NAKAWA UNION VISION SECONDARY SCHOOL

S.4 PRE-REGISTRATION MATHEMATICS ASSESSMENT

(2 HOURS: 30MINUTES)

SECTION A

(Attempt all the Items in this Section A and any three questions from B)

1. Some of the S.2 students at a certain school have obtained the following grades in a recently done activity of integration.

Name	Keith	Peter	Roberts	Julius	Hebert	Precious
Grade	Basic	Moderate	Outstanding	Basic	Moderate	Basic

(a) Use the names as the domain and the grades as the range to show the mapping on a mapping diagram. (2 scores)

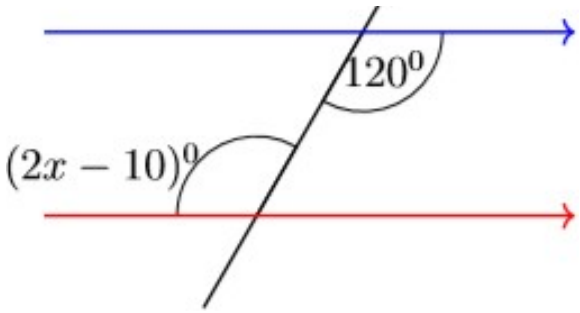
(b) What name would you call such a mapping? (1 score)

2. A senior two student is standing facing South East, What will be his/her bearing after turning

(c) Anti-clockwise 45^0 (2 scores)

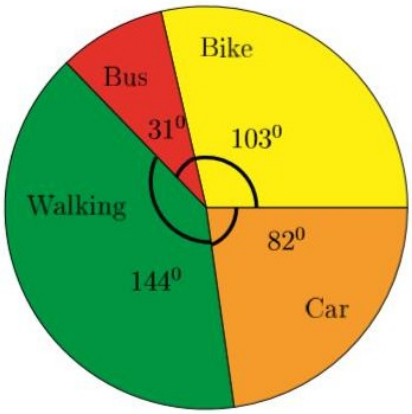
(d) Clockwise through 140^0 (2 scores)

3. With reasons for each of your calculations, find the unknown x in the figure below.



(3scores)

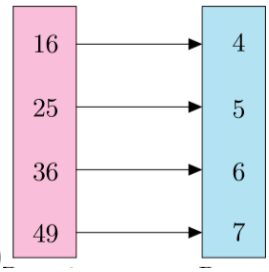
4. A survey was carried in a secondary school to find out what transport means the students used to travel to school. The data obtained from the survey on **35** students was represented on a pie chart as shown below.



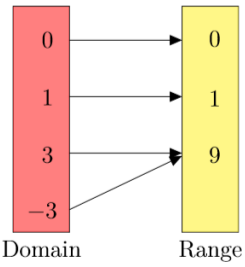
(e) What is the most common means of transport used by the students? (1 score)
(b) How many of the students travel to the school by Bike. (3 scores)

5. A triangle with vertices A (1, 1) B (2, 3) and C (4, 1) is mapped onto its image by a translation $T=\begin{pmatrix}-4\\1\end{pmatrix}$. Find the coordinates of the image of the triangle ABC (6 scores)
6. Hannah and Lewis leave their home at the same time. Hannah has 60m to travel and drives at $40ms^{-1}$. Lewis has 80m to travel and also drives at $40ms^{-1}$.
   (a) How long does Hannah's journey take? (2 scores)
   (b) How much longer does Lewis spend driving than Hannah? (3 scores)
7. A company selling newspapers spends UGX 1,500 to produce a copy of the newspaper and sells it at UGX 2,000. On a given day, the company produced 2000 copies and managed to sell 1000 copies only.
   (a) Did the company make a profit or loss on that day? (3 scores)
   (b) Calculate the percentage profit/ loss for the day. (2 scores)
8. For each of the mapping diagrams below, state whether it represents a function and if not why. (2 scores)

i)

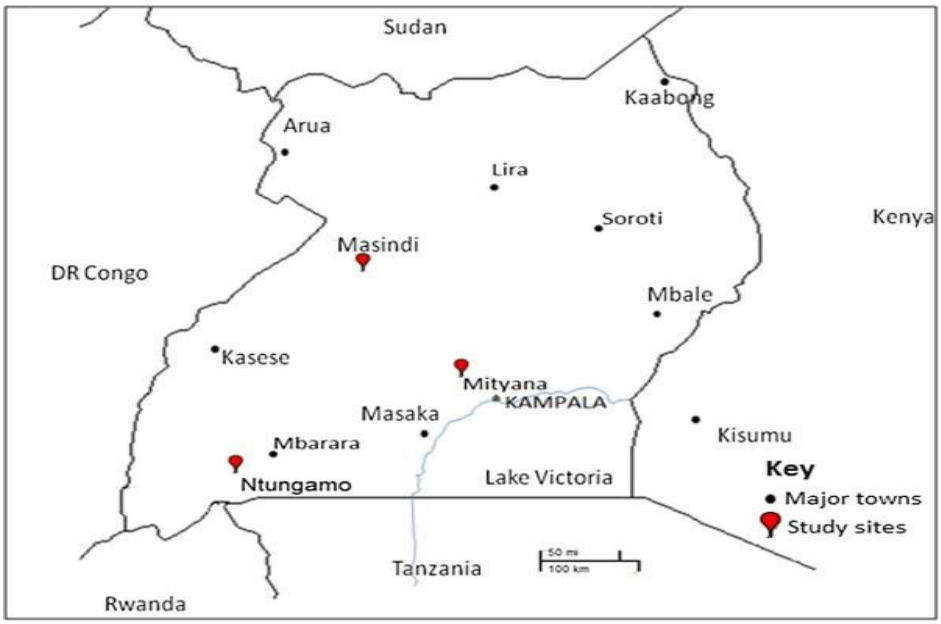


ii)



SECTION B

9. According to the Daily monitor Newspaper of 3rd March 2018, swarms of locusts entered Kaboong district and spread to the rest of the districts in Soroti and Arua.
   Support: The map below shows districts in Uganda that were invaded by locusts as of March 2018.



