THE SIPRO P.7 MOCK II - 2024

MATHEMATICS

Time Allowed: *2 Hours 30 Minutes*

Index No.	Random No.						Personal No.		
	3	6	3	3	5	8	0	0	1

Candidate's Name: ABITEGEKA PATRICIA

Candidate's signature: Abitegeka

School Random No:

District: ID:

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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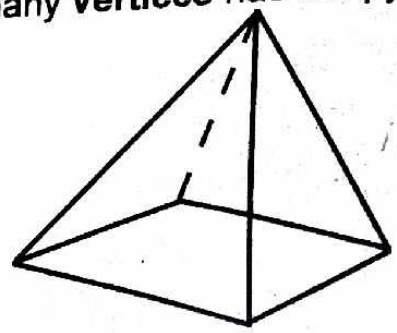
Simplified Learning Today

SECTION: 40 MARKS

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

1. **Work out:**
$$\begin{array}{r} {}^{1}2{}^{1}0\,4 \\ -\ 9\ 3 \\ \hline 1\ 1\ 1 \end{array}$$

2. How many **vertices** has the pyramid below?



Number of vertices
= 5

3. Express 13_{ten} to base two.

B	No	R
2	13	1
2	6	0
2	3	1
	1	

$= 1101_{two}$

4. **Work out:** $1\frac{1}{2} + 3$

$1\frac{1}{2} = \frac{2 \times 1 + 1}{2}$

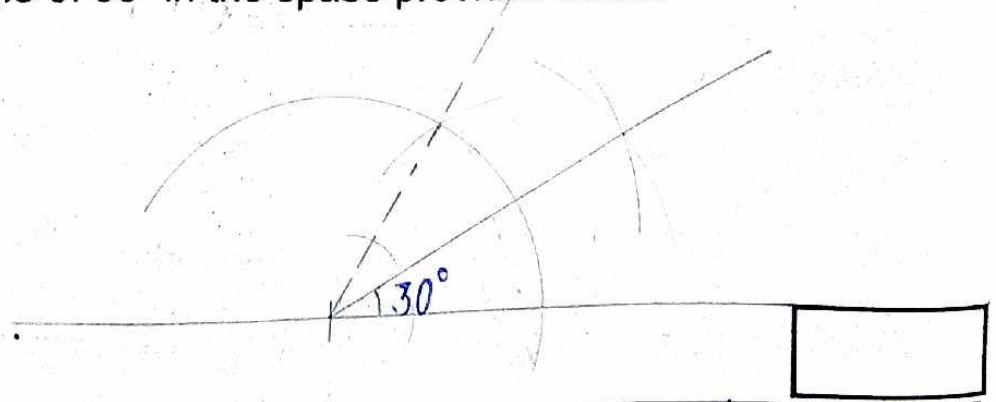
$= \frac{3}{2}$

$\frac{1(3)}{2} + \frac{2(3)}{1} = \frac{3+6}{2}$

$= \frac{9}{2}$

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

5. With the help of a ruler, sharp pencil and a pair of compasses only, construct an angle of **30°** in the space provided below.



6. The temperature of a place was 27°C. If it rose by 5°C, work out the new temperature.

$= 27°C - 5°C$

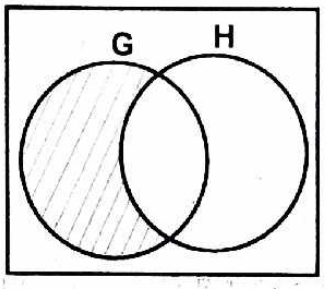
$= 22°C$

7. Ocol sold a bicycle at **sh.205,000** and made a loss of **sh.63,000**. Calculate the buying price of the bicycle.

Buying price = Selling price + Loss

= sh. 205,000
+ sh. 63,000
sh. 142,000

8. In the Venn diagram below, shade the region $(G-H)'$



9. A bag contains **6** ripe mangoes and **7** raw ones. If a mango is picked from the bag at random. Find the probability of picking **a ripe** mango.

