

**KAMPALA ARCHIDIOCESE CATHOLIC PRIMARY SCHOOLS
(KAPSMA)**

MOCK EXAMINATION 2022

PRIMARY SEVEN

MATHEMATICS

Time allowed 2hrs 30 minutes

Date: _____

INDEX No. _____

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Candidate's Name: _____

School Name: _____

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

Read the following instructions carefully.

1. This paper is made of Section A and B.
2. Section A has 20 questions (40 marks)
3. Section B has 12 questions (60 marks)
4. Attempt all questions. All working to both sections A and B must be done in the spaces provided.
5. The working must be written using blue or black ball-point pen or ink. Only diagrams and graph work may be done in pencil.
6. Unnecessary alteration of work will lead to loss of marks.
7. Any handwriting that cannot easily be read may lead to loss of marks.
8. Electronic calculators and mathematical tables are not allowed in examination room.

FOR OFFICIAL USE ONLY

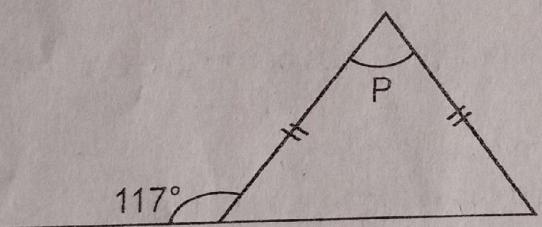
SECTION	EXAMS MARKS	T/L MARKS	OFFICE
A			
B			
TOTAL			

SECTION A

1. Work out: $17 + 121$
2. Write "Seventy eight thousand, seventy eight" in figure.
3. Find the Common Factor of 15 and 27.
4. Given that $B = \{q, r, s\}$, how many proper subsets can be formed from set B.
5. Find the next two numbers in the sequence
6. Round off 3.06 to the nearest tenths.

8, 4, 2, 1 _____, _____

7. Find the size of the angle marked P in the figure below.



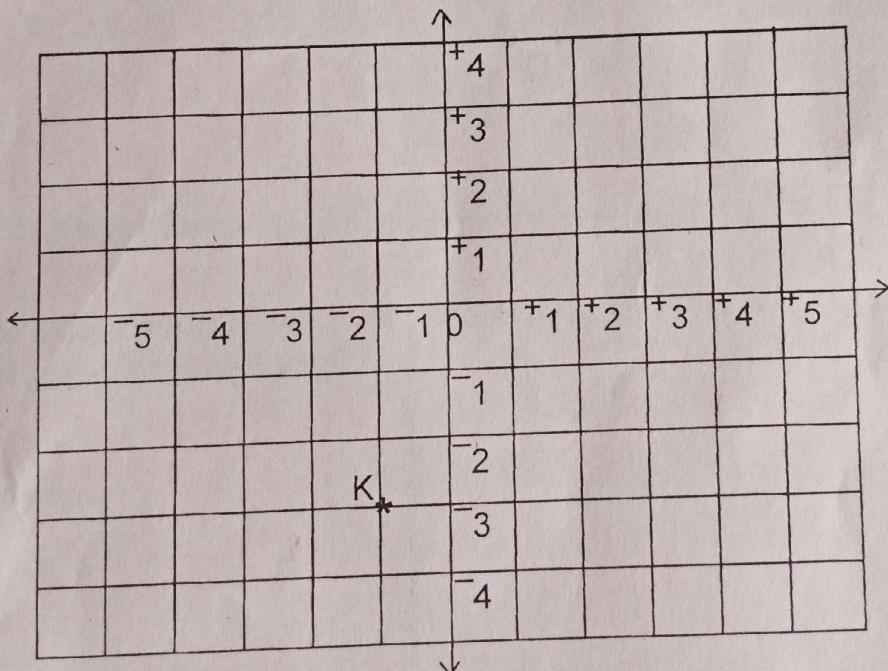
8. In a class, there are 20 boys and 10 more girls than boys. What is the ratio of boys to girls.
9. Simplify ${}^{\sim}9 - 8$

10. Emmanuel bough a cock at sh. 40,000 and later sold if shs. 45,000. Find the percentage profit.

11. Work out $104_{\text{five}} - 22_{\text{five}}$

12. In a box there are 5 black pens, 3 red pens and 4 blue pens. What is the probability of picking at random a red pen from the box?