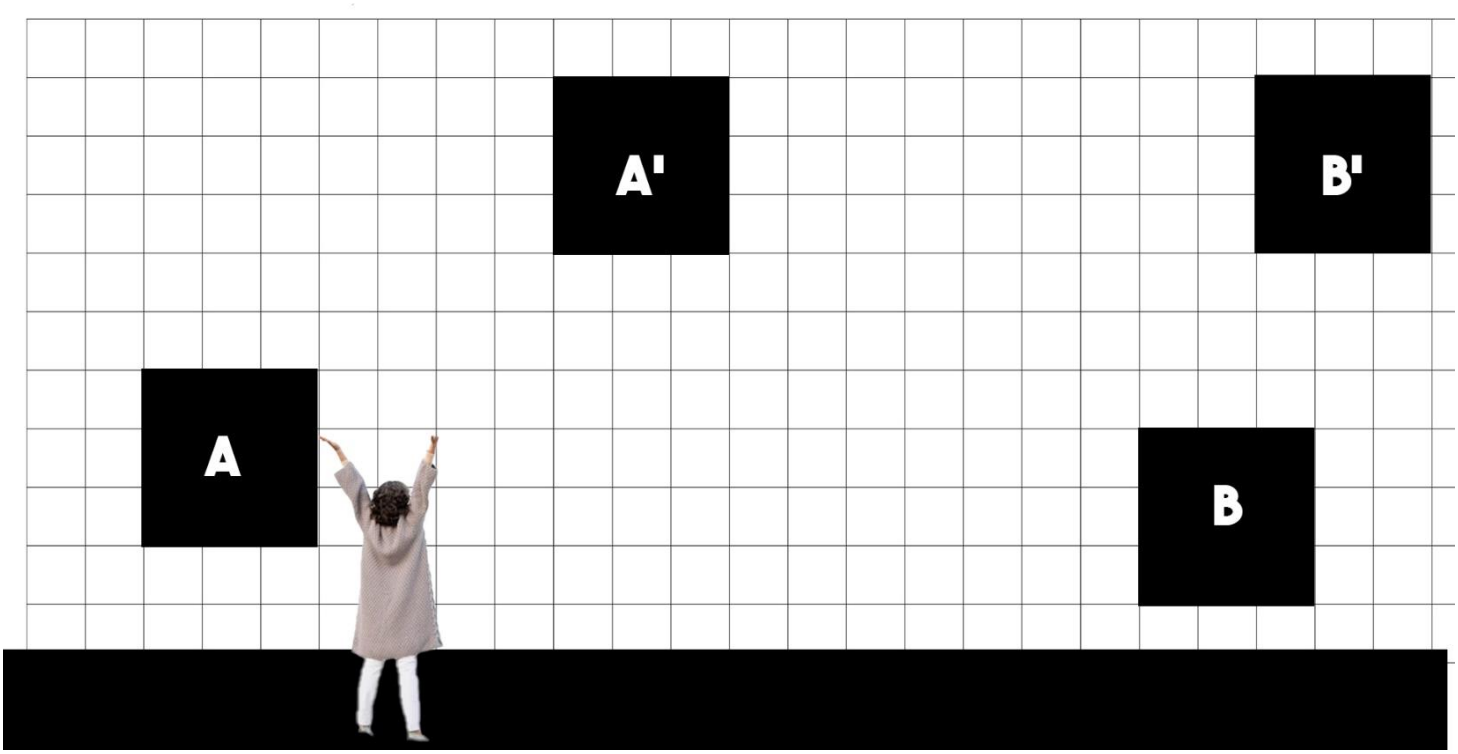
Resources

- Knowledge of identifying compass points
- Knowledge of describing the direction of the place from a given point
- Knowledge of describing the bearing of a place from a given point.

Task

Assuming you were the spokesperson of the team responsible for the spraying of the locusts and creating awareness. Describe the movement of the locusts (using bearing) to the general public. (10 scores)

10. A recently married couple places two pictures A and B in their living room. With time, some of the pictures became exposed to damage by the children as they grew up and as result, it was necessary to shift them.
    Support: Pictures were originally placed and shifted as shown below.



Resource:

- Knowledge of translations and vectors

Task:

As a senior three mathematics leaner, describe in terms of vectors and translations, the possible of the pictures. (10 scores)

11. Mbarara and Jinja are 360km apart. At 7:30 am a car left Jinja for Mbarara traveling at a steady speed of 80kmh^{-1}. At the same time a bus left Mbarara for Jinja at an average speed of 100kmh^{-1}

(a) On the same axes show the journeys of the two vehicles. (Use a scale of 2cm to represent 50km and 2cm to represent 1 hour) (6 scores)

(b) Use your graphs to find the:

i. time when the two vehicles met (1 score)

ii. Distance from Mbarara to where the two vehicles met (1 score)

iii. Difference in the times of arrival of the two vehicles (2 scores)