Probability = $\frac{\text{Number of expected outcomes}}{\text{Number of possible outcomes}}$

$= \frac{6}{6+7}$

$= \frac{6}{13}$

10. The time is **25** minutes to **midnight**. Express this time on the **24** hour clock system.

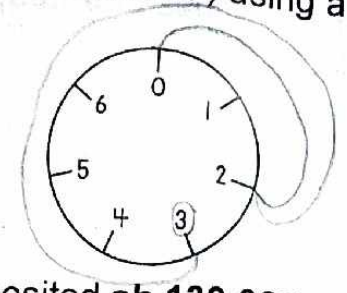
6:25 noon
+ 1200 hours
1825 hours

11. How many **prime** numbers are there between **10** and **20**?

Prime numbers between 10 and 20
= 11, 13, 17, 19

Number of prime numbers between 10 and 20
= 4

12. **Work out**: 2 – 6 (finite 7) using a clock dial.



2 - 6 = 3 (finite 7)

13. Sumaya deposited **sh.130,000** in the bank. If the interest rate was 8% per month, how much interest did she get after 6 months?

S.I = P x $\frac{R}{100}$ x T

= sh. 130,000 x $\frac{8}{100}$ x 6

= sh. 1,300 x 8 x 6

= sh. 10400 x 6

= sh. 62,400

SW
1300 |2/-
x 8
10400

10400 |2/-
x 6
62400

14. Round off **48.97** to the nearest tenths.

48.97 = 48.90 + 00.07

48.90
+00.10
49.00

∴ 48.97 ≈ 49

15. Subtract **2b – a** from **5b – a.**

= 5b - a - 2b - a

= 5b - 2b - a - a

= 3b - 2a

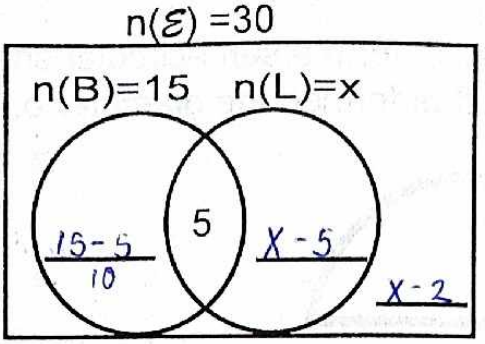
SECTION B: 60 MARKS

Attempt **all** *questions in this section.*

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

21. Out of the 30 chicken farmers, 15 rear broilers (**B**), x rear layers (**L**), 5 keep both types of chickens while (**x-2**) do not rear the mentioned types of chickens.

(a) Use the above information to complete the Venn diagram below. *(03 marks)*



(b) Find the number of farmers who keep **only** one type of chicken. *(02 marks)*

$10+5+x-5+x-2=30$
$10+5-5-2+x+x=30$
$10-2+2x=30$
$8+2x=30$
$8-8+2x=30-8$
$2x=22$
$\frac{2x}{2}=\frac{22}{2}$
$x=11$

Broilers only $=10$
Layers only $=x-5=6$ or $=16-5=6$

Farmers who keep only one type of chicken $=10+6=16$

22. (a) Express **200** as a product of its prime factors. *(02 marks)*

2	200
2	100
2	50
5	25
5	5
	1

$=2\times2\times2\times5\times5$

(b) The area of a square garden is 1.96 sq.km. Work out the length of each side of the garden. *(02 marks)*

$A=S\times S$
$1.96km^2=S^2$
$\frac{196km^2}{100}=S^2$
$\frac{14km}{10}\times\frac{14km}{10}=S\times S$

$\frac{14km}{10}=S$
$1.4km=S$
The length of each side of the garden is 1.4km

23. During the recent census in Kasaato Village, it was found that 500 people were employed, while 60% of the population was unemployed.

