

UGANDA LOWER CERTIFICATE OF EDUCATION

End of year examinations 2023

NAME:

STREAM:

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MATHEMATICS

SENIOR TWO

NOV/2023

PAPER 1

2 HOURS

Answer on the Question paper.

ADDITIONAL MATERIALS: Electronic calculator Geometrical instruments

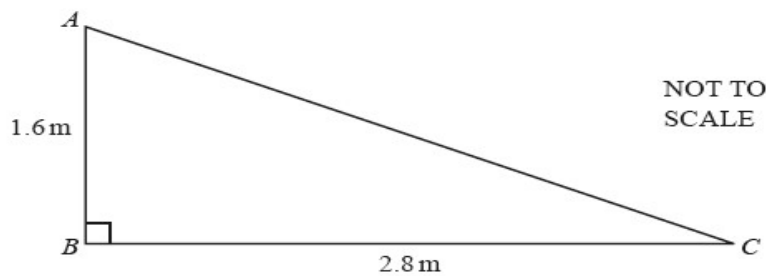
READ THESE INSTRUCTIONS FIRST

- ♠ This paper has **15 question** with **10 in section A** and **5 in section B**.
 - ♠ Answer **all** questions in **section A** and any **four** in section B.
 - ♠ Section A takes **40 marks** and section B takes **40 marks**
 - ♠ **For some question in section A , answer in spaces given in the question paper and rest Use the answer sheets provided**
 - ♠ If the degree of accuracy is not specified in the question and the answer is not exact, give the answer to three significant figures.
 - ♠ For π , use either the calculator or 3.142
 - ♠ Marks for each number are allocated
-

SECTION A

1. Marylyn makes 600 cakes. 18% of the cakes go to the hotel and $\frac{2}{3}$ of the cakes go to a super market. How many cakes are left? [3]
2. Find the area of the triangle ABC and hence calculate the length AC

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[4]

3. Work out the **three** monthly electricity bill for Mr. Ojok using the information given in the table in Uganda Shillings.

Name	Fixed charge(per month)	Total number of units used	Cost per unit
Mr. Ojok	4530	1348	620

[3]

4. Forty-eight (48) tins of pine-apple chunks together with their packaging have a mass of 22kg. If the mass of the packaging is 928g. Calculate the mass of five (5) tins of pine-apple chunks without packaging. [4]
5. a) Insert one pair of brackets in each of the following to make the statements true. [2]
 - $5 + 3 \times 10 - 1 = 32$
 - $3 \times 2 - 4 - 7 = 9$

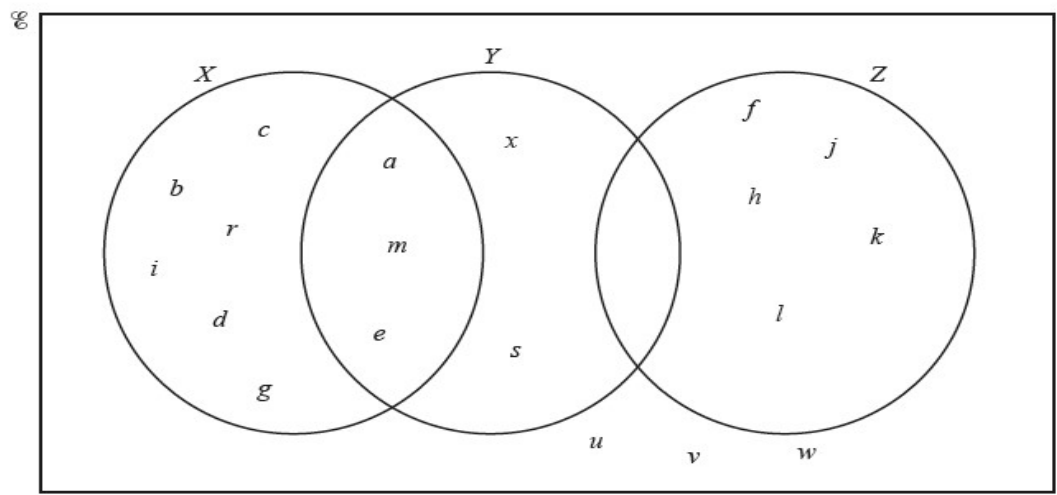
b) i) Calculate $\sqrt[3]{-4.3 \times 6.7^2}$ and write down all the figures shown on your calculator. [1]

