

THE SIPRO PRE-PLE SET I 2023

MATHEMATICS

Time Allowed: 2 Hours 30 Minutes

Random No.						Personal No.		
Index No.								

Candidate's Name: _____

Candidate's Signature: _____

School Random No: _____

District: _____

READ THE FOLLOWING INSTRUCTIONS CAREFULLY:

1. This paper has two sections: A and B.
2. Section A has 20 questions (40 Marks).
3. Section B has 12 questions (60 Marks).
4. Attempt all questions in both sections. All answers to both sections A and B must be written in the spaces provided.
5. All answers must be written in blue or black ball point pens or *ink*. Only diagrams and graph work must be done in *pencil*.
6. Unnecessary *alteration* of work will lead to loss of marks.
7. Any *handwriting* that cannot be easily read may lead to loss of marks.
8. Do not fill anything in the boxes indicated:

"FOR EXAMINER'S USE ONLY"

For Examiner's Use Only;

Qn No.	MARKS	INITIALS
1-5		
6-10		
11-15		
16-20		
21-22		
23-24		
25-26		
27-28		
29-30		
31-32		
Total		

Please turn over



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SECTION A: 40 MARKS

Questions 1 to 20 carry two marks each

1. Work out; 547

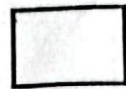
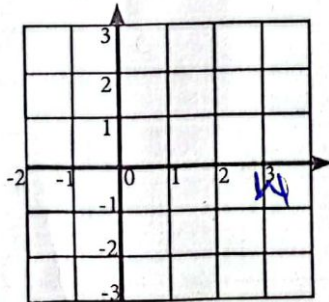
$$\begin{array}{r} 547 \\ -103 \\ \hline \end{array}$$

2. Write CIX in words.

3. Subtract; $1 - \frac{3}{4}$

4. Solve for e; $2(e - 3) = 18$

5. Use the graph below to find the co-ordinates of point W.



6. Given that set $H = \{\text{first five composite numbers}\}$. Set $G = \{\text{first five triangular numbers}\}$. Find $n(H \cup G)$.



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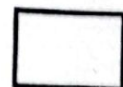
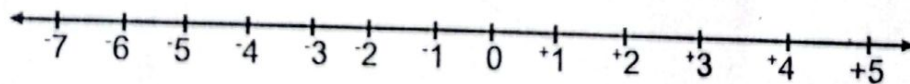
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7. Complete the **sequence** correctly;
8, 4, 2, 1, _____

8. A cyclist left Mbarara at **10: 05 pm** and reached Kasese at **5: 20 am**.
How long was the journey?

9. **20 poles** are fixed in a straight line along one side of the road. The poles are fixed at intervals of **5 metres**. Find the length of the road.

10. Work out $-4 - -6$ using a number line.



11. At a music concert, tickets worth **sh 20,000** were issued out numbered consecutively from 572 to 771. How much money was collected?



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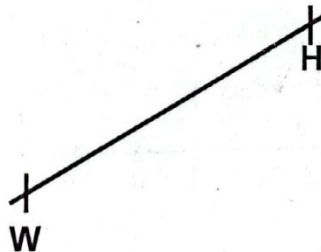
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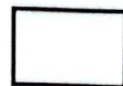
12. The circumference of a semi-circle is **22dm**. Work out its **diameter**.
(Take π as $3\frac{1}{7}$)

13. Mr Boaz borrowed **sh 180,000** for **3 years**. He paid back a total sum of **sh 216,000**. Calculate his **percentage rate**.

14. Using a ruler, a pencil and a pair of compasses only, draw a perpendicular bisect on the line segment WH.



15. Solve for **b**; $3^{2b} \div 81 = 1$



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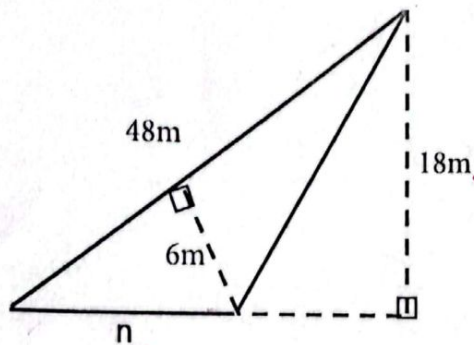
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16. The average mass of 4 girls is 35kg. If the average mass of 3 girls is 90kg, Find the mass of the third girl.

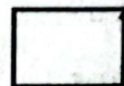
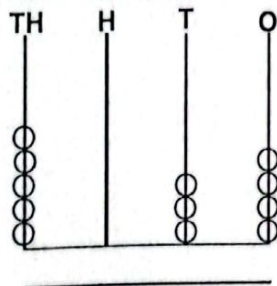
17. Study the figure below carefully and use it to find the value of n in metres.



