

KIMBILIO HIGH SCHOOL – TORORO

END OF YEAR EXAMINATIONS - 2024

SENIOR TWO

MATHEMATICS

DURATION: 2HOURS 30 MINUTES

INSTRUCTIONS:

- This paper consists of **four** compulsory items.
- Answer **all** items.
- All answers **must** be written in the answer sheets provided.
- Graphs papers are **provided**.
- Be **neat** and **organized**.

Item 1

On April 4th, 2020 the Covid-19 task force started the distribution of food in Kawempe Division (Kampala District). Each member in the household was given a package containing 6 kgs of maize flour and 3 kgs of beans. There are 10 households in the community with 3, 5, 7, 4, 6, 5, 8, 12, 13, 4 members, respectively. The prices of beans and maize flour was approximated to be UGX.4,000 and UGX. 2,500 per kilogram respectively.

The government of Uganda granted ugx5,000,000 to support Covid-19 task force during the distribution of food in Kawempe Division, in only three specific fields i.e transport, labor and buying of food. 25% of the grant for transport, 35% of the grant for labor and 40% of the grant for buying of the food.

Task:

- a) i) Determine the number of packages the task force distributed in Kawempe

division.(2 scores)

ii) Determine the total weight of the maize flour that was distributed in the division.(02 scores)

iii) What is the total amount of money spent by the government on maize flour and beans in the 10 households? (08 scores)

b) Determine the amount of money allocated for each field i.e transport, labor and buying of food, according to the government grant.(06 scores)

c) Do you think that money that was allocated for buying of food in Kawempe division enough? Give a reason for your. (02 scores)

Item 2

Tr.Joshua, the agriculture teacher in Kimbilio High School organized a project with the S.2 students on “the growing of ground nuts”. The piece of the land the school had was too big compared to the amount of money that he had for buying the seeds. So he decided that they could plant the ground nut seeds on more fertile part of the school garden.

Support materials:

- The dimensions of the fertile part of the school garden are $(2x-3)m$ by $(2x+3)m$.(rectangular)
- The dimensions of the school garden are $(3x-3)m$ by $(3x+3)m$.(rectangular)
- The area of the school garden is $720m^2$.
- 1kg of g.nut seeds is shs.6,000.
- 1kg of g.nut seeds can be planted in an area of $63m^2$.

The teacher didn't know the size of the unused part of the school garden and how much he would spend on buying the ground nut seeds.

Task: You are required to compute the following and hand in your calculations to Tr. Joshua.

- (a) Design the layout of the school garden and the ground nut garden.(03scores)
- (b) Calculate the value of x.(07 scores)
- (c) Determine the area of the unused part of the school garden.(05 scores)
- (d) How much did the teacher spend on buying the g.nut seeds.(05 scores)

Item 3

The table below shows the number of trays of eggs supplied to a hotel by two farmers.

Days of the week		MON	TUE	WED	THUR	FRI	SAT
Number of trays	Farmer A	8	10	12	15	14	11
	Farmer B	10	12	11	18	19	16

In a school survey, 230 students were asked about their internet usage habits. They were asked to choose from three activities: Social Media (like Facebook and TikTok), Academic Work (such as research and homework), and Playing Games. The results showed that 165 students use the internet for Social Media (M), 130 use it for Academic Work (A), and 100 use it for Playing Games (G). Among them, 110 students use it for both Social Media and Academic Work, 60 use it for both Social Media and Playing Games, and 50 use it for both Playing Games and Academic Work. Additionally, 40 students use the internet for all the three activities.

Task:

- (a) Represent the information in the table above on a bar graph (08 scores).
- b) Calculate the number of students who use the internet for;
 - i) Social media only.(03 scores)
 - ii) Academic work only.(03 scores)
 - iii) Playing games only.(03 scores)
- b) Determine the number of students who do not use the internet for any of the three activities.(03 scores)

Item 4

The ministry of health in Uganda has investigated the increase in malaria infection in the country. The table below shows the number of malaria patients(x) and the litres of insecticides used to control it ($f(x)$) in some districts in Uganda.

x	$f(x)$
500	250
300
400	200
210
200
350
168

Task:

a) i) Complete the table of $f(x)$.(05 scores)

ii) Write the relation between x and $f(x)$.(1 score)

iii) Identify the type of mapping illustrated above, hence draw an arrow diagram.(3 scores)

Your classmate missed the topic ‘surds’. He has approached your for assistance in the following problems;

a) Simplify the following

i) $\sqrt{27} + 2\sqrt{12} + \sqrt{108}$

ii) $4\sqrt{20} - \sqrt{32} + 3\sqrt{180}$

b) Rationalize $\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ in the form $\mathbf{a} + \mathbf{b}\sqrt{\mathbf{c}}$ where \mathbf{a} , \mathbf{b} and \mathbf{c} are constants.

Hence, find the values of \mathbf{a} , \mathbf{b} and \mathbf{c} .

Task: Show how you would help your friend to obtain the solution.(11 scores)

.....**END**.....

“THERE IS NO LIMIT TO SUCCESS IN MATHEMATICS”

@ @ @MERRY X-MASS & A HAPPY NEW YEAR@ @ @