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 : TR' FRANCIS

Candidate's signature : MARKING GUIDE

School Random number : 0764782284 / 0789065893.

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

SECTION A : 40 MARKS

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

1. Work out: 42 × 3

$$\begin{array}{r} 42 \\ \times\ 3 \\ \hline 126 \end{array}$$

2. Expand 6078 using powers of ten.

10^3	10^2	10^1	10^0
6	0	7	8

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

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

CD — 400
L — 50
VI — 6

456

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

$P\cup Q=\{0,2,4,6,8,10,9\}$

$n(P\cup Q)=7$

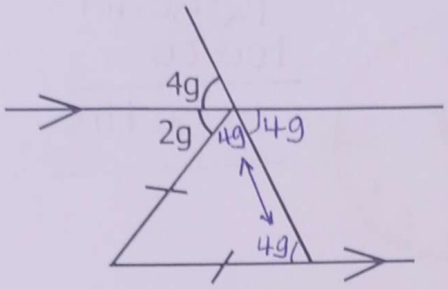
5. Round off 4.195 to the nearest hundredth.

4·195
↳ R.P.V

4·190
+0·010
4·200

∴ 4·195 ≈ 4·2

6. Find the value of g in degrees.



$4g+4g+2g=180^\circ$

$\frac{10g}{10}=\frac{180^\circ}{10}$

$g=18^\circ$

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

Total sales

1 dozen = 12 cups

sh. 500 × 12

sh. 6000

Profit = SP − BP

sh. 6000 − sh. 4800

sh. 1200

8. Simplify: 4y – 5e – y – e

$4y-y-5e-e$

$3y-6e$

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

1011_{two} 2÷2=1 r 0

$+\ 111_{two}$ 3÷2=1 r 1

10010_{two} 2÷2=1 r 0

2÷2=1 r 0

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

12:50 am
+00 00
1250 Hrs

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

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

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

$\frac{13}{10}$

$1\frac{3}{10}$

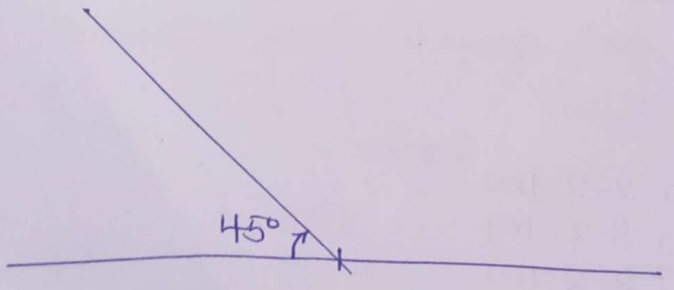
12. Simplify: $^{-}6 - {}^{+}4$

$-6-(+4)$

$-6-4$

-10

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



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

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

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

$p + 6p = 42$

$7p = 42$

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

$p = 6$

15. Change 0.75 kilometres to metres.

$1\text{KM} = 1000\text{M}$

$0.75\text{km} = \left(\frac{75}{100} \times 1000\right)\text{M}$

750m

16. Work out: 5 – 6 (finite 7)

5 - 6 (Finite 7)

(5 + 7) - 6 (Finite 7)

12 - 6 (Finite 7)

6 (Finite 7)

∴ 5 - 6 = 6 (Finite 6

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

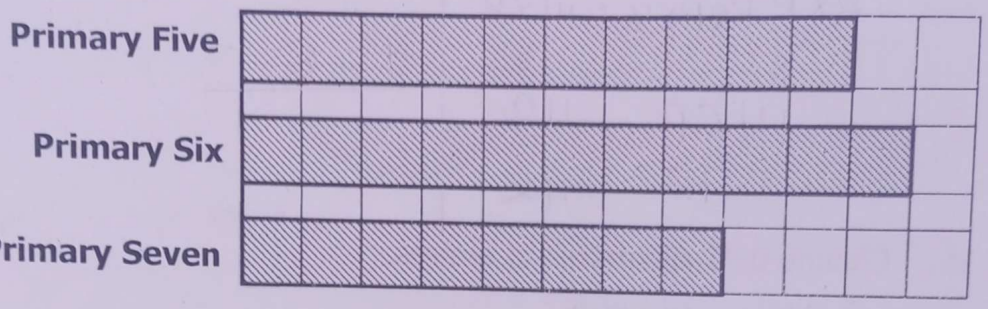
√2	18	24
√3	9	12
	3	4

HCF = 2 × 3

= 6

Highest number of boys = 6

18. 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.



Find the number of pupils in Primary Seven

Difference in P6 and P5

11 boxes − 10 boxes

1 box.

1 box rep 24 pupils

No of pupils in P7

8 boxes × 24

192 pupils

19. Use distributive property to work out: (12 × 239) + (12 × 261)

12(239+261)

12(500)

6000

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.

