

MATHEMATICS SEMINAR QUESTIONS 2023

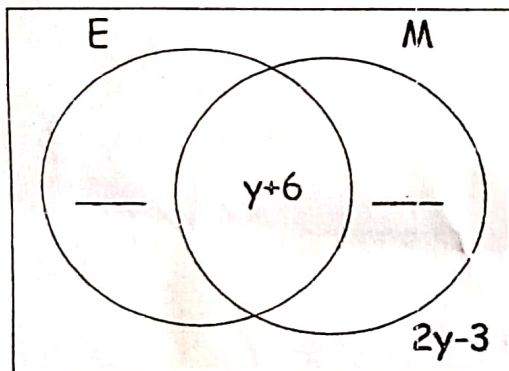
Date: Saturday 5th August 2023

Venue: Fountain Grammar P/S Kazo-Main Hall

1. In a P.7 class of 47 pupils, 35 pupils like Mathematics (M), Y pupils like English (E) only, (Y+6) pupils like both mathematics and English while (2y-3) pupils like none of the two subjects.

- a. Use the above information to complete the Venn diagram below.

$$n(E) = 47$$



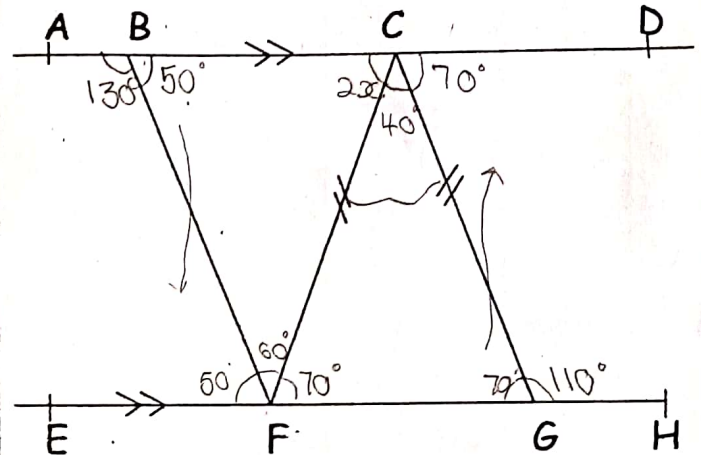
- b. Find the value of Y.
c. If a pupil is picked at random to mop the class, what is the probability that a pupil likes English?

2. a) Workout: 3 1 2 five

$$\begin{array}{r} -123 \text{ four} \\ \hline \text{Six} \end{array}$$

- b Solve: $302n = 205$ six

3. In the figure below, line AD is parallel to line EH. Angle ABF = 130° , angle BCF = $2x$ and angle CGH = 110° .



- a Find the value of x
b Find the size of angle;
i. BFC = 60°
ii. FCD = 110°

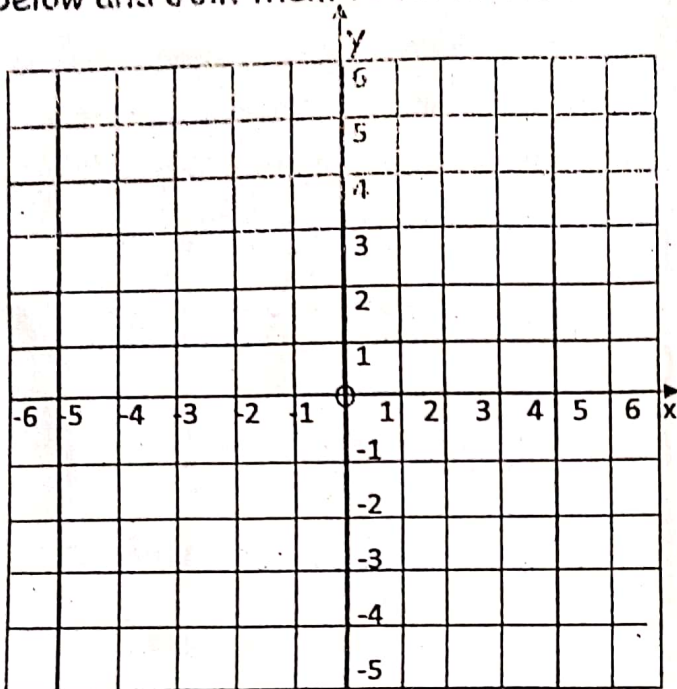
4. Given the Equation

$$Y = 2x + 1$$

- a Complete the table below.

X	3	—	2	—	2	—
Y	—	1	—	1	—	3

- b. Plot the above co-ordinates on the grid below and Join them to form a line.



