HOME PACKAGE MATHEMATICS

FORM I & II

1. Only four tyres of big animals are found in a section of a game reserve. In one month, there were 637 lions, 76, 482 antelopes, 2,982 giraffes and 9,780 elephants counted. How many big animals are there in that section of the game reserve that moth?
2. John bought oranges at the market. He ate four oranges and gave the rest to his friends. He gave Jane three oranges, Bokari five oranges and Mumba six oranges. How many oranges did John buy from the market?
3. There were 66 people on a bus. At the first stop, 28 people got off and 19 people got on. At the next stop, five people got off and 13 people got on. At the next stop. How many people were there on the bus now?
4. The product of two numbers is 912, and one of the numbers is 24. Find the other number.
5. The product of three numbers is 2,730. Two of the numbers are 13 and 15. Find the other number.
6. A fleet of 28 buses was used to take 990 people to a football match. Two of the buses carried 40 people each, and the rest all carried the same number of people. How many people did each of the other buses carry?
7. A city of 534,000 people is split into ten equal wards. How many people are there in each ward?
8. An American dollar contains about 1,000 Tanzanian shillings.
   a) How many Tanzanian shillings are there in 74 dollars?
   b) How many dollars are 78,00 Tanzanian shillings?
9. a) Write the equation of a line which crosses the x – axis at (-8,0) and the y – axis at (0,3) in the form ax + by + c = 0
   b) Find the coordinate of the point of intersection of line A whose equation is x = 3 and line B whose equation is 2x – 5y = 7
10. A BC is a parallelogram in which angle ABC = 42^0. find the degree measure of angleBCD.
11. The profit on an item costing Tsh 8,000/= is decreased by Tsh 480/= when its sells price is reduced by 5%. Find
    a) The sell price b) Percentage profit before reductions

12. A local club is open every day of the week. Esther, Amina and Upendo visit the club together one Saturday. After that, Esther visit it every second day, Amina visits it every third day and Upendo visits every fifth day
    a. After how many days will they be at the club together again?

b. What day of the week will that be?

13. A red light flashes on every 10 seconds. A green light flashes on every 8 seconds. How many seconds are there between the times when both lights flash on together?
14. Robert Msaki is making some small metal rods. He has three pieces of metal of length432 cm, 648 cm and 540 cm. what is the longest length of rod he can make if the rods have the same length and no metal is wasted?
15. At the local running track, three athletes are doing training laps. Iddi laps once every 56 seconds, Bakari laps once every 66 seconds and Juma laps once every 77 seconds. If they all start together how long will it be before they are all together at the startline?
16. Solve the inequality $\frac{5x-2}{3} \geq \frac{3x}{4} - \frac{1}{2}$
17. The degree measure of two supplementary angles are in the ratio 2:3. Find degree measure of each angle.
18. Find the length of the sides of a cubical box (open on one side) which has a total surface area of 720 cm^2
19. Find x and y such that $\frac{7}{4x} - \frac{1}{2y} = \frac{3}{x} + \frac{2}{y} = -8$
20. Use the digits 1,2,4 and 4 without repetition to form 2 – two digit numbers and find
    a) The largest sum. b) The largest difference of the numbers that can be formed.
21. The LCM and GCF of three numbers are respectively 360 and 3 if two of the numbers are 18 and 24, find the third number
22. The sides of a rectangle are in the ratio 2:3, if the perimeter of this rectangle is 74.5cm. find its area to two significant figures
23. Two pipes, one with internal diameter of 30 mm and another 40 mm, runs into a larger pipe. Find the internal diameter D of the large pipe that will enable it carry all the water from the small pipes.
24. The radii of two circles are in the ratio 2:5. If the area of the larger circle is 420 square cm, find the area of the small circle.
25. A regular decagon
26. who's each side is 2.5cm is inscribed in a circle. Find the radius of the circle and the area between the circle and the decagon.
27. A cylindrical can contains 1100cm^2 of pineapple juice when full. If the can is 14cm in height, what is its radius?
28. The angle of elevation of the top of a chimney on a house from a point on the ground 50 m away is 22^0
    a. How high above the ground is the top of chimney?
    b. If the angle of elevation of the roof of the house from the same point is 20^0, how tall is the house?

c. How high is the chimney?

29. The scale map is 1:10000
    a. Two rivers are 4.5cm apart on the map, how far apart are they in real life
    b. Two towns are 8km apart in real life. How far apart are they on the map? Give the answer in centimeters.
30. a) Describe three types of triangles that are classified by their sides

    b) The formula for finding the total surface area ofis A = $2\pi r^2+2\pi rh$ where r is the radius of the base and h is the height. Solve the formula for h and justify each step.
31. a) Find two numbers whose different is 5 and whose product is 266.

    b) Find the value of angel A in the following, giving your answer correct to one decimal place if it is not exact: Tan A = 4.371.
32. a) In a class of 31 students, some study physics and some study chemistry. If 22 study physics, 20 study chemistry and 5 study neither. Calculate the number of students who take both subject.

    b) The angle of elevation of the top of a cliff from a ship at sea level is 12.3^0. if the ship is 2.3 km out at the sea level from the cliff, find the height of the cliff in metres correct to 3 significant
33. If salaries were increased by 7.5%, what is the new salary of Asha whose salary was Tsh 120,000/=
34. A fruit seller bought some oranges for Tshs.2400. he noted that, 12 of the oranges were spoilt by insect and thrown away. The rest were offered for sale at 3 for Tshs. 100.
    a) How many oranges did he buy if he made a profit of $16\frac{2}{3}$% when all the oranges were sold?
    b) How much money did he get?
    c) How many oranges were offered for sale?
35. a) A metal is composed of copper and zinc in the ratio 3:2 by volume. Find the volume of a piece of the metal which contains $42cm^3$ of copper.

    b) A person borrows Tshs. 40,000/= for a period of 6 years at 20% simple interest per annum.

    Calculate the total amount to be repaid.
36. a) A water – can holds $12\frac{1}{2}$ litres. It is filled 11 times from a tank containing 400 litres. How much water is left in the tank?

    b)25% of a consignment of a fruit was bad. If 1500kg was good, how much did the consignment weight?
37. a) How much length of tape, each 75 cm long, can be cut from a real 10 m long? What is the length of the piece left over?

    b) Find the length of time between 0425 hours and 06.12 p.m.

37. a) Find the coordinates of the points where the line represented by the equation

4x – 3y = 12 cross the axes.

b)Find the equation of the straight line, which passes through the point Q(-1,7) and R (3, -2)

38. a) A woman is 10 times as old as her son. In 6 time she will be 4 times as old as her son. Find their present ages. (Hint: let the son's present age be x years)

b) A circle has an area of 154cm^2. Find the perimeter of the circle. (Take $\pi = \frac{22}{7}$)

39. a) Find two consecutive even numbers such that 3 times the smaller added to 8 times the greater comes to 170

b) In a regular polygon, each interior angle is greater by 140^0 than each exterior angle. How many sides have the polygon?

40. A woman sells 60 cabbages, 45 carrots and 80 tomatoes. Write down each of the following ratios in the simplest form:

a) The number of tomatoes to the number of carrots

b) The number of cabbages to the number of tomatoes

c) The number of cabbages to the number of carrots

41. Three English books and four mathematics books cost Tshs. 780, while two English books and three mathematics books cost Tshs. 560.

a) Find the cost of an English book
b) Find the cost of a mathematics book

42. Robert, William and Eusebius share some money. Robert gets $\frac{5}{10}$ of the money. William gets $\frac{7}{12}$ of the reminder.

a) What fraction of the money does Eusebius get?

b) What fraction of the money does William get?

43. The distance between two towns is x km. express the following in terms of inequalities, and solve them

a) If I get a bus for 20 km, there will be still at least 40 km to travel.

b) If you give me a lift for 40 km, there will be less than 20 km to travel

44. A certain book has mass x grams. Express the following in terms of inequalities and solve them.

a) The mass of ten books is less than 2000 grams

b) The mass of five books, together with a bag of mass 100 grams, is at least 1300 grams.

45. A stone is thrown upwards. After t seconds its height h metres is given by $h = 30t - 5t^2$. Find the times when the stone is 25 m high

46. The areas of the Atlantic and Pacific oceans are about 8.22 x 10^7km^2 and 1.65 x 10^8km^{2}respectively. Which is larger?

47. The density of a metal is 1.7 x 10^4 kg per m^3. What is the mass of 3 x 10^4 m^3 of the metal? (Remember: density is mass divided by volume.)

48. About three-quarters of the mass of the sun is hydrogen. The mass of a hydrogen atom is about 2 x 10^{-28} kg. the mass of the sun is about 1.8x 10^{21} kg. how many hydrogen atoms are there in the sun? 2 x 10^{-28} kg. How many hydrogen atoms are there in the sun?

49. The gradient of a steep mountain path is 1 in 4, which means that the vertical rise is $\frac{1}{4}$ of the horizontal run. Amina walks along the path, rising 15cm.

a) How far has she gone horizontally?
b) How far has she walked along the path?

50. A pendulum is 100cm long. It is pulled aside, so that the bob at the end has moved 10 cm horizontally. By how much has the bob risen?

KIYALA HIGH SCHOOL

MID-TERM TWO ASSESSMENT TEST 2024

MATHIMATICS

S.1

Time: ***2 Hours***

INSTRUCTIONS:

- *Attempt* **all the items** *in this section*

Item 1

You decided to have a joint graduation party with your sibling. This is to cost you a total of 4,000,000 Uganda shillings. You are nearing the day and want to find out whether you have the amount required or not. So you decided to revise your contributions below.

Your parents contributed 12.5% of the money, your sibling contributed 12.5 % more than your parents and since you were the eldest, you contributed 2 ½ of the amount your sibling contributed.

Task

Do you have the required amount for the party or should you postpone it?

Item 2

You have been elected as the new time keeper at your school. You have to ring the bell for changing lessons for 'O' level after 40 minutes while that for 'A' level after 60 minutes. Lessons for both 'O' and 'A' level have to begin at 7:20 am with the sounding of the bells together.

Task

Help yourself to know the time you will ring the two bells together again.

Item 3

A senior one student sat for midterm II 2023 at Kiira College and obtained the following marks.

Subject	**Scores**
Math	$21/25$
Physics	$30/40$
Chemistry	$75/80$
ICT	0.81
English	$44/60$
Agriculture	$18/24$
Biology	$34/50$

Task

a) Help him or her to;
- ***i)*** Find best subjects done.
- ***ii)*** Identify the two subjects which the same score.

Item 4

Your father has a plot of land with vertices P(-2, 2), Q(5, 2), R(-2, -1) and S(1, -1).

Task

Plot the points on a graph, join the points to from the shape of the plot. Tell your father the name of the shape of the plot of the land.

GOODLUCK

456/1
MATHEMATICS
Theory
Paper 1
November 2024
2 hours

ASK INTEGRATED TEACHER'S EXAMINATIONS BUREAU LTD

Uganda Lower Secondary Certificate of Education

END OF YEAR ASSESSMENT 2024

MATHEMATICS PAPER 1

SENIOR ONE

(Theory)

2 Hours

INSTRUCTIONS TO CANDIDATES:

Attempt all items in this paper.

All questions carry equal marks (20 marks each)

Be neat and organized

Item 1

In Hoima city there are various secondary schools with different populations. One of the schools is SPAH with a population of 720 students. It's a mixed school with both girls and boys, with a boarding and a day section.

If 20% of the students at St Patrick's high school are male.