.....

ii) Write your answer correct to 4 decimal places [1]

6. What is the inverse of the following matrix $\begin{pmatrix} 2 & -3 \\ 2 & 4 \end{pmatrix}$? [4]

7. Complete the questions below



a) Use set notation (symbols) to complete the statement from the Venn diagram [5]

- i) $c \dots\dots X$
- ii) $\dots\dots = \{ a, m, e \}$
- iii) $Y \cap Z = \dots\dots$

(b) List the elements of $(X \cup Y \cup Z)^1 \dots\dots$

(c) Find $n(X^1 \cap Z) \dots\dots$

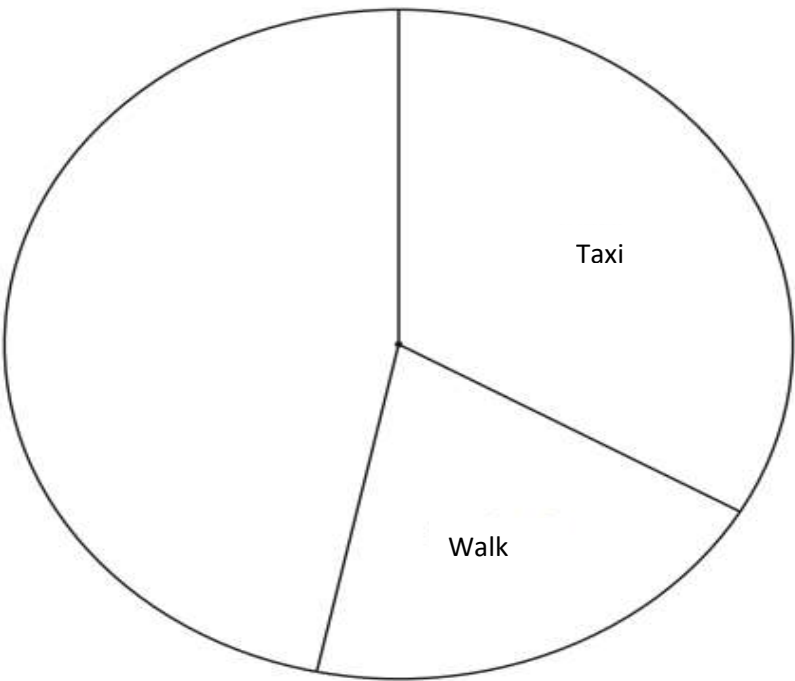
8. Alma has UgX 100,000 to invest. Bank A offers a compound interest of 6.5% and Bank B 6.8%. How much more would Alma receive from Bank B than from Bank A if she invested her money for 1 year period? [4]

9. 45 people go work and move by different modes of transport. Some information is shown in the table.

Types of transport	Number of fish	Pie chart
Taxi	15	120^0
Walk	9	72^0
Private car		32^0
Motor cycle		

i). Complete the table [3]

ii). Complete the pie chart



[2]

10.

The table shows the times of the high and low tides.

Day	1st high tide	1st low tide	2nd high tide	2nd low tide
Monday	00 30	06 09	13 12	18 35
Tuesday	01 30	07 20	14 22	19 52
Wednesday	02 43	08 36	15 37	21 06
Thursday	03 58	09 41	16 44	22 07
Friday	05 00	10 35	17 37	22 58

i) Write down the time of the 2nd high tide on Wednesday using 12-hour clock
.....

[1]

ii) Workout the time between the two low tides on Thursday.
.....hr. Min

[1]

- iii) The surfing activity start 1 1/2 hours before the high tide on Tuesday afternoon. Write down the surfing activity starting time.