a) Find the total number of people in Kasaato Village. *(03 marks)*

Percentage of employed people
100%
-60%
40%

let total no of people in Kasaato village be n

$\frac{40}{100}\times n=500$

$\frac{100(40n)}{100}=\frac{(500)100}{1}$
$\frac{40n}{40}=\frac{5000}{40}$
$n=\frac{500}{40}$
$n=12\frac{1}{2}$

$n=12\frac{1}{2}$
$\frac{40n}{40}=\frac{5000}{40}$
$n=1250$

16. Mark waited for his brother from **7:45 a.m** to **12:05 p.m.** How long did he wait?

Duration : Ending time - Starting time

$\overset{11}{12}\overset{65}{:}05pm$

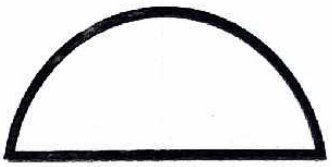
$-7:45am$

$4\ 20 hours$

∴ He waited for 4hours and 20minutes.

17. A 35-metre wire was folded to form a semi-circular shape shown below. Find the length of the wire that formed the diameter of the semi-circle.

[use $\pi = \frac{22}{7}$]



$C = \frac{1}{2}\pi D$

$35 = \frac{1}{2} \times \frac{\overset{11}{\cancel{22}}}{7} \times D$

$7(35) = (11D)7$

$\frac{245}{11} = \frac{11D}{11}$

$22\frac{3}{11} = D$

18. **Work out:** (16 × 41) - (21 × 16)

$(16 \times 41) - (21 \times 16)$

$656 - 336$

$= 320$

656
-336
320

19. A milk can holds **560** centilitres. How many litres of milk does it hold?

$1cl \rightarrow \frac{1}{100}$ Litres

$560cl \rightarrow \left(\frac{1}{100} \times 560\right)$ Litres

$= \frac{56}{10}$ Litres

$= 5.6$ Litres

20. In a P.5 class, there are **24** and **30** pupils in streams **A** and **B** respectively. In each stream, groups with equal number of pupils were formed. Find the largest number of pupils in each group.

Total no of pupils

$= 24 + 30$

$= 54$

2 | 24	2 | 30
2 | 12	3 | 15
2 | 6	5 | 5
3 | 3	1
1	

$= 2_1, 3_1$

GCF $= 2 \times 3$

$= 6$

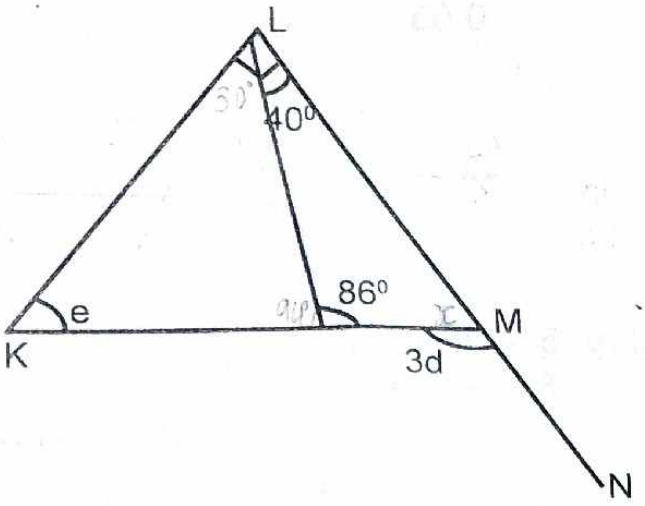
Number of pupils in each group:

$= 6$

b) By what percentage is the number of unemployed people greater than the number of employed people? *(02 marks)*

60%
-40%
20%

24. **In the figure below, angle KLM = 90°.** *Study and use it to answer the questions that follow.*



Find the size of;

(a) angle **d**

let angle M be x
$x + 86° + 40° = 180°$
$x + 126° = 180°$
$x + 126° - 126° = 180° - 126°$
$x = 54°$

