HILLSIDE PRIMARY SCHOOL

PRIMARY LEAVING MOCK EXAMINATIONS

2023

MATHEMATICS

Time Allowed: 2 Hours 30 Minutes

Index No. | | | | | | | | | |

Candidate's Name...TR: WALTER.....**Stream**.....

Candidate's Signature.....

EMIS No.....0775232978.....

District Name.....0752627380.....

Read the following instructions carefully:

1. The paper has two sections: A and B. Section A has 20 questions and Section B has 12 questions
2. Answer all questions. All answers to both sections A and B must be written in the spaces provided.
3. All working must be done using a blue or black ball-point pen or fountain pen. Any work written in pencil other than graphs and diagrams will not be marked
4. No calculators are allowed in the examination room.
5. Unnecessary changes in work may lead to loss of marks. Any handwriting that cannot easily be read may lead to loss of marks.
6. Do not fill anything in boxes indicated: "For Examiners' Use Only" and those inside the paper.'

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

  Turn Over

SECTION A: 40 MARKS

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

1. Workout: 231 + 45

$$\begin{array}{r} 231 \\ +45 \\ \hline 276 \end{array}$$

2. Write 6,342 in words

6000+300+42

Six thousand, three hundred forty two.

3. Solve for h: 2(h-4) = 12

$2(h-4) = 12$
$2h-8 = 12$
$2h-8+8 = 12+8$

$\frac{2h}{2_1} = \frac{\overset{10}{\cancel{20}}}{2_1}$

$h = 10$

4. Given that P = {all factors of 12}. Find n(P)

F12
$1 \times 12 = 12$
$2 \times 6 = 12$
$3 \times 4 = 12$

$F_{12} = \{1, 2, 3, 4, 6, 12\}$

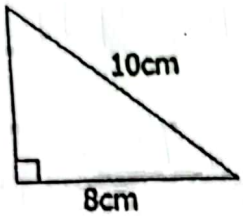
$n(P) = 6$

5. A trader bought an item at sh. 3600. He later sold it at a profit of sh. 600. How much was his cost price?

S.P = B.P + Profit (selling)