13. Study the graph below.



- i) Write the co-ordinates of point K

(1 mark)

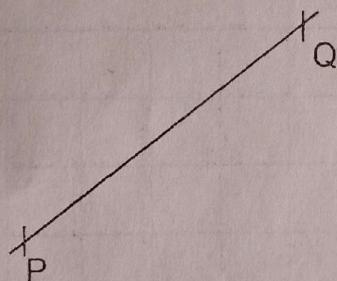
- ii) Plot the point M(0, +2) on the grid.

(1 mark)

14. Convert 0.2727... to a Common fraction.
15. The average mass of 3 boys is 24kgs, if the mass of the two boys is 50kg. Find the mass of the third boy.

16. Given $a = bc$, $b = 2$ and $c = 3$, find the value of $c(a - b)$

17. Draw a perpendicular bisector on the line segment PQ.



18. Use the distributive property to work out: $(126 \div 3) + (27 \div 3)$
19. Mark is twice as old as Isaac, if their total age is 18 years, how old is Isaac?
20. Five girls take 6 days to clear a Shamba. How many more days will 3 girls take to do the same piece of work, working at the same rate?

SECTION B

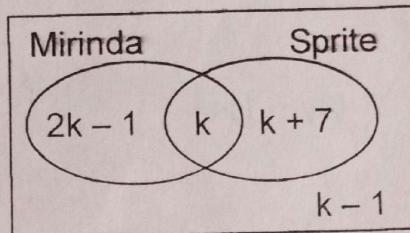
21. a) Simplify:- $\frac{3}{4} - \frac{1}{5} + \frac{1}{2}$

(2 marks)

b) Work out: $\frac{0.03 \times 2.4}{0.018}$

(2 marks)

22. The venn diagram below shows the guests who attended a party and the type of soda they took.



- a) If 30 guests took only one type of soda, work out the value of k .

(3 marks)

- b) How many guests altogether attended the party?

(2 marks)

23. a) Work out:

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

(2 marks)

- b) Given $24_p = 102_{\text{four}}$, find the base P

(3 marks)

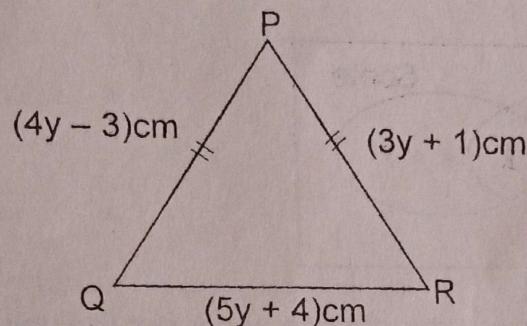
24. A car uses 6 litres of diesel to cover a distance of 120km.
a) How many litres will be required to cover a distance of 40km?

(3 marks)

- b) If the cost of 1 litre of diesel is sh. 5,200, how much money will be needed to fuel the car to cover a distance of 40km?

(2 marks)

25. The figure below is an Isosceles triangle. Use it to answer the questions that follow.



- a) Find the value of y.

- b) Calculate the area of the triangle PQR

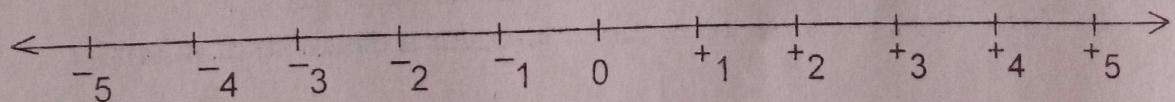
(4 marks)

(2 marks)

26. a) Subtract $2 - 3 =$ (finite 5)

(2 marks)

- b) Use a numberline below to work out $-2 - +5$



(3 marks)

27. Using a ruler, pencil and pair of compasses only. Construct a triangle PQR where PQ = 7cm, angle QPR = 90° and angle RQP = 45°

(4 marks)

- b) Measure the length QR.

