PERFECT EDUCATION SERVICES - KAMPALA

PRIMARY SEVEN MOCK SET TWO EXAMINATION

2024

MATHEMATICS

Time Allowed: 2 hours 30 minutes

Index No.	EMIS No.						Personal No.		
	1	1	0	2	2	2	0	2	2

Candidate's Name ...PACIFIQUE....SHAKA.....

Candidate's Signature ....Pacifique....shaka.....

EMIS Number ....11.0.2.2.2.....

District Name .Fort.portal.....tourism.....city.....

SECTION A

1. Workout: **54 - 23**.

54 - 23

$$\begin{array}{r} 54 \\ -\ 23 \\ \hline 31 \end{array}$$

∴ 54 - 23 = 31

2. Solve: **2y – 3 = 7**

$2y - 3 = 7$

$2y - 3 + 3 = 7 + 3$

$2y = 10$

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

$y = 5$

3. Write: "Seventy three thousand, fourteen" in figure.

Thousands			Units		
0	7	3	0	1	4

= 73014

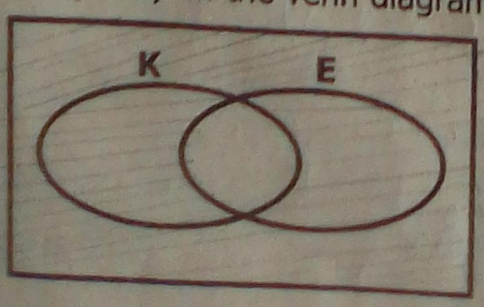
4. Simplify: $1\frac{2}{3} \times \frac{9}{20}$

$1\frac{2}{3} \times \frac{9}{20}$

$\frac{5}{3} \times \frac{9}{20}$

$= \frac{3}{4}$

5. Shade $(K \cap E)^1$ in the venn diagram.



6. Simplify: $^-8 - ^-2$

$-8 - -2$

$-8 - (-2)$

$-8 + 2$

$= -6$

7. Find the lowest common multiple (**LCM**) of **18** and **12**.

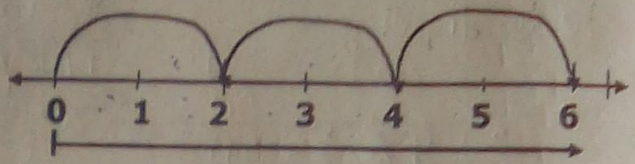
÷	18	12
2	9	6
2	9	3
3	3	1
3	1	

$(2 \times 2) \times 3 \times 3$

4×9

$= 36$

8. Write a mathematical statement for the number line below.



$3 \times 2 = 6$

9. An examination which ended at **1:45pm** lasted for **2** hours and **30** minutes. At what time did it begin?

$ST = ET - D$

subtract

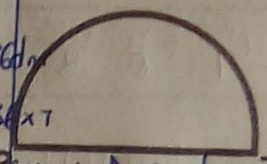
= HRS	MINS
12	80
− 2	30
9	30

add

9	30
+ 1	45
11	105

∴ It started at 11:15am

10. The perimeter of the figure below is **36dm**. Find its diameter.



$\frac{1}{2}\pi D + D = P$

$\frac{1}{2} \times \frac{22}{7} D + D = 36$

$7 \times \frac{11}{7} D + D \times 7 = 36 \times 7$

$18D = 36 \times 7 \; ; \; D = 14dm$

$\frac{18D}{18} = \frac{36 \times 7}{18}$

$D = 14dm$

$\frac{22}{7} D + D = 36dm$

$7 \times \frac{22}{7} D + D \times 7 = 36 \times 7$

11. The interior angle of a regular polygon is **108°**. How many sides does the polygon have?

Let the ext ∠ be P

$P + 108° = 180°$

$P + 108° - 108° = 180° - 108°$

$P = 72°$

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

$= \frac{360°}{72°}$

$= \frac{360^1}{72_1}$

$= 5$ sides.

12. Below are the heights of some seedlings in SSeremba's nursery bed. **15cm, 70cm, 20cm, 50cm, 30cm** and **70cm**. calculate the range of heights of the seedlings.

$R = H - L$

$= 70cm - 15cm$

$= 55cm$

13. Baguma borrowed sh, **800,000** from the bank that charges a simple interest rate of **6%** per annum. Calculate the interest Baguma paid after the **1** year **6** months.