$$\begin{array}{r} sh\ 3^{+1}600 \\ +sh\ \ 600 \\ \hline sh\ 4,200 \end{array}$$

6. Workout the distance around the figure below



$b^2 = c^2 - a^2$

$b^2 = (18cm)^2 - (8cm)^2$

$b^2 = (10cm \times 10cm) - (8cm \times 8cm)$

$b^2 = 100cm^2 - 64cm^2$

$\sqrt{b^2} = \sqrt{36cm^2}$

$(b \times b) = (6cm \times 6cm)$

$b = 6cm$

$D = S + S + S$

$D = 10cm + 8cm + 6cm$

$D = 24cm$

7. Simplify: 7 - -2

$7 - (-2) = 9$

$7 + 2$

8. Find the LCM of 8 and 12

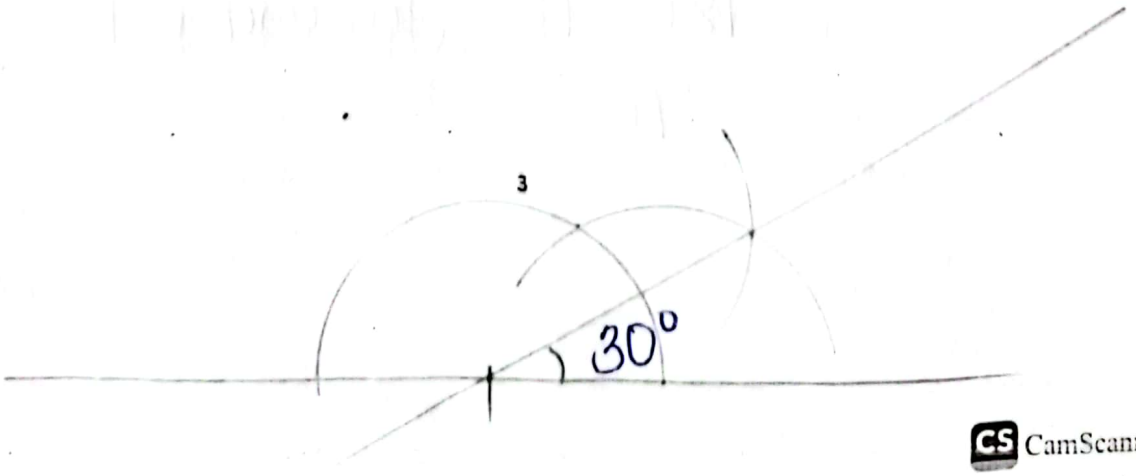
2	8	12
2	4	6
2	2	3
3	1	3
	1	1

$(2 \times 2) \times (2 \times 3)$

4×6

24

9. Using a ruler, a pencil and a pair of compasses only, construct an angle of 30^0 in the space provided below



10. Find the average of 5r, 14 and (4r + 1)

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

$= \frac{5r + 14 + 4r + 1}{3}$

$\frac{5r + 4r + 14 + 1}{3}$

$\frac{9r + 15}{3}$

$\frac{\overset{3}{\cancel{9}}r}{\underset{1}{\cancel{3}}} + \frac{5}{\underset{1}{\cancel{3}}}$

$3r + 5$

11. A car uses 2 litres of fuel to cover 5kilometres. How much fuel is needed for the same car to cover 20kilometres?

5KM → 2litres

1KM → $(\frac{2}{5})$ litres

20Km →

$(\frac{2}{\cancel{5}_1} \times \cancel{20}^{4})$

(2×4) litres

= 8litres of fuel

12. Using distributive property, workout: (21 x 13) + (13 x 79)

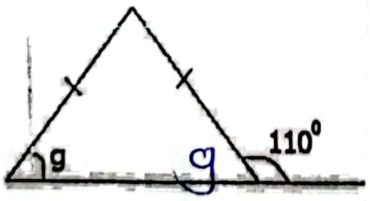
$(21 \times 13) + (13 \times 79)$

$13(21 + 79)$

13×100

= 1300

13. Find the value of g in the figure below



$g = 180° - 110°$ (int and ext ∠ sum)

$g = 70°$

4

14. After covering $\frac{2}{3}$ of his journey, Mugoya still had 16km to go. How long was his journey?

Covered	Uncovered
$\frac{2}{3}$	$\frac{3}{3}-\frac{2}{3}=\frac{3-2}{3}=\frac{1}{3}$

1part → 16KM

3parts → (3X16)KM

48KM

15. Given that  represents 6 balls. Draw pictures to represent 30 balls

6balls → 1picture

30balls → $\left(\frac{30}{6}\right)$ pictures

5pictures

16. A Mathematics examination that ended at 11:50a.m. took $2\frac{1}{2}$ hours. At what time did it start?

Starting time = Ending time − Duration

HRS	MIN
11	50
−2	30
9	20

At 9:20a.m.

17. Workout: 3 + 4 = (mod 5)

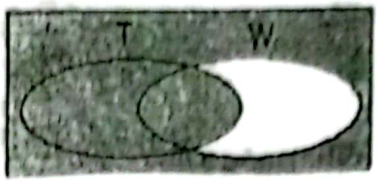
3+4 = — (Mod 5)

7 | 5 r 2 (Mod 5)

2 (Mod 5)

∴ 3+4 = 2 (Mod 5)

18. Describe the shaded region on the Venn diagram below



$(W-T)'$

19. Workout: $\frac{2}{3} \div 1\frac{1}{3}$

$\frac{2}{3} \div \frac{4}{3}$ | $\frac{2}{3_1} \times \frac{3^1}{4_2}$

$\frac{1}{2}$

20. Ongom enters a race where he has to ride and then run. He rides for a distance of 25km and thereafter he completes the remaining 20km while running. The average speed he uses while running is half the speed he uses while riding. If he completes his race in $2\frac{1}{2}$ hours, calculate the average speed he uses while riding.

