X1}{2X4}$

$\frac{1}{8}$

Saving

$1-\frac{3}{4}+\frac{1}{8}$

$1-\frac{6+1}{8}$

$\frac{8}{8}-\frac{7}{8}$

$\frac{8-7}{8}$

$\frac{1}{8}$

(b) If two thirds of sh. 900,000 was spent on transport, How much money did he spend on food? (02 marks)

$\frac{2}{3}\times sh.900,000$

2×sh.300,000

Shs.600, 000

Total amount

1 part rep sh.600, 000

3 parts rep shs.600, 000 x 3

sh.1800, 000

On food

$\frac{1}{4}\times$ **sh.1800, 000**

sh. 450, 000

27. (a) Solve for h; $\frac{1}{3}$ of h $\div(1\frac{1}{3}$ of 1) = 1. (02 marks)

$\frac{1}{3}$ **Of h** $\div(1\frac{1}{3}$ **of 1) = 1**

$\frac{h}{3}\div\frac{4}{3}$

$\frac{h}{3}\times\frac{3}{4}$

$\frac{h}{4}=1$

h=4

M1 for correct method

A1 for correct answer

(b) Find the value of m where m = g: (03 marks)

$g^2 + g^2 = 112$ five.

$g^2 + g^2 = 112$ five

$m^2+m^2 = 112$ five

$2m^2 = 1x5^2+1x5^1+2x5^0$

$2m^2=1x5x5 + 1x5 + 2x1$

$2m^2=25+5+2$

$2m^2 = 32$

$\frac{2m^2}{2}=\frac{32}{2}$

$\sqrt{m^2}=\sqrt{16}$

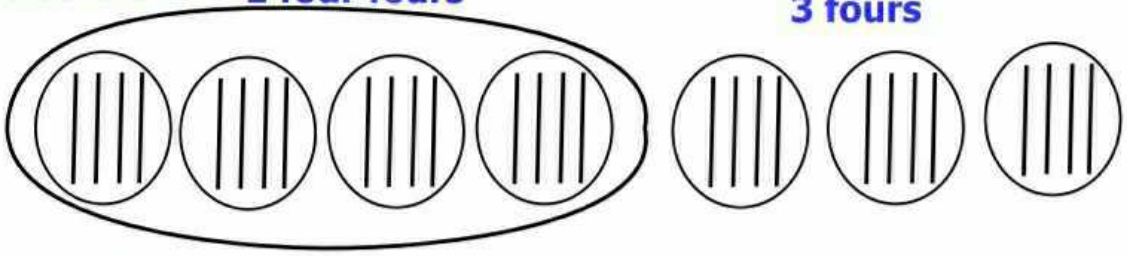
$M=4_{five}$

M1 for correct method

A1 for correct answer

28. Below is a base number. Study the illustration below and answer questions that follow.

1 four fours **3 fours**



(a) Write the base four numeral above. (02 marks)

130_{four}

use the abacus

B2 for 130_{four}

(b) Express the above numeral to denary base. (02 marks)

2	1	0
1	3	0
4	4	4

$1x4^2 + 3x4^1 + 0x4$
$1x4x4 + 3x4 + 0x\ 1$
$16 + 12 + 0$
28_{ten}

M1 for correct method

A1 for 28_{ten}

29. Dr. Fabiolah from Rwanda went to USA with her two sons and a daughter for the holiday of two days only. They travelled and arrived on Friday at **a quarter to 12:00** midnight and spent two full nights at Ibrahimovic's hotel for accommodation, feeding and other facilitations up to Sunday at **11:45 a.m**.

(a) Use the information given and complete the table below carefully. (04 marks)

1 US Dollar (USD) = Ug. Sh. 3,600
1 Kenyan Shilling (K.Sh) = Ug. Sh. 1,200
1 Pound Sterling (GBP) = Ug. Sh. 4,850

Ugsh. 100800
28 dollars
84 Kenya Shillings
GBP 20.78

ITEM	QUANTITY	UNIT COST	AMOUNT
Meals	4 plates	**Ugsh. 100800**	Ug.sh. 403200
Drinks	5 bottles	**Ugsh. 72000**	Ug.sh. 360000
Rooms	**5 OR 6**	£16	Ug.sh. 441600
Games	1 game	US$ 20	**sh. 72000**

Ugsh. 72000
20 dollars
60 Kenya Shillings
GBP 14.8

Meals
Ug.sh.403200
4
Ug.shs.100800
Ug.shs.100800
Ug.sh.3600
Us $28

Drinks
Ug.sh.360000
5
Ug.sh.72000
Ug.sh 1200
Ksh.60

Rooms
£16 x Ug.sh 4850
Ug.sh.77600
Ug.sh.441600
Ug.sh. 77600
5 OR 6 rooms was marked correct

