LIRA CITY ACADEMIC BOARD
PLE-MOCK ASSESSMENT 2024

MATHEMATICS PAPER

Time Allowed: 2 hours 30 minutes

Candidate's Name: TR·WALTER

Index No : | | | | | | | | | |

Signature : 775232978 District: _____

School: _____

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO
READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. The paper is made up of **two** sections: **A** & **B**.
2. Section **A** has **20** questions **(40 marks)**
3. Section **B** has **12** questions **(60 marks)**
4. Answer **ALL** questions in both sections **A** & **B**
5. All answers must be written in the spaces provided in **BLUE** or **BLACK** ink. Only diagrams should be drawn in pencil.
6. **Unnecessary crossing** of work will lead to **loss of marks.**
7. **Poor handwriting**, which cannot be easily read may lead to **loss of marks.**
8. Do not fill anything in the boxes shown

FOR EXAMINERS' USE ONLY		
QN. NO.	MARKS	EXAMINER'S INITIALS
1 - 5		
6 - 10		
11 - 15		
16 - 20		
21 - 22		
23 - 24		
25 - 26		
27 - 28		
29 - 30		
31 - 32		
TOTAL		

SECTION A (40 marks)

1. Work out: $404 \div 4$

$$4\overline{)404} = 101$$

-4, 00, -0, 04, -4, 0

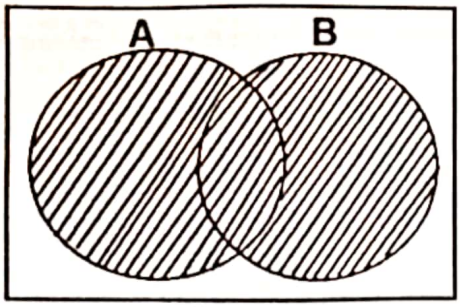
$\therefore 404 \div 4 = 101$

2. Write "One hundred four thousandths in figures."

$\frac{104}{1000}$

0.104

3. Describe the unshaded part in the diagram below.



$(A \cup B)'$

4. Subtract: $2K - 4$ from $6K - 8$.

$6K - 8 - (2K - 4)$

$6K - 8 - 2K + 4$

$6K - 2K + 4 - 8$

$4K - 4$

5. Find the next numbers in the sequence.

$\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \frac{1}{32}, \frac{1}{64}$

$\frac{1}{2_{\times 2}}, \frac{1}{4_{\times 2}}, \frac{1}{8_{\times 2}}, \frac{1}{16_{\times 2}}, \frac{1}{32_{\times 2}}, \frac{1}{64}$

6. A meeting which started at 11:30am ended at 1:15pm. How long was the meeting?

Duration = E.T − S.T

HRS	MIN
12	00
−11	30
00	30

30 minute

HRS	MIN
1	15
+	30
1	45

It took 1 hour 45min

or $1\frac{3}{4}$ hours

7. Workout the median of $\frac{1}{2}, \frac{1}{12}, \frac{1}{6}$ and $\frac{1}{3}$.

$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{6}$ $\frac{1}{12}$

$\left(\frac{1}{3}+\frac{1}{6}\right) \div \frac{2}{1}$

$\frac{(2+1)}{6} \div \frac{2}{1}$

$\frac{1\cancel{3}}{\cancel{6}_{2}} \div \frac{2}{1}$

$\frac{1}{2} \div \frac{2}{1}$

$\frac{1}{2} \times \frac{1}{2}$

$\frac{1}{4}$

8. A pack of juice is 250ml. Find the total number of litres in 60 packs of juice.

1pack → 250ml

60packs → (60 × 250)ml

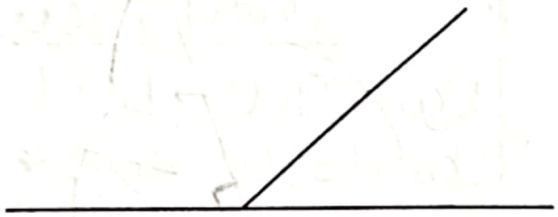
15,000ml

1000ml = 1 litre

15000ml = $\left(\frac{15\cancel{000}\cancel{ml}}{1\cancel{000}\cancel{ml}}\right)$ litre