Decrease

$\frac{5}{9} \times 1080^{120}$

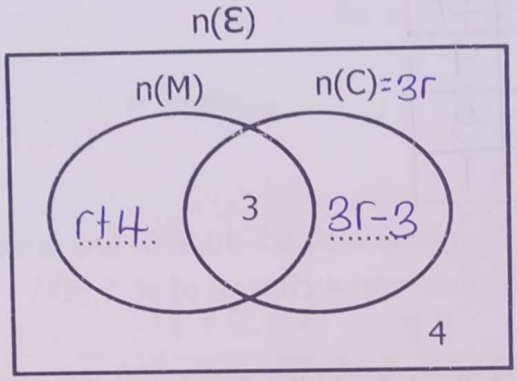
600 pupils

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)*



(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)*

$3r-3=r+4+3$

$3r-3=r+7$

$3r-3+3=r+7+3$

$3r=r+10$

$3r-r=r-r+10$

$\frac{2r}{2}=\frac{10}{2}$

$r=5$

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

$(r+4)+3+(3r-3)+4=n(\xi)$

$(5+4)+3+(3\times5-3)+4$

$9+3+12+4$

28 candidates

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

0.0802×10

0.802×10^{2}

8.02×10^{-2}

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

2	108
2	54
3	27
3	9
3	3
	1

$2 \times 2 \times 3 \times 3 \times 3$

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

$\left(\frac{500g}{1000g}\right)$ kg

$\frac{1}{2}$ kg

$\frac{1}{2}$ kg → Sh. 3000

1 kg → Sh. 3000 × 2

Sh. 6000

$1\frac{1}{2}$ kg → Sh. 6000 × $\frac{3}{2}$

Sh. 9000

Salt

1250 g → kg

1250 / 1000

$\frac{5}{4}$

$1\frac{1}{4}$ kg

1 kg → Sh. 2000

$1\frac{1}{4}$ kg → Sh. 2000 × $\frac{5}{4}$

Sh. 2500

Eggs

Sh. 9,500

Total expenseson Onions, salt and eggs

Sh. 9000
+Sh. 9500
Sh. 2500
Sh. 21000

Balance
Sh. 30,000
−Sh. 21,000
Sh. 9,000

Cost of tomatoes

Sh. 9000
−Sh. 5800
Sh. 3200

No of tomatoes

Sh. 3200 / Sh. 200

16 tomatoes

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

15 pupils

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

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

$\frac{(72\times5)+(80\times3)+(d\times4)+(90\times3)}{15} = 78$

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

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

$870+4d = 1170$

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

$\frac{4d}{4} = \frac{300}{4}$

$d = 75$

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

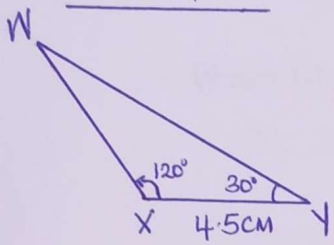
Range = H − L

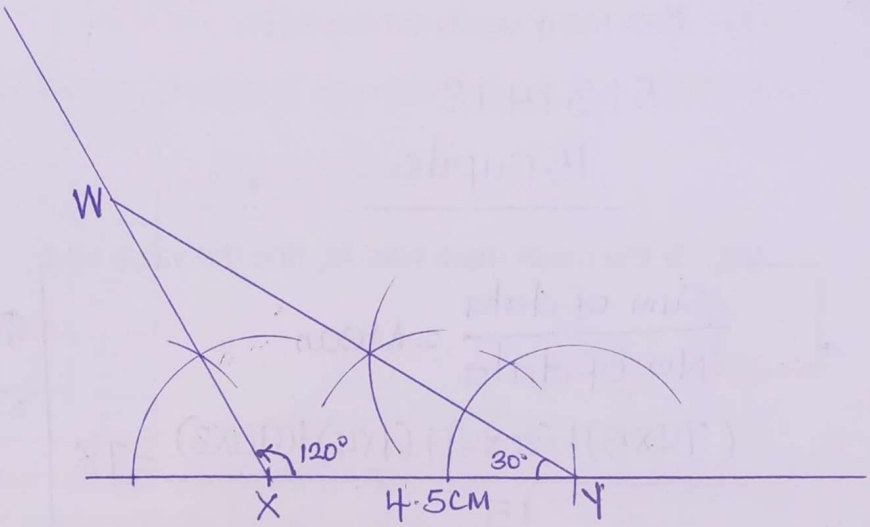
= 90 − 72

= 18 marks

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)*

Sketch





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

$\overline{WY} = 7.7\text{cm}$

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

$$11 \overline{)\,50} \quad 0.4545\ldots$$
$$-44$$
$$60$$
$$-55$$
$$50$$
$$-44$$
$$60$$
$$-55$$
$$5$$

