KAKUMIRO DISTRICT PRIMARY ACADEMIC BOARD

PRIMARY SIX CENTRAL PROMOTIONAL EXAMINATION

2023

MATHEMATICS

Time Allowed: 2 hours 30 minutes

Name:...... TR· ISAAC ALPHA TOWN SCHOOL KISIITA ...

Signature: ....

School Name: ...0778068880 OR 0758262422................

Read the following instructions carefully:

1. This 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 answers must be written using a **blue** or **black** ball point pen or ink. Any work written in pencil other than graphs and diagrams will **not** be marked.

4. Unnecessary **changes** in your work may lead to **loss** of marks.

5. Any handwriting that **cannot** easily be read may lead to **loss** of marks.

6. Do **not** fill anything in the table indicated: "For Examiners' Use Only." and boxes inside the question paper.

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

Turn Over

1. Work out: 732 + 154

$$\begin{array}{r} 732 \\ +154 \\ \hline 887 \end{array}$$
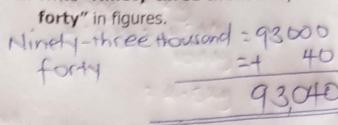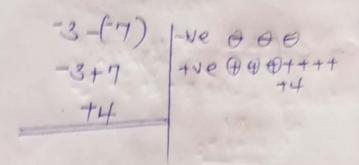
2. Write "Ninety-three thousand, forty" in figures.

Ninety-three thousand = 93 000

forty = + 40

= 93,040

3. Simplify: $^-3 - ^-7$

$^-3 - (^-7)$

$-3 + 7$

$+4$

-ve ⊖ ⊖ ⊖
+ve ⊕ ⊕ ⊕ + + + +
+4

4. Convert **288 hours** into **days**

24 hours = 1 day

1 hour = $\frac{1}{24}$ day

288 hours = $\left(\frac{1}{24} \times 288\right)$ days

= 12 days

∴ 288 hours = 12 days

5. Given that ◯◯◯ represent **21** balls, how many balls are represented by ◯◯◯◯◯ ?
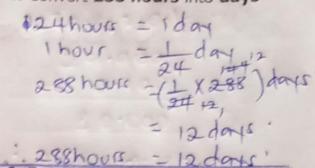
3 Pictos represent 21 balls

1 Picto represents $\frac{21}{3}$ balls

5 pictos represent $\frac{21 \times 5}{3}$ balls

= 35 balls.
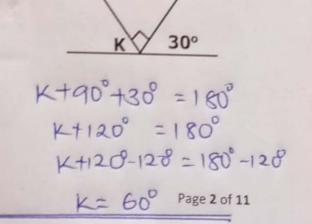
6. Expand **38.92** using powers of ten.

10^1	10^0	10^{-1}	10^{-2}
3	8	9	2

$38.92 = (3 \times 10^1) + (8 \times 10^0) + (9 \times 10^{-1}) + (2 \times 10^{-2})$

7. Simplify: $6p - 3r + p - 8r$

$6p - 3r + p - 8r$

$6p + p - 3r - 8r$

$7p - 11r$

8. Find the size of angle marked **K**

$K + 90° + 30° = 180°$

$K + 120° = 180°$

$K + 120 - 120 = 180° - 120$

$K = 60°$

9. Work out: $1\frac{1}{4}\quad +\frac{1}{2}$

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

$\frac{5}{4} + \frac{1}{2}$

$LCD = 4$

$\dfrac{\left(\frac{5}{4} \times 4\right) + \left(\frac{1}{2} \times 4\right)}{4}$

$\dfrac{5+2}{4}$

$\dfrac{\frac{7}{4}}{4} \qquad = 1\frac{3}{4}$

10. Find the area of the triangle **XYZ** in the figure below.

X, 8dm, 6dm, Y, 10dm, Z

Area of a triangle

$A = \dfrac{B \times H}{2}$

$\dfrac{8dm \times 6dm}{2}$

$8dm \times 3dm$

Area $= 24\,dm^2$

11. A car covered a distance of **210km** in $2\frac{1}{3}$ hours. Calculate its speed in kilometers per hour
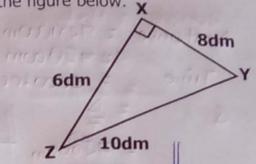
$D = 210KM$