$SI = P \times R \times T$

$= Sh: 800{,}000 \times \frac{6}{100} \times 1\frac{1}{2}$

$= Sh: 800{,}000 \times \frac{6}{100} \times \frac{3}{2}$

$= Sh: 8000 \times 9$

$= Sh: 72000$

14. Use distributive property to work out:

$\left(\frac{2}{5} \times 0.8\right) - \left(\frac{2}{5} \times 0.3\right)$

$\left(\frac{2}{5} \times 0.8\right) - \left(\frac{2}{5} \times 0.3\right)$

$\frac{2}{5}(0.8 - 0.3)$

$\frac{2}{5} \times 0.5$

$\frac{2}{5} \times \frac{5}{10}$

$= \frac{1}{5}$

15. Six counter books cost **sh. 18,000**. How many counter books will be bought with **sh. 12,000**?

6 books → sh: 18,000
1 book → sh: 18,000 / 6
= 3000 shillings
sh 12000 → sh 12 000 / sh 3 000
= 4 books

16. Express **197** in Roman numerals.

100 + 90 + 7
C XC VII

197 = CXCVII

17. **M** is a set with **15** proper subsets. Find **n(M)**

no of proper subsets = $(2^n) - 1$

$15 = 2^n - 1$

$15+1 = 2^n - 1 + 1$

$16 = 2^n$

$2^4 = 2^n$

$n = 4$

18. Express **12:15 am** in **24**hour clock system.

12:15 am
- 1200
0015
= 0015 hours

19. What must be added to **2y + 5** to get **3y – 2**?

Let that number be k.

$k + 2y + 5 = 3y - 2$

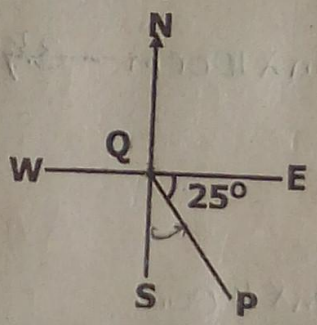
$k = (3y - 2) - (2y + 5)$

$= 3y - 2 - 3y - 5$

$= 3y - 2 - 2 - 5$

$= y - 7$

20. In the figure below, find the direction of **P** from **Q**.

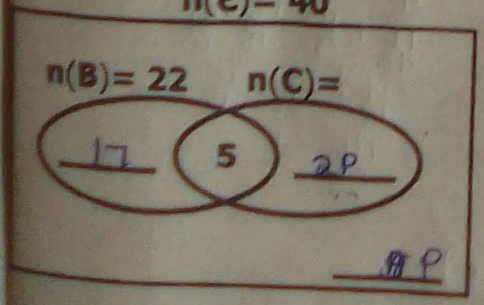


S/W
90 - 25
= 65

S 65° E

SECTION B

In a class, **22** pupils play basketball (**B**), **2P** pupils play chess only (**C**), **5** pupils play both basketball and chess while **P** pupils play neither of the two games. Use the information to complete the venn diagram. **(3 marks)**



no of basketball only
22 - 5
= 17

b) How many pupils play chess?

$17 + 5 + 2P + 5 = 40$

$22 + 2P + 5 = 40$

$22 + 5 + 2P = 40$

$27 + 2P = 40$

$27 - 27 + 2P = 40 - 27$

Value of P

$2P + P + \frac{2}{5} + 17 = 40$

$3P + 22 = 40$

$3P + 22 - 22 = 40 - 22$

$3P = 18$

$\frac{3P}{3} = \frac{18}{3}$

$P = 6$

Pupils who play chess **(2 marks)**

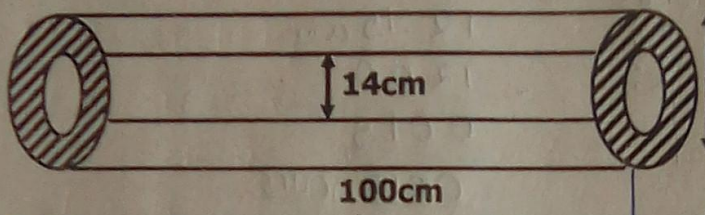
$2P + 5$

$2 \times 6 + 5$

$= 12 + 5$

$= 17$ pupils

22. The diagram below shows a pipe made from a metal. Find the volume of the metal used to make the pipe. ($\pi = 3\frac{1}{7}$) **(5 marks)**