Games
Ugsh.3600x20
Ugsh.72000

B1 for each correct answer

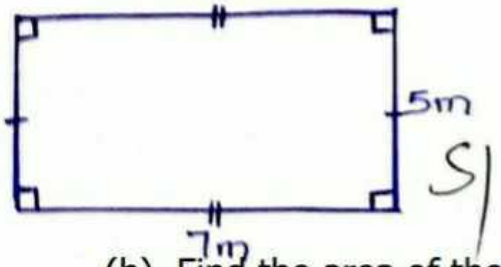
(b) Find the total amount he spent in two days if he played only during day time at 4:00 p.m. (02 marks)

Ugsh. 403200
Ugsh. 360000
Ugsh. 441600
+Ugsh. 72000
Ugsh. 1276800

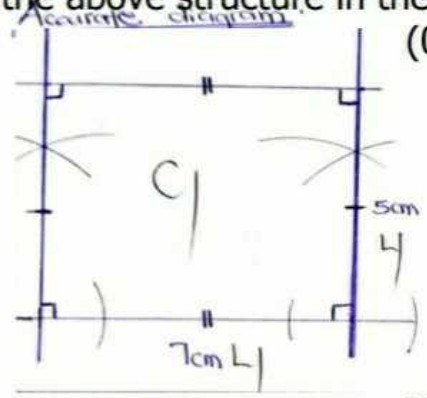
30. Apio constructed a kraal at his home in a rectangular shape. Using only a ruler, a pencil and a pair of compasses, show how she constructed the kraal with accurate ground measurements of 7 metres long and 5 metres wide.

(a) Use a scale of **1m = 1cm** to construct the above structure in the space provided below. (04 marks)

Skeich diagram



Accurate diagram



(b) Find the area of the kraal in meters. (01 mark)