15 litres

9. In the diagram below, bisect an obtuse angle.



10. Without dividing, show that 468 is divisible by 6.

468 = 4 + 6 + 8

18

18 is divisible by 6

∴ 468 is exactly divisible by 6

11. Expand 216.148 using powers of 10.

10^2	10^1	10^0	10^{-1}	10^{-2}	10^{-3}
2	1	6	1	4	8

$(2\times10^2)+(1\times10^1)+(6\times10^0)+(1\times10^{-1})+(4\times10^{-2})+(8\times10^{-3})$

12. A man who died in 45AD was 65 years old. When was he born?

Birth year = Death year − current age

45 − (+65)

45 − 65

−20

He was born in 20BC

13. Subtract $132_{four} - 33_{four}$.

$$\begin{array}{r} {}^{0}1\,{}^{4+2}\cancel{3}\,{}^{4+}2_{four} \\ -\;3\;3_{four} \\ \hline 0\;3\;3_{four} \end{array}$$

14. Round off 715.284 to the nearest whole number.

H	T	O	THS	HTHS	THTHS
7	1	5	2	8	4

$7\,5\,\cancel{1} + 0 = 751$ | $715 + 0 = 715$

$\therefore 715.284 \simeq 715$

15. A motorist covered 60km in 30minutes. Workout his speed in km/hr.

$$S = \frac{D}{T}$$

$$S = 60Km \div \frac{30}{60}hrs$$

$$S = \overset{20}{\cancel{60}}Km \times \frac{60}{\cancel{30}}hrs$$

$$S = 20Km \times 6hrs$$

$$S = 120Km/h$$

16. At a forex bureau, 1ksh = ugsh.30 and 1US dollar = ugsh.3,900. A radio cost Ksh.5,200. Find the cost of the radio in US dollar.

Ksh 1 → Ugsh 30

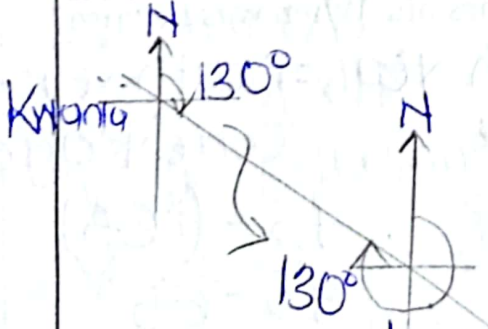
Ksh5200 → Ugsh 5200x30

Ugsh 15,6000

Ugsh3900 → US$1

Ugsh 15600 → ~~Ugsh15600~~ / ~~Ugsh3900~~ / US$40

17. The bearing of Lira from Kwania is 130°. What is the bearing of Kwania from Lira?



$180° + 130° = 310°$

18. 5kg of beans is eaten by 30 pupils in a day. How many pupils will ea 50kg of beans in a day?

$$\left(\frac{\overset{10}{\cancel{50kg}}}{\cancel{5kg}_{1}} \times 30\right) pupils$$

