UNIQUE STAR EXAMINATIONS BOARD

**PRE PRIMARY LEAVING MOCK SET THREE**

**2024**

**MATHEMATICS**

Time allowed : 2 hours 30 minutes

| Index No. | Random No. | | | | | Personal No. | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

Candidate's name : KAKOOZA PASCAL

Candidate's signature : Kakooza Pascal

School Random number : ..................................................

District No. : [  ][  ][  ][  ]

**Read the following instructions carefully:**

1. Do not write your **school** or **district name** anywhere on this paper.
2. This paper has two sections: A and B. Section A has **20** questions and section B has **12** questions. The paper has **15** printed papers altogether.
3. Answer **all** questions. All the working for both sections A and B must be shown in the spaces provided.
4. All working must be done using a **blue** or **black** ball point pen or ink. Any work done in pencil other than graphs and diagrams will **NOT** be marked.
5. **No calculators** are allowed in the examination room.
6. Unnecessary **changes** in your work and handwriting that cannot easily be read may lead to loss of marks.
7. Do not fill anything in the table indicated: "**For examiners' use only**" and the boxes inside the question paper.

| | FOR EXAMINER'S 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

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

1. Work out: 42 × 3

$$\begin{array}{r} 4\ 2 \\ \times\ \ 3 \\ \hline 1\ 2\ 6 \end{array}$$

2. Expand 6078 using powers of ten.

| Powers | $10^3$ | $10^2$ | $10^1$ | $10^0$ |
|---|---|---|---|---|
| Numbers | 6 | 0 | 7 | 8 |

$(6\times10^3)+(0\times10^2)+(7\times10^1)+(8\times10^0)$

3. Write **CDLVI** in Hindu-Arabic numerals

| C D | L | V I |
|---|---|---|
| 400 | 50 | 6 |

400 + 50 + 6
456

4. Given that P = {0, 2, 4, 6, 8, 10} and R = {4, 6, 8, 9}.
Find n(P∪Q)

P∪Q = {0, 2, 4, 6, 8, 10, 9}
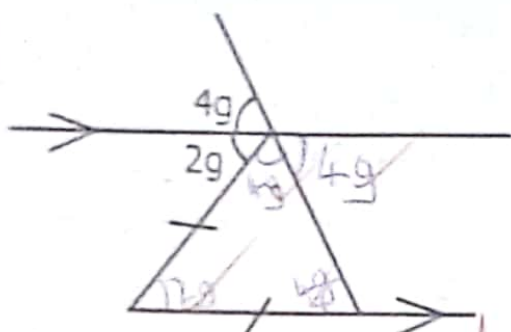n(P∪Q) = 7

5. Round off 4.195 to the nearest hundredth.
4.195

$$\begin{array}{r} 4.19 \\ 0.00 \\ \hline 4.20 \end{array}$$

4.195 ≃ 4.20

2

6. Find the value of g in degrees.



$$2g + 4g + 4g = 180°$$
$$\frac{10g}{10} = \frac{180°}{10}$$
$$g = 18°$$

7. A trader bought a dozen of cups at sh 4,800. He later sold each cup at sh 500. Find his profit.

Amount after selling
$$\begin{array}{r} Sh\ 500 \\ \times\ 12 \\ \hline 1000 \\ 500 \\ \hline Sh\ 6000 \end{array}$$

Profit
$$\begin{array}{r} Sh\ 6'000 \\ Sh\ 4,800 \\ \hline Sh\ 1,200 \end{array}$$

8. Simplify:  $4y - 5e - y - e$

$$4y - 5e - y - e$$
$$4y - y - 5e - e$$
$$3y - 6e$$

9. Work out:  $1011_{two} + 111_{two}$

$$\begin{array}{r} 1011_{two} \\ +\ 111_{two} \\ \hline 10010_{two} \end{array}$$