Task:

(a) What is the percentage of females in the school?
(b) How many more females than males are in the school?
(c) If 25% of the female students are day scholars, how many female students are in boarding?
(d) If all male students are in boarding and 3 students share a decker, how many deckers are needed to accommodate all the male students?

Item 2

In a certain school, the bells for changing lessons for O' level rings after 40 minutes while that for A' level rings after an hour. Lessons for both O' and A' level begin at 07:20 am with the sounding of the bells.

If the school chef buys 30 heaps of tomatoes, each with 8 tomatoes from a farmer;

Task

a) At what time did the school bells ring again together again?
b) What is the number of tomatoes in base eight that the chef bought?
c) By converting the number of tomatoes back to base ten, how much will the farmer earn by selling each tomato at Ugx 200?

Item 3

Two learners were given a task of plotting the following points on the grid. A (0, 4) B (2, 2), C (4, 2), D (2, 0), E (4, -2), F (0, -1), G (-4, -2), H (-2, 0), I (-4, 2) and J (- 2, 2). Before they plotted the points, Jane told Musa that when plotting, for point A you move 4units to the right of the origin and no movement along the y-axis from the origin. For point C you move 2 units to the right of the origin and 4 units parallel to the y-axis in the positive direction. Musa said no for point A there is no movement along the x-axis, you only move 4 units along the y–axis. While for point C you move 4 units from the origin on the x-axis, then two units parallel to the y–axis.

Task

(a) Comment with reasons on Jane's explanation of plotting the points.

(b) Using Musa's explanation, plot the coordinates.

(c) Join the points to form a polygon. State the equation of the line of symmetry.

END

Total scores	

AITEL END OF YEAR ASSESSMENTS
Uganda Certificate of Education

DO NOT WRITE YOUR SCHOOL/ CENTRE NAME OR NUMBER ANYWHERE IN THIS BOOKLET

UCE

Candidate's Name.....

Signature.....

Subject..... Paper Code...../.....

Random No						
Personal Number						

Do not write in the margin

Do not write in the margin

FOR SCORERS USE ONLY

Item _____

Basis code										
Score										

Scorer's initials:.....

Item _____

Basis code									
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Item _____

Basis code									
Score									

Scorer's initials:.....

456/1

MATHEMATICS

PAPER 1

2024

2 hours

MEBU EXAMINATIONS CONSULT

UGANDA LOWER SECONDARY CERTIFICATE OF EDUCATION

END OF TERM 1 ASSESSMENT 2024

MATHEMATICS

PAPER 1

SENIOR ONE

TIME::1 HR 30MIN

INSTRUCTIONS

- ✓ Attempt all the items

mebuexaminationsconsult@gmail.com

Item 1.

The time taken by 6 athletes(students) to complete a race in a certain school running competition organized by the sport master were recorded in the table below.

Athletes	**Time taken(seconds)**
1. Obongi Ronald	1011101two
2. Makubuya Frank	27eight
3. Ssali Sulaiman	135six
4. Ssenyonga Aliyu	44five
5. Alani Jacob	122three
6. Musazi Badru	55ten

Table 1

According to the sport master these students are to be awarded according to the position they finished in this running competition as summarized in table 2 below.

Position	**Award**
1st position	Shs. 50000
2nd position	Shs. 20000
3rd position	1 dozen of counter books
4th position	½ dozen of counter books
5th position	6 pens
6th position	Hand clapping appreciation

Table 2

You have been selected as a mathematics student by a sport's master and provided with the information in table **1** and **2** to help distribute these awards amongst the athletes without fear or favour.

Task.

(a) Help the sport's master identify and distribute these awards amongst these athletes.

(b) If another athlete was to run and finish in 60 seconds which and whose position would he displace according to the information above. State why?

Item 2.

In a certain village, John's family has children which are born after every odd number year up to date with the first born in 2013. There is a charity Organization which has just arrived in this village this year April 2024 giving a helping hand (money and some learning materials) to any family in this village having more than 6 children

Note: Any child still in the mother's womb are not counted by this charity Organization.

Task.

(a) As a mathematics student identify whether John's family qualifies for this help or not. Give a reason.

(b) Mutesa celebrated his 14^{th} first born last birthday on the 1^{st}, April. 2024 and his children were born after every even number year up to date

(i) Identify whether Mutesa's family may receive the help from this charity organisation.

(ii) How old is Mutesa's 3^{rd} born (birthday 27^{th} February).

END

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NATIONAL CURRICULUM DEVELOPMENT CENTRE

End of Year Sample
ASSESSMENT ITEMS FOR S.1 AND S.2

MATHEMATICS

UPDATED VERSION

2022

SAMPLE ITEMS OF MATHEMATICS FOR S1 AND S2

Guidance to the teacher

Guidance to the teacher

These sample test items are intended to guide teachers of Mathematics how to develop end of year assessment items for Senior One and Senior Two. They do not constitute a complete examination paper for the subject. To determine the number of items in the paper, the teacher should consider the demand of each item on the test taker and the duration an average learner can spend providing the response. Ideally, at this level, a Mathematics examination should not take more than 1 hour 30 Minutes. The teacher should benchmark on the samples provided rather than replicate them.

Below each item, the competency assessed are indicated. This is intended to remind the teacher to keep the syllabus learning outcomes in mind while developing the items.

The assessment paper should have two sections:

1. Short response items
2. Extended response items

Short Response Items

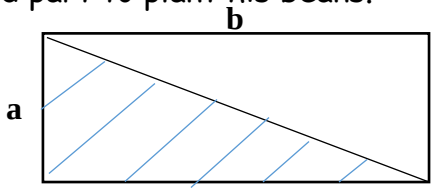
1. Draw an abacus and illustrate this expression $4 \times 8^4 + 2 \times 8^2 + 4 \times 8^0$ on it.
   (The learning outcome being assessed is: identifying numbers in any base using abacus)
2. In a Geography lesson, Alex learnt that the following Mountains are in Uganda; Rwenzori and Elgon. Kenya has Mt. Longonot and Mt. Elgon. Tanzania has Mt. Mt. Meru, and Mt. Kilimanjaro.

(a) Draw an arrow diagram to show the relation amongst the places listed above.

(b) What is the domain and the range from your relation?
(The competency being assessed is "The learner understands and uses arrow diagrams/mappings to represent relations and functions"

Extended Response Items

1. A garden of beans is rectangular in shape with length as *b metres* and width *a metres* as shown in figure.
   Bona used the shaded part to plant his beans.



(a) Explain how the area of the shaded part can be obtained from the rectangular Garden.

(b) Write an expression in terms of the area (A), ***a*** and ***b*** for the area of the triangular portion of the garden.

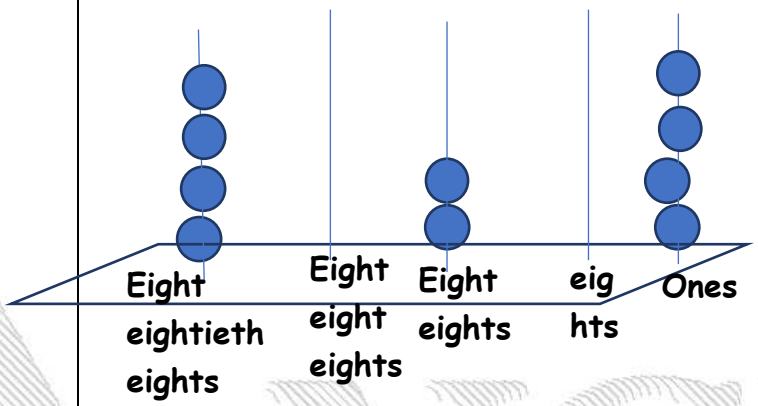
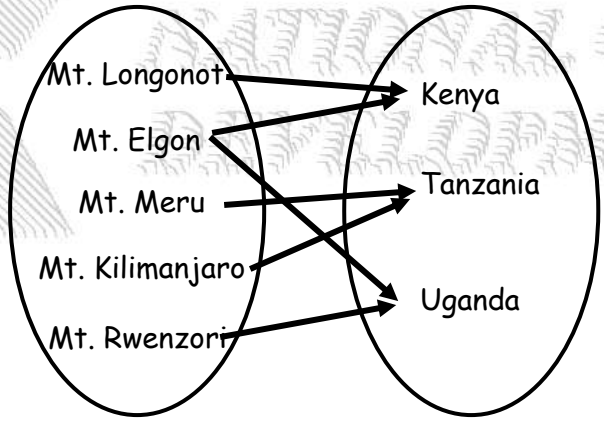
(c) The area of the portion you shaded in (c) is 464.52 m^2, the length is 15.24 *m*. What is the dimension of the width?
(The competency being assessed is "the learner understands, justifies and applies area and perimeter formulae for different figures")

2. Two learners were given a task of plotting the following points on the grid.
   A (0, 4) B (2, 2), C (4, 2), D (2, 0), E (4, -2), F (0, -1), G (-4, -2), H (-2, 0), I (-4, 2) and J (- 2, 2).

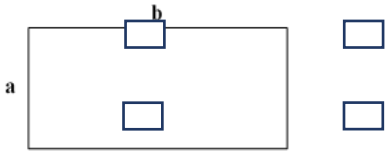
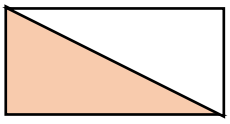
Plot the points above to form a polygon and state the equation of the line of symmetry for the figure formed.
(The competency being assessed is "the makes **and draws 2D and 3D shapes and explore their properties")**

End

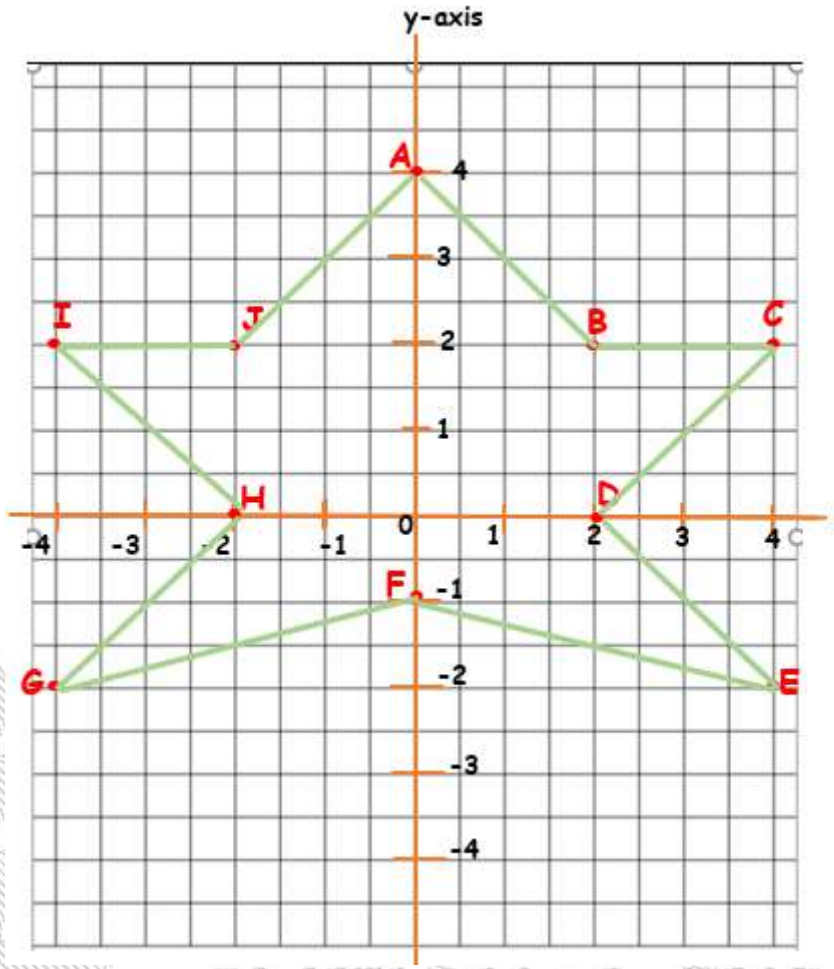
Scoring Guide

QN	SOLUTION	SCORE	COMMENT
	Resource items		
1		I score 1 score 1 score 1 score	Drawing abacus Number of balls on the spikes. Identifying the place values on each spike. Writing the correct number 40204_{eight}
TOTAL		**04**	
2	 Domain is the name of mountains Range is the name countries (Observe learner's arrows. Some may name countries as domain, while name mountains as the range (NOTE: they may change the direction of arrows).	1 score 1 score 1 score 1 score	For correctly mapping. For identifying that Mt. Elgon belongs to two countries. States the correct domain. States the correct range. Score as above.