$V = \pi R^2 H - \pi r^2 h$

$= 3\frac{1}{2} \times 14cm \times 14cm \times 100cm - 3\frac{1}{7} \times$

Volume of Big

$\pi R^2 H$

$= 3\frac{1}{7} \times 35cm \times 35cm \times 100cm$

$\frac{22}{7} \times 35cm \times 35cm \times 100cm$

$(110 \times 3500)\ cm^3$

$= 385000 cm^3$

Volume of small

$= \pi r^2 h$

$= 3\frac{1}{7} \times 7cm \times 7cm \times 100cm$

$\frac{22}{7} \times 7cm \times 7cm \times 100cm$

$= 15400\ cm^3$

Volume of metal

$385000 cm^3$

$- 154000 cm^3$

$231000 cm^3$

23. Kangole spent $\frac{1}{3}$ of his salary on food, $\frac{2}{5}$ on school fees, $\frac{3}{4}$ of the remainder on rent and saved the rest. If he saved **sh.150,000**, How much did he pay for rent? **(5 marks)**

Food	school fees	Remainder	Rent	Saved
$\frac{1}{3}$	$\frac{2}{5}$	$\frac{1}{3} + \frac{2}{5}$	$1 - \frac{11}{15}$	$\frac{5}{4} \times \frac{4}{15}$
		$\frac{5+6}{15}$	$\frac{15}{15} - \frac{11}{15}$	$\frac{11}{15} + \frac{1}{5}$
		$= \frac{11}{15}$	$= \frac{4}{15}$	$\frac{11}{15} + 3$
			$= \frac{1}{5}$	$= 17\frac{1}{15}$

1 Part → sh. 15,0000

15 Parts → sh. 150000 × 15

= sh 2250000

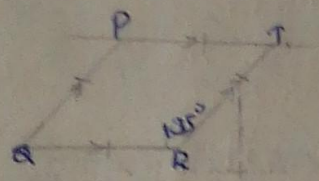
Rent

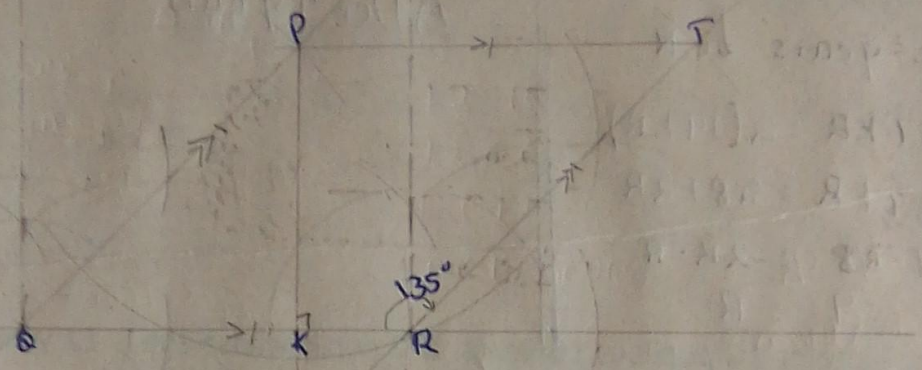
$\frac{1}{5} \times 2250000$

= sh. 450000

4. Using a pair of compasses, a ruler and a pencil only, construct a rhombus **PQRT** where **QRT = 135°**, **$\overline{QR}$ = 5.5cm**. Drop a perpendicular from **P** to meet line **QR** at point **K**.
(4 marks)

sketch.





Measure length **PK**. **(1mark)**

4cm.

