PRE- MOCK SET 4 EXAMINATIONS, 2024
PRIMARY SEVEN MATHEMATICS

Duration: 2 Hours 15 Minutes

NAME: TR: WALTER (0775232978) STREAM: _____

INDEX NO. | | | | | | | | | | EMIS NO. | | | | | | |

SECTION A

1. Work out: 12 x 4

$$\begin{array}{r} 12 \\ \times\ 4 \\ \hline 48 \end{array}$$

2. Write "four hundred sixty" in Roman numerals.

400 + 60 = 460

460 = 400 + 60

CD LX

CDLX

3. Find the next two numbers in the sequence below.

1, 3, 6, 11, 18, ..29..

+2 +3 +5 +7 +11

18 + 11 = 29

4. Given that set M = {0, 2, 4, 6, 8}. How many subsets are in set M?

No of subsets = 2^5

(2X2X2X2X2) subsets

32 subsets

5. What number has been expanded to give;
$(5 \times 10^4) + (3 \times 10^2) + (2 \times 10^1)$?

(5X10X10X10X10) + (3X10X10) + (2X10)

(5X10,000) + (3X100) + (2X10)

50,000 + 300 + 20

50,000
300
+ 20
50,320

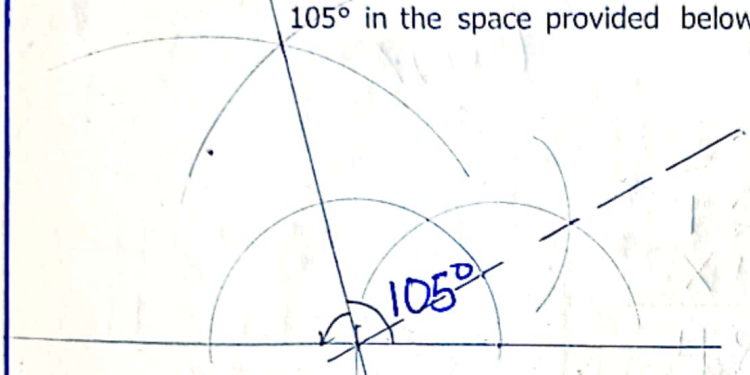
6. Express 20 m/s as kilometres per hour.

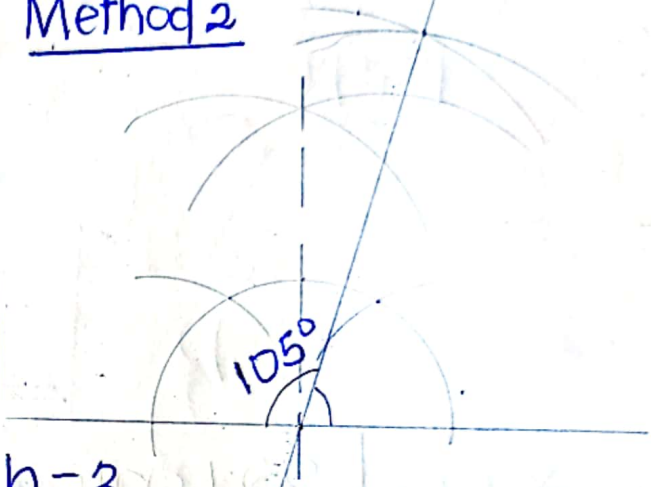
$\left(\frac{M/s \times 3600}{1000}\right) m/s$ | $\left(\frac{20 \times 3600}{1000}\right) m/s$ | 72 m/s

$(2 \times 36)\ m/s$

7. Using a ruler, a pencil and a pair of compasses only, construct an angle of 105° in the space provided below.

Method 2





8. Subtract (2h - 3) from (4h - 6).

$4h - 6 - (2h - 3)$ | $2h - 3$

$4h - 6 - 2h + 3$

$4h - 2h + 3 - 6$

9. How many 400 gram packets of salt can be obtained from 20 kg of salt?

No of 400g packets $= \left(\frac{20 \times 1000g}{400g}\right)$ | (5×10) packets