(1 mark)

28. a) Solve $3(2p - 1) - 4(p + 3) = 1$

(2 marks)

b) Solve the inequality: $6 + 3t < 15$

(2 marks)

29. Musa distributed some money to his children Liz, Lora and Lilly in the ratio 7:2:3 respectively.

- a) If Lilly received sh. 9000, how much money did Musa distribute to his children?

(3 marks)

- b) How much money did Liz get?

(2 marks)

30. Study the shopping table below and complete it.

Item	Quantity	Unit cost	Amount	
Rice	2kg	sh.3800	_____	
Meat	_____	sh12,000	sh.18,000	
Ingredients	500gms	_____	sh. 5000	
Cooking oil	½litre	sh. 9000	sh.4500	(3 marks)

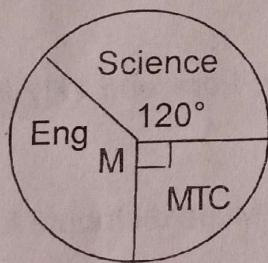
- b) How much did the customer pay for all the items, if he was given a discount of sh.1100.

(2 marks)

31. A motorist drives for $3\frac{1}{2}$ hours at a speed of 60km/hr and a further 100km is covered in $1\frac{1}{2}$ hour. Calculate the motorists average speed for the whole journey.

(5 marks)

32. The pie chart below shows the number of books in the school library. Use it to answer the questions that follow.



- a) Find the value of M in degrees.

(2 marks)

- b) If there are 360 books for science, find the total number of books in the library.

(2 marks)

- c) Express the Math books as a percentage of the total books in the library.

(2 marks)

MARKING

$$17 + 12 = 13 \text{ &}$$

also accept.

$$\begin{array}{r} 1 \\ 2 \\ 1 \\ 3 \\ 8 \end{array}$$

Don't accept without
base

$$78,078$$

accept on sight

$$\begin{array}{r} 14 \\ 16 \\ 5 \\ 3 \end{array} \text{ GCF of } 18 \text{ and } 27$$

proper substraction

$$(2^3 - 1)$$

$$= 2^3 - 1$$

$$= (2 \times 2 \times 2) - 1 \quad \text{Now the working} \\ = 8 - 1 \\ = 7$$

$$8,4,2,1 \quad \dots$$

Divide by 2

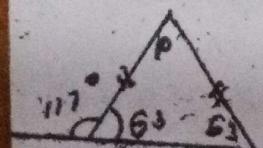
$$\begin{array}{r} 8 \\ 4 \\ 2 \\ 1 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ 1 \\ 1 \\ 1 \\ \hline 4 \\ 2 \\ 1 \\ 1 \\ \hline \end{array}$$

The next two are

$$\frac{1}{2} \text{ and } \frac{1}{4}$$

$$3.06 \approx 3.1$$

rounded to the nearest
tenths



$$P + 63^\circ = 117^\circ$$

$$P + 63^\circ - 63^\circ = 117^\circ - 63^\circ$$

$$P = 54^\circ$$

Don't accept

GENIDE

P. 7 MOCK 2022

8	Boys	:	girls
20	:	(20+10)	
20	:	30	
2	:	3	

go thru the working

9

$$- 9 - 8$$

$$= \underline{-17}$$

accept on sight

10 Profit

$$\begin{array}{r} 45000 \\ - 40000 \\ \hline 5000 \end{array}$$

%age profit

$$\begin{aligned} &= \frac{\text{Profit}}{C.P.} \times 100 \\ &= \frac{5000}{49000} \times 100 \\ &= \frac{50}{49} \\ &= \underline{102\frac{1}{4}\%} \end{aligned}$$

11

$$\begin{array}{r} 104 \text{ five} \\ - 22 \text{ five} \\ \hline 32 \text{ five} \end{array}$$