$\therefore \frac{5}{11} = 0.4545\ldots$

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

$(0.78-0.48) \div (0.12 \div 0.8)$

$(0.3) \div (0.12 \div 0.8)$

$\left(\frac{3}{10}\right) \div \left(\frac{12}{100} \div \frac{8}{10}\right)$

$\left(\frac{3}{10}\right) \div \left(\frac{\cancel{12}^{3}}{10\cancel{0}} \times \frac{1\cancel{0}}{\cancel{8}2}\right)$

$\frac{3}{10} \div \frac{3}{20}$

$\frac{\cancel{3}^{1}}{\cancel{10}} \times \frac{\cancel{20}}{\cancel{3}_{1}}$

1×2

2

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

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

Let the exterior angle be K

$K + 108° = 180°$

$K + 108° - 108° = 180° - 108°$

$K = 72°$

No of sides $= \frac{360°}{\text{Ext}\angle}$

$\cancel{60}\ 5$

$\cancel{360°}$

$\overline{\cancel{72°}}$

$\cancel{12}$

1

5 sides

(b) Find the number of right angles in the polygon. *(02 marks)*

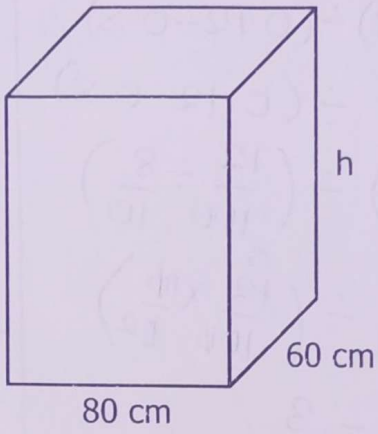
No of right angles $= 2(n-2)$

$2(5-2)$

$2(3)$

6 right angles

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



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

Base area = L x W

= 80cm x 60cm

= 4800 cm^2

(b) Find the value of h. *(04 marks)*

Capacity = 20L x 18

= 360L

1L = 1000 cm^3

360L = 360 x 1000 cm^3

= 360,000 cm^3

L x W x h = Volume

(Base area) x h = Volume

4800 cm^2 x h = 360,000 cm^3

$\frac{4800h\ cm^2}{4800\ cm^2} = \frac{360,000\ cm^3}{4800\ cm^2}$

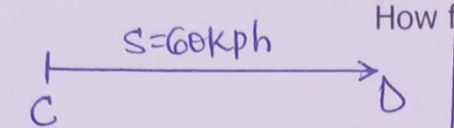
$h = \frac{360,000\ cm \times cm \times cm}{4800\ cm \times cm}$

$h = \frac{360cm}{4}$

$h = 75cm$

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

How far is **Town D** from **Town C**? *(04 ma*



Duration = ET - ST

02:15pm + 12:00 = 14 15Hrs

11:45am + 0000 = 1145Hrs

Hrs	Mins
14	15
− 11	45
2	30

$2\frac{1}{2}$ hours

$D = S \times T$

$D = \frac{60km}{1hr} \times 2\frac{1}{2}hr$

$D = \frac{60km}{1} \times \frac{5}{2}$

$D = 30km \times 5$

$D = 150km$

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

(a) Find the value of n. *(02 ma*

Mbajo	Akiki	Total
15	15-n	27

$15 + 15 - n = 27$

$30 - n = 27$

$30 - 30 - n = 27 - 30$

$-n = -3$

$+n = +3$

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

$n = 3$

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

Akiki's age now

15 − n

15 − 3

12 years old

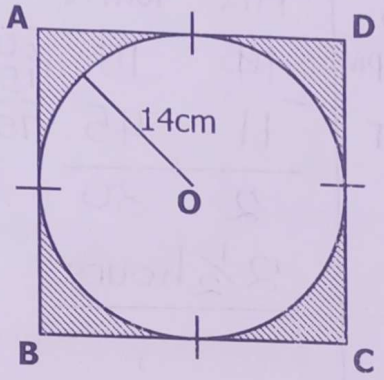
In 5 years ago

12 − 5

7 years old

Tu

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)*

Length CD = 14cm + 14cm

= 28cm

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

Area of square ABCD

$A = S \times S$

$A = 28cm \times 28cm$

$A = 784 cm^2$

Area of a circle

$A = \pi r^2$

$A = \frac{22}{7_1} \times \overset{2}{14}cm \times 14cm$

$A = 44cm \times 14cm$

$A = 616 cm^2$

Area of the shaded part

$784 cm^2$

$- 616 cm^2$

$168 cm^2$

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 pupils present

$\frac{3}{4_1} \times 60^{15}$

45 pupils

No of absentees

60 − 45 = 15 pupils

No of girls

$(\frac{2}{3_1} \times 45^{15}) + (\frac{1}{3_1} \times 15^{5})$

30 + 5

35 girls

(ii) boys (02 marks)

No of boys

$(\frac{1}{3_1} \times 45^{15}) + (\frac{2}{3_1} \times 15^{5})$

15 + 10

25 boys

END