$\angle d$
$3d + 54° = 180°$
$3d + 54° - 54° = 180° - 54°$
$\frac{3d}{3_1} = \frac{126^{42}}{3_1}$
$d = 42°$ *(02 marks)*

(b) angle **e**

$\angle e + 94° + 50° = 180°$
$\angle e + 144° = 180°$
$\angle e + 144° - 144° = 180° - 144°$
~~$\angle e = 34°$~~
$\angle e = 36°$

$180°$
$-86°$
$94°$
$90°$
$-40°$
$50°$ *(02 marks)*

25. (a) **Solve:** $18 - t = 3 + 2t$

$18 - t = 3 + 2t$
$18 - t + t = 3 + 2t + t$
$18 = 3 + 3t$
$18 - 3 = 3 - 3 + 3t$
$15 = 3t$
$\frac{18^5}{3_1} = \frac{3t}{3_1}$
$5 = t$ *(03 marks)*

(b) Given that **a∗b** means **2a + 2b**; Find the value of 5 ∗ 7. *(02 marks)*

$= 5 + 7$
$= 12$

26. In a class, the average age of 30 girls is 8 years and the average age of 20 boys is 13 years. Find the average age of all the children in that class. *(05 marks)*

let the total age be x

Average age = Total / Number

x = 13 years + 8 years / 20 + 30

$50(x)$ = (21 years) 50

$50x$ = 21 years

13 yrs + 8 years = x / 50

50 (21 years) = (x) 50 / 50

1050 years = x

Average age = Total / Number

= 1050 years / 50

= 21 years

27. (a) **Work out:** $\frac{(5.1 \times 3.2)}{0.03}$ *(03 marks)*

$\frac{51}{10} \times \frac{32}{10} \div \left(\frac{3}{100}\right)$

$\frac{51}{10} \times \frac{32}{10} \times \frac{100}{3}$

17×32

$= 544$

32 × 17 = 224 + 32 = 544

(b) **Simplify:** $\frac{5}{6} - \frac{1}{2} \div \frac{3}{4}$ *(02 marks)*

$\frac{5}{6} - \left(\frac{1}{2} \div \frac{3}{4}\right)$

$\frac{5}{6} - \frac{1}{2} \times \frac{4}{3}$

$\frac{1(5)}{6} - \frac{2(2)}{3} = \frac{5-4}{6}$

$= \frac{1}{6}$

28. The table below shows the denominations, number of notes and amount Betty deposited in the bank.

Denominations	number of notes	Amount
sh. 50,000	40	sh. 2,000,000
Sh. 20,000	50	sh. 1,000,000
sh. 10,000	80	sh. 800,000
sh. 5,000	100	sh. 500,000
Total		sh. 4,300,000

Use the information to complete the blank spaces above. *(05 marks)*

sh. 50,000 × 4 = sh. 200,000

(sh. 1,000,000 / sh. 20,000) notes = 50 notes

sh. 800,000 / 80 = sh. 10,000

sh. 2,000,000 + sh. 1,000,000 + sh. 800,000 = sh. 3,800,000

sh. 4,300,000 − sh. 3,800,000 = sh. 500,000

sh. 500,000 / 100 = sh. 5000

29. A car travelling at 75 kilometres per hour took 2 hours to cover part of its journey. The remaining journey was covered in 3 hours at 60 kilometres per hour.

Find the **average** speed of the car for the whole journey. *(05 marks)*

Average speed = Total distance / Total time

Fist journeys distance: D = S × T = 75km/hr × 2 hour = 150km

Secondary journey distance: D = S × T = 60km/hr × 3 hours = 180km

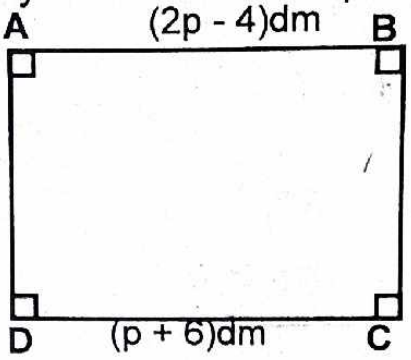
Total distance = 150km + 180km = 330km

Total time = 3 hours + 2 hours = 5 hours

Average speed = 330km / 5 hrs = 66km/hr

30. The area of the rectangle **ABCD** below is **240dm²**.

Study the rectangle carefully and answer the questions that follow.