1kg = 1000g

$\frac{1}{1}$

50, 400g packets

10. Find the median of the numbers 4, 0, 5, -3, 5 and -1.

Median = -3, -1, 0, 4, 5, 5 | Median $= \frac{4}{2}$

Median $= \frac{4+0}{2}$ | Median = 2

11. Today is Wednesday. What day of the week was it 29 days ago?

Day - Days = − (Mod 7) | It was Tuesday

Wed − 29 = − (Mod 7)

$3 - \frac{29}{7}$ 4 r 1 (Mod 7)

$\frac{7}{1}$

3 − 1 (Mod 7)

2 (Mod 7)

12. Find the square root of $1\frac{7}{9}$.

$1\frac{7}{9} \times 9$

$\sqrt{\frac{16}{9}}$

4 | 16
4 | 4
1	

3 | 9
3 | 3
1	

$\sqrt{\frac{4\times4}{3\times3}}$

$\frac{4}{3}$ r 1

$\frac{1}{3}$

13. Change 0.1818... as a common fraction.

Let 0.1818 be K

$K = 0.1\dot{8}\dot{1}\dot{8}$ Eqn I

$K \times 100 = 0.1818 \times 100$

$100K = 18.18$

$-\ K \quad -0.18$

$99K = 18$

$\frac{99K}{99} = \frac{18}{99}$

$K = \frac{2}{11}$

$\therefore 0.1818 = \frac{2}{11}$

14. Express 113 four as decimal base.

4^2	4^1	4^0
1	1	3

$(1\times4\times4)+(1\times4)+(3\times1)$

$16 + 4 + 3$

23 ten

15. What angle is two thirds of its supplement?

1st	2nd	sum
2	3	180°

Total ratio

2+3

5

$\left(\frac{2}{5} \times \frac{36}{180}\right)^\circ$

$(2\times36)^\circ$

72°

16. Twelve men can do a piece of work in 5 days. How many more men are needed to do the same piece of work in 3 days?

$\left(\frac{12}{3} \times 5\right)$ men

(4×5) men

20 men

Difference

$(20-12)$ more men

8 more men

17. Solve the inequality: $4 - 2r \leq 8$.

$4 - 2r \leq 8$

$4 - 4 - 2r \leq 8 - 4$

$-2r \leq 4$

$\frac{-2r}{-2} \geq \frac{4}{-2}$

$r \geq -2$

18. Mudrat bought 4 kilograms of meat at sh. 4,000 for every quarter kilogram. How much money did he pay for all the 4kg?

1 Kg of meat

$\frac{1}{4} \rightarrow$ sh 4000

sh $4000 \div \frac{1}{4}$

sh 4000×4

sh 16000

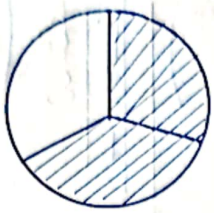
4 Kg of meat

sh 16000

× 4

sh 64000

19. What percentage of the figure below is un-shaded?



$\left(\frac{1}{3_1} \times \frac{100}{1}\right)\%$

$33\frac{1}{3}\%$

20. The graduation ceremony of Mr. Duru started at 10: 30 pm and ended at 3:00 am. How long did it last?

HRS	MIN
12	00
-10	30
01	30

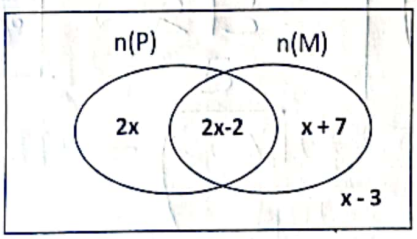
1hour 30minutes

HRS	MIN
3	00
+1	30
4	30

It took 4hours 30minutes

SECTION B

21. Below is a Venn diagram showing the number of boys who like mangoes (M) and passion fruits (P). Use it to answer the questions that follow.



a) Find the value of x if 23 boys like mangoes. *(03 marks)*

$2X+X+7-2 = 23$

$3X+5 = 23$

$3X+5-5 = 23-5$

$\frac{3X}{3_1} = \frac{18}{3_1}6$

$X = 6$

b) What is the probability of picking a boy at random who likes neither of the two fruits? *(02 Marks)*