$1+1 = 2 - 2 = 6r0$
$1+1+1 = 3 = 2, 1r1$
$1+1 = 2 - 2 = 1r0$

3

**Turn Over**

10. Write in 24 hour clock, the morning time shown on the clock face below.



00 50 hrs

11. Find the sum of $\frac{1}{2}$ and $\frac{4}{5}$

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

$(\frac{1}{2} \times 10) + (\frac{4}{5} \times 10)$

$\frac{5 + 8}{10}$

13 ir3
+0,
$\frac{3}{10}$

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

$\frac{2 \times 5}{10}$

12. Simplify: $^-6 - {}^+4$

$^-6 - (^+4) - x + = -$

$^-6 - 4$

$^-10$

ve +ve

13. Using a ruler, a pencil and a protractor only, draw an angle of 45°.

45°
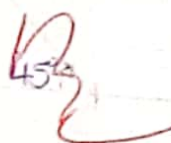
14. Solve the equation: $\frac{p}{3} + 2p = 14$

$$\frac{P}{3} + 2p = 14$$

$$\left(\frac{P}{3} \times 3\right) + (2p \times 3) = (14 \times 3)$$

$$P + 6p = 42$$

$$\frac{17p}{17} = \frac{42}{7}$$

$P = 6$

$$\begin{array}{r} 14 \\ \times\ 3 \\ \hline 42 \end{array}$$

15. Change 0.75 kilometres to metres.

$1 km \rightarrow 1000$ metres

$0.75 km \rightarrow \left(\frac{75}{100} \times 1000\right)$ metres

$0.75 km \rightarrow 750$ metres

16. Work out: 5 − 6 (finite 7)

$5 - 6$ (finite 7)

$(5+7) - 6$ (finite 7)

$12 - 6$ (finite 7)

$6$ (finite 7).

17. Find the highest number of boys that can share either 18 pens or 24 pens leaving no remainder.

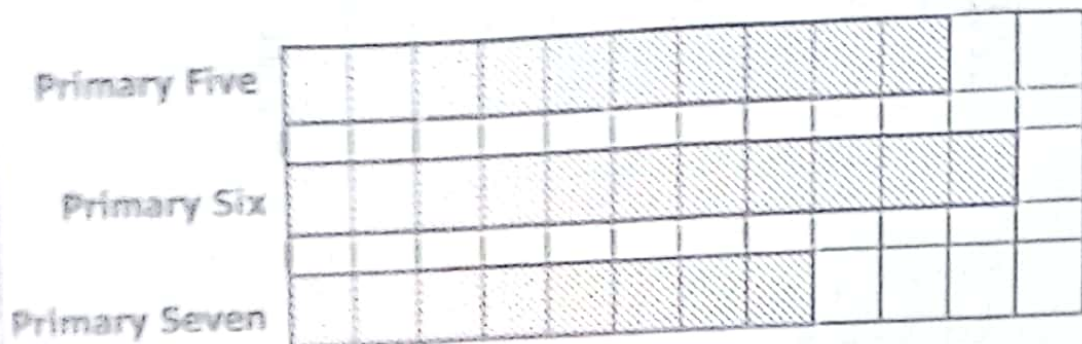| 2 | 18 | 24 | 2 × 3 |
|---|----|----|-------|
| 3 | 9 | 12 | 6 boys. |
|  | 3 | 4 |  |

$\boxed{08}$  5

**Turn Over**

13. The graph below represents the number of pupils in different upper primary classes in a certain school. Primary Six has 24 pupils more than Primary Five. Use the graph to answer the question that follows.

| Primary Five | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Primary Five

Primary Six

Primary Seven

Find the number of pupils in Primary Seven    $19\,7\frac{1}{4}$ pupils.

$11-19 = 24$

$1 = \frac{24}{4}$

No of pupils in Primary Seven

$\frac{32}{4}$

$\times 24$

19. Use distributive property to work out: $(12 \times 239) + (12 \times 261)$

$(12 \times 239) + (12 \times 261)$

$12 \times (239 + 261)$

$12 \times (500)$

$12 \times 500$

$6000$

$$\begin{array}{r} {261}\\ +239\\ \hline 500 \end{array}$$

20. The number of pupils in the school last year was 1080. This year, the number has decreased in the ratio of 5:9. Find the number of pupils in the school this year.