5. A trader has various amounts of money in the following currencies

- 200 united states dollars (us \$)
- 300 kenya shillings (kshs)
- 500,000 Ugandan shillings (Ugshs)

Given that the existing exchange rates are; us \$ 1 = ugsh. 3,850

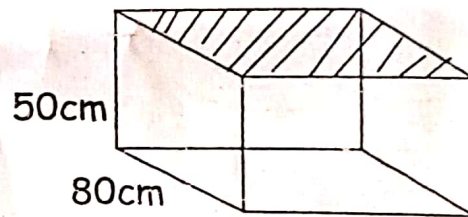
Ksh 1 = ugsh. 25

- Find the total amount of money in Uganda shillings the trader has.
- A trader used Ugsh. 1,008,000 to buy a television and decided to convert the remaining money into US dollars. How many US dollars did he get?
- A watch costs US \$ 40, Find the equivalent cost of a watch in Kenya shillings.

6. A man withdrew ninety nine bank notes of ten thousand shillings each numbered consecutively from AX002351. Find the identification number on the last note.

- b. The water meter reading at school at the beginning of the term was 476893 and at the end of the term was 477292. If each unit of water costed the school sh.500, how much money did the school spend on water bills that term?

7. The figure below shows a rectangular tank. Its top cover of area 4m^2 was removed.



- Find the length of the tank in metres.
- Calculate the capacity of the tank.
- Workout the total surface area of the tank
- Calculate the sum of lengths of edges of the tank.

8. Cylindrical tins of diameter 5cm and height 7cm are packed into the box measuring 20cm by 15cm by 18cm. calculate the space left un-occupied after packing the tins into the big box.

A kitchen is 40 metres North-East of the house and a toilet is 56 metres from the kitchen on a bearing of 160° . Using a scale of 1cm to represent 8 metres, draw an accurate diagram showing the three places.

Find the shortest distance between the house and the toilet.

What is the bearing of the toilet from the house?

Simplify:

i. $\frac{4.8 \times 9.0}{0.6 \times 0.36}$

ii. $\frac{4}{5}$ of $\frac{3}{7} \div \frac{9}{14} + 3\frac{7}{15}$

Change 0.166 into a common fraction in its simplest form.

Solve the inequality and give the solution set. $2(7-p) \geq 2+p$

An apple costs sh.500, less than the cost of a pawpaw and one and a quarter times as much as a mango. Namusoke bought 2 mangoes and 3 apples at sh.4600. Find the cost of a pawpaw.

Adam is 30 years younger than his father, the sum of their ages is 36 years. In how many years will the ratio in their ages be 3:1?

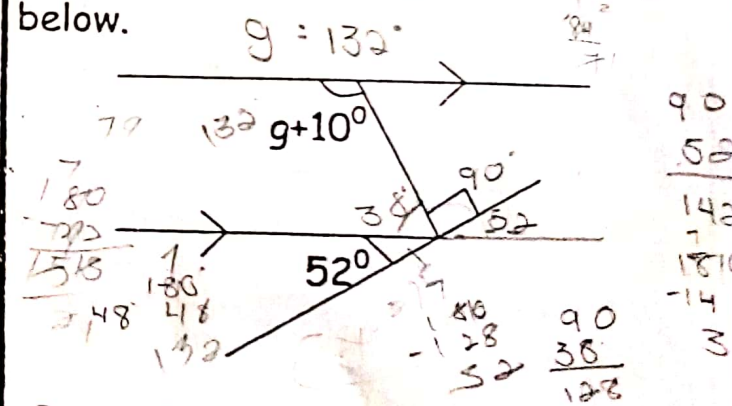
The table below shows the marks scored by a P.7 class of 40 pupils. Use it to answer the questions that follow.

a. Complete the table correctly.

Marks	Frequency	Total
3	4	12
<u>5</u>	9	45
7	<u>12</u>	84
8	8	<u>64</u>
<u> </u>	<u>17</u>	75

- b. Find the modal frequency
- c. How many pupils scored above the mean mark?

20. Find the value of g in the figure below.



b. One of the interior angles of a regular polygon is $(3x-18)^\circ$. Given that the polygon has 14 right angles, find the value of x

d. Annet is 20 years younger than peter. In fifteen years, peter will be twice as old as Annet. How old is each now?

9. A farmer fenced his plot of land using poles, fixed at intervals of 4 metres. The land measures 90m by 76m.

a. How many poles were used to fence the plot if a gate of 8 meters was left.

b. Forty four poles were used to build a circular hurt. The poles were fixed at intervals of 1.5 metres, calculate the area covered by the hurt.

10. A motorist left his home at 7:30am and travelled to town for 3 hours at an average speed of 60km/hr. he stayed in town for 30 minutes and then travelled back home.

a. Calculate the speed at which the motorist travelled back if he reached home at 3:00pm.

b. Workout the motorist's average speed for the whole journey.

11. Amos went shopping with sh. 12,000 and bought the following items.

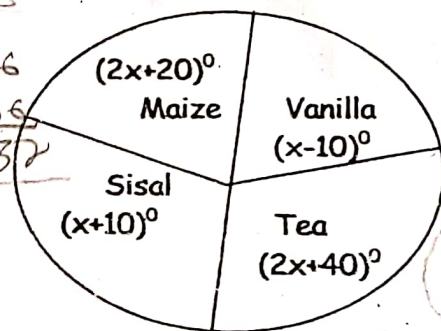
- 2kg of rice at sh.3500 per kg
- 750g of salt at 2000 per kg
- Some tomatoes at sh.500 every 6 tomatoes.