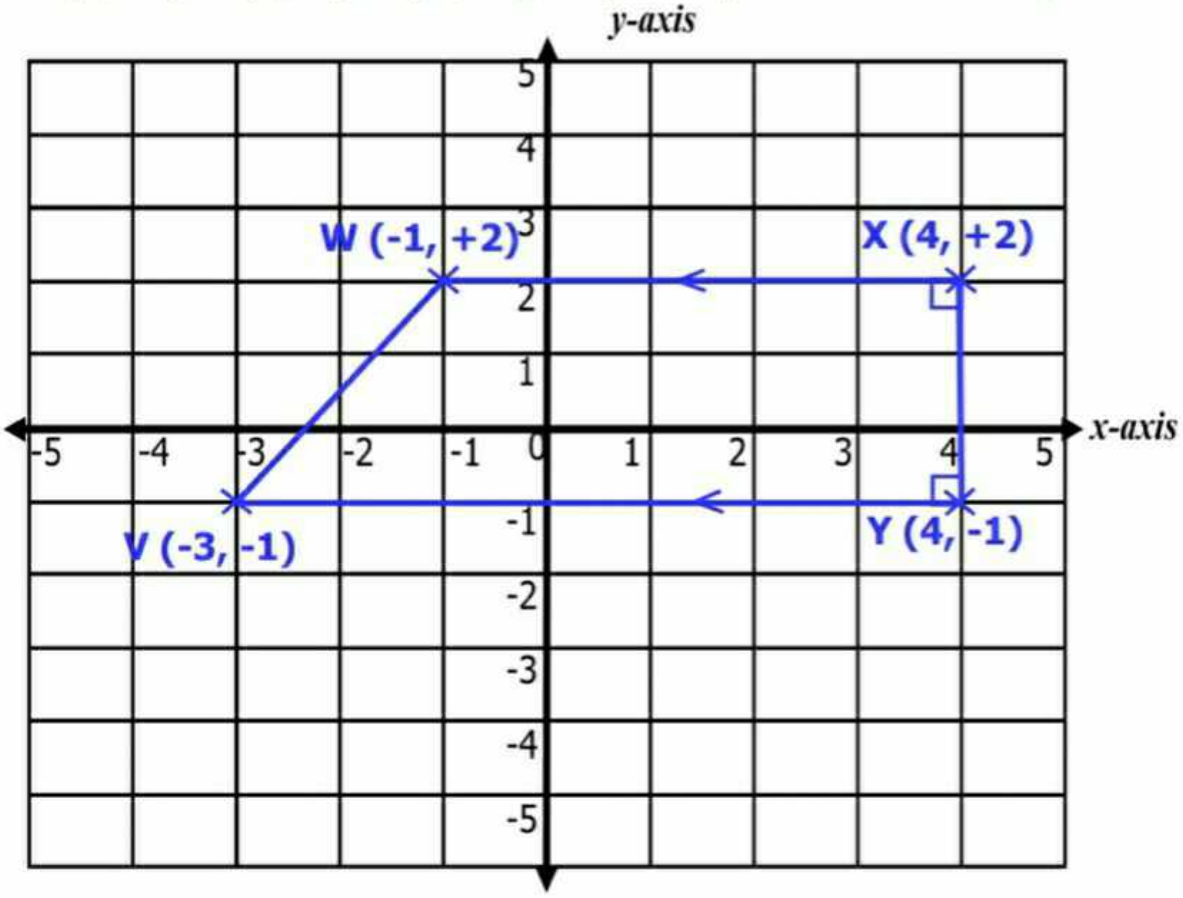
A = LXW

A=7m x 5m **B1 for $35m^2$**

$35m^2$

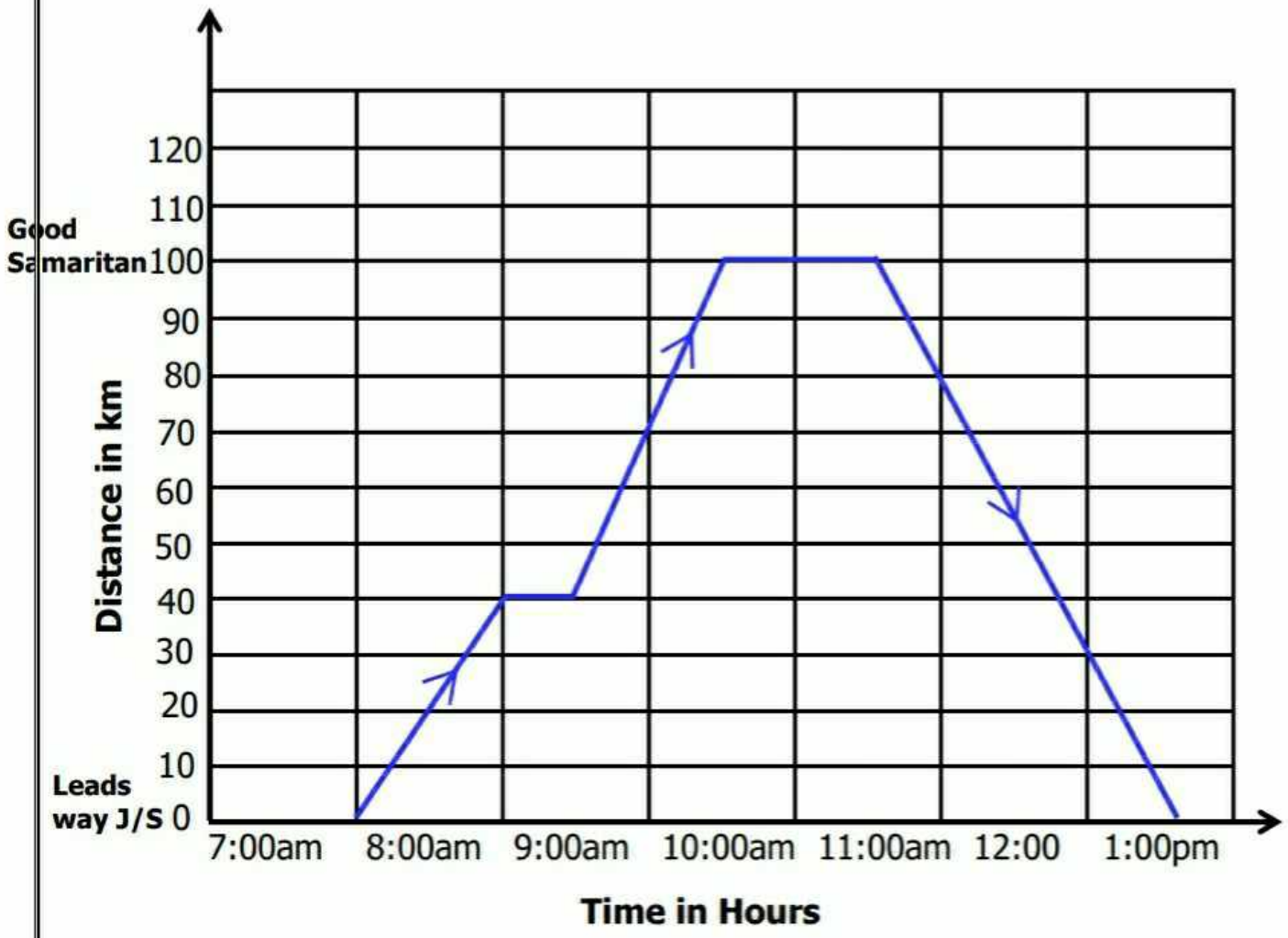
31. In the grid below, use ordered pairs of coordinates given to plot a quadrilateral figure.

X (4, +2), **Y** (4, -1), **V** (-3, -1), **W** (-1, +2). (04 marks)



B1 for each correctly plotted point

32. Qurish planned to attend the Martyrs celebrations at Namugongo. He joined the pilgrims from Lwengo District, starting his journey on foot from Leads Way Junior School at **8:00 a.m.**, walking at a speed of 40km/h.
After 1 hour, he rested for 30 minutes.
He then continued walking at a speed of 60 km/h for 1 hour until he reached Good Samaritan Playground, one of the stopover points for pilgrims.
He stayed there for 1 hour and felt unwell, he began his journey back and reached Leads Way Junior School at **1:30 p.m**.
Show Qurish's journey on the travel graph below. (04 marks)



B1 for each point correctly plotted

END