(10×30) pupils

300 pupils

19. List the solution sets for K, $3-3K<12$.

$3-3K<12$

$3-3-3K<12-3$

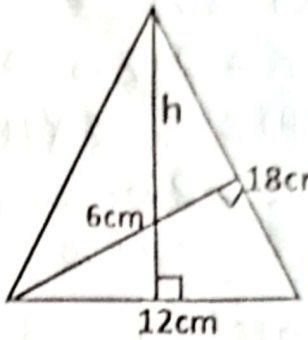
$-3K<9$

$\frac{-3K}{-3} > \frac{9}{-3}$

$K>-3$

$K=\{-2,-1,0,+1,\ldots\}$

20. Using the diagram below, find the value of h.



$h=9cm$

$\frac{B \times H}{2} = \frac{B \times H}{2}$

$\frac{12cm \times h}{2} = \frac{18cm \times 6cm}{2}$

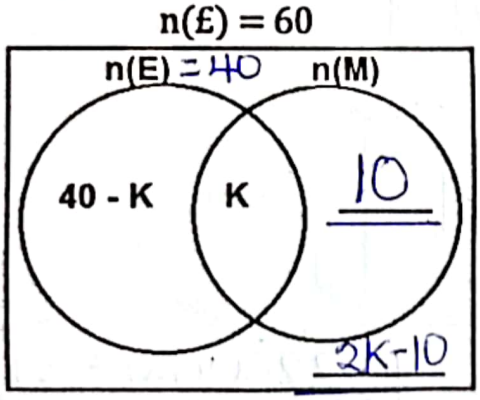
$6cm\,h = 9cm \times 6cm$

$\frac{6cm\,h}{6cm} = \frac{9cm \times 6cm}{6cm}$

SECTION B (60 marks)

21. In a class of 60 pupils, 40 pupils like English (E). $\frac{1}{4}$ of the pupils who like English like Mathematics only. K like both subjects and and (2K-10) do not like any of the two subsets.

a) Complete the venn diagram. (2 marks)



$\left(\frac{1}{1} \times \frac{10}{10}\right)$ pupils

10pupils

b) Find the number of pupils who like none of the subjects. (4marks)

$2K-10+10+40 = 60$

$2K+40 = 60$

$2K+40-40 = 60-40$

$\frac{2K}{2} = \frac{20}{2}$

$1 = 10$

$K=10$

None

$2K-10$

$(2\times10)-10$

$(20-10)$ pupils

10pupils

22. a) Express 2.66..... as a rational number. (3marks)

Let $2.\dot{6}\dot{6}$ be K

$K = 2.66 \rightarrow$ Eqn I

$K \times 10 = 2.66 \times 10$

$10K = 26.6 \rightarrow$ Eqn II

$-K \quad -2.6$

$9K = 24$

$\frac{9K}{9_1} = \frac{24}{9_1}$

$K = 2\frac{6}{9_3}$

$K = 2\frac{2}{3}$

$\therefore 2.66\ldots = 2\frac{2}{3}$

b) Evaluate: $\frac{0.24 \times 3.6}{0.12+0.36}$ (2marks)

① $0.12 + 0.36 = 0.48$

$\left(\frac{24}{100} \times \frac{36}{10}\right) \div \frac{48}{100}$

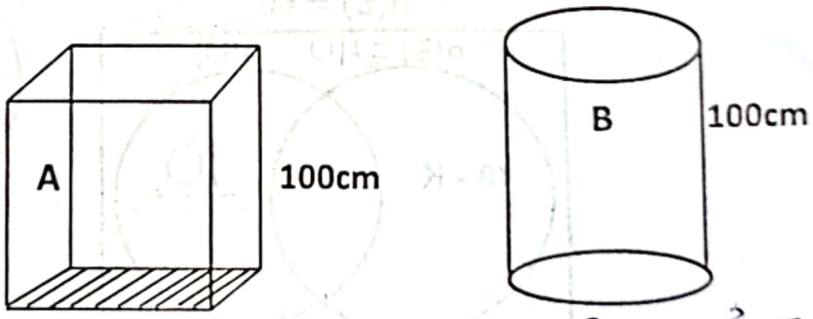
$\frac{24}{100} \times \frac{36^{18}}{10} \times \frac{100}{48_2}$

$\frac{18}{10}$

1.8

23. Two tanks A and B below carry the same amount of water when completely full of water. The area of shaded part of tank A is 154cm².