Responses to Situation Items

1		1 score	Recognize the area of the rectangle.
a.	The garden is in a rectangular form. But the rectangle has two right angled triangles. Area of each triangle is equal to half area of the rectangle. The area of a rectangle is obtained by A= L×W $Area\ of\ rectangular\ garden\ is\ ab\ m^2$	1 score 1 score 1 score	For mentioning triangle For mentioning 1 right angled triangle.
b.	The rectangle has been divided into two right angled triangles hence; Area=$\frac{1}{2}$ a × b $\therefore Area\ of\ triangular\ garden\ is\ \frac{1}{2}abm^2$	1 score	Explains that you obtain area of the two triangles after dividing the rectangle.
c.	Drawing the rectangle correctly with angles shown Drawing the diagonal Shading the Area of a right-angled triangle as shown below: 	1 score 1 score 1 score	
d.	$464.52m^2=\frac{1}{2}\times 15.2\times a$ $464.52m^2=\frac{15.2a}{2}$ $\frac{464.52}{7.2}=\frac{7.2a}{7.2}$	1 score	For writing the correct expression in terms of A, a and b. Shaded part can be

	a=64.5m $\therefore$ *the width is* 64.5*m*	2 scores 1 score 1 score 1 score	any portion, but shows meaning of the space covered which is AREA. For correct substation in thee formular for area of triangle. For solving and simplifying. For correct value. For stating it as width. For correct use of units.
TOTAL		**15**	

b.	 Equation of a line of symmetry is x=0 or the y-axis	12 scores 3 scores 1 score 1 score	Award 1 score each for each coordinated plotted correctly. There are 10 coordinates A to J For joining points correctly to form polygon For identifying the line of symmetry For writing the correct equation of the line of symmetry

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NATIONAL CURRICULUM DEVELOPMENT CENTRE

End of Year Sample Assessment Items for S.1 and S.2

MATHEMATICS

2022

SAMPLE ITEMS OF MATHEMATICS FOR S1 AND S2

The items set should be based on Resources and Scenarios.

The S1 and S2 assessment papers should not take more than 1 and a half hours.

The assessment paper should have two sections:

1. Short response items
2. Extended response items

The number of items in each section for S1 and S2 will be determined by the subject teacher keeping in mind that the duration of the paper shall not be more than one and a half hour($1^1/_2$hrs).

Short Response Items

1. Draw an abacus and illustrate this expression $4 \times 8^4 + 2\times 8^2 + 4\times 8^0$ on it. (The learning outcome being assessed is: identifying numbers in any base using abacus)
2. In a Geography lesson, Alex learnt that the following Mountains are in Uganda; Rwenzori and Elgon. Kenya has Mt. Longonot and Mt. Elgon. Tanzania has Mt. Mt. Meru, and Mt. Kilimanjaro.

(a) Draw an arrow diagram to show the relation amongst the places listed above.

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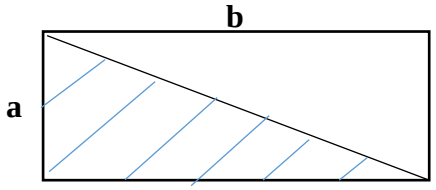

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Plot the points above to form a polygon and state the equation of the line of symmetry for the figure formed.
(The competency being assessed is "the makes **and draws 2D and 3D shapes and explore their properties")**

End

Scoring Guide

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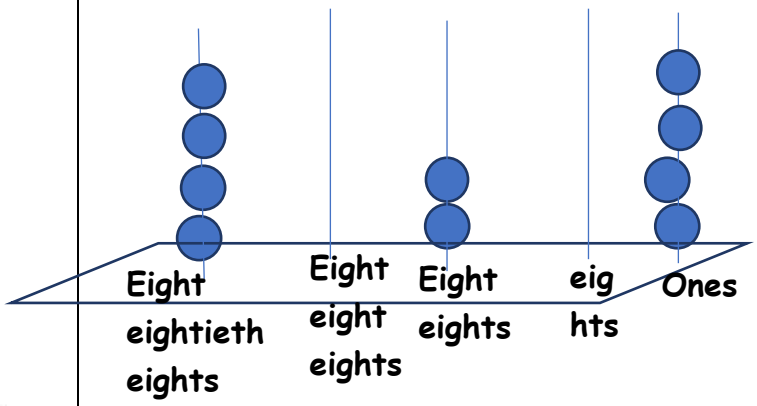
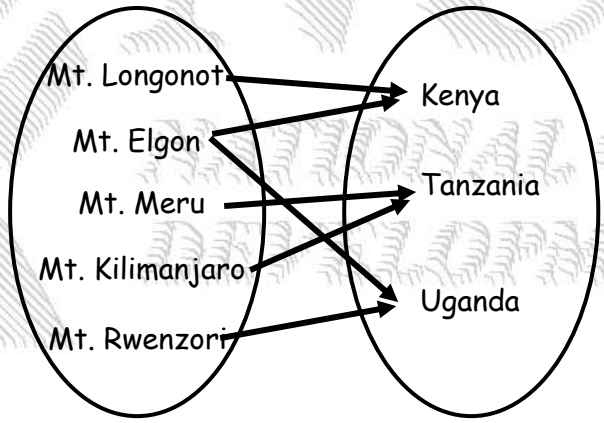
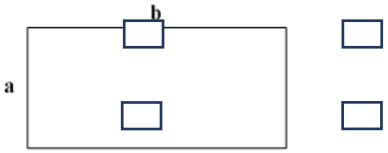
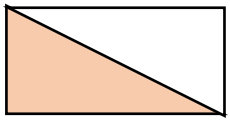
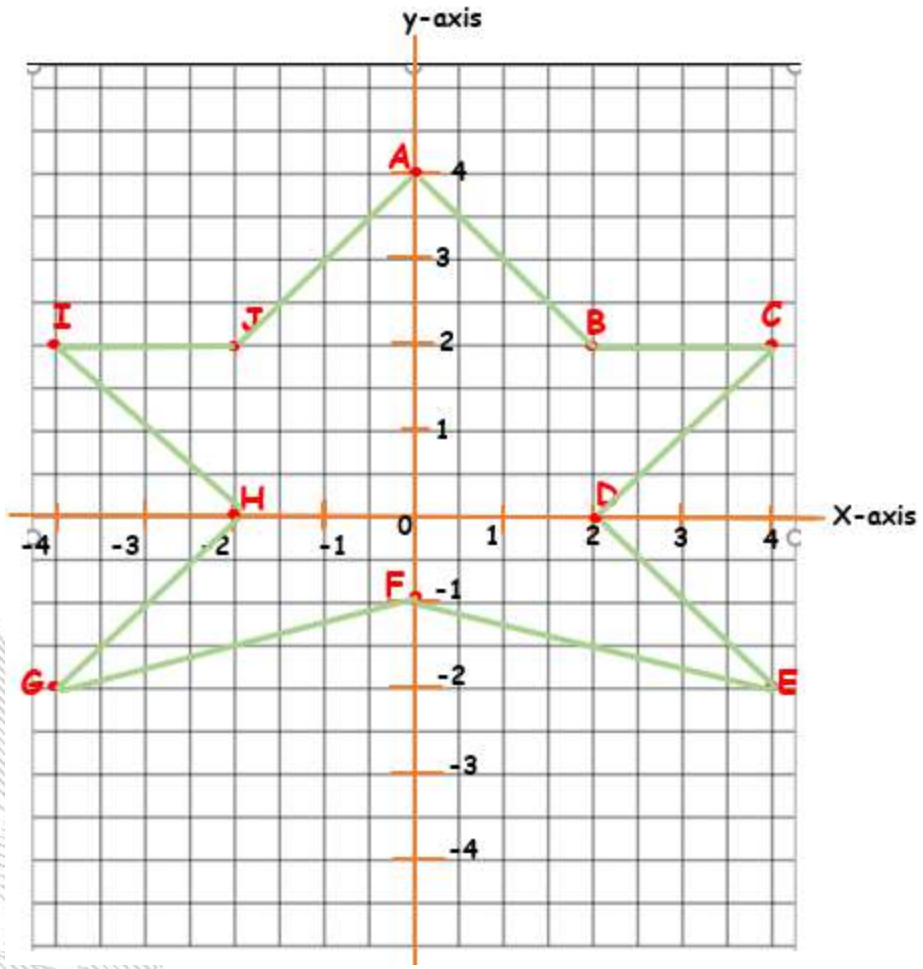
	Resource items		
1		I Mark 1 Mark 1 Mark 1 Mark	Drawing abacus Number of balls on the spikes. Identifying the place values on each spike. Writing the correct number 40204_{eight}
TOTAL		**04**	
2	 Domain is the name of mountains Range is the name countries (Observe learner's arrows. Some may name countries as domain, while name mountains as the range (NOTE: they may change the direction of arrows).	1 Mark 1 Mark 1 Mark 1 Mark	For correctly mapping. For identifying that Mt. Elgon belongs to two countries. States the correct domain. States the correct range. Score as above.

Responses to Situation Items

1		1 Mark	
a.	The garden is in a rectangular form. But the rectangle has two right angled triangles. Area of each triangle is equal to half area of the rectangle. The area of a rectangle is obtained by A= L×W $Area\ of\ rectangular\ garden\ \ is\ ab\ m^2$	1 Mark 1 Mark 1 Mark	Recognize the area of the rectangle. For mentioning triangle
b.	The rectangle has been divided into two right angled triangles hence; $\text{Area}=\frac{1}{2}\text{a}\times b$ $\therefore Area\ of\ triangular\ garden\ is\ \frac{1}{2}\text{a}bm^2$	1 Mark 1 Mark	For mentioning 1 right angled triangle.
c.	Drawing the rectangle correctly with angles shown Drawing the diagonal	1 Mark 1 Mark	Explains that you obtain area of the two triangles after dividing the rectangle.
d.	Shading the Area of a right-angled triangle as shown below:  $464.52m^2=\frac{1}{2}\times 15.2\times a$ $464.52m^2=\frac{15.2a}{2}$ $\frac{464.52}{7.2}=\frac{7.2a}{7.2}$	1 Mark 2 Marks 1 Mark	For writing the correct expression in terms of A, a and b. Shaded part can be any portion, but shows

	a=64.5m $\therefore$ *the width is* 64.5m	1 Mark 1 Mark	meaning of the space covered which is AREA. For correct substation in thee formular for area of triangle. For solving and simplifying. For correct value. For stating it as width. For correct use of units.
TOT		**15**	

b.	 Equation of a line of symmetry is x=0 or the y-axis	12 Marks 3 Marks 1 Mark 1 Mark	Award 1 Mark each for each coordinated plotted correctly. There are 10 coordinates A to J For joining points correctly to form polygon For identifying the line of symmetry For writing the correct equation of the line of symmetry

KAMSSA

KAMSSA LOWER SECONDARY LEVEL EXAMINATIONS
MATHMATICS
SENIOR ONE
END OF CYCLE ASSESSMENT 2023
2 Hours 30 Minutes

SCHOOL: .....
NAME: .....