12 No. of pens

$$5 + 3 + 4 = 12$$

$$P(\text{Red pen}) = \frac{3}{12}$$

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

Don't accept the
reduced fraction

(ii) Follow thru
the correct
plotting.
(Q. 2)

let the fraction be r

$$r = 0.272727\dots$$

$$100r = 0.272727 \times 100$$

$$100r = 27.2727\dots$$

$$100r - r = 27.2727\dots \\ = 0.2727\dots$$

$$99r = 27$$

$$\frac{99r}{99} = \frac{27}{99}$$

$$r = \frac{27}{99} = \frac{3}{11}$$

$$r = \frac{3}{11}$$

13 Total Mass of 3 boy

$$3 \times 22\frac{1}{2} = 72 \text{ kg.}$$

one boy was $72 - 50$

$$\frac{22}{2} \text{ kg}$$

The third boy's
Mass was $\underline{22 \text{ kg.}}$

$$C(a-b)$$

$$-3(bc-2)$$

$$-3(-2x^3 - 2)$$

$$-3(6-2)$$

$$-3 \times 4$$

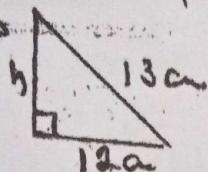
$$\underline{-12}$$

17 Follow thru the

The equal sides

$$\begin{aligned}
 4y - 3 & \\
 (4 \times 4) - 3 & \\
 16 - 3 & \\
 13 \text{ cm} & \\
 \text{Base} & \\
 5y + 4 & \\
 5 \times 4 + 4 & \\
 20 + 4 & \\
 24 \text{ cm} &
 \end{aligned}$$

The height



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

$$12^2 + b^2 = 13^2$$

$$144 + b^2 = 169$$

$$b^2 = 169 - 144$$

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

$$b = 5 \text{ cm}$$

$$\text{Area} = \frac{1}{2} \times b \times h \quad M_1$$

$$\frac{1}{2} \times 12 \text{ cm} \times 5 \text{ cm}$$

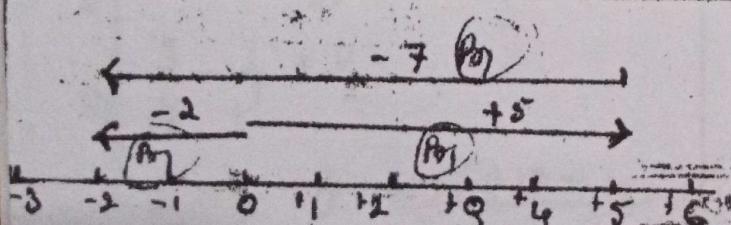
$$1 \cdot 60 \text{ cm}^2 \quad A_1$$

$2 - 3$ (finite 5)

$(2+5) - 3$ (finite 5)

$7 - 3$ (finite 5)

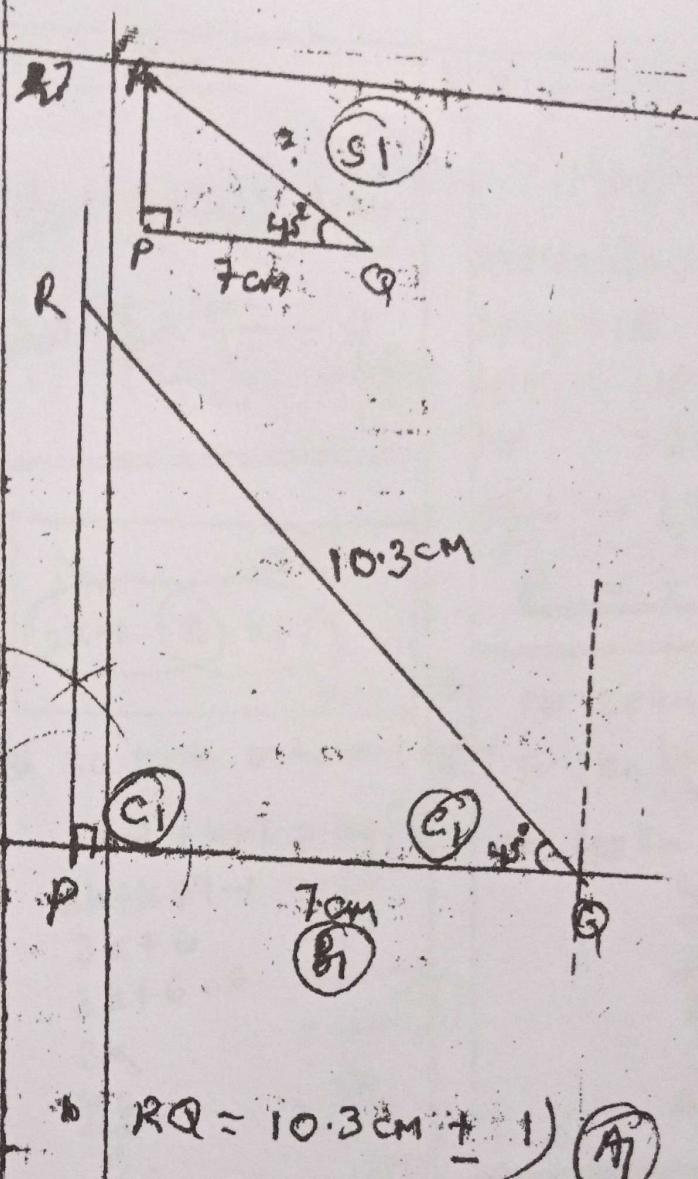
~~7~~ (finite 5)