$T = 2\frac{1}{3}hrs$

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

$S = 210 \div \dfrac{7}{3}$

$\overset{30}{210}Km \times \dfrac{3hr}{7}$

$= 30Km \times 3hr$

$= 90Km/hr$
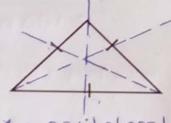
12. If set **Q** = {ab, c, d, f} how many subsets can be formed from set **Q**?

$n = 4$

$C = 2^n$

$= 2^4$

$2 \times 2 \times 2 \times 2$ subsets

4×4 subsets

$= 16$ subsets

$\therefore Q$ has 16 subsets

13. How many lines of folding symmetry has the figure below?

An equilateral triangle

It has 3 lines of folding symmetry

14. Convert **72km/h** to metres per second.

Distance = 72×1000 m
= 72000 m

Time = 3600 sec

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

= $\frac{72000 \text{ m}}{3600 \text{ sec}}$ = $\frac{20}{1}$

$\boxed{\text{speed} = 20 \text{ m/s}}$

15. Convert **4500g** to **kg**

1000g = 1kg

4500g = $\frac{4500g}{1000g}$

= 4·5kg

∴ 4500g = 4·5kg

16. Find the next number in the sequence; **1,3,6,11,18,_____**

1, 3, 6, 11, 18, $\underline{29}$

+2 +3 +5 +7 +11

18
+ 11
29

17. Round ff **29.963** to the nearest tenths.

Tenths = 0·1

29·900
+ 0·100
30·000

∴ 29·963 ≈ 30·0

18. What number has been expanded to give,

$(5×10^3)+(6×10^1)+(3×10^0)$?

= 5×10×10×10 + 6×10 + 3×1

= 5000 + 60 + 3

5000
60
+ 3
5063
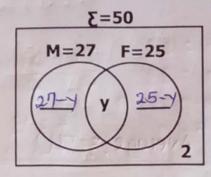
19. Using a protractor only, measure the size of angle **ABC**

∠ABC = 55°

20. Find the **G.C.F** of **12** and **18**.

2	12	18
3	6	9
	2	3

∴ GcF of 12 and 18
= 6

GCF = 2×3
= 6

SECTION B: 60 MARKS

21. In a class of **50** pupils, **27** like maths (**M**), **25** like English (**E**) while **2** pupils like neither of the two subjects

a) Complete the venn diagram below if y pupils like both subjects. **(2 marks)**

$\varepsilon = 50$

```
M=27    F=25
 ⎛ 27-y ⎞ ( y ) ⎛ 25-y ⎞

                      2
```

b) Find the number of pupils who like both subjects. **(2 marks)**

$$y = (27 + 25 + 2) - 50$$
$$y = 54 - 50$$
$$y = 4$$

4 pupils like both subjects

c) How many pupils like only one subject? **(1 mark)**

$n(M) only + n(F) only$

$27 - 4 + 25 - 4$

$23 + 21 pupils$

44 pupils

22. Tim scored the following marks in end of year exams.

```
MTC   -   75
Scie  -   82
Eng   -   68
SST   -   70
R.E   -   75
Music -   50
```

a) Find his;

(i) Modal mark **(1 mark)**

Modal mark is 75

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(ii) Range (2 marks)

Range = H − L
$$82 - 50$$
$$= 32$$

(iii) Calculate his average score. (2 marks)

Average score

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

$= \dfrac{75 + 82 + 68 + 70 + 75 + 50}{6}$

$= \dfrac{420}{6} = 70$

Average = 70

23. Arrange 0.35, 3.53, 0.03 and 0.53 in descending order. (2 marks)

$\dfrac{35}{100}$, $\dfrac{353}{100}$, $\dfrac{3}{100}$, $\dfrac{53}{100}$

$\left(\dfrac{53}{100} \times 100\right)\left(\dfrac{35}{100} \times 100\right)\left(\dfrac{353}{100} \times 100\right),\left(\dfrac{3}{100} \times 100\right)$