Do not write in the boxes on this page. The examiner will use them to keep records of your marks

SECTION A

Question	1	2	3	4	5	6	7	8	9	10	Total
Marks scored											

SECTION B

Question	11	12	13	14	Total
Marks scored					

Instructions
- Answer all questions in section A and **any three** from section B.
- Each question in section A carries 4 marks and each question in section B carries 20 marks.
- Show all the necessary workings and explanations on the answer sheet provided.

SECTION A (40 Marks)

1. In an examination, 300 students appeared. Out of those 28% got first division. 54% got second division and the remaining just passed. Assuming that no student failed. How many students just passed the examination? Justify your answer. (4 scores)

2. Musa was listing a set of prime numbers and included 99. Tom said to Musa that 99 is not a prime number but had no reason to back up his answer. As a senior one student help the two boys to settle the debate with clear justification and hence list the set of the first five prime numbers. (4 scores)
3. James was told that 0.363636.....of the students in Mbale Secondary School had reported by 25th September 2023. Help him to know the actual number of learners that had not reported if the school has a population of 2200 students. (4 scores)

4. Neema did y tests and scored a total of 120 marks. She did two more tests which she scored 14 and 13 marks. The mean score of the first y test was 3 marks more than the mean score for all the tests she did. Find the total number of tests that she did. (4 scores)

5. Livingstone is a senior one student. His teacher taught him number bases and at the end of the topic, he decided to evaluate him. He gave him a question and Livingstone wrote 21 as 10101_{two}. Was he correct? Justify your answer. (4 scores)

6. Annette has some money in two denominations only. Fifty shillings notes and twenty shillings coins. She has three times as many fifty shillings notes as twenty shillings coins. If altogether she has sh. 3,400. Find the number of fifty shillings notes and 20 shillings coins. (4 scores)

7. Juma owns a doughnut making business. In his business, an employee is paid UGX 3,000 per day and the rent is UGX 6,000 per day. If he requires UGX 200 to make a doughnut, how many doughnuts does he have to produce to make a profit of UGX 18,000 if each doughnut is sold at UGX 500? (4 scores)

8. In a certain school two bells are sounded at intervals of 30 minutes and 45 minutes. If they were last heard at 10:15 am, find at what time they will he heard again together. (4 scores)

9. A number which is a multiple of 3 is chosen at random from a set of even numbers between 1 and 20. Express the number as a percentage of natural numbers between 1 and 20. (4 scores)

10. A rectangular garden has a short road passing through its diagonal. The garden is 3km long and 5km wide. What is the size of the road? (4 scores)

SECTION B (60 marks)

11. Mr Waguwenda would wish to design his bedroom ceiling inform of an equilateral triangle enclosed in a circle. If each side of the triangle is 6m, help him design a plan for the ceiling. If he would wish to paint the triangle with a red color and each tin of paint costs shs 15,000. How much would be spent on paint if each tin of paint paints $1m^2$ area. (20 scores)

12. Three business partners Bella, Joan and Trinity contributed UGX 112,000, UGX 128,000 and UGX 210,000 respectively to start business. They agreed to share their profit as follows.
30% to be shared equally
30% to be shared in the ratio of their contributions.
40% to be retained for running the business.
a) If at the end of the year the business realized a profit of UGX 1.35 million. How much money was retained for the running of the business at the end of the year?
b) What do you think is the difference between the amounts received by Trinity and Bella?
c) Express Joan's share as a percentage of the total amount shared between the three partners
(20 scores)

13. A route for safari rally has five sections AB, BC, CD, DE and EA. B is 200km on a bearing 050° from A. C is 500km from B. The bearing of C from B is 300°. D is 400km on a bearing 230° from C. E is 250km on a bearing 025° from D. Using the scale of 1cm for 50km, draw the diagram representing the route for the rally.
And hence use your diagram to determine the distance in km of A from E and the bearing of E from A
(20 scores)

14. The table below shows the malaria cases discovered in divisions of Kampala Uganda in June 2023.

Division	Kawempe	Makindye	Kiira	Lubaga	Central
Active cases	24	350	150	120	56

The ministry of health was asked to represent the information above on a statistical pie chart. As a senior one learner help the ministry to solve the challenge and hence guide the ministry about the control measures it can apply to prevent malaria in your area. (20 scores)

END

KAMPALA INTEGRATED SECONDARY SCHOOLS EXAMINATIONS BUREAU

KAMSSA

S.1 MATHEMATICS MARKING GUIDE
END OF YEAR 2023

No.1

1st grade $= \frac{28}{100} \times 300 = 84$ B1

2nd grade $= \frac{54}{100} \times 300 = 162$ B1

Just passed $= 300 - (246) = 54$ students M_1 B_1

Or

Those who passed $28\% + 54\%$

$= 82\%$

Just passed $= 100\% - 82\%$ B_1

$= 18\%$ A_1

$\frac{18}{100} \times 300 = 54$ students

No.2

99 is not a prime number because it has more than two factors B_1B_1

First five prime numbers

{2,3,5,7,11} M_1A_1

3. Let $m = 0.3636$-------(i)

$100m = 363636$ ------(ii) M_1

eqn(ii) – eqn(i)

$100m = 36.3636$

$-m = 0.3636$

$99m = 36$

$m = \frac{36}{99}$ B_1

$m = \frac{4}{11}$ B_1

Those who reported $\frac{4}{11} \times 2200 = 800$

Those who didn't report $= 2200 - 800$

$= 1400$ A_1

No.4

Overall mean $= \frac{120+14+13}{y+2}$

$\bar{x} = \frac{147}{y+2}$ ----------(i) M_1

First $y = \bar{x} + 3 = \frac{120}{y}$

$\bar{x} = \frac{120-3y}{y}$

$\frac{147}{y+2} = \frac{120-3y}{y}$ B_1

$147y = (y+2)(120-3y)$

$147y + 6y - 12y = 240 - 3y^2$

$3y^2 + 33y - 240 = 0$
$y^2 + 33y - 240 = 0$
$y^2 + 11y - 80 = 0$
$(y-5)(y+16) = 0$
$y=5,\ y=-16$
$y=5$ A_1

No.5 21 as 10101_{two} ?

21 to base two

2	21	1
2	10	0
2	5	1
2	2	0
	1	

$M_1M_1B_1$

10101_{two} He was correct A_1

Or

Alternatively

10101_{two} to base ten

$(1x2^4) + (0x2^3) + (1x2)^2 + (0x2^1) + (1x2^0)$
$(1x2x2x2x2) + 0$
$16 + 0 + 4 + 0 + 1$
$20+1$
$= 21$ He was correct

No.6

Let the 20 thousand coins be x

20	50	Total
x	3x	3400

B_1

$x + 3x = 3400$
$4x = 3400$
$x = \frac{3400}{4}$ B_1
$x = 850$
850 shillings for 20 thousand B_1
$3 \times 850 = 2550$ shillings for 50 thousand notes B_1

No. 7

Let the number of doughnut be x
Cost price $= 3000+6000+200x$
Selling price $= 500x$
Profit $= 18000$

Profit $= S.p - C.p$
$18000 = 500x - (3000+6000+200x)$ M_1
$18000 = 500x - (9000+200x)$ M_1
$18000+9000 = 500x - 200x$ B_1

$\frac{300x}{300} = \frac{27000}{300}$
$x = 90$ A1
∴ He has to produce 90 doughnuts.

$\frac{}{300} = \frac{}{300}$

$x = 90$

He has to produce 90 doughnuts A_1

No.8

2	30	45	
3	15	45	
5	5	15	
3	1	3	
	1	1	

M_1M_1

L.c.m = 2x3x5x3

= 90

= 90minutes = 1hour and 30 min B_1

10:15a.m

+1: 30 minutes

11: 45a.m

They will be heard again at 11:45a.m A_1

No.9

Let M_3 be the multiples of three from a set of even numbers between 1 and 20.

Let N be the Natural numbers between 1 and 20

$M_3 = \{6,12,18\}$ M_1

$n(M_3) = 3$

$N = \{2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19\}$. M_1

$n(N) = 18$

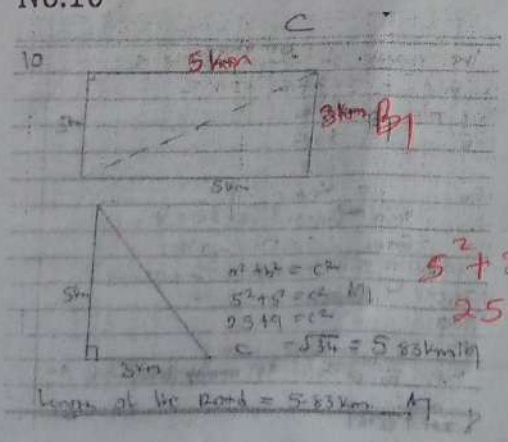
Express as a percentage $= \frac{n(M_3)}{n(N)} \times 100$

$= \frac{3}{18} \times 100$ B_1

$= 16.67\%$ A_1

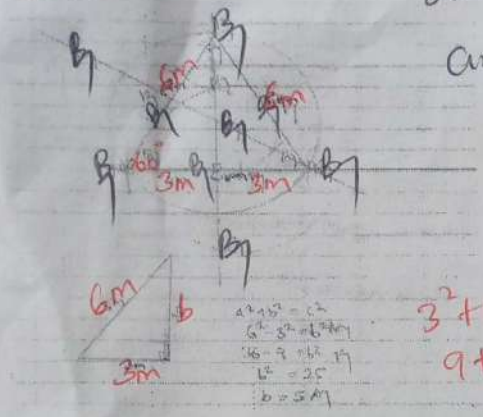
NOTE: (1 and 20 are not inclusive because they have said between)

No.10



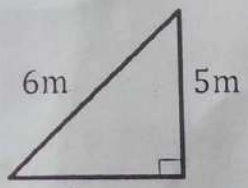
∴The Lengthy of the Road = 5.83km

No.11



sketch B1
Circle touching three corners B3.