Find the diameter of tank B. (4marks)



Volume (A)

$V = B.A \times H$

$V = (154 \times 100)cm^3$

$V = 15400\ cm^3$

$\pi r^2 H = \text{Volume}$

$\frac{22}{7} r^2 \times 100cm = 15400cm^3$

$2200cm\ r^2 = 15400cm^3 \times 7$

$\frac{2200cm\ r^2}{2200cm} = \frac{15400cm \times cm \times cm \times 7}{2200cm}$

$\pi(r \times r) = \pi(7cm \times 7cm)$

$r = 7cm$

Diameter $= 2r$

$(2 \times 7)cm$

14cm

24. The middle number of three consecutive odd numbers is K+1.
Find the numbers if their sum is 39. (5marks)

1st	2nd	3rd	sum
K+1-2	K+1	K+1+2	39

$K-1+K+1+K+3 = 39$
$K+K+K+1-1+3 = 39$
$3K+3 = 39$
$3K+3-3 = 39-3$
$\frac{3K}{3} = \frac{36}{3}^{12}$
$K = 12$

1st	2nd
K+1-2	K+1
~~K~~	12+1
(12+1)-2	13
13-2	
11	

3rd
K+1+2
12+1+2
15

25. Complete the shopping bill below. (1mark each)

ITEM	QUANTITY	UNIT COST	AMOUNT
Meat	$1\frac{1}{2}$kg	Shs.12,000 per kg	sh18,000
Cooking oil	500ml	Shs 10,000 per litre	Shs. 5,000
Sugar	3 kg	sh 4500 per kg	Shs. 13,500
Salt	2kg	~~Shs.4500~~ sh 1000	Shs 2000
Total Expenditure		Shs	Shs. 38.500

Meat
$\frac{3}{2} \times$ sh 12000 (6000)
1
sh18000

Cooking oil
sh5000 ÷ $\frac{1}{2}$
sh5000 × $\frac{2}{1}$
sh10,000

Sugar
~~sh13,500~~ (3)
~~sh4500~~
1
3kg

Salt
sh2000 (1000)
$\frac{2}{2}$
1
sh1000

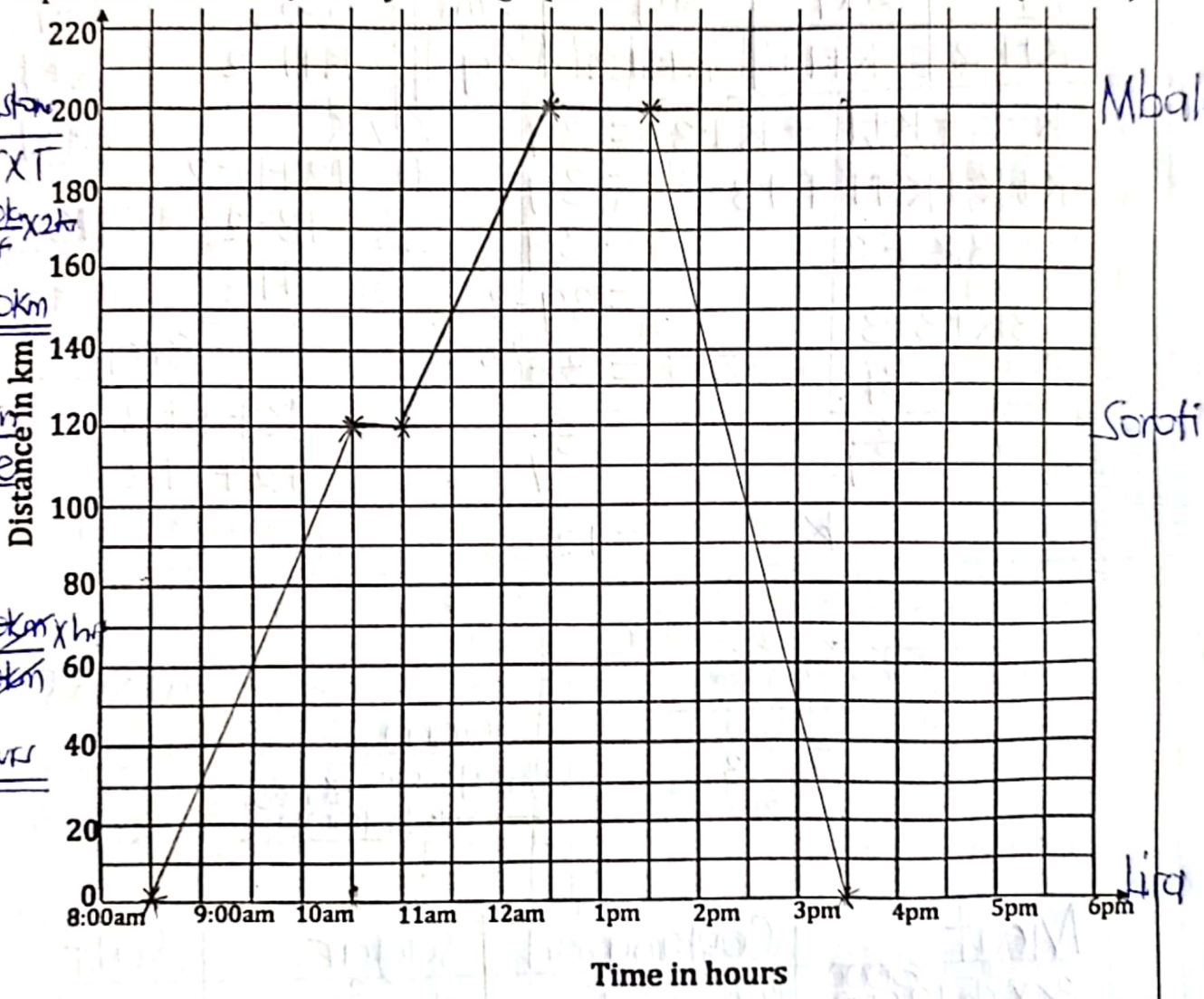
Salt
sh38500 - (sh18000 + sh13500 + sh 5000
sh38500 - sh36500
sh2000