Riding	Running
25KM	20KM

Total distance

(25+20)KM

45KM

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

$A \cdot S = 45KM \div 2\frac{1}{2}hrs$

$A \cdot S = 45KM \div \frac{5}{2}hrs$

$A \cdot S = \frac{45}{1}KM \times \frac{2}{5}hrs$

$A \cdot S = (9 \times 2)Km/h$

$A \cdot S = 18Km/h$

Riding	Running
Let riding	be K

$\frac{K}{1} + \frac{K}{2} = 18Km/h$

$\frac{2K+K}{2} = 18Km/h$

$\frac{3K}{2} = 18Km/h \times 2$

$\frac{3K}{3} = \frac{36}{3}Km/h$

$K = 12Km/h$

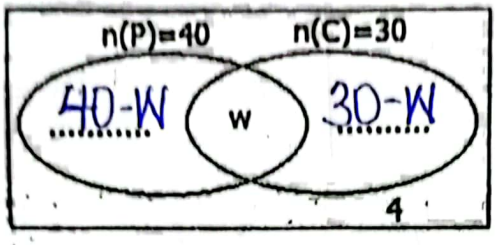
Riding
K
$= 12Km/h$

SECTION B: 60 MARKS

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

21. In a class of 60 boys, 40 like potatoes (P), 30 like cassava (C), w boys like both potatoes and cassava while 4 like other foodstuffs.
a) Use the above information to complete the Venn diagram below **(2 marks)**

$n(\varepsilon) = 60$



b) Find the value of w. **(3 marks)**

$W = (40+30+4) - 60$

$W = 74 - 60$

$W = 14$

22. a) Expand 6312 using powers of ten. **(2 marks)**

10^3	10^2	10^1	10^0
6	3	1	2

$(6 \times 10^3) + (3 \times 10^2) + (1 \times 10^1) + (2 \times 10^0)$

b) Work out the sum of the value of 3 and place value of 2 in 6312. **(3 marks)**

TH	H	T	O
6	3	1	2

↳ Ones (1)

↳ $3 \times 100 = 300$

Sum
300
+ 1
301

23. A farmer harvested 300 bags of beans each weighing 100kg.

a) How many tonnes of beans did he harvest? **(3 marks)**

1 bag → 100kg

300 bags → (300 × 100) kg

= 30,000kg

1000kg → 1 tonne

30,000kg → $\frac{30,000\text{kg}}{1000\text{kg}}$ tonne

30 tonnes

b) If the beans were later packed in 20kg bags for sell, how many bags were sold? **(2 marks)**

No of bags → $\frac{30,000\text{kg}}{20\text{kg}}$ bags = 1,500 bags

24. Bruno had bank notes numbered consecutively from EX00688 to EX00772.

a) How many bank notes did he have? **(2 marks)**

No of notes = (Last − First) + 1

= EX00772 − EX00688

84 + 1

85 bank noter

b) If each note was worth sh. 10,000, how much money was it? **(3 marks)**

1note → sh10,000

85notes → 85 × sh10,000

sh 850,000

25. In a certain village, $\frac{1}{4}$ of the farmers grow rice. $\frac{2}{3}$ of the remainder grow coffee. The rest of the farmers grow beans. If those who grow beans are 140, find the total number of farmers in the village. **(4 marks)**

Rice	Coffee	Beans	
$\frac{1}{4}$	$\frac{2}{3_1} \times \frac{1}{\#_2}$	$\frac{3}{4} - \frac{1}{2} = \frac{3-2}{4}$	$140 \div \frac{1}{4}$
Remainder	$\frac{1}{2}$	$\frac{1}{4}$	$140 \times \frac{4}{1}$
$\frac{4}{4} - \frac{1}{4} = \frac{4-1}{4}$		$\frac{1}{4} \rightarrow 140$	560farmers
$\frac{3}{4}$			