$3^2+b^2=6^2$ M1
$9+b^2=36$
$b^2=25$
$b=5m$ B1



$a^2+b^2=c^2$
$6^2-3^2=b^2$ A_1
$36-9=b^2$
$b^2=25$ B_1
$b=5$ A_1

Area $=\frac{1}{2}\times 3\times 5=7.5\times 2$ M1M1
$=15m^2$ A1
Cost $15\times 15000=225000$ B1
He would spend Sh 225000 A1

No.12

a) Profit earned $=1.35\times 1,000,000$
$=$ Shs 1,350,000 B1

Amount retained $=\frac{40}{100}x1,350,000$ M_1
$=$ Shs 540,000 A_1

b) Amount received by Trinity and Bella
30% to be shared equally
$\frac{30}{100}x1,350,000$ M_1
$=$ shs 405,000 A_1
Each obtained / earned $=\frac{405,000}{3}$ M1
$=135,000$ A_1

According to contribution, total contribution Shs 450,000
Bella $=$ shs $\frac{112,000}{450,000}x405,000$ M_1
$=$ shs 100,8000 A_1

Trinity $= \frac{210,000}{450,000} x 450,000$

$=$ shs 189,000 A_1

Total amount received by Bella $= 100,800 + 135,000$

$=$ shs 235,800 A_1

Trinity $= 189,000 + 135,000$

$=$ shs 324,000 A_1

Difference $= 324,000 - 235,800$ M_1

$=$ shs 88,200 A_1

c) Joan's share as a percentage

Her share $= \frac{128}{450,000} x 450,000$ M_1

$=$ shs 115,000 A_1

Total $= 115,200 + 135,000$

$=$ shs 250,200 A_1

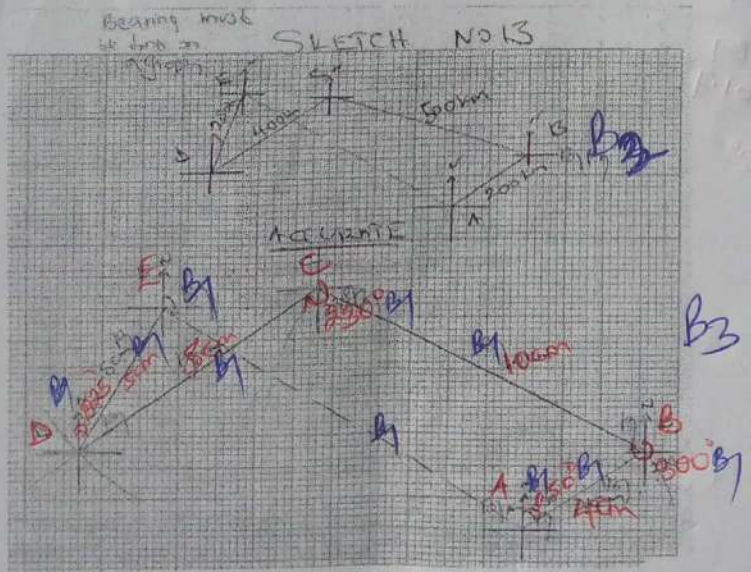
Amount shared $= 1,350,000 - 540,000$

$=$ shs 810,000 A_1

%age $= \frac{250,200}{810,000} x 100$ M_1

$= 30.38\%$ A_1

No. 13



Distance of A from E $= 11.9$cm or 12cm B_1

$= 11.9 \times 50$ or 12×50

$= 59.5$km or 600km B_1

Accept from 550 – 600 A_1

Bearing of A from E $= 127°$ or $128°$ B_1

Accept from 156° - 129° A_1

No.14

$24 + 350 + 150 + 120 + 56 = 700$ B_1

M_1

Kawempe $= \frac{24}{700} x360°$

$= 12.3°$ A_1

Makindye $= \frac{350}{700} x360°$ M_1

$= 180°$ A_1

Kiira $= \frac{150}{700} x360°$ M_1

$= 77.2°$

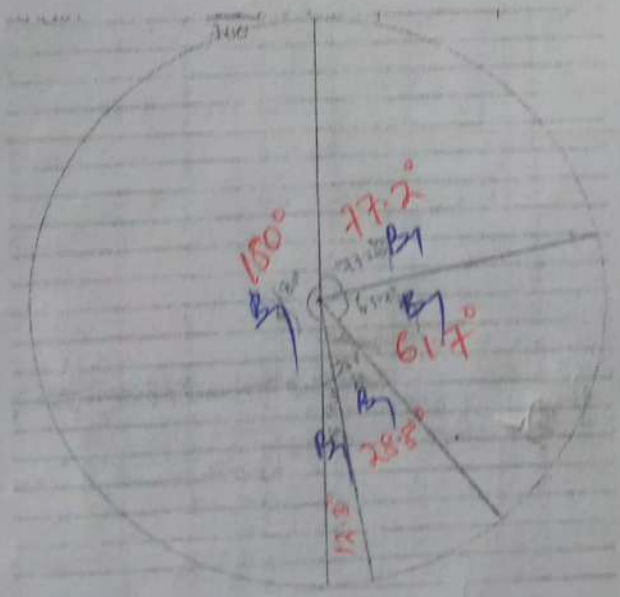
A_1

Luboga $= \frac{120}{700} x360°$ M_1

$= 61.7°$ A_1

Central $= \frac{56}{700} 360°$ M_1

$= 28.8°$ A_1



Control measures of malaria (4scores for the four solutions given)

Sleeping in mosquito nets

Keeping in a clean environment

04

20scores

S.1 END OF TERM II ASSESSMENT 2023

MATHEMATICS

TIME: 2 hours

INSTRUCTIONS: Answer all the questions in both sections.

SECTION A

1. A No.3 bus leaves the Bus station every 6 minutes, a No.5 every 8 minutes and a No.8 every 9 minutes. All three leave the bus station at 8:00 a.m. How long will it be before all three bus services leave together?

   ……

   ……

   ……

   ……

   ……(04)

1. What is the place value of zero in 505_{eight} hence convert 505_{eight} to base five

   ……

   ……

   ……

   ……

   ……(04)

2. There three math assignments, calculate the pass mark for each assignment if for one pass he has score 75% or more

Assignment	Total Marks	Pass mark
1	80	
2	60	
3	120	

……

……(04)

3. If $x = 4$ and $y = 5$, find the values of $xy + \frac{x}{y}$

   ……

   ……

……

……

……(04)

4. In a box of 80 apples, 20% of them are Red and the rest are green. How many red and green apples are there in the box?

……

……

……

……

……(04)

5. Work out $(10\%\ of\ 160) + (55\%\ of\ 80)$

……

……

……

……

……(04)

6. a) The number **A** is smaller than 13 and the number **M** is greater than 20. Arrange the numbers 18, **A** and **M** in order staring from the largest.

……. , ……, ……. (01)

b)

Decide if the following are true or false	
a) $\frac{1}{3} \div 4 = 4 \div \frac{1}{3}$	……
b) $6 \div \frac{1}{2} = 3 \div \frac{1}{4}$	……
c) $\frac{2}{5} \div 3 = \frac{3}{5} \div 2$	……

7. Without using a calculator work out $\frac{0.36 \times 0.4}{0.09 \times 0.2}$.

……

……

……

……(04)

8. John, Jackie and Jordan took part in family quiz at home. The greatest possible score was 40 marks. John got 16 out of 40, Jackie got 35% of the score of 40 and Jordan got $\frac{3}{8}$ of the score of 40. Who won the quiz?

……

……

……

……

……

……(04)

9. Complete the following by adding brackets to make the answer to the expression correct.
   - $13 - 5 + 4 - 2 = 6$
   - $4 + 3 \times 3 + 2 = 35$
   - $\mathbf{6 + 8 - 2 + 1 = 11}$
   - $\mathbf{12 + 4 \div 5 - 1 = 4}$ **(04)**

10. If there are 59,996 books in a library. In adult section their 38,772 books while junior section has 18,387. The rest are in reference section. Calculate how many books are in the reference section in words.

……
……
……(04)

12. Write down all;

i) Multiples of 4 between 5 and 40

……

ii) Factors of 100 between 0 and 60

1. ……

13. John, Jackie and Jordan took part in family quiz at home. The greatest possible score was 40 marks. John got 16 out of 40, Jackie got 35% of the score of 40 and Jordan got $\frac{3}{8}$ of the score of 40. Who won the quiz?

……
……
……
……(04)

END

456/1

MATHEMATICS

PAPER 1

NOV/DEC 2023

AITEL EXAMINATION

UGANDA CERTIFICATE OF LOWER CURRICULUM EDUCATION

END OF YEAR EXAMINATION 2023

S.1 MATHEMATICS

PAPER 1

TIME: 2 HOURS

INSTRUCTIONS TO LEARNERS

Answer all questions in Section A and any two in Section B.

Each question in Section A carries four marks and each question in Section B carries 20 marks.

Show all the working and necessary explanation on the answer sheet provided.

SECTION A (40 MARKS)

(SHORT RESPONSE QUESTIONS)

1. At a park which operates from 6:00a.m to 6:00p.m, a taxi leaves every 30 minutes while a bus leaves after every 40 minutes. Given that both the first taxi and first bus left the park together at 6:00a.m,
   a) What would be the next time the taxi and the bus will leave together again? (03 scores)
   b) How many times will they leave the park together in a day? (01 score)
2. A ship carrying merchandise from port A drops them at port B, which is 40km at a bearing of 120^0 from port A.
   a) Using a scale of 1cm to represent 5km, construct an accurate diagram for the journey of the ship. (03 scores)
   b) State the bearing of port A from port B. (01 score)

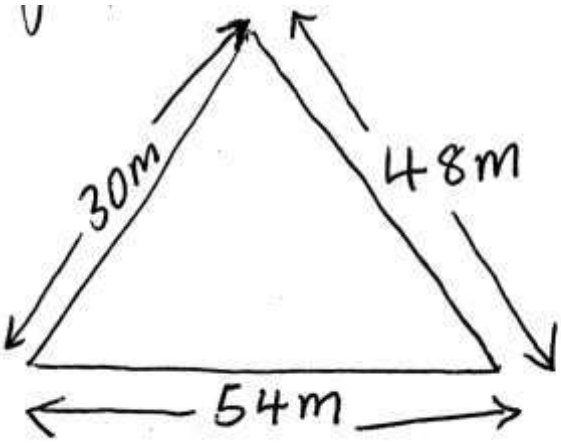
3. A student was given four cards containing the vertices of a regular polygon and along the way one card got lost. The cards remaining A (1, 5), B (4, 1) and C (1, -3). Plot

points A, B and C on a Cartesian plane and locate the position of card D which would make ABCD a kite. (04 scores)

4. The refugees who migrated from Eastern Congo due to ADFs are hit by famine in Northern Uganda. The government of Uganda decides to give each member in the house a potato to reduce famine. The government usually gives potatoes in an equal number of heaps of six potatoes each.
   There are 12 households in the refugee camp, whose members 2, 3, 4, 5, 3, 7, 9, 8, 11, 12, 8, 10.
   Task:

   Help government to design a distribution plan for number of heaps of potatoes. (04 scores)

5. The diagram below shows Mr. Lumumba's piece of land gazzetted for constructions.



   He received a donation of enough barbed wires and wishes to fence his land. He doesn't have enough money to purchase the fencing poles which costs Shs. 5,000 each. As an agriculturalist, help Mr. Lumumba to come up with a budget estimate for the required number of fencing poles if the cost is to be as low as possible.
   (04 scores)

6. Jonathan is a business man located at Mpanga market. He discovered that the number of customers buying from his shop increases by four every week. As a sales promoter, he intends to give a free sweet to whoever buys from his shop during the 6^{th}, 8^{th} and 12^{th} week. He wants to purchase the sweets early enough but he does not know how many of them he should buy for the promotion.

   Support: There were only 3 customers in the first week.

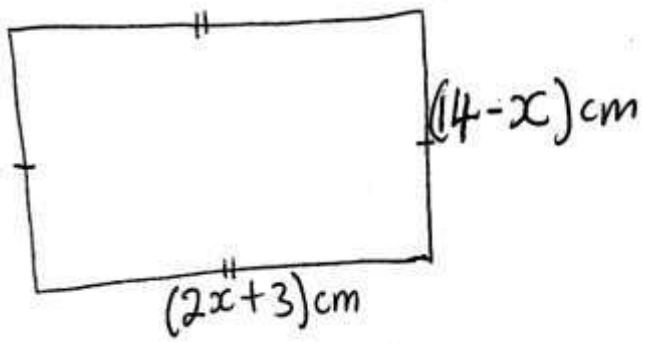
   Task:

Help Jonathan to establish the number of sweets he needs to purchase for the promotion.