..... [2]

SECTION B

11. The table shows the annual rain fall on an island from 1998 to 2006

YEAR	1998	1999	2000	2001	2002	2003	2004	2005
Rainfall(mm)	550	490	580	610	680	540	620	590

- a) Plot these values on a graph
- b) Join the points with straight line to form a line graph
- c) Is it true that annual rainfall on the Island is tending to increase? Give a reason for your answer?
- d) Predict and state a possible range of values for 2006. [10]

12. Cash price of a prom outfit is \$ 705.60 and a discount of 10% is offered for cash payment. Alternatively it may be paid on hire purchase with a cash deposit of \$ 176.40 followed by 23 monthly payments of \$26.72 each. If 1 \$ = UGX 3600, how much cheaper is it to pay cash than buying on hire purchase? (Answers should be in Uganda shilling) . [10]

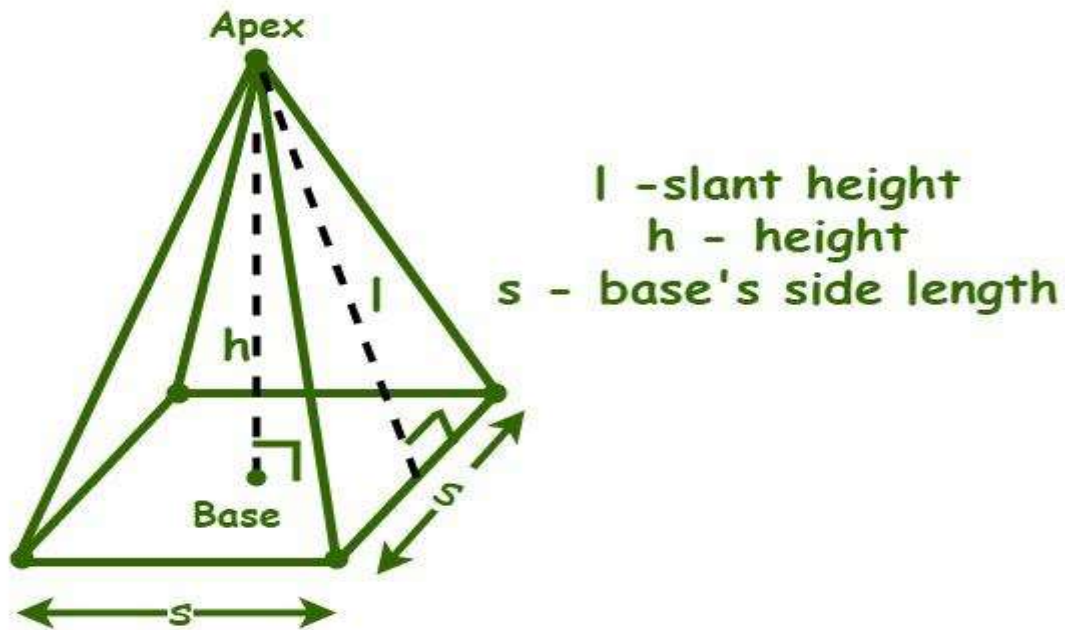
13. After ten games the results of the five local teams in wood ball league are given in the table.

	Wins	Draws	Losses
LA Lakers	7	1	2
Milwakuue Bucks	6	2	1
Denver Nuggets	5	4	1
Trail Blazers	4	2	4
GS warriors	6	4	0

The point system is defined as 4 points for a win, 2 points for a draw and -1 points for a loss

- a) Write this information as two matrices and multiply them together to get the overall results of the tournament.
- b) Organize the teams and their final results with the order from the team with most points to the team with least points. State the team that won the tournament. [10]

14. Use the figure to answer the respective questions below



- a) Draw a net of the figure above and use it to show that the formula for total surface area is given by $TSA = 2sl + s^2$.
- b) Determine the total surface area of a square pyramid if the base's side length is 15 cm and the pyramid's slant height is 21 cm.
- c) Calculate volume of the figure

15. a) Paula and Martina buy sacks of rice from different shops

Paula pays 72000 for sacks costing $(100m)$ shs each
Martina pays 72000 for sacks costing $(100m + 90)$ shs each

- i. Find the expression in terms of m for the number of sacks bought
 - a. Paula
 - b. Martina

[1]

[1]

- ii. Paula buys 4 more sacks than Martina. Write down the equation in terms of m , and show that it simplifies to $10m^2 + 9m - 162 = 0$. [4]
- iii. Solve the equation above and state the number of sacks Paula buys. [4]