26. The sum of 3 consecutive odd numbers is 27. If the first number is r.

a) Find the value of r. **(3 marks)**

1st	2nd	3rd	sum
r	r+2	r+4	27

$r + r + 2 + r + 4 = 27$

$r + r + r + 2 + 4 = 27$

$3r + 6 = 27$

$3r + 6 - 6 = 27 - 6$

$\frac{3r}{3_1} = \frac{21}{3_1}$

$r = 7$

1st	2nd	3rd
r	r+2	r+4
7	7+2	7+4
	9	11

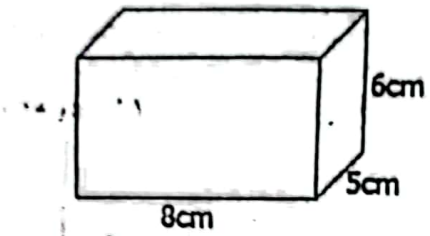
b) Calculate their range. **(2 marks)**

Range = H − L

Range = 11 − 7

Range = 4

27. Below is a rectangular prism. Use it to answer the questions that follow



a) Calculate its base area. **(2 marks)**

$A = L \times W$

$A = 8cm \times 5cm$

$A = 40cm^2$

b) Find its volume **(3 marks)**

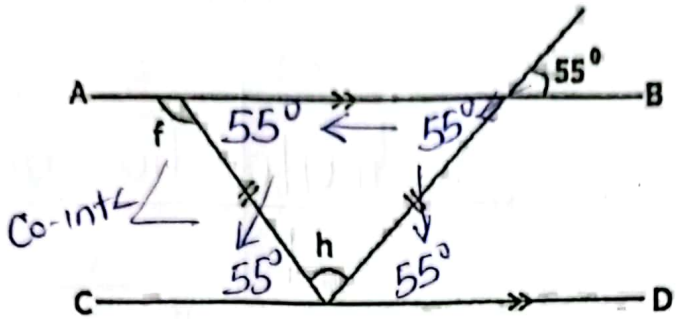
$V = L \times W \times H$

$V = (8cm \times 5cm) \times 6cm$

$V = (40 \times 6)cm^3$

$V = 240cm^3$

28. In the diagram below: Line AB is parallel to line CD. Use it to answer the questions that follow.



a) Find the value of h. **(3 marks)**

$h = 180° - (55° + 55°)$ (int ∠ sum)

$h = 180° - 110°$

$h = 70°$

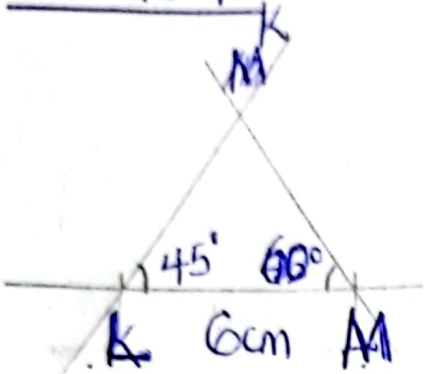
b) Calculate the size of angle f **(2 marks)**

$f = 180° - 55°$ (int and ext ∠ sum)

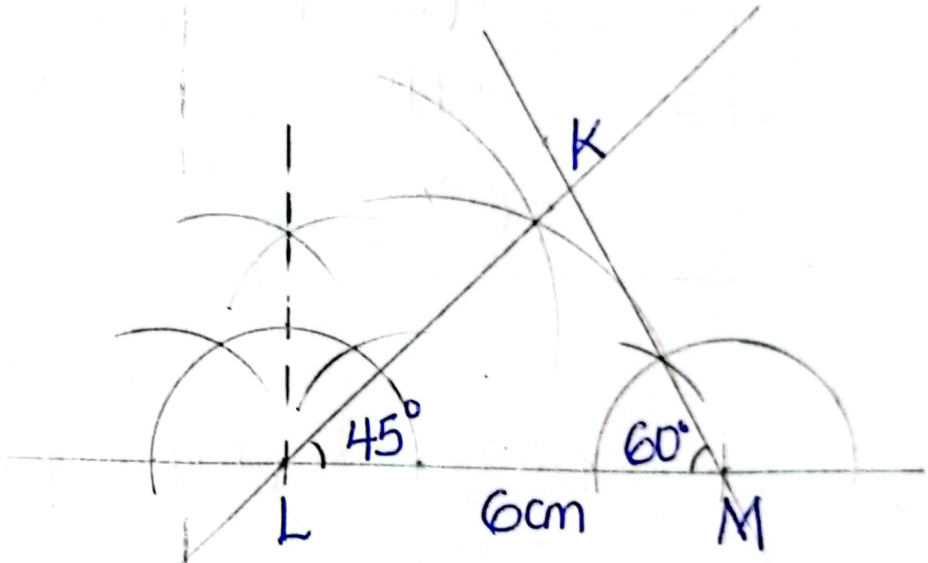
$f = 125°$

29. a) Using a ruler, a pencil and a pair of compasses only construct triangle KLM in which angle KLM = 45°, angle KML = 60° and side LM = 6cm.
(4 marks)