Neither	n(Σ)	Probability
X-3	23+3+(2x6)	$\frac{n(E)}{n(\Sigma)}$
6-3	26+12	
3boys	38boys	$\frac{3}{38}$

22. a) Work out: $1\ 0\ 1_{two}$ (02 Marks)

$\times\ 1\ 1\ 1_{two}$

$+1\ 101$

$+1\ 101$

$+1\ 01$

100011_{two}

b) If $203_w = 53_{ten}$, find the value of w. (03 Marks)

W^2	W^1	W^0
2	0	3

$(2\times W)^2 + (0\times W) + (3\times 1) = 53$

$2W^2 + 0 + 3 = 53$

$2W^2 + 3 = 53$

$2W^2 + 3 - 3 = 53 - 3$

$\frac{2W^2}{2} = \frac{50}{2}$

$\sqrt{W^2} = \sqrt{25}$

$W = 5$

$\sqrt{(W\times W)} = \sqrt{(5\times 5)}$

$W = 5$

$\therefore$ W is base five

23. Mugabe went to the shop and bought the following items.

Item	Quantity	Unit price	Amount
Meat	3kg	Sh. 12,000	Sh 36000
Salt	1½ ....kg	Sh. 1,600	Sh. 2,400
Sugar	500g	Sh 4200	Sh 2100
Bread	21oaves	Sh 4500	Sh. 9,000
	TOTAL EXPENDITURE		Sh. 49,500

Sugar

Sh2100 ÷ 1/2

Sh2100 × 2/1

Sh4200

a) Complete the table above. (05 marks)

Meat

Sh12000

× 3

Sh36000

Salt

Sh2400 × 1½

Sh1600 × 1½

1½kg

Bread

Sh9000 − 4500

2

Sh4500

Sugar

Sh49500 − (36000 + 2400 + 9000)

Sh49500 − 47400

Sh2100

b) If he went with a fifty thousand shilling note, how much was his change? (01 mark)

49 10

Sh50,000

− Sh49,500

Sh00,500

24. Chekwech spends $\frac{2}{3}$ of his monthly salary on food, $\frac{1}{4}$ of the remainder on rent and saves sh.80,000. Calculate his monthly salary. (04 marks)

Food | Rent | Saves

$\frac{2}{3}$ | $\frac{1}{4} \times \frac{1}{3}$ | $\frac{1}{3} - \frac{1}{12} = \frac{4-1}{12}$

Rem $\frac{3}{3} - \frac{2}{3} = \frac{1}{3}$ | $\frac{1}{12}$ | $\frac{3}{12}$ 4

$\frac{1}{4} \rightarrow$ sh80,000

sh 80,000 ÷ $\frac{1}{4}$

sh80,000 x 4

sh320,000

25. Mukisa traveled at 55 Km per hour took 4 hours to cover part of his journey. The rest of the journey was covered in 2 hours at a speed of 40 Km per hour. Find his average speed for the whole journey. *(04 Marks)*

1st Distance | 2nd Distance

D = SXT | D = SXT

D = 55km x 4hrs / hr | D = 40km x 2hrs / hr

D = 220km | D = 80km

A.S = TDC / TTT

A.S = 220km + 80km / 4hrs + 2hrs

A.S = 300km / 6hrs

A.S = 50km/h

(03.marks)

26. a) Work out: $\frac{0.24 + 0.12}{0.3 \times 0.4}$

0.24 + 0.12 = 0.36

$\frac{36}{100} \div \left(\frac{3}{10} \times \frac{4}{10}\right)$

$\frac{36}{100} \times \frac{10}{3_1} \times \frac{10}{4_1}$

3

b) Simplify: $1\frac{1}{2} \times 2\frac{1}{4} \div 1\frac{1}{8}$

(02 Marks)