only accept those

arrows

Be mindful of the arrow heads



$$RQ = 10.3 \text{ cm} \quad A_1$$

$$28 \quad 3(2p-1) - 4(p+3) = 1$$

$$6p - 3 - 4p - 12 = 1 \quad M_1$$

$$6p - 4p - 3 - 12 = 1$$

$$2p - 15 = 1$$

$$2p - 15 + 15 = 1 + 15$$

$$2p = 16$$

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

$$p = 8 \quad A_1$$

M₁ — for correct
operating of the
calculator

8 $(126+3) + (27-3)$
 $(126+27) \div 3$ **M**
 $153 \div 3$
 51 **M** aware M for
 the distribution
 property.

19 Mark Isaac.
 $2x = x$
 $\therefore 2x+x = 18$ **M**
 $\frac{3x}{3} = \frac{18}{3}$
 $x = 6$ **AJ**
 \therefore Isaac is 6 years old

• 8 girls take 6 days
 1 girl takes 6 days
 80 days
 \therefore 3 girls take $\frac{80}{3}$ **PJ**
 $= 10$ days
 \therefore Three girls will take
 $10 - 6$ more days
AJ 4 more days.

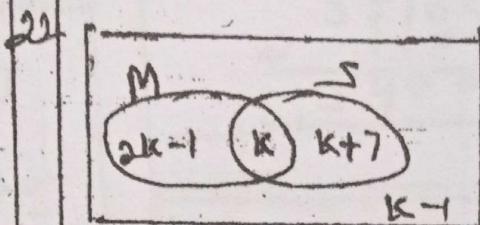
Don't award
 one $\frac{1}{2}$ to one who
 was not subtracted.

SECTION II

8 $\frac{3}{4} - \frac{1}{5} + \frac{1}{2}$
 $\frac{3}{4} + \frac{1}{2} - \frac{1}{5} = \frac{15+10-4}{20}$ **M**
 $= \frac{25-4}{20}$
 $= \frac{21}{20}$
 $= 1\frac{1}{20}$ **AJ**

left over
 to

b 0.03×24
 0.018
 $(\frac{3}{100} \times \frac{24}{10}) \div (\frac{18}{1000})$ **M**
 $\frac{3}{100} \times \frac{24}{10} \times \frac{1000}{18} = 9$ **AJ**



• 30 took only one type
 $\therefore 2k-1 + k+7 = 30$ **M**
 $2k+k+7-1 = 30$
 $3k+6 = 30$
 $3k+6-6 = 30$
 $3k = 24$ **PJ**
 $3k = \frac{24}{3}$
 $k = 8$ **AJ**

• All together

$$\begin{aligned} & 2k-1 + k+K+7+K-1 \\ & 2k+k+k+k+7-1-1 \\ & 5k+7-2 \\ & 5k+5 \\ & (5 \times 8) + 5 \quad \text{M} \\ & 40+5 \\ & 45 \text{ guests} \quad \text{A} \end{aligned}$$