$\frac{5}{9} \times 1080$

$120$

$\begin{array}{r} 120 \\ \times \quad 5 \\ \hline 600 \end{array}$ pupils.

(05)

## SECTION B: 60 MARKS

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

21. At Mpisa Primary School, all candidates attended the leavers' party.
(r+4) candidates were served with meat (M) only, 3r were served
with chicken (C), 3 were served with both meat and chicken while
4 candidates were served with neither of the two dishes.

(a) Use the given information to complete the Venn diagram below.

(02 marks)

n(Ɛ)

n(M)        n(C), 3r ✓

(r+4)    3    3r-3

4
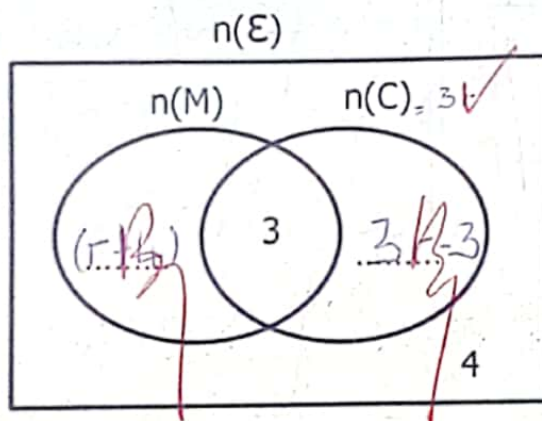
(b) Given that the number of candidates served with chicken only
was the same as the number of those served with meat.

Find the;
(i) value of r.                              (02 marks)

$$3r-3 = (r+4+3)$$
$$3r-3+3 = r+7+3$$
$$3r = r+10$$
$$3r-r = r-r+10$$

$$\frac{\cancel{2}r}{\cancel{2}} = \frac{\cancel{10}^{5}}{\cancel{2}_{1}}$$

$$r = 5$$

(ii) number of candidates at Mpisa Primary School.       (02 marks)

$$r+4+3 + 3r-3+4$$
$$r+3r+4+3+4-3$$
$$4r+11-3$$
$$(4\times5)+8$$

$$20+8$$
$$28\ pupils.$$

7

06

22. (a) Express 0.0802 in standard form. (02 marks)

0.0802 × 10⁻¹  →  $0.0802 \times 10^{-1}$

(0.802 × 10⁻² →  $0.802 \times 10^{-2}$

8.02 × 10⁻² (2) →  $8.02 \times 10^{-2}$

(b) Write 108 as a product of its prime factors. (02 marks)

| 2 | 1 0 8 |
|---|-------|
| 2 | 5 4 |
| 3 | 2 7 |
| 3 | 9 |
| 3 | 3 |
|   | 1 |

2 × 2 × 3 × 3 × 3

23. Adwaro went shopping with sh. 30,000. She bought the following items and remained with a change of sh 5,800.

$1\frac{1}{2}$ kg of onions at sh 3,000 for every 500 g. ✓

Some tomatoes at sh 200 each.
1250 g of salt at sh 2,000 a kilogram. ✓
A tray of eggs at sh 9,500. ✓

How many tomatoes did she buy? (05 marks)

Onions
$1\frac{1}{2}$ kg → g
$1\frac{1}{2}$ kg → $\frac{3}{2}$ × 1000 g
$1\frac{1}{2}$ kg → 1500 g

No of 500 g
$\frac{1500 g}{500 g}$
3 500 g

Amount
Sh. 3000
×   3
Sh. 9000

Salt
1250 g → kg
1250 g
1000 g
20 g
Sir
$1\frac{1}{4}$ kg
Amount
$1\frac{1}{4}$ kg → $\frac{5}{4}$ × Sh. 2000
$1\frac{1}{4}$ kg → sh. 2500

8

(07)