26. A taxi left Lira at 8:30am and moved at 60km/hr for 2hrs to Soroti. It made a stopover of 30 minutes and continued to Mbale which is 80km away in $1\frac{1}{2}$hrs. After resting for 1hour, it returned to Lira at a steady speed of 100km/hr.

a) **Represent the taxi's journey in the graph below.** **(4marks)**

1st Distance
$D = S \times T$
$D = \frac{60km}{1hr} \times 2hr$
$D = 120km$

Return time
$T = D/S$
$T = \frac{200km}{100km} \times 1hr$
$T = 2hours$



b) **Workout the average speed of the taxi while travelling.** **(2marks)**

$A.S = \frac{TDC}{TTT}$

$A.S = \frac{200km + 200km}{2hrs + 1\frac{1}{2}hrs + 2hrs}$

$A.S = \frac{400km}{5\frac{1}{2}hrs}$

$A.S = 400km \div \frac{11}{2}hrs$

$A.S = 400km \times \frac{2}{11}hrs$

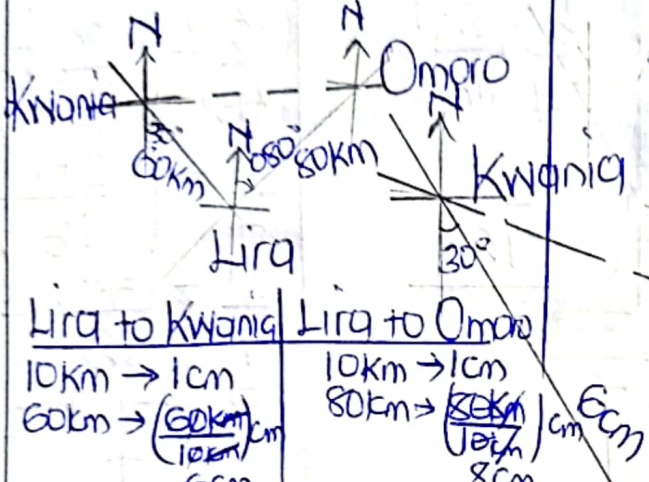
$A.S = \frac{800km}{11hrs}$

$A.S = 72\frac{8}{11}km/h$

$72\frac{8}{11}km/h$

27. a) Lira is 60km away from Kwania and on a direction of S30°E. Omoro is 80km from Lira on a bearing of 080°. Using a scale of 1cm to represent 10km, make an accurate drawing showing the three towns. **(4marks)**