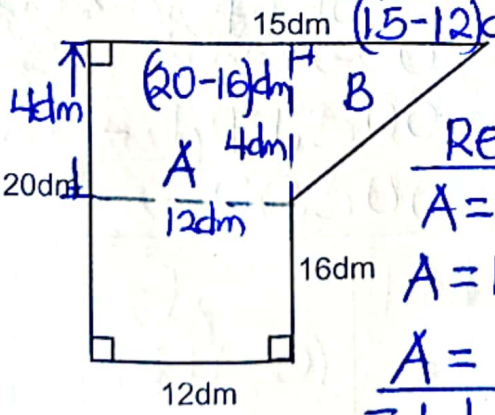
$1\frac{1}{2} \times 2\frac{1}{4} \div 1\frac{1}{8}$

$\frac{3}{2} \times \left(\frac{9}{4} \div \frac{9}{8}\right)$

$\frac{3}{2_1} \times \frac{9}{4_1} \times \frac{8}{9_1}$

3

27. Use the figure below to answer the questions that follow. (2mrks)



(15-12)dm = 3dm

Method I

Rectangle | Trapezium

A = LXW | A = h(a+b)/2

A = 12dm x 16dm | A = 4dm(12+15)dm/2

A = 192dm² | A = 4dm x 27dm/2

A = 2dm x 27dm

A = 54dm²

Total area

192dm²

+54dm²

246dm²

a) Calculate its area. (03 marks)

Area (A)	Area (B)	Total area
$A = L \times W$	$A = B \times H$	$A = 240dm^2 + 6dm^2$
$A = 20dm \times 12dm$	$A = 3dm \times 4dm$	$A = 246dm^2$
$A = 240dm^2$	$A = 6dm^2$	

b) Find the total distance around the whole figure. (3marks)

$c^2 = a^2 + b^2$

$c^2 = (3dm)^2 + (4dm)^2$

$c^2 = (3dm \times 3dm) + (4dm \times 4dm)$

$c^2 = 9dm^2 + 16dm^2$

$\sqrt{c^2} = \sqrt{25dm^2}$

$c = \sqrt{5dm \times 5dm}$

$c = 5dm$

$D = 5+5+5+5$

$D = 20$
$15+12$
$16+5$
$D = 68$

28. Mary, Teddy and Jannet contributed a certain amount of money in such away that Mary contributed twice as much as Teddy and Jannet contributed sh. 2,000 less than Mary.

a) Write an expression showing their total contribution. *(02 marks)*

Let Teddy's contribution be a

Teddy	Mary	Jannet
a	2a	2a - sh2000

b) If they all contributed sh.13,000, how much money did Jannet contribute? (2 marks)

$2a + a + 2a - sh2000 = sh13,000$

$5a - sh2000 = sh13,000$

$5a - sh2000 + sh2000 = sh13000 + sh2000$

$5a = sh15000$

$\frac{5a}{5} = sh\frac{15000}{5}$

$a = sh3000$

Jannet

(02 marks)

$2a - sh2000$

$(2 \times sh3000) - sh2000$

$sh6000 - sh2000$

$sh4000$

29. Change 3400 metres to kilometres.

$1000m = 1Km$

$3400m = \left(\frac{3400m}{1000m}\right) Km$

$3.4Km$

b) How many strides of 50cm each can a boy make to cross a road that is 8 metres wide? (02 marks)

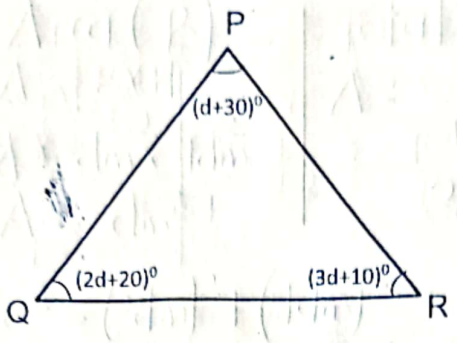
$1M = 100cm$

$No\ of\ strides = \frac{(8 \times 100)cm}{50cm}$

$(8 \times 2)\ strides$

16 strides

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



a) Find the value of d. (03marks)