Eggs
Sh. 9500
Total
Sh. 9500
Sh. 9000
Sh. 2500
Sh. 21000

Amount of all tomatoe
Sh. 21000
+ Sh. 5800
Sh. 26800

Sh. 30000
Sh. 26800
Sh. 3200

No of tomatoes
Sh. 3200       16 tomatoes
Sh. 200

24. Pupils did a test and scored marks shown in the table below.

| Number of pupils | 5 | 3 | 4 | 3 |
|---|---|---|---|---|
| Marks scored | 72 | 80 | d | 90 |

(a) How many pupils did the test? (01 mark)

$(5+3)+(4+3)$ pupils

$(8+7)$ pupils

15 pupils

(b) If the mean mark was 78, find the value of d. (03 marks)

$$\frac{S.O.1}{N.O.1} = mean$$

$$\frac{(72\times5)+(3\times80)+(4\times d)+(3\times90)}{15} = 78$$

$$\frac{360+240+4d+270}{15} = 78$$

$$\frac{360+240+270+4d}{15} = 78$$

$$\frac{870+4d}{15} \times 15 = 78 \times 15$$

$$4d+870-870 = 1170-870$$

$$4d = 300$$

$$d = 75$$

$$\begin{array}{r}
360 \\
240 \\
270 \\
\hline
870
\end{array}$$

$$\begin{array}{r}
72 \\
\times 5 \\
\hline
360
\end{array}$$

$$\begin{array}{r}
78 \\
\times 15 \\
\hline
390 \\
78 \\
\hline
1170
\end{array}$$

$$\begin{array}{r}
1170 \\
-870 \\
\hline
300
\end{array}$$

(c) Calculate the range of marks. (01 mark)

$$R = H - L$$

$$R = 90 - 72$$

$$\begin{array}{r}
90 \\
-72 \\
\hline
18
\end{array}$$

$$R = 18 \text{ marks}.$$

05

9

**Turn Over**

**25. (a)** Using a ruler, a pencil and a pair of compasses only, construct a triangle WXY such that angle WXY = 120°, angle XYW = 30° and line XY = 4.5cm.