7. Your teacher of mathematics travelling along a straight road realized that he passed a certain bodaboda stage at point (-5, 7) and the school at point (3, 13). Form an equation of the straight road connecting the stage to the school. (04 scores)
8. (a) Mulindwa had 21.4 coins. After coming back from the toilet he, realized that some coins had fallen in to the toilet and he ended up with only 0.82 coins. How many coins were lost? (02 scores)
   (b) Basiku is distributing 60 exercise books to her four children. Muyiyi got 12%, Nasike got 15%, Wamono got 33% and Wenene got the remainder.

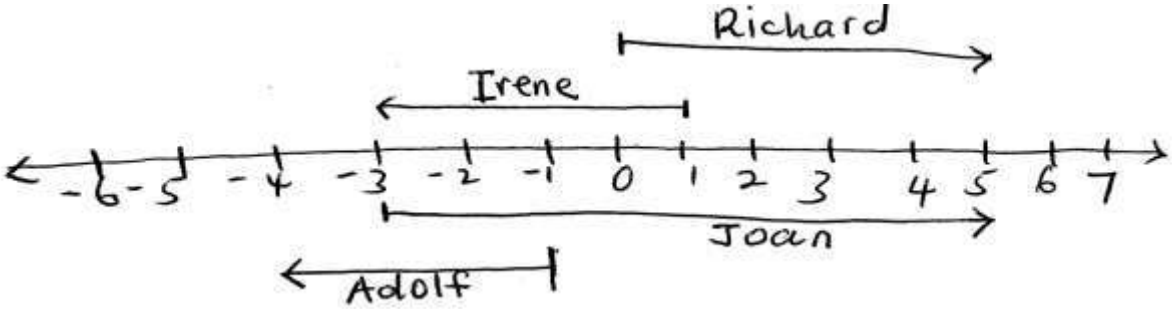
   Express the percentage of exercise books Wenen got as a fraction in it's simplest form. (02 scores)

9. The diagram below shows the dimensions of a graph paper of perimeter 46cm.



   Determine the value of x. Hence find the area of the graph paper. (04 sores)

10. Using a number line identify the directed numbers of movements made by each of these students.



SECTION B (40 MARKS)

11. Attempt only two questions

Nyakato collected eggs from her poultry house last week as shown in the table below

Day	Number of Eggs
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	
	Represents 2 Eggs

Tasks:

a) Determine the number of groups and remainders of eggs she collected on each day if she was to put them in separate groups of 5, 6 and then 9.

b) At the end of the week, Nyakato decided to pack her eggs in dozens. Determine the number of dozens she packed and how many eggs remained unpacked.

12. A canteen operator of your school asked some students on the items they like eating so that he could stock his canteen with the items they like. He found out that 8 students liked chapat, 12 liked lindazi, 20 students liked sweets, 10 liked Biscuits, 6 liked lato milk and 4 students like tumbuya. He ended up getting confused because the data was disorganized.

    Resources
    Knowledge of tally charts, bar graphs and pie charts.

Task.

Help the canteen operator to understand these figures clearly. If you were to do business at the above school canteen, which item would you deal in? Give a reason for your answer. (20 scores)

13. Your neighbor has a triangular piece of land with labels ABC with measurements. He wishes to construct a circular poultry store that just fits inside his piece of land touches all the three boundaries of his land.

Support
Length $\overline{AB} = 100m$, $\angle ABC = 75^0$ and $\angle BAC = 45^0$.

Resources

- Knowledge of measuring length and angles.
- Knowledge of drawing constructing perpendiculars, angle bisectors and parallel lines.
- Knowledge of selecting a suitable scale for construction.

Task

As a knowledge member of a community and a professional engineer, help your neighbor to come up with accurate foundation for the construction of the circular poultry store. What would be the radius and the area of the foundation? (20 scores)

14. Study and interpret the timetable below for a bus
    (a) Travelling from Kampala to Mbale.

Stage	Arrival time	Departure time
Kampala		7:30a.m
Jinja	8:30a.m	9:00a.m
Iganga	9:45a.m	10:00a.m
Mbale	11:15a.m	

i) How long did the bus take in Jinja?
ii) Write the departure time from Kampala in the 24 hour clock?
iii) How long did the bus take to move from Kampala to Mbale?

(b) You have come to the end of the year 2023 and now you are going home for holidays, you are expected to spend the holiday time meaningfully.

Support
Duration of holiday is 2 months
Suggested activities at home include; house chores, community service, physical fitness and personal study.

Resources
Knowledge of using units of time
Knowledge of making timetable

Task
Describe to your head teacher how you are planning to spend your holiday.

END

WISHING YOU A MERRY XMASS AND A PROSPEROUS NEW YEAR 2024.

SENIOR ONE REVION WORK

Note: You may use the learners' guide.

TOPIC 1: Number bases

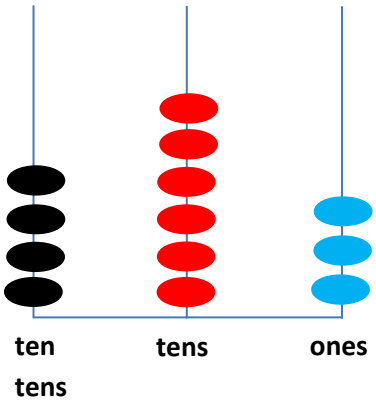
Learners are familiar with decimal place values. This helps them to develop understanding of numbers written in other bases.

1.1)Identifying numbers of different bases on an abacus

Activity 1

Identify the base represented in each of the abaci below

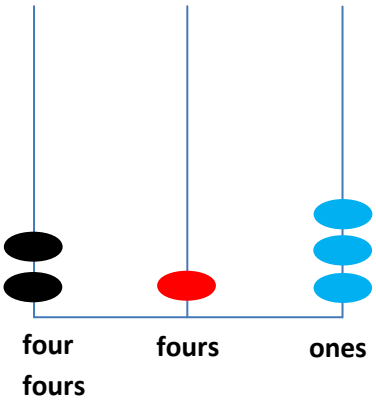
a)



i)base……

ii) Number……

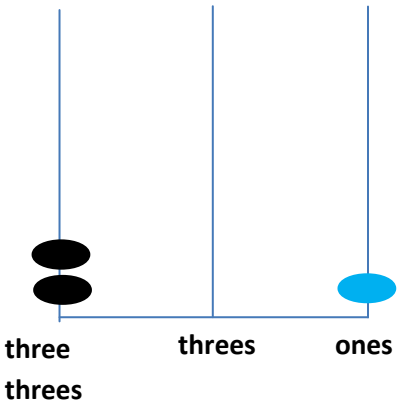
b)



i)base……

ii) Number……

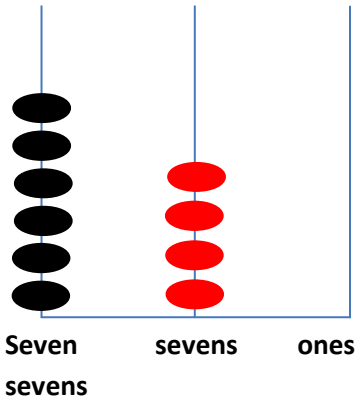
c)



i)base……

ii) Number……

d)



i)base……

ii) Number……

1.2) Representing numbers on the abacus

Activity 2

Represent each of the following numbers on the abacus.

a) 2011_{three}

b) 2321_{four}

c) 5463_{eight}

d) 6578_{nine}

1.3) Converting numbers from one base to another base.

Activity 3.

Convert the following numbers to the base indicated.

a) 267_{eight} to base nine

b) 651_{seven} to base five

c) 654_{nine} to base four

d) 5534_{six} to base twelve

1.4 Operations on numbers in various bases.

Activity 4

a) Add; i) 672_{eight} to 514_{eight}

ii) 782_{nine} to 567_{nine}

b) Subtract; i) 2102_{three} from 2211_{three}

ii) 4351_{seven} from 5645_{seven}

c) Multiply; i) 2121_{three} by 112_{three}

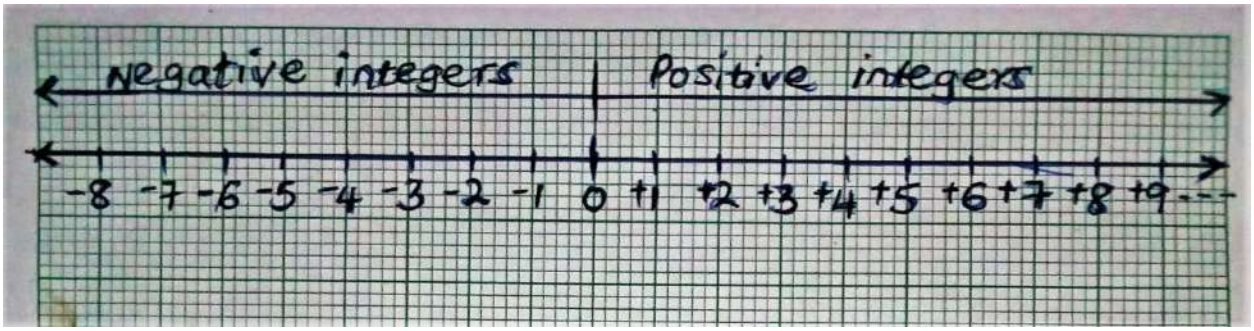
ii) 332_{four} by 122_{four}

d) Divide; i)1320_{four} by 120_{four}

ii) 176_{eight} by 22_{eight}

TOPIC 2: INTEGERS

2.1 Learners can draw the number line and on it indicate the positive and negative integers.



Integers are the positive and negative whole numbers.
A set of the whole has numbers:

W= $\{0, 1, 2, 3, 4, 5, 6, 7 - - - \}$

A set of natural (counting) numbers has members:
N= $\{1, 2, 3, 4, 5, 6, 7 - - - \}$

Note that 0 is a whole number but it is not a natural number or counting number.

Activity 1

a) List down the integers between -5 and 3.

b) List down the first 10 whole numbers.

c) List the first 10 natural numbers.

d) List down numbers that appear in all the three sets a), b), and c) above.

2.2 Reading and writing numbers using place values in base 10
The place values include;

Ones	Ten millions
Tens	Hundred millions
Hundreds	Billions
Thousands	Ten Billions
ten thousands	Hundred billions
Hundred thousands	Trillions
Millions	Ten trillions
	Hundred Trillions

Activity 2:

Read and write the following numbers in words.

a) 23,802

b) 3,004,208

c) 506,620,060

d) 2,340,506, 802

e) 4,629,842,003

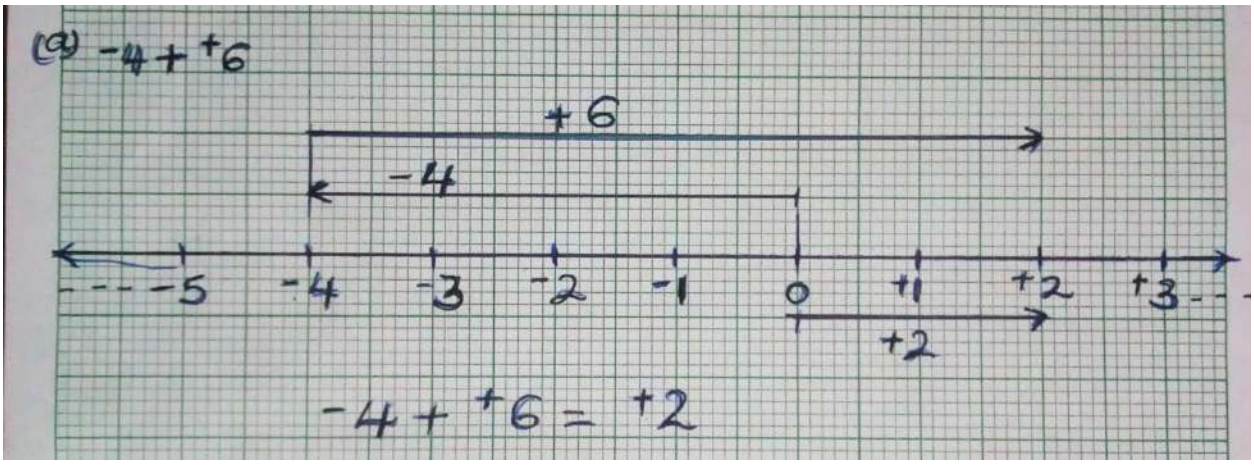
f) 1,269,384,792,300

The number line can be used to add and subtract integers.