22 1011 two
 $+ 111 \text{ two}$ **PJ**
 10210 wa

b $24p = 102$ per
 $(24p) + (4p) = (28p) \text{ Hrs}$
 $2p+4 = 16+0+2$
 $2p+4 = 18$
 $2p+4-4 = 18-4$
 $2p = 14$
 $\frac{2p}{2} = \frac{14}{2}$ **M**
 $p = 7$ **AJ**

24 For 120km buy 6L
 For 1km buy $\frac{6}{120}$ **M**
 For 40km buy $\frac{6}{120} \times 40$ **M**
 $\frac{6}{120} \times 40 = \frac{2}{2} \times 40 = 2$ litres **AJ**

Water cost \$200
 2 litres cost
 $\frac{200}{2}$
 100 **AJ**

25 $4y-3 = 3y+1$ **M**
 $4y-3+3 = 3y+1+3$
 $4y = 3y+4$
 $4y-3y = 3y-3+4$
 $y = 4$ **AJ**

$4y-3$ **X**
 $4y+1$ **A**

$$6+3t < 15$$

$$6-6+3t < 15$$

$$3t < 15 \quad (M)$$

$$\frac{3t}{3} < \frac{15}{3}$$

$$t < 5$$

(A)

b) Amount paid

$$\begin{array}{r}
 7600 \\
 18000 \\
 5000 \\
 + 4500 \\
 \hline
 35100
 \end{array}$$

(M)

\therefore He paid \$ - after a discount

$$\begin{array}{r}
 35100 \\
 - 1100 \\
 \hline
 34000
 \end{array}$$

(A)

Liz : Kara : Lilly

7 : 2 : 3

9000

$$\text{Total ratio} = 7+2+3$$

$$= 12 \quad (B)$$

Lilly received 9000/-

\therefore 3 parts represent 9000/-

$$\begin{array}{l}
 1 \text{ part rep. } 9000/- \\
 \text{M} \quad \quad \quad 3000/- \\
 = 3000/- \\
 \text{M}
 \end{array}$$

\therefore 12 parts rep. 3000×12

$$= 36000 \quad (A)$$

Accept any correct method

b) Liz got 7 parts

\therefore She got 7×3000

$$= 21000/- \quad (A)$$

3) Part I

$$D =$$

$$T = 3\frac{1}{2} \text{ hrs}$$

$$S = 60 \text{ k.p.h}$$

$$D = S \times T$$

$$= 60 \text{ k.p.h} \times 3\frac{1}{2} \text{ hrs}$$

$$= 210 \text{ km} \quad (A)$$

Part II $D = 100 \text{ km}$

$$T = 1\frac{1}{2} \text{ hrs}$$

$$\text{Average speed} = \frac{T \text{ O.C.}}{T+T}$$

$$= \frac{210 \text{ km} + 100 \text{ km}}{3\frac{1}{2} \text{ hrs} + 1\frac{1}{2} \text{ hrs}} \quad (M)$$

$$= \frac{310 \text{ km}}{5 \text{ hrs}} \quad (M)$$

$$= 62 \text{ km/h} \quad (A)$$

30

ITEM	QUA.	U.COST	AMOUNT
Bread	1kg	\$ 3.800	\$ 3.800
Milk	1kg	\$ 10.000	\$ 10.000

32. Value of M.

$$M + 90^\circ + 120^\circ = 360^\circ \text{ (M)}$$

$$M + 210^\circ = 360^\circ$$

$$M = 360 - 210^\circ$$

$$\underline{M = 150^\circ \text{ (M)}}$$

(b) There are 360 sci. books.

$$\frac{120}{360} \text{ of } x = 360 \text{ (M)}$$

$$\frac{1}{3} x = 360$$

$$3 \times \frac{x}{3} = 360 \times 3$$

$$\underline{x = 1080 \text{ books (A)}}$$

(c) MTC

$$\frac{10}{360} \times 100\% \text{ (M)} \\ \underline{\underline{= 25\% \text{ (A)}}}$$

or MTC book