*(04 marks)*

Accurate diagram

Sketch diagram
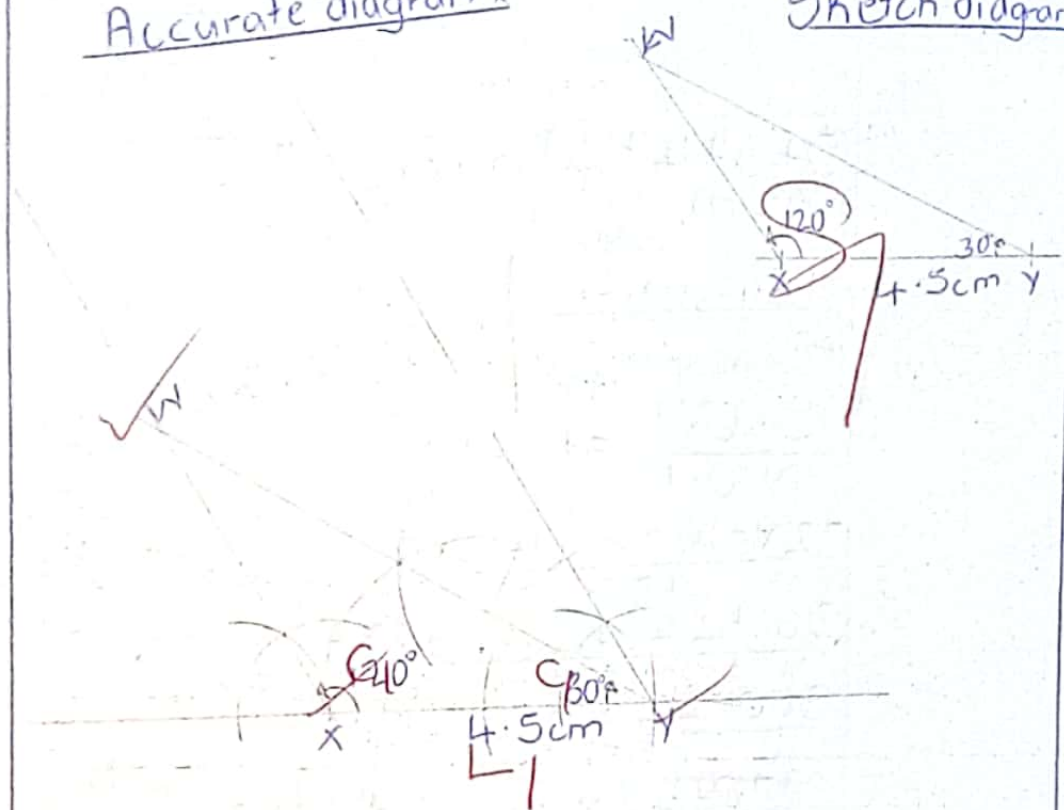


**(b)** Measure line WY.  *(01 mark)*

7.8cm

**26. (a)** Express $\dfrac{5}{11}$ as a recurring decimal.  *(02 marks)*

$$0.4545 - (A)$$

```
        0.4545 -
   11 | 5.0000
 0×11= 0
       _50
 4×11= 4 4
       _60
 5×11=  5 5
       _50
 4×11=  4 4 / 10
       _60
 5×11 = 5 5    07
        5
```

(b) Simplify: $\dfrac{0.78 - 0.48}{0.12 \div 0.8}$  (03 marks)

$$-0.78$$
$$+0.48$$
$$0.30$$

$$(0.30) \div (0.12 \div 0.8)$$

$$\left(\dfrac{30}{100}\right) \div \left(\dfrac{12}{100} \div \dfrac{8}{10}\right)$$

$$\left(\dfrac{30}{100}\right) \div \left(\dfrac{12}{100} \times \dfrac{10}{8}\right)$$

$$\dfrac{30}{100} \times \dfrac{100}{12} \times \dfrac{8^2}{10}$$

$$2$$

27. The interior angle of a polygon is 108°.

(a) Find the number of sides of the polygon.  (02 marks)

Let the exterior be k.

| Exterior | Interior | Total |
|----------|----------|-------|
| K | 108° | 180° |

$$K + 108° = 180°$$
$$K + 108° - 108° = 180° - 108°$$
$$K = 72°$$

Exterior 72°

No of sides.
$$\dfrac{360°}{Ext/L}$$
$$\dfrac{360°}{72°} = 5 \text{ sides}$$

(b) Find the number of right angles in the polygon.  (02 marks)
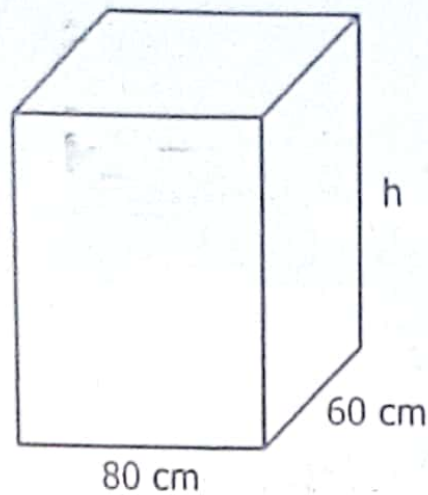
No of right angles.
$$2(n-2)$$
$$2(5-2)$$
$$2(3)$$
$$2 \times 3$$
$$6 \text{ right angles.}$$

07

11

Turn Over

CamScanner

20. Eighteen 20 – litre containers fill the tank below.



(a) Calculate the base area of the tank.　(02 marks)

$B.A = L \times W$

$B.A = 80cm \times 60cm$

$B.A = 4,800 cm^2$

(b) Find the value of h.　(04 marks)

No of litres

$(18 \times 20)$ Litres

360 Litres

Volume of tank.

Volume = $360 \times 1000 cm^3$

$360,000 cm^3$

Value of h

$L \times W \times h = V$

$80cm \times 60cm \times h = \dfrac{360000 \, \cancel{cm} \times cm \times cm}{80 cm \times 60 cm}$

$h = 75 cm$

**12**

06

**29.** Chebet left **Town C** for **Town D** at 11:45 a.m. driving at an average speed of 60 kilometres per hour. He reached **Town D** at 2:15 p.m.