$(3d+10+2d+20+d+30)^\circ = 180^\circ$

$3d+2d+d+10+20+30 = 180$

$6d+60 = 180$

$6d+60-60 = 180-60$

$\frac{6d}{6} = \frac{120}{6}$ 20

$d = 20$

b) Calculate the size of angle QPR. (02marks)

$\angle QPR = (d+30)^\circ$

$(20+30)^\circ$

50°

31. a) Solve: $6(x-2)-(2x-6)=6$ (03 marks)

$6(x-2)-(2x-6) = 6$

$6x-12-2x+6 = 6$

$6x-2x+6-12 = 6$

$4x-6 = 6$

$4x-6+6 = 6+6$

$\frac{4x}{4} = \frac{12}{4}$ 3

$x = 3$

b) Peter is 16 years older than Paul now. In 8 years' time, the ratio in their age will be 3:5. How old will Paul be in 8 years' time? (02 marks)

Let Paul's age be p

	Paul	Peter
Now	p	p+16
In 8 years	p+8	p+16+8

$\frac{p+8}{p+24} = \frac{3}{5}$

$5(p+8) = 3(p+24)$

$5p+40 = 3p+72$

$5p+40-40 = 3p+72-40$

$5p = 3p+32$

$5p-3p = 3p-3p+32$

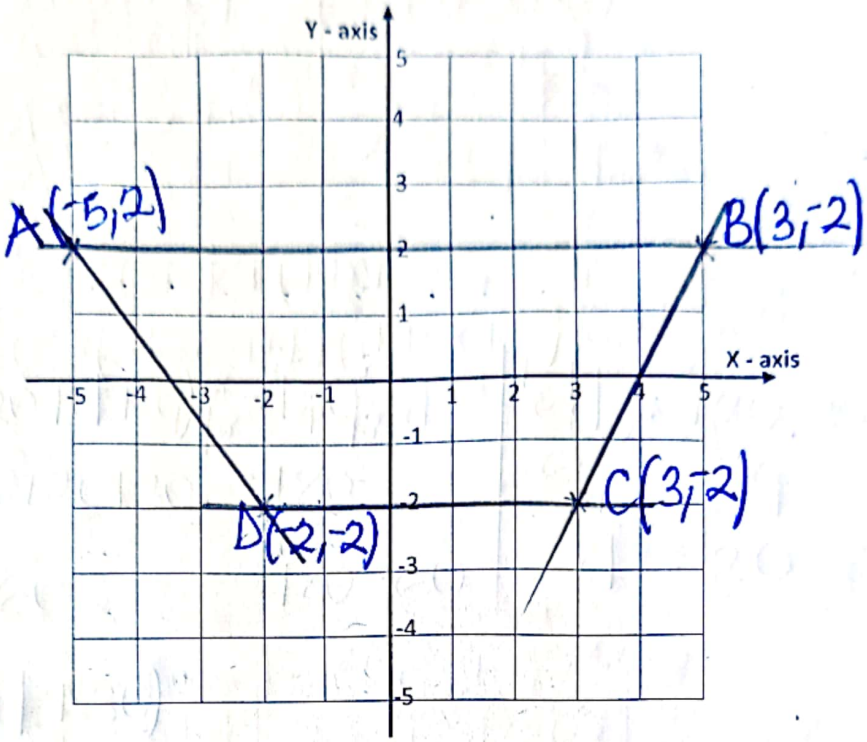
$\frac{2p}{2} = \frac{32}{2}$ 16

$p = 16$

Paul in 8 years time

$(16+8)$ years $= 24$ years

32. Plot the points A(⁻5, 2), B(5, 2), C(3, ⁻2) and D(⁻2, ⁻2) on the graph. (04 Marks)



a) Join points A to B, B to C, C to D and D to A. (01 mark)

b) Find the area of the figure formed. (02 marks)

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

$$A = \frac{4\text{units}\,(5+10)\text{units}}{2}$$

$$A = \frac{\cancel{4}\,\text{units} \times 15\,\text{units}}{\cancel{2}_{1}}$$

$$A = 2\,\text{units} \times 15\,\text{units}$$

$$A = 30\,\text{sq. units}$$

END