18. Solve the inequality; $3(2 - p) < 15$.

19. Solve for M ; $\frac{M}{5} = 6 \pmod{7}$

20. Write the number shown on the abacus in scientific form.

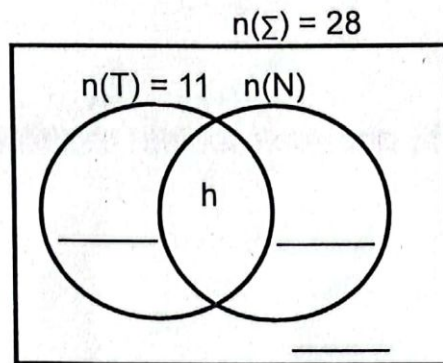


SECTION B: 60 MARKS

Marks for each part of the question are indicated in the brackets

21. In a club of 28 girls, 11 of them play tennis (T) and $(5 + h)$ play netball only (N), h play both games while $2h$ play neither of the two games.

a) Complete the venn diagram below.



(03 Marks)

b) How many girls **never** played netball?

(03 Marks)

22. Tap **W** fills a tank in 9 minutes and tap **Z** takes 3 minutes **longer** than Tap **W** to fill the same tank.

(a) If 700 litres of water are poured in the tank by all the taps in one minute, find the **capacity** of the tank.

(03 Marks)



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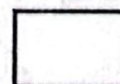
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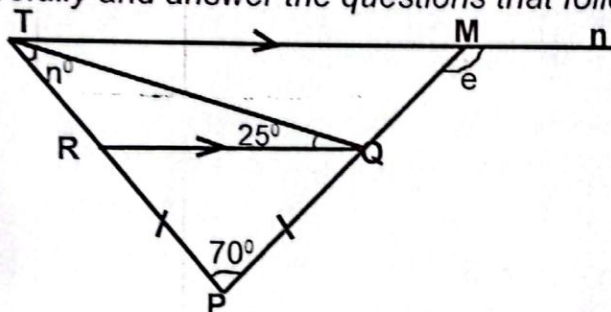
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- b) If a 20 litre jerrycan of milk is sold at sh 16,000; How much money was collected from the sale of the tank full of milk?

(02 Marks)



23. In the figure below, line $PR =$ line PQ and line TM is parallel to line RQ . Study it carefully and answer the questions that follow.



Find the size of angle;

i) n

ii) e

(03 Marks)

(02 Marks)



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24. Musoke went to the supermarket and bought the following items;

3 watermelons at sh 9000

1200gm of rice at sh 5000 per kg

20 sweets at sh 300 per 5 sweets

$3\frac{1}{2}$ litres of cooking oil at sh 12000 per litre.

If he was given a discount of 10%, how much did he pay?

(05 Marks)

25. a) Solve for m ; $2m - \frac{m}{3} = 5$

(02 Marks)

b) Solve the equation; $4(4g - 2) - 4(2g + 6) = 16$

(03 Marks)



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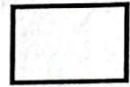
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26. Use a dial to work out; $3 - 4 = \underline{\hspace{1cm}} \pmod{6}$

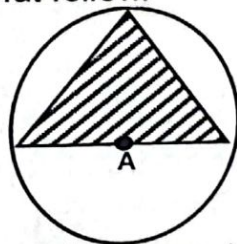
(02 Marks)

- b) Akello had some apples. When she grouped them in heaps of 6, 5 apples were left and when he put them in groups of 7, 6 remained. How many apples did she have?

(03 Marks)



27. The figure below shows a roundabout with a triangular flower garden in it. A is the centre of the roundabout and the total distance around the roundabout is 88 metres. Study the figure and answer the questions that follow.



Find the area of the roundabout that is not covered by the flower garden. (Take π as $\frac{22}{7}$)

(05 Marks)



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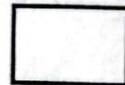
28. Kelly, Kenneth and Cate are running a **10,000** metre race. Kelly completes her first lap after **60** seconds, Cate completes her first lap after **75** seconds and Kenneth completes his after **90** seconds.

a) When will they all be at the starting point together again if they are running at a constant speed throughout the race?

(02 Marks)

b) At what speed is Kenneth running in **kilometres** per hour?

(03 Marks)



29. Using a ruler and a pair of compasses only, construct a rhombus PQRS where line PQ= 6cm and angle QRS= 60° . Drop a perpendicular line from S to meet line PQ at W.

(04 Marks)



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b) Measure angle PSW.

(01 Mark)

30. The table below shows a journey by a bus from town V to town Z via town W, X and Y. Study and use it to answer the questions that follow.

Distance in km	Towns	Departure	Arrival
0	V	8: 00am	
56	W	9: 45am	9: 00am
113	X	11: 20am	11: 00am
165	Y	2: 10pm	1: 00pm
277	Z	6: 50pm	6: 10pm

a) What is the distance in kilometres from town X to town Z?

(01 Mark)

b) What is the arrival time at Z in a 24 hour clock system?

(01 Mark)

c) How long does the bus take stopping at W?

(01 Mark)

d) Calculate the average speed of the bus between town Y and town Z.

(02 Marks)



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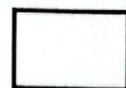
31. Mr Okoboi, a poultry farmer collects **15,600** eggs a day on his farm and packs them on trays which carry **30** eggs each. His vehicle carries **40** trays per trip to the market. How many trips will the vehicle make in order to transport all the day's eggs?

(03 Marks)

32. Given that; $y = 3x - 5$, complete the table below.

X	4	_____	$\frac{1}{3}$	_____	3
Y	_____	-2	_____	-8	_____

(05 Marks)



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