(a) Find the value of **p**. *(02 marks)*

(p + 6)dm = (2p + 4)dm

Pdm + 6dm = 2pdm + 4dm

Pdm − Pdm + 6dm = 2pdm − Pdm + 4dm

6dm = Pdm + 4dm

6dm − 4dm = Pdm + 4dm − 4dm

2dm = Pdm

2dm/dm = Pdm/dm

2 = P

(b) Calculate the total **distance** round the rectangle. *(03 marks)*

Length = (p + 6)dm = Pdm + 6dm = 2dm + 6dm = 8dm

Let the width be r

A = L × W

240dm² = 8dm × r

240dm²/8dm = 8dm × r/8dm

30dm = r

P = S + S + S + S

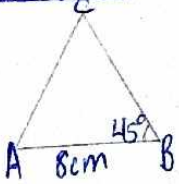
= 8dm + 8dm + 30dm + 30dm

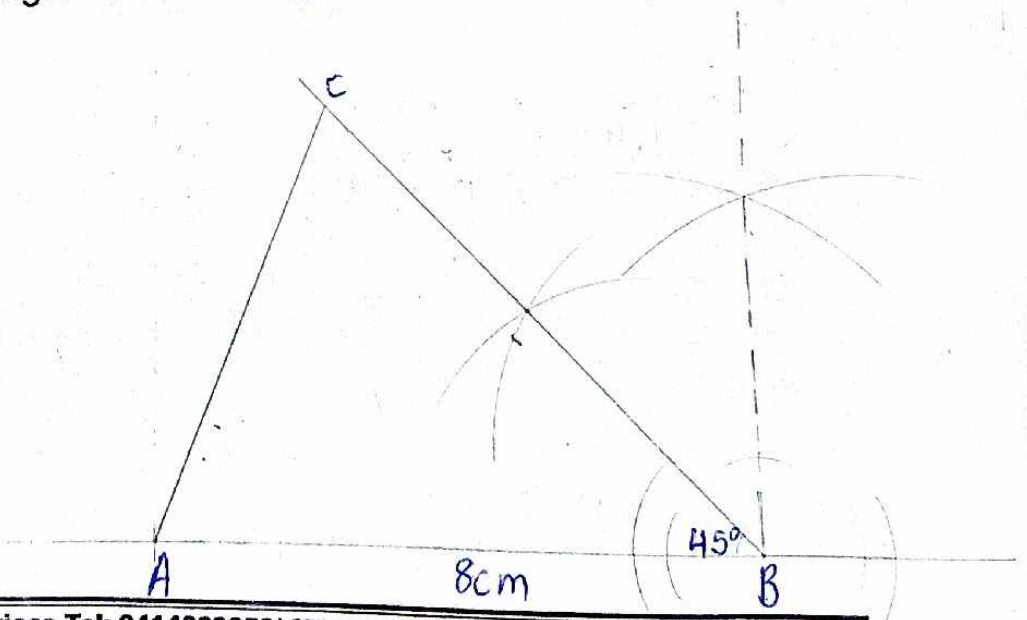
= 16dm + 60dm

= 76dm

31.(a) With the help of a ruler, sharp pencil and a pair of compasses only, construct a triangle **ABC** in which line **AC** = line **BC**, line **AB** = 8 cm and angle **ABC** = 45°. Accurate *(05 marks)*