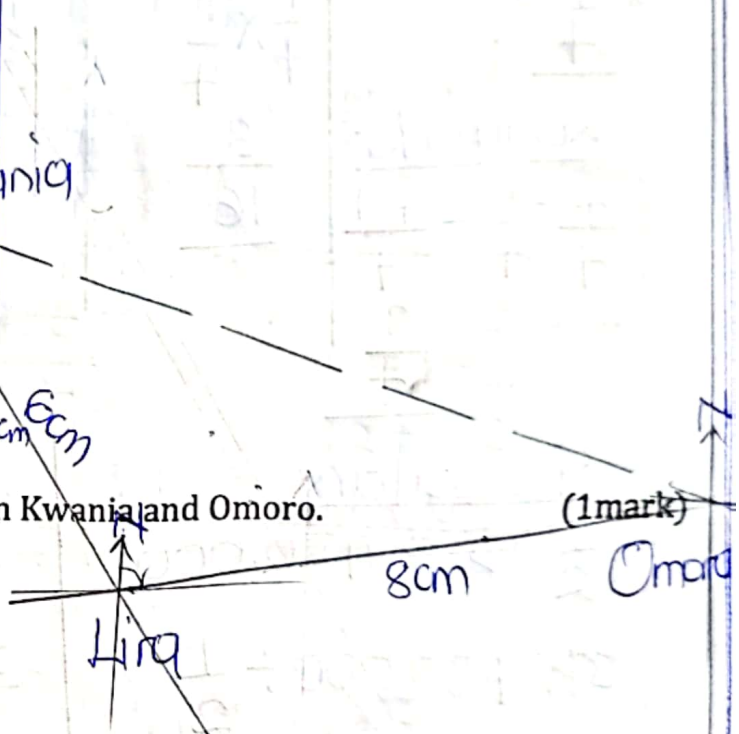
Sketch



Lira to Kwania
10km → 1cm
60km → (60km/10km) cm
6cm

Lira to Omoro
10km → 1cm
80km → (80km/10km) cm
8cm

Actual drawing



b) Find the shortest distance between Kwania and Omoro. **(1mark)**

28. A wire of length 176m is wound round a circular tank 200times. Find the radius of the circular tank. **(4marks)**

$2\pi r = C$

$2\pi r = 176m$

$2 \times \frac{22}{7} r = 176m$

$\frac{44r}{7} = 176m \times 7$

$\frac{44r}{44} = \frac{176m \times 7}{44}$

$r = (4 \times 7)m$

$r = 28m$

29. A man spent $\frac{1}{4}$ of his salary on fees. a quarter of the remainder on food. $\frac{1}{3}$ of what is spent on food is used to pay medical bill and saved the rest. If shs. 450,000 is saved. How much is his salary? (5marks)

Fees	Food	Medical bill	Save
$\frac{1}{4}$	$\frac{1}{4} \times \frac{3}{4}$	$\frac{1}{3} \times \frac{3}{16}$	$\frac{3}{4} - \left(\frac{3}{16} + \frac{1}{16}\right)$
Remainder	$\frac{3}{16}$	$\frac{1}{16}$	$\frac{3}{4} - \left(\frac{3+1}{16}\right)$
$\frac{4}{4} - \frac{1}{4} = \frac{4-1}{4}$			$\frac{3}{4} - \frac{1}{4} =$
$\frac{3}{4}$			$\frac{3-1}{4} = \frac{2}{4}$
			$\frac{1}{2}$

His salary

$\frac{1}{2} \rightarrow$ sh 450,000

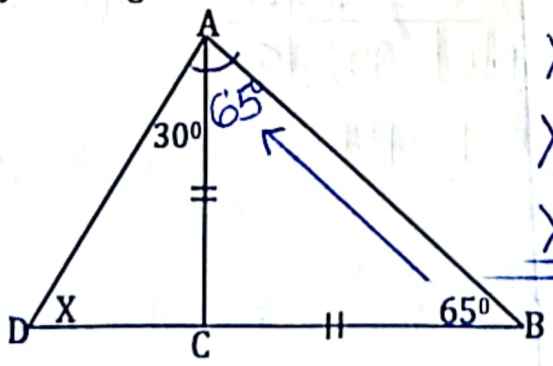
sh 450,000 $\div \frac{1}{2}$

sh 450,000 $\times \frac{2}{1}$

sh 900,000

30. Study the diagrams below and find the values of X.

a) (3marks)