How far is **Town D** from **Town C**? (04 marks)

$$S = 60 \text{ km/h}$$

11:45 a.m

| Time | |
|---|---|
| 1200 | $D = S \times T$ |
| 215 | $D = \dfrac{60 \text{ km}}{\text{hour}} \times 2\frac{1}{2} \text{ hours}$ |
| 1415 hrs | |
| 1415 hr | $D = 60 \text{ km} \times \frac{5}{2}$ |
| 1145 | |
| 230 | $D = 150 \text{ km}$ |
| 2½ hrs | |

$$
\begin{array}{r}
60 \\
15 \\
\hline
75 \\
\end{array}
$$

15 ÷ 60
1 r 15

$$
\begin{array}{r}
75 \\
-45 \\
\hline
30 \\
\end{array}
$$

**30.** Akiki is n years younger than Mbajjo. Mbajjo is 15 years old. The total age of the two children is 27 years.

(a) Find the value of n. (02 marks)

| Akiki | Mbajjo | Total |
|---|---|---|
| 15-n | 15 | 27 |

$$n = 3$$

$15 - n + 15 = 27$

$15 + 15 - n = 27$

$30 - 30 - n = 27 - 30$

$$\frac{-n}{-1} = \frac{-3}{-1}$$

(b) How old was Akiki 5 years ago? (02 marks)

Akiki now.
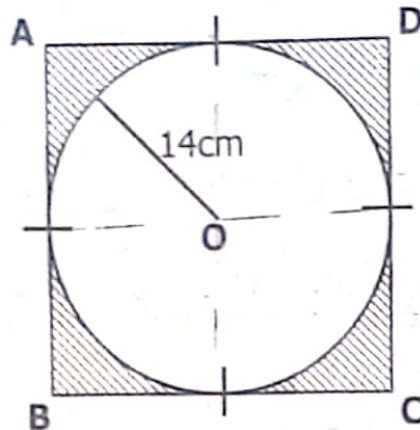15 - n
15 - 3
12 years

Akiki 5 years ago.
(12 - 5) years
7 years

13

08

31. In the diagram below, a circle with centre **O** and radius 14 cm is enclosed in a square **ABCD**. Parts of the square are shaded as shown. Study the diagram and use it to answer questions that follow.



(a) Find length **CD** in centimetres.                    (02 marks)

$$14 \text{ cm}$$
$$+ \ 14 \text{ cm}$$
$$\overline{28 \text{ cm}}$$

CD = 28 cm

(b) Calculate the area of the shaded part.          (04 marks)

Area of square.
A = S × S
A = 28 cm × 28 cm
A = 784 cm²

Area of circle:
A = πr²
A = $\frac{22}{7}$ × 14 cm × 14 cm
A = 44 cm × 14 cm
A = 616 cm²

Area of the shaded part

784 cm²
- 616 cm²
168 cm²

6
2 8
28
2 2 4
5 6
7 8 4

4 4
1 4
1 7 6
4 4
6 1 6

14

06

32. The un shaded fraction in the drawing below represents the number of pupils who are absent in a class of 60 pupils.
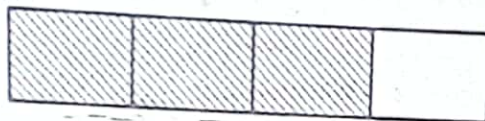


Given that two thirds of the pupils who are present and a third of the pupils who are absent are girls.

Find the number of;

(i) girls     (04 marks)

No of present

$\frac{3}{4} \times 60 = 45$ pupils

Absent

$60$

$\frac{45}{15}$ pupils.

$\frac{2}{3} \times 45 = 30$ girls

$\frac{1}{3} \times 15 = 5$ girls

No of girls.

$30 + 5 = 35$ girls.

(ii) boys     (02 marks)

$60$ pupils

$-35$ pupils.

$25$ pupils.

(06)

END