LCD = 100

53, 35, 353, 3

Descending order

3·53, 0·53, 0·35 and 0·03

b) Work out: $\dfrac{0.24 \times 0.48}{1.6 \times 1.2}$ (3 marks)

$0.24 \times 0.48 \div (1.6 \times 1.2)$

$\dfrac{24}{100} \times \dfrac{48}{100} \div \left(\dfrac{16}{10} \times \dfrac{12}{10}\right)$

$\dfrac{24^2}{100} \times \dfrac{48^3}{100} \times \dfrac{10}{16} \times \dfrac{10}{12}$

$\dfrac{2 \times 3 \times 1 \times 1}{100 \times 1 \times 1 \times 1}$

$\dfrac{0.06}{100}$

0.06

24. In a school of **1800** pupils, **45%** of them are boys and the rest are girls.

a) What is the percentage of girls in the school? **(1 mark)**

Percentage of ~~boys~~ girls

100% − 45%

55% are ~~boys~~ girls

b) How many boys are in the school? **(2 marks)**

No of boys

45% of 1800 pupils

$\frac{45}{100} \times 1800$

45 × 18 boys

810
990 are boys

c) How many more girls than boys are in the school? **(2 marks)**

No of ~~girls~~ boys

(1800 − 990) ~~girls~~

= ~~810 girls~~

= 990 ~~girl boys~~

Difference

990
− 810

180 more girls than boys.

25. Using a ruler, a pencil and a pair of compasses only, construct a triangle **PQR** where length **PQ=7cm**, length **QR=5cm**, angle **PQR=90°** **(4 marks)**

sketch

5cm

P   7cm   Q

Accurate diagram

R

5cm

90°

7cm   Q

b) Measure line **PR**. (1 mark)

$$\overline{PR} = 8.8cm$$

26. Martha got **7** more books than jovia. If both of them got **33** books altogether;

a) How many books did Jovia get? (2 marks)

Martha	Jovia	Sum
K+7	K	33

$$K+7+K = 33$$
$$2K+7 = 33$$
$$2K+7-7 = 33-7$$
$$2K = 26$$

$$\frac{2K}{2} = \frac{26}{2}^{13}$$
$$K = 13$$

Jovia got 13 books

b) Given that a = 2, b = 3 and c = 4, find the value of;

(i) **ab + c** (2 marks)

$$ab+c$$
$$a \times b + c$$
$$2 \times 3 + 4$$
$$6+4$$
$$10$$

$$\therefore ab+c = 10$$

(ii) **6ac** (2 marks)
   b

$$\frac{6ac}{b}$$
$$\frac{6 \times a \times c}{b}$$
$$\frac{6 \times 2 \times 4}{3}$$

$$\frac{{}^{16}\cancel{48}}{\cancel{3}}$$
$$\frac{6ac}{b} = 16$$

27. A teacher withdrew a bundle of **five thousand shilling notes** numbered consecutively from **AP003782** to **AP003881**.

a) How many notes did the teacher withdraw? (2 marks)

No of notes:

LR - FR + 1 note

$$\begin{array}{r} AP003881 \\ - AP003782 \\ \hline 99 \quad +1 note \end{array}$$

He withdrew (99 +1) notes
$$= 100 \text{ notes}.$$

∴ The teacher withdrew 100 notes

b) Calculate the amount of money the teacher withdrew? (2 marks)

Amount Withdrawn

Donimation X no of notes

Sh- 5000 X 100

= sh- 500,000

28. a) The area of a square is 64dm². Calculate the length of each side. (**2 marks**)

Area of a square

$$S \times S = A$$

$$S \times S = 64 dm^2$$

$$\sqrt{S \times S} = \sqrt{8dm \times 8dm}$$

$$S = 8dm$$

∴ Each side measures 8dm.