5. Malinzi bought the items shown in the table below. Study the table carefully and complete it.
(5 marks)

Item	Cost	Total cost
A loaf of bread	Sh. 4400 each loaf	Sh. 4400
1 ½ kg of sugar	Sh. 5200 per kg	Sh. 7800
2 litres of milk	Sh. 1400 a litre	Sh. 2800
9 lemons	Sh.1000 for 3 lemons	Sh. 3000
Total		Sh. 18,000

Total
Sh: 2800
Sh: 7800
Sh: 4400
+Sh: 15000
Sh: 18000

lemon
Sh: 18000
-Sh: 15000
Sh: 3000

Sugar
Sh: 7800 ÷ 1½
Sh: 7800 ÷ 3/2

Sh: 7800 x 2/3
= Sh. 2600 x 2
= 5200 shillings

milk
2 x Sh: 1400
= 2800 shillings

ne of lemon
Sh: 3000 x 3
Sh: 1000
= 3 x 3
= 9

(3 marks)

26a) Solve: **2(2p - 5) − 3(1 - p) = 6**

$2(2p-5)-3(1-p)=6$

$4p-10-3+3p=6$

$4p+3p-10-3=6$

$7p-13+13=6+13$

$7p=19$

$\frac{7p}{7}=\frac{19}{7}$

$p=2\frac{5}{7}$

b) Namugga is **37** years old. Magyezi is **14** years old. After how many years will Magyezi be a half Namugga's age? **(3 marks)**

Let the years be R

$37+R=2(14+R)$

$37+R=28+2R$

$37-28=2R-R$

$9=R$

∴ After 9 years

27. The average age of **10** pupils is **16** years. If **2** pupils whose age is **12** years and **16** years leaves the group. What is the average of the remaining pupils? **(4 marks)**

$\text{Average} = \frac{\text{Sum of age}}{\text{No of pupils}}$

$\frac{\text{Sum}}{10}=16$

$\text{Sum}=16\times10$

$=160$

$(160-28)$ years

$=132$ years

Average

$\frac{132}{8}$ years

$\frac{132}{8}$

$=16\frac{4}{8}$

$=16\frac{1}{2}$

16
+12
28

8
160
28
132

$\frac{132}{8}$

28. Given the exchange rates below:
Us dollar (**$**) **1** = Uganda shillings (**Ug. sh**) **2500**, Kenya shillings (**Ksh**) **1** = **Ug sh. 28**.
Find how many Kenya shillings Amooti will get after exchanging **Us $420**. **(4 marks)**

Us dollar to ugsh

1 us dollar = ugsh 2500

420 us dollar = ugsh 420×2500

= 1050000 ugandashillings

ugsh. to Ksh.

ugsh. 28 → 1 ksh

ugsh. 1050000 = ~~1000~~ Ksh: $\frac{1050000}{28}$

= Ksh: 27500

Amooti will get Ksh: 27500

42
25
210
84
1050

275
28 | 105000
84
210
196
140
140
00

29a) What is the place value of **7** in the number **379,046**? **(1 mark)**

379,046

Ten thousands.

b) Change **39** to binary base. **(2 marks)**

B	N	R
2	39	1
2	19	1
2	9	1
2	4	1
2	2	0

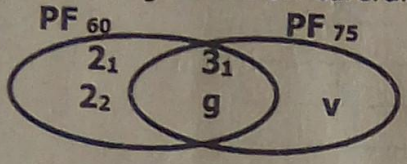
$= 20111_{two}$

c) Expand **2058** using powers of **10.** **(2 marks)**

10^3	10^2	10^1	10^0
2	0	5	8

$(2 \times 10^3) + (0 \times 10^2) + (5 \times 10^1) + (8 \times 10^0)$

30. Study the venn diagram below carefully and use it to answer questions that follow.



a. Find the value of:

(i) **g**

$2_1 \times 2_2 \times 3_1 \times g = 60$

$2 \times 2 \times 3 \times g = 60$

$12g = 60$

$\frac{12g}{12} = \frac{60}{12}$

$g = 5$

$g = 5_1$

(ii) **v** **(2 marks each)**

$3_1 \times 5 \times v = 75$

$3 \times 5 \times v = 75$

$15v = 75$

$\frac{15v}{15} = \frac{75}{15}$

$v = 5_1$

$v = 5_2$

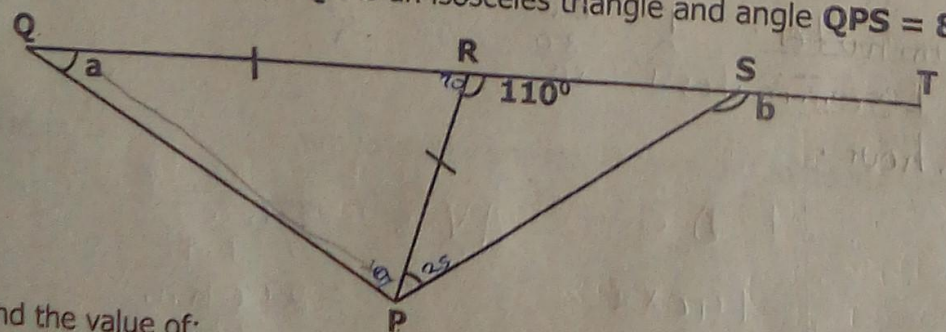
b. Workout the **HCF** of **60** and **75**. **(2 marks)**

$3_1 \times 5_1$

3×5

$= 15$

31. In the diagram below, **PQR** is an isosceles triangle and angle **QPS = 80°**.



Find the value of:

(i) **a**

$a + a + 70 = 180°$

$2a + 70 = 180°$

$2a + 70 - 70 = 180° - 70°$

$2a = 110°$

$\frac{2a}{2} = \frac{110°}{2}$

$a = 55°$

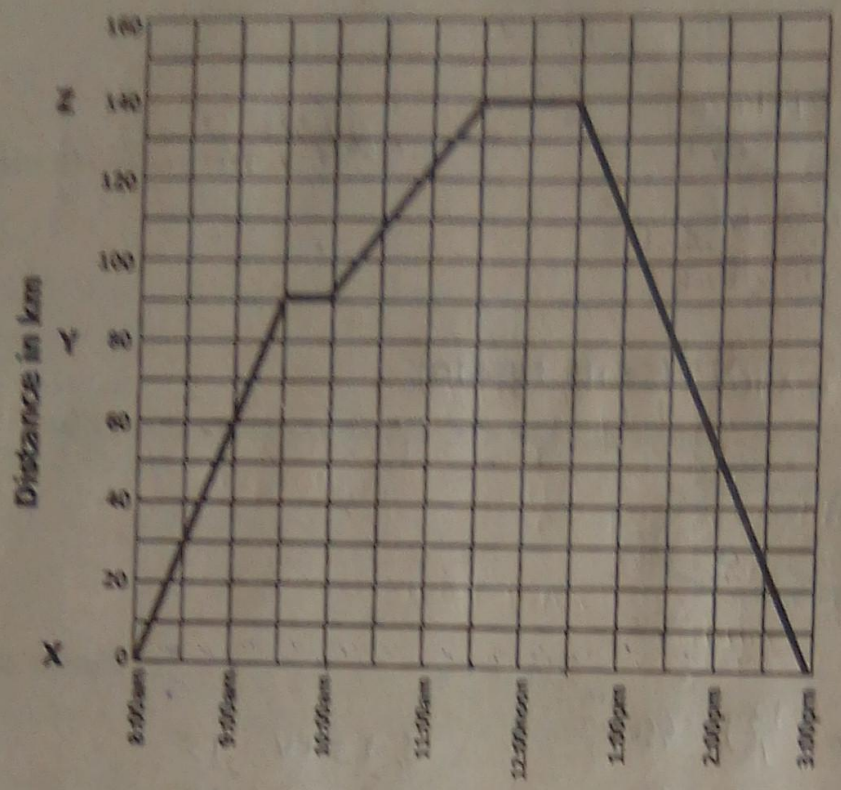
(ii) **b** **(2 marks each)**

$80° - 55$

$b = 110° + 25°$

$b = 135°$

32. The travel graph below shows the journey of a motorist from town **X** to town **Z** via town **Y** and back to town **X**. Study it carefully and use it to answer the questions that follow.



a) At what time did the motorist reach town z? **(1 mark)**

At 11:30am.

b) For how long did the motorist stop on the way? **(2 marks)**

~~For 30 minutes.~~

1hour + 30minutes

= 1½ hour.

Hr mins
1 00
+ 30
1 : 30

Stop

30
60
½

c) Calculate the average speed of the motorist for the whole journey. **(2 marks)**

T.T.T

3½ + 3½

= 7hours

T.D.C

140x2

= 280km

A.V.S = T.D.C / T.T.T

= 280km / 7hours

= 280km / 7hours

= 40 Km/h