Sketch



Accurate diagram



b) Measure angle MKL
(1 mark)

MKL = 74°, 75°, 76°

30. The table below shows marks scored by some pupils, study it and answer the questions that follow;

Marks	70	80	60	90
Number of pupils	4	2	3	1

a) How many pupils did the test? **(2 mark)**

$(4+2)+(3+1)$

$(6+4)$ pupils $= 10$ pupils

b) Find the modal mark. **(1 mark)**

Marks	60	70	80	90
Frequency	3	4	2	1

$= 70$ Marks

c) Calculate the average mark **(3 marks)**

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

$$\text{Average} = \frac{(60\times3)+(70\times4)+(80\times2)+(90\times1)}{3+4+2+1}$$

$$\text{Average} = \frac{180+280+160+90}{10}$$

$$\text{Average} = \left(\frac{710}{10}\right)^{13}\text{Marks}$$

$$\text{Average} = 71 \text{ Marks}$$

31. Prince is 20 years older than Marvin. In 4 years' time, their total age will be 40 years.

a) How old is each now? **(3 marks)**

Let Marvin's age be M

	Marvin	Prince	Total
Now	M	M+20	
4yrs	M+4	M+20+4	40 years

$M+4+M+24 = 40$

$M+M+24+4 = 40$

$2M+28 = 40$

$2M+28-28 = 40-28$

$\frac{2M}{2_1} = \frac{12}{2_1}^{8}$

$M = 8$

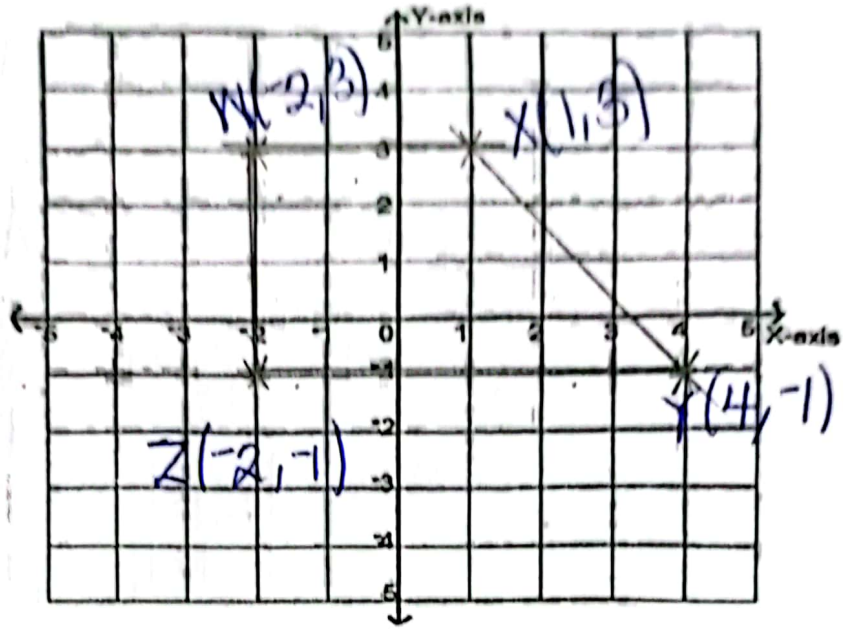
Marvin	Prince
M	M+20
8 years	(8+20) years
	28 years

b) How old will Marvin be then? **(2 marks)**

Marvin now	After 4 years
M	(4+8) years
8 years	12 years

32. a) Plot W(-2, 3), X(1, 3), Y(4 , -1) and Z(-2, -1) on the grid graph below

(4 marks)



b) Join W to X, X to Y, Y to Z and Z to W. **(1 mark)**

c) Find the area of the figure formed above. **(1 mark)**

$$A = \frac{h(a+b)}{2}$$

$$A = \frac{4\text{units}\,(3\text{units} + 6\text{units})}{2}$$

END

$$A = \frac{4\text{units} \times 9\text{units}}{2_1}$$

$$A = 2\text{units} \times 9\text{units}$$

$$A = 18\text{ units}^2$$