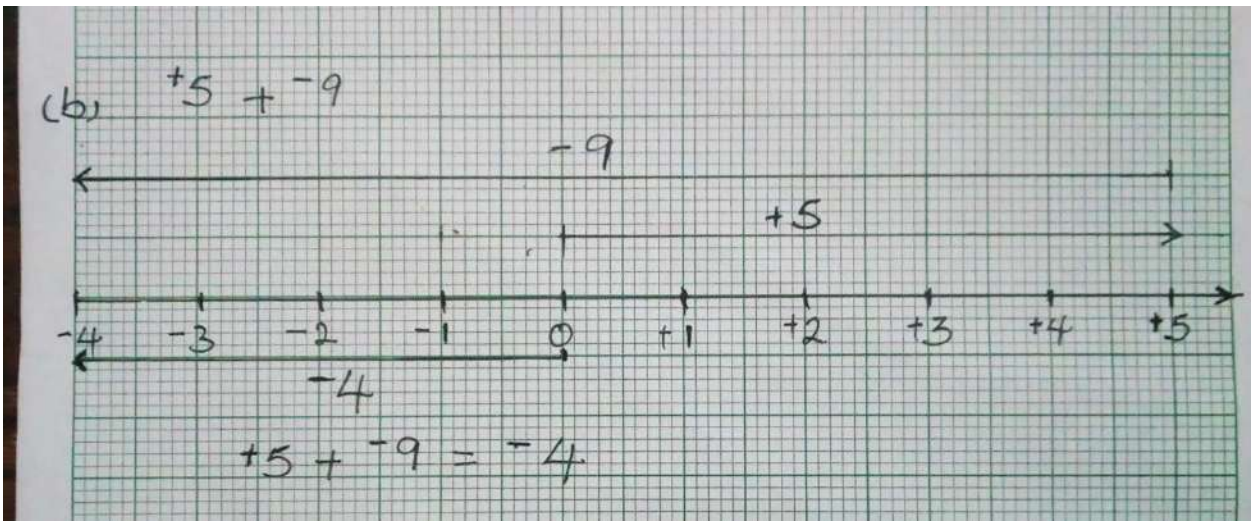
Example

Using the number line, work out the numbers below.

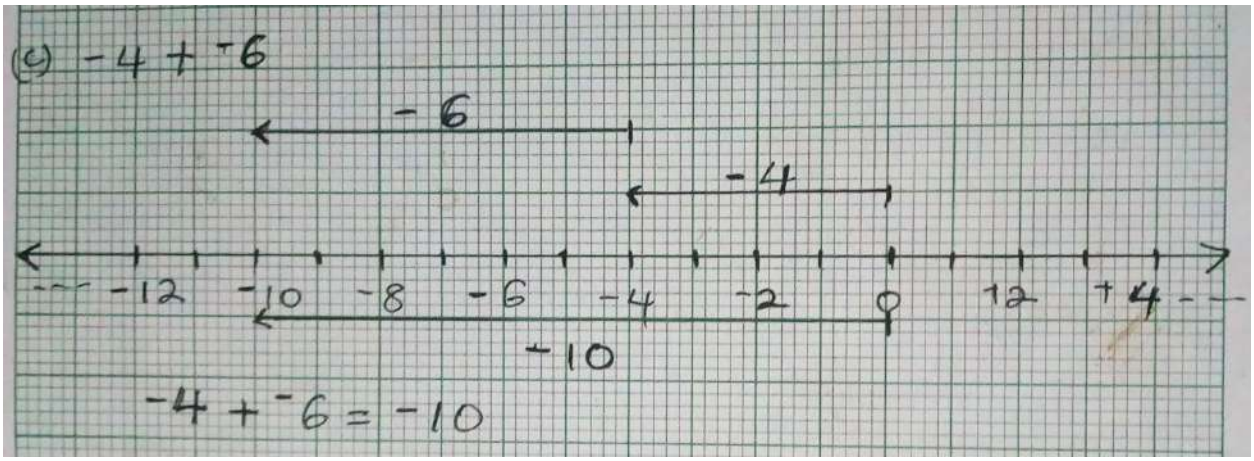
a)

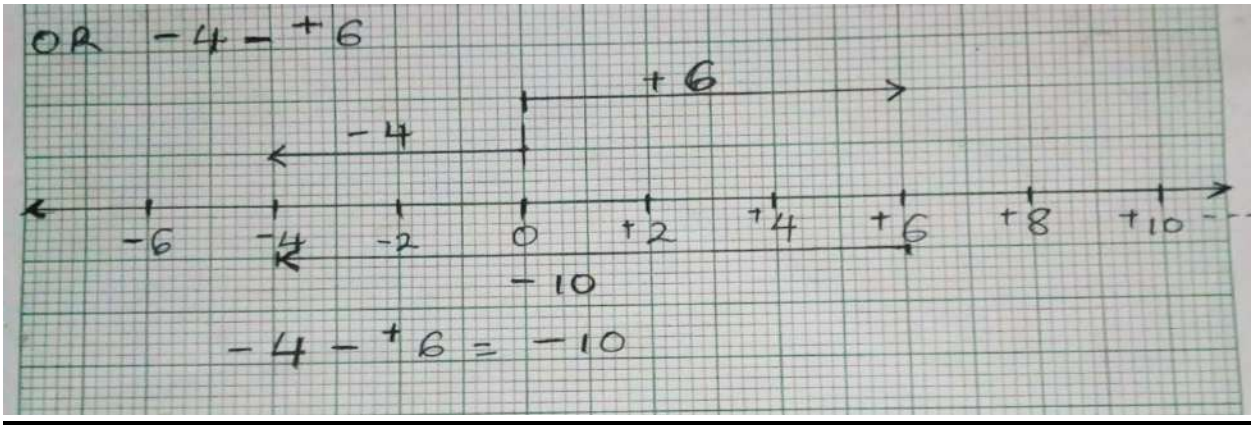


b)



c)





Activity 3

1) Using a number line, work out:

i) $^{-}5+^{+}3$

ii) $^{+}3+^{-}6$

iii) $^{-}8+^{+}5$

iv) $^{-}8-^{-}5$

2) Work out

i) $6 - 7 \div 4 + 6 \times 7$

ii) 7 of $13 - (18 \div 6 + 3) \div (9 \times 3 - 25)$

iii) $56 - (38 - 35 \div 5 + 2)$

iv) $69 \div (6 + (3 \times 8 - 7))$

3) By prime factorization, find the L.C.M and the H.C.F of;

i) 5 and 15

ii) 8, 12 and 18

iii) 70 and 90

iv) 180, 216 and 450.

4) Three schools A, B and C ring their bells at intervals of 25 minutes, 30 minutes and 40 minutes respectively. If the bells ring together at 8:00am, when will they ring together again?

Stay Home, Stay Safe

Fill in the required information below;

LEARNER'S NAME:		STREAM:	

LEARNER'S NO.					STUDY GROUP'S NAME:	

S.1
MATHEMATICS
b.o.t .11
$1^1/_2$ hours

THE MATHEMATICS DEPARTIMENT 2023

Uganda Certificate of Lower Secondary Education

S.1 MATHEMATICS

Beginning of term .11 Assessment

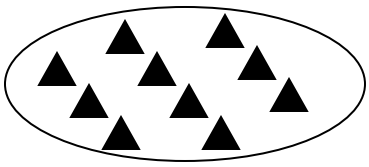
Time: 1 hour 30 minutes

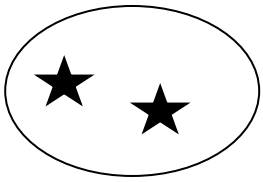
Instructions:

- Use the blue or black ink pen only
- Attempt **ALL** questions in Part **I** and **ANY ONE** question in Part **II**
- Show all the necessary working

PART. I

1. To which base does each of the set belong, and state the base value.

(a) 

(b) 

(04marks)

2. Mike used the **repeated multiplication** method to convert $tt5_{eleven}$ to base decimal base, which he later converted to base six. Guide Sarah on the steps Mike went through. (04 marks)

3. Given that $102_n = 27$, find n (04 marks)

4. Workout,(a) $6 \div (2 + (2 \times 6 - 2))$

   (b) $\frac{24 of 13(18 \div 6 + 3)}{(9 \times 3 - 25)}$ (04 marks)

5. Maroni scored a total mark of 32 from a mathematics test in which 4 marks were awarded to any correct answer and a penalty of 2 marks deducted for any incorrect answer. If he did all numbers and got 12 correct, how many numbers were incorrect? (04 marks)

PART. II

(Functional Mathematics)

6. In Busoga Sub County, Monday and Thursday are market days. Kansiime a fruit seller harvested 7 packets each of 8 and 2 remained unpacked. When she reached in the market, she found out that she could park them in sixes, she repacked.
   (a) How many packets of six did she have?
   (b) On Tuesday, Kansiime harvested 4 packets of six and 2 remained unpacked. On Wednesday she collected 3 of 6 and 5 remained. How many packets did she have for sale if she packed in sixes? (15 marks)

7. Aisha and Moses do exercise together. Aisha exercises after 5 days and Moses exercises after 6 day. They started their exercises together on 1st Jan. They agreed to bring ropes the next time they could meet.
   (a) Which date did both of them meet?
   (b) Aisha took 12 meters. Moses took 8m. They realized that ropes needed to be cut into equal pieces. How best can they divide the ropes? (15 marks)

8. At Allhim S.S is a teacher's SACCO group. Two Teachers, Mr. Kamada and Mr. Muyingo had a balance of 100,000/= and 200,000/= in the SACCO respectively. Mr. Kamada borrowed 2,000, 000/= and invested in goat keeping and got 3,000,000. Mr. Muyingo borrowed 5,000, 000/= and invested in Second hand Clothes and she got 4,500,000. After Mr. Kamada and Mr. Muyingo had deposited back, they want to borrow again.
   (a) Which of the two made a better business choice and why?
   (b) Advice the Chairperson of this SACCO on how to decide when borrowing and lending money. (15 marks)

END

RWENZORI REGION SESEMAT

S1 END OF YEAR ASSESSMENT 2022

MATHEMATICS

TIME 1 ½ HOURS

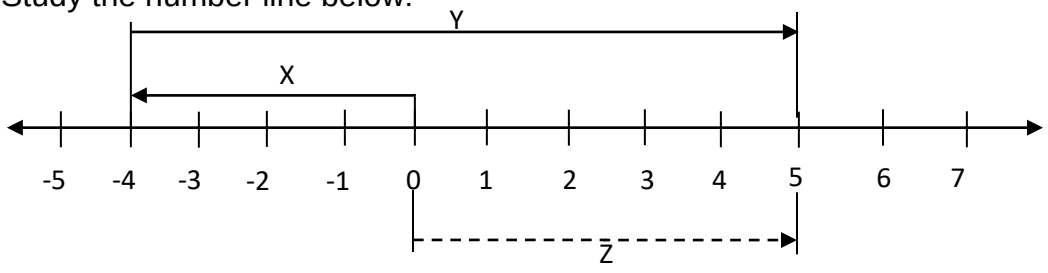
INSTRUCTIONS

1. Attempt all the questions in section **A** and any two in section **B**
2. All necessary working must be done in the answer sheets provided
3. Simple non programmable scientific calculators may be used

SECTION A (SHORT RESPONSE QUESTIONS)

1. Find the sum of the prime factors of 60.

2. Study the number line below:



(a) State the values of X, Y and Z

(b) Write the mathematical expression, in figures, the number line is solving.