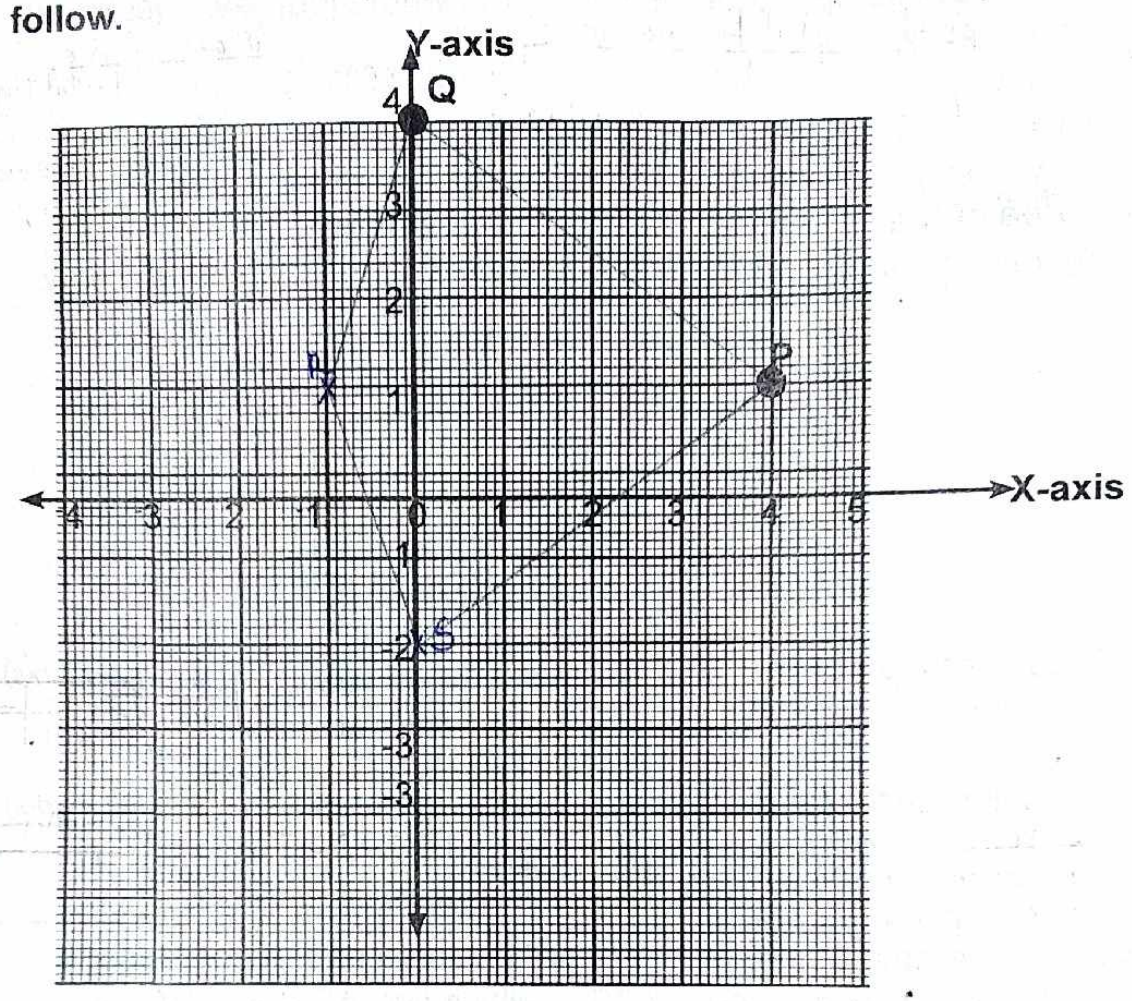
Sketch





(b) Measure angle **BCA**= 75° *(01 mark)*

32. **Use the co-ordinate graph below to answer the questions that follow.**



(a)Write down the coordinates of the points **P** and **Q**. *(02 marks)*

i) **P** P: (+4, 1)

ii) **Q** : (0, 4)

(b) Plot the points **R** (-1, 1) and **S**(0, -2) on the graph. *(02 marks)*

(c) Join P to Q, Q to R, R to S and S to P and name the geometric figure formed. *(02 marks)*

Trapezium