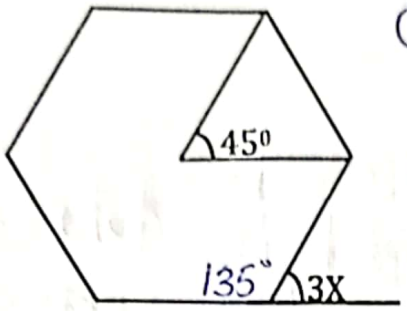


$X = 180° - (65 + 65 + 30)$

$X = 180° - 160°$

$X = 20°$

b)



Method I

Centre ∠ = 45°

$3X = 45°$

$\frac{1}{\cancel{3}} \quad \frac{\cancel{3}}{1}$

$\frac{3X}{3} = \frac{45°}{3}$

$X = 15°$

Method II (2marks)

$3X + 135° = 180°$

$3X + 135° - 135° = 180° - 135°$

$3X = 45°$

$\frac{3X}{3} = \frac{45°}{3}$

$X = 15°$

31. A retailer was given a discount of 20% on an item whose marked price is shs 250,000. He added 5% VAT and 10% for transportation.

a) Calculate the marked price in the retailers' shop. (3marks)

Buying price

100% − 20% = 80%

$\frac{80}{100} \times$ sh 250,000

80 × sh 2500

sh 200,000

Selling price

(10+5)% = 15% (100+15)% = 115%

$\frac{115}{100} \times$ sh 200,000

115 × sh 2000

sh 230,000

∴ His marked price = sh 230,000

b) How much was the profit made by the retailer? (2marks)

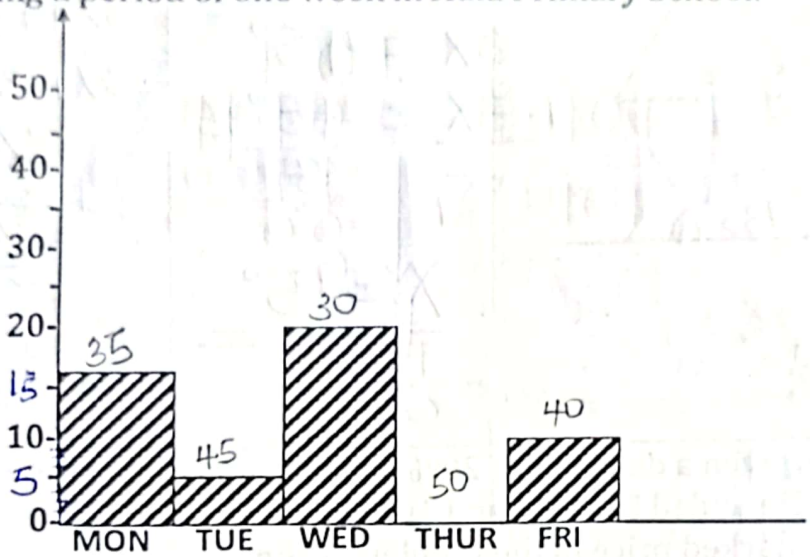
Profit = S.P − B.P

Profit = sh 230,000 − sh 200,000

sh 030,000

sh 30,000

32. The graph below show the number of pupils who were absent in a class of 50 pupils during a period of one week in Adia Primary School.



a) When was attendance highest? (1mark)

On Thursday

b) How many pupils were present on Monday? (1mark)

(50-15) pupils

35 pupils

(50-15) pupils

35 pupils

c) Workout the average attendance for the week. (3marks)

$$\text{Average} = \frac{\text{Sum of data}}{\text{No of data}}$$

$$\text{Average} = \frac{35+45+30+50+40}{5}$$

$$\text{Average} = \frac{200}{5} \quad 40$$

Average = 40 pupils

GOOD LUCK