3. Test is marked out of 15. The following marks were obtained by 10 learners in a class

8	10	12	12	8
12	12	11	9	10

(i) Identify the type of data
(ii) Draw a tally chart for the data

4. A ship sails from point K to point L on a bearing of 130^0.
   a) Show the positions of K and L on a sketch diagram.
   b) On what bearing will the ship have to sail to return from L to K?

5. For the sequences 4, 6, 8, 16, 32, _____, _____, _____
   a) State the general rule for the pattern.
   b) Determine the next three terms of the sequence.

6. Three bells ring at intervals of 12 minutes 15 minutes and 18 minutes if they first ring together at 8:00 am.
   After how long will the bells next ring together?

7. The entry fee to a concert is 10,000= and the cost of each bottle of soda is 2,500=
   a) If Mulenga went for leisure to the concert formulate on equation relating the total of the entry fee and the number of soda's he bought.
   b) How much did he spend after buying 4 sodas?

8. The distance from Mbale to Kampala is assumed to be 400km. A bus travelling from Mbale to Kampala makes a stopover at station A. At station A, it has covered $\frac{1}{8}$ of the distance. What is the distance from station A to Kampala?

SECTION B (EXTENTED RESPONSE QUESTIONS)

1. A learner was given a task of plotting the following points of the grid
   A(-5,2) , B (-6,-1) C, (-5,-3) , D(-2,-4)

   (i) Plot the points for the learner to form a polygon.
   (ii) Reflect the polygon in the y axis and state the co-ordinates of the image.

2. Using a ruler and a pair of compasses only construct;
   a) A triangle ABC in which angle ABC = 60^0, AB = 4cm, BC = 5.4 cm
   b) Measure; (i) angle BCA
      (ii) Length AC
   c) Draw a circle circumscribing triangle ABC and the measure the radius of the circle.

.

3. A company is distributing 600 books to four homes. The first home got 12%, the second home got 15%, the third home got 33% and the fourth home got the balance of the books

a) What percentage did the forth home get?
b) The Company bought each book at sh 200 = each and was given a discount of 10% for all he cost of the books. Find how much the company paid for the books.
c) If the shop shopkeeper had bought the books at sh 120 = each, find the profit they made.

END

Name:..... Sign:.....

COMPETENCE BASED CURRICULUM

END OF YEAR EXAMINATIONS 2023

UGANDA LOWER SECONDARY CERTIFICATE OF EDUCATION (U.L.S.C.E)

MATHEMATICS

SENIOR ONE

2 hours 15 minutes

INSTRUCTIONS:

Attempt **all** questions in both **Sections.**

All working, including rough work, must be clearly shown and must be done onthe same sheet as the rest of the answer.

Omission of essential working will result in loss of marks.

The intended marks for questions are given in brackets [ ]

SECTION A (30 marks)

1. Solve for x in $52_x = 27$ [04]

2. Tea is made by mixing milk and water. On adding 14 liters of milk, Joan found out that the quantity of milk in the tea is 40% more than that of water. What quantity of tea did Joan prepare? [05]

3. (a) Explain why 99 is not a prime number.
(b) A number has prime factors 2, 5, and 7. Which is the smallest number that has these prime factors? [04]

4. Noah and Melanie start a marathon at 10:00 AM. They both pick up a drinkafter 25 minutes. After this initial drink, Noah picks up a new drink every 12 minutes whereas Melanie picks up a new drink every 15 minutes. When do theynext both pick up a drink at the same time? [04]

5. To the nearest degree, the hottest temperature ever recorded on earth was 58℃ in 1922 and the coldest ever recorded was −89℃ in 1983. What is the difference between these temperatures? [03]

6. Convert 0.0131313 …. to a fraction [04]

7. Workout without using a calculator [04]

$$\frac{1\frac{4}{5}+\frac{7}{13}}{1+\left(1\frac{4}{5}\times\frac{7}{13}\right)}$$

8. Is 1672 divisible by 4? Justify your answer **without** directly dividing 1672 by 4. [02]

SECTION B (30 marks)

9. Packaging of goods in factories is usually done in dozens and grosses, which are heavy, expensive/costly and so unfriendly to some customers. Nasike works in the packaging department of PICFARE Industries that manufactures exercise books. She has been given an assignment to design unique and innovative packaging designs for delivery and sales to retail and wholesale outlets.

Resources: **This paper consists of 4 printed pages**

- Knowledge of identifying numbers in different bases
- Knowledge of manipulating numbers in different bases

TASK:

Using your knowledge of number bases, help Nasike by suggesting three unique and innovative packaging designs ideal for customers that would not want to buy books in dozens or grosses. (In each of your suggested designs state the base applied) [10]

10. Stolen mobile phones are sold to unsuspecting buyers. The police traces such phones if they are kept in use. On unsuspecting customer bought a stolen phone and the police search team identified that the holder of the phone was at various locations during different times of the day. The holder was at (76.6, 18), (75.7, 19.6) and (73.3, 20.9) in the morning, midmorning and afternoon respectively, in Kasese.

SUPPORT

Use the map extract of Kasese that has been attached at the end.

Resources:

- Knowledge of identifying the x and y axes
- Knowledge of reading points on the Cartesian plane
- Knowledge of drawing and labelling the Cartesian plane

TASK:

You are a police detective who has been assigned to follow up the matter. What should you do to find the stolen phone? [10]

11. Uganda's population is growing rapidly. In 2002, the population was 24.2 million and it estimated to be 45.7 million in 2020. Uganda has one of the youngest populations in the world and this has come with youth unemployment. Different stakeholders understand the numbers differently. Some prefer the numbers written as fractions, others as decimals, while others as percentages.

SUPPORT

The table below shows projections of Uganda's population statistics (millions) in 2020.

Category	Number of people (millions)	Percentage (%)	Fraction	Decimals
Total population	45.7			
Females		51		
Males			$\frac{22}{45}$	
Youth	34			
Rural population			$\frac{34}{45}$	
Urban population				0.24
Youth unemployment		2		
Islam		12		
Christianity	38			
Other religions	0.9			

Source: Extract from UBOS© 2020

Resources:

- Knowledge of fractions, percentages and decimals
- Knowledge of calculating a percentage, fraction and decimal of a given quantity.

TASK:

By completing the table, help all the stakeholders to understand the figures. [10]

-END-

"Practice makes mathematics easier"

S1 MATHEMATICS

END OF TERM 11 ASSESSMENT

TIME: 2HOURS.

INSTRUCTIONS

- **Attempt all questions.**
- **Show your working clearly on the answer sheet provided.**
- **This paper is marked out of 40 scores.**

SECTION A

1. A school has 800 pupils, the head teacher decides to send a questioner to $\frac{2}{5}$ of the pupils. How many pupils receive the questioner?

   (02 scores)

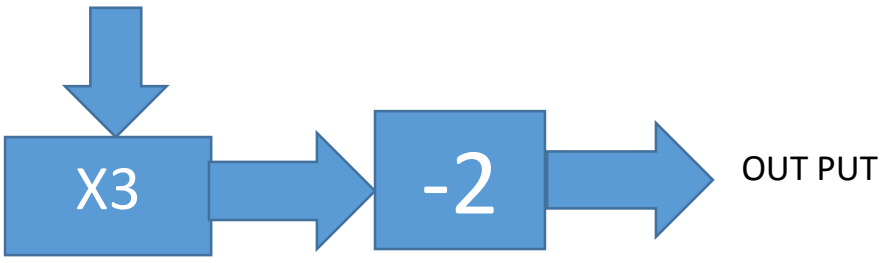
2. Plot the points (2,2), (4,3) and (8,5) on the same axis, Join the points to form a straight line. Name the points at which it cuts the: (i) x- axis
   (ii) y-axis

   (03 scores)

3. Using a pencil, a rule and a pair of compasses only. Construct an angle of 75^0

   (03 scores)

4. Use a number machine below to generate a sequence of the numbers 1,2,3 and 4



   (i) Find the 10^{th} number of the sequence (03 scores)

5. Draw an abacus to illustrate this expression

4204_{eight} (02scores)

6. Find the sum and product of the **L.C.M** and **G.C.F** of 12 and 20.

(03 scores)

SECTION B

7. The price of a lap top increased by **9%** in the first month and then by **15%** in the second month before it stablished to a constant price. Finally, the laptop was valued at 1,203,360. Find the initial price. (06 scores)
8. Construct an equilateral triangle ABC of sides 7cm. Bisect **AB** and **BC** and let the bisectors intersect at **X,** with **X** as the as the Centre and radius **XA.** Draw a circle. (06 scores)
9. The table below shows student's marks in two mathematics tests. For each one, calculate the percentage difference say if it is an increase or a decrease. (06 scores)

	Student	**First test**	**Second test**
(a)	Marion	50	45
(b)	James	40	52
(c)	Christina	20	35
(d)	Sarah	60	50

10. Ajuma was in the Centre of the region of schools. The bells rang at intervals of 12 minutes, 15 minutes, 18 minutes and 21 minutes from 9:00am on his watch. What is the lowest possible time of the intervals?

(06 scores)

END

SENIOR ONE MATHEMATICS ACTIVITY

Represent the following numbers on the abacus:
(a) 1101_{two} (b) 2102_{three} (c) 2021_{four} (d) 5645_{seven} (e) 8756_{nine}

Convert the following numbers to the bases indicated:
(a) 762_{eight} to base seven; (b) 234_{five} to base six; (c) 561_{seven} to base nine; (d) 654_{six} to base four; (e) 5432_{six} to twelve.

1. Add: (a) 654_{seven} to 514_{seven} (b) 278_{nine} to 756_{nine}
2. Subtract: (a) 412_{six} from 554_{six} (b) 435_{eight} from 764_{eight}
3. Multiply: (a) 1121_{three} by 212_{three} (b) 312_{four} by 122_{four}
4. Divide: (a) 100011_{two} by 111_{two} (b) 150_{nine} by 20_{nine}

Number Game: You are given four boxes containing numbers in base ten. The boxes are labelled Box 1, Box 2, Box 3 and Box 4.

9 1 15 7

Box 1

6 14 2 7 15

Box 2

15 14 6 12 4 7

Box 3

15 14 9 12

Box 4

Task: Select one number from any of the boxes given. Your mathematics teacher will ask you whether the number you selected appears in Box 1, Box 2, Box 3 and Box 4. From the responses you give, the teacher will tell you the number you selected. Discuss how the teacher was able to tell you the number you had selected.

Situation of Integration
A community is hit by famine and the government decides to give each member in the household a potato to solve their problem of hunger.
Support: Each package contains an equal number of potatoes of five.
There are 10 households in the community with 3, 5, 7, 4, 6, 5,8,12, 13, 9, members respectively.
Resources: Knowledge of Bases, knowledge of mathematical operations

Task: Determine the number of packages of potatoes the government will take to that Community. In case there are remaining potatoes, discuss what the government should do with them.