b) Find the perimeter of the square in 28(a) above (**2 marks**)

$$P = 4S$$

$$P = 4 \times S$$

$$P = 4 \times 8dm$$

$$P = 32dm$$

29. Joseph went to the market and bought the items as shown in the table below.
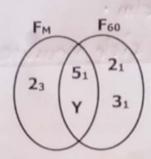
Complete the table below (**5 marks**)

Item	Quantity	Unit cost	Total cost
Sugar	2½ kg	Sh.36000 per kg	Shs. 90000
Rice	3 kg	Sh 4200 per kg	Shs. 12600
G.nuts	5 00g	Sh.600	Sh 300
Meat	½ kg	Sh.8000 per kg	Sh.4000
		Total	Sh. sh·106900

a) If Joseph was given change of **sh.7500**. How much did he have at first? (**1 mark**)

Sugar
$$Sh \cdot 36000 \times \frac{5}{2}$$
$$Sh \cdot 90000$$

Rice
$$Sh \cdot 4200$$
$$3$$
$$Sh \cdot 4200$$

$$Sh \cdot 600 \times 500g$$
$$10009$$
$$Sh \cdot 300$$

Meat
$$Sh \cdot 4000$$
$$Sh \cdot 8000$$
$$\frac{1}{2} kg$$

Total
$$Sh \cdot 90000$$
$$Sh \cdot 12600$$
$$Sh \cdot 4000$$
$$Sh \cdot 300$$
$$Sh \cdot 106900$$

Amount at first
$$Sh \cdot 106900$$
$$Sh \cdot 7500$$
$$Sh \cdot 114400$$

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30. Study the figure below and use it to answer the questions that follow.

F_M F_{60}

Inside: 2_3, 5_1, 2_1, 3_1, Y

a) Find the value of;

(i) **Y** (2 marks)

$$Y = \frac{60}{5 \times 2 \times 3}$$

$$Y = \frac{\overset{2}{\cancel{60}}}{\cancel{30}}$$

$$Y = 2_2$$

OR

$Y \times 5 \times 2 \times 3 = 60$

$30Y = 60$

$\frac{30Y}{30} = \frac{60}{30}$

$Y = 2_2$

(ii) **M** (2 marks)

$M = 2 \times 5 \times Y$

$M = 2 \times 5 \times 2$

$M = 10 \times 2$

$M = 20$

b) Work out the **LCM** of **M** and **60** (2 marks)

LCM of M and 60.

$LCM = 2 \times 5 \times 2 \times 2 \times 3$

$= 10 \times 4 \times 3$

$= 40 \times 3$

$= 120$

31. Kato left his home at **7:30a.m** and reached his destination after $2\frac{1}{4}$ hour drive. If he was driving at **60km/h**;
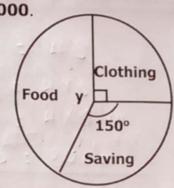
a) At what time did he reach? (2 marks)

$2\frac{1}{4}$hr.

$2 + (\frac{1}{4} \times 60^{15})$

2hrs 15min

Arrival time
7:30 a.m
+2hrs 15 mins
9:45 a.m.

He reached at 9:45 a.m.

b) Calculate the distance he covered. (2 marks)

Distance $= 5 \times 7$

$= \left(\cancel{66}^{15} \times \cancel{9}^{9}_{\cancel{7}} \right)$ km | Distance $= 135$ km

$= 15 \times 9$ km

32. The pie chart below shows how Jumba spends his weekly allowance of **sh.108000**.

a) Find the value of **y** in degrees? (2 marks)

$Y + 90° + 150° = 360°$

$Y + 240° = 360°$

$Y + 240° - 240° = 360° - 240°$

$Y = 120°$

b) How much does he save? (2 marks)

Amount to saved.

$150°$ of sh. 108000

$\dfrac{150}{\cancel{360}} \times$ sh. $\cancel{108000}^{3}$ | sh. 3000×15

sh. 45000.

He saved sh. 45000

b) Express the sector for clothing as a percentage of the whole monthly income (1 mark)

Clothing Percentage:

$90°$ of 100%

$\dfrac{\cancel{90}}{\cancel{360}} \times \cancel{100}^{25}\%$

$= 25\%$.