



RWENZORI REGION SESEMAT

S.3 MATHEMATICS

END OF YEAR ASSESSMENT 2023

NAME.....STREAM.....

Time..... 2hrs

Instructions:

1. Answer all questions in Section **A** and any two in section **B**
2. Each question in section **A** carries four marks and each question in section **B** carries 15 marks.
3. Show all the working and necessary explanation on the answer sheet provided.

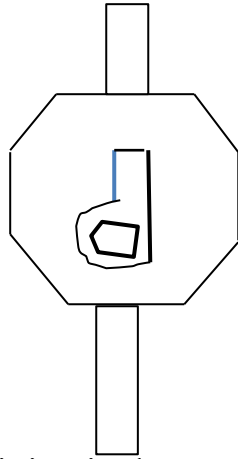
SECTION A

1. In a Geography lesson, a Student learnt about the following Lakes and countries, Lake Turkana, Lake Victoria, Lake Kyoga, Lake Albert, Lake Tanganyika, Kenya, Uganda, Tanzania and Congo.
 - (a) Draw an arrow diagram to show the relation amongst the lakes and countries listed.
 - (b) What is the domain and the range from your relation?
2. At a military parade, soldiers form a pattern of 4 rows and 10 columns.
 - (a) Determine the number of soldiers in the parade.
 - (b) With the aid of diagrams, show how many other rectangular patterns can be formed for the soldiers parade.
3. At a Park which operates from 6:00am to 6:00pm, a taxi leaves after every 30 minutes while a bus leaves after every 40 minutes.

Given that both the first taxi and first the bus left the park at 6:00am.

 - (a) What would be the next time the taxi and bus will leave together again?
 - (b) How many times will they leave the park together in a day?

4. A number which is a multiple of 3 is chosen at random from a set of even numbers between 1 and 20. What is the probability of choosing the number?
5. There are two screws; one at the top of the sign post and the other at the bottom. One of these two screws securing the sign post dropped making the sign post hang upside down as shown in this figure below.



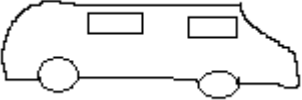
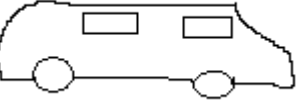
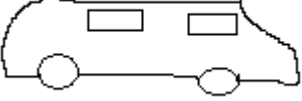
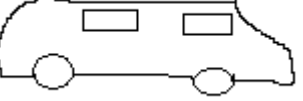
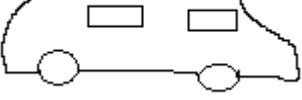
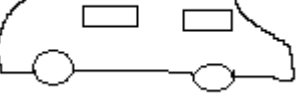

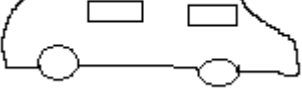
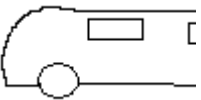
If the screw remaining is the centre of rotation.

- (a) Which of the two screws would be the centre of rotation?
- (b) Through what angle would the sign post be moved back to the original position?
6. A rectangular garden of length 12m and width 5m has a straight road passing through the diagonal.
- (a) Use diagram to illustrate road and the garden.
- (b) What is the length of the road?
7. A flower garden in this form of a rectangle has length $(6 + 3\sqrt{3})\text{m}$ and width $(1 + \sqrt{3})\text{m}$.
- (a) Write down an expression for the area of the flower garden.
- (b) Express the area of the flower garden in the form $a + b\sqrt{3}$ and identify **a** and **b**.
8. Odongo wanted to know how many 500 gram packets of salt can make a kilogram so that he can be able to give customers whatever number of kilogram they want.

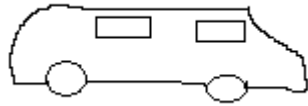
- (a) How many 500 gram packets of salt did he get to make a kilogram.
- (b) A customer is in need of 3kg how many 500 gram packets should be given to the customer?
9. A ship carrying merchandises starts from Port A and proceeds to Part B on a bearing of 120° . Port A is 40km from Port B.
- (a) Using a scale of 1cm to represent 5km construct an accurate diagram for the journey of the ship.
- (b) State the bearing of A from B.
10. A Student was given four cards containing the vertices of a regular polygon and along the way one cord got lost. The cards remaining had A(1,5), B(4, 1) and c(1, -3). Plot points A, B and C on the Cartesian plane and locate the position of D which would make ABCD a regular polygon.

SECTION B

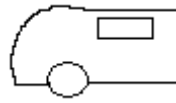
11. In a rally, there were several contestants. They all had different types of vehicles namely Nissan, Toyota, Isuzu, and Daihatsu. The following pictograph shows how many vehicles of each type were used during the rally.

Type of vehicle	1 con
Nisaan	 
Toyata	 
Isuzu	  
Daihatsu	 

Key:



Represents 6 vehicles



Represents 3 vehicles

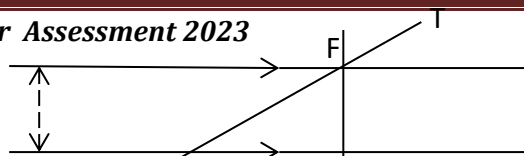
- (a) How many Toyota vehicles participated in the rally? (3mks)
- (b) Which type of vehicle participated most in the rally and why?
- (c) How many vehicles participated all together in the rally?
- (d) Draw a frequency distribution table to display the information above.
- (e) Illustrate the information above using a pie chart.

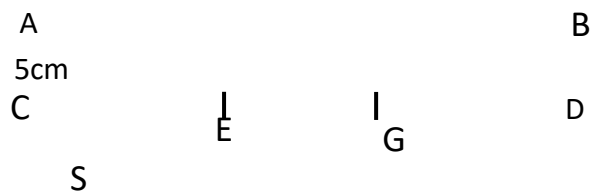
12. A garden of onions is rectangular in shape with length **b** metres and width **a** metres as shown in the figure below.



- (a) Explain how the area of the triangle can be obtained from the rectangular garden if it is divided into two similar triangles.
- (b) Write an expression in terms of **a** and **b** for the area **A** of the triangular portion of the garden.
- (c) The area of the portion one triangle is 464m^2 and the width is 16m. What is the dimension of the length?
- (d) What is the area of the garden?

13. Using a ruler and a pencil, draw a pair of parallel lines 50m apart as shown in the figure below such that $AB = CD = 7\text{cm}$.





- (b) Mark a point E on line CD.
 - (c) Use a pair of compasses to construct an angle of 60° at point E and extend the line to cross line AB at point F as shown above forming line ST.
 - (d) Measure and record angle AFT
 - (e) Measure and record length EF.
 - (f) Drop a perpendicular from F to meet CD at G.
 - (i) measure length EG
 - (ii) What is the area of triangle EGF?
14. At 8:00am, a car is moving at 40kmhr^{-1} and a bus which is 30km behind it, is moving with the same direction at 60kmh^{-1} . The two vehicles maintain their speeds.
- (a) On the same graph paper, illustrate the travel graph of the car and of the bus.
 - (b) Use the graph in (a) to find;
 - (i) the time and distance when the bus and the car are at the same point.
 - (ii) How far the bus and the car are at 11:00 a.m.

END