Amos was offered a discount of sh.400 and he remained with sh.2400 after paying for all the items. Find the number of tomatoes Amos bought.

12. A father gave $\frac{1}{6}$ of his land to each of his two daughters, 40% of the remaining land to his son and the rest of the land to his wife. If the wife received 72 acres, calculate the size of the land.

b. A tank is $\frac{2}{3}$ full of water, when 500 litres of water are added; the tank becomes $\frac{5}{6}$ full. How many litres of water does it contain when it's 75% full?

13. The pie chart below shows the quantity of cash crops Uganda exports in a month. Use it to answer the questions that follow.



If Uganda exports 500 more tonnes of tea than Vanilla, how many tonnes of cash crops does Uganda export altogether?

14. A man spent his monthly salary as follows, he spent 10% more on rent than food, 25% more on transport than food and the percentage saved is a half of the percentage for transport. Show this above information on a pie-chart of diameter 6cm.

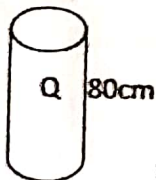
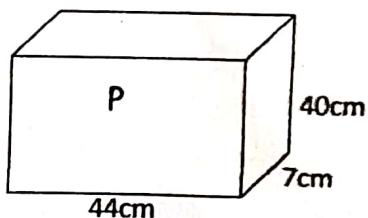
15. Using a ruler and a pair of compasses, construct a quadrilateral, PQRS where $PQ=5\text{cm}$, $PS=QR=7\text{cm}$, angle $SPQ=135^\circ$ and the line PS is parallel to line QR. drop a perpendicular from point S to meet line PQ at X. measure length XP.

The table below shows the arrival and departure time of the taxi from Kampala to Karuma. Use it to answer the questions that follow.

Distance in KM	Town	Departure time	Arrival time
0	Kampala	8:30 a.m	
60	Katugo	9:15 a.m	9:00 a.m
110	Migycera	10:10 a.m	10:00 a.m
160	Kafu	10:30 a.m	10:15 a.m
220	Kigumba	12:50 p.m	12:30 p.m
360	Karuma		1:00 p.m

- Express the time the taxi left for Kigumba in a 24 hour clock.
- For how long did the taxi stop on the way?
- For how long did the taxi take to travel from Katugo to Kafu?
- Calculate the speed of the taxi from Kafu to Kigumba.
- Workout the average of the taxi for the whole Journey.

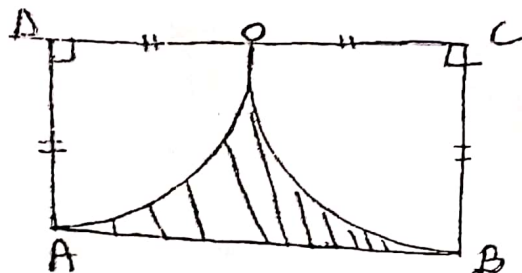
22. Two tanks P and Q hold the same amount of water when completely full.



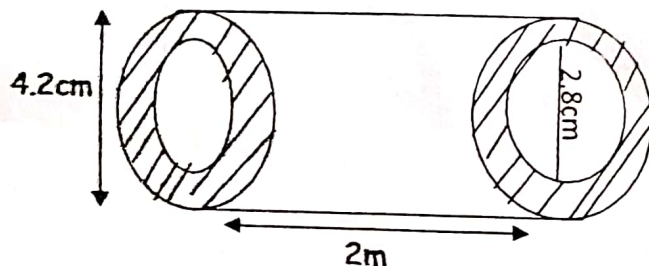
- Find the amount of water tank P holds in litres
- Calculate the diameter of tank Q

23. Okia rides his bicycle from his home to school through a distance of 3.3km. The wheel makes 2500 revolution to cover the journey. Find how wide the wheel is in centimeters.

24. In the figure below, ABCD is a rectangle and line AB=42dm. Study the figure and use it to answer the questions that follow.



- Find the area of the shaded part (Use $\pi = \frac{22}{7}$)
- Calculate perimeter of the shaded part
- The diagram below shows a piece of metallic pipe 2 metres long. The diameter of the pipe is 4.2cm and the diameter of a bore (hole) is 2.8cm. find the volume of the metal which makes up the pipe (use π as 3.14)



25. Kato sold a radio to Kakuru making a profit of 15%, Kakuru also sold it to Musa at a loss of 10%. if Musa paid sh.72,450 for a radio, How much money did Kato pay for the radio?

- b. The average mass of 4 rabbits is 56kg when two rabbits join their group, their average mass becomes 52kg. The sixth rabbit is 8kg lighter than the fifth rabbit. Find the mass of the fifth and sixth rabbit.

26. When marking an interview, a teacher awarded 5 marks for every correct answer and subtracted 2 marks for every wrong answer. Annet scored 79 marks. How many correct answers did she get?