

44  
36  
Your district is organizing a community health outreach program to serve three villages. The outreach team has received 132 doctors and 108 nurses to be assigned to the villages. Each group must be divided into equal medical teams with no remainder, to ensure fair and efficient service delivery. The planning committee needs to determine the largest number of equal teams that can be formed from each profession.

To support the outreach, 1,260 medical supply kits have been donated. For easy transportation, the committee must pack them evenly in boxes of either 8 or 9, but only one box size can be used. They need to decide the most efficient option.

The district health department has donated one thousand six hundred eight bottles of drinking water for the outreach. These must be distributed among the main groups: Two twelfths of the bottles go to the organizing committee, 58% to the medical personnel, and the rest go to the local volunteers helping with the program.

The committee needs help allocating the water bottles accurately to each group.

**Task:**

Help the organizing committee to determine:

- a) How many doctors and nurses will be in each team?
- b) Which of these two box sizes should be chosen so that all kits are packed?
- c) How much more water bottles the medical personnel receive compared to the organizing committee. (Give your response to the nearest hundred)

$$\frac{600,000 + 2000x}{x - 5}$$

**Item 2.**

In a certain village, farmers were struggling to access affordable loans and farming inputs. To address this, a group of members came together to form a SACCO aimed at raising UGX 6,000,000 to purchase shared agricultural equipment and offer low-interest loans to members.

The SACCO leadership planned for each member to contribute an equal amount every month for 10 months. However, after a few months, 5 members dropped out due to financial hardships. To still reach the UGX 6,000,000 goal in time, the remaining members had to contribute UGX 2,000 more per month than originally planned.

The SACCO now wants to determine how many members initially joined the SACCO.

After attending a regional financial literacy training, the SACCO office administrator resumed work and found two supplier invoices from different days. Each invoice showed different combinations of reams of paper and bottles of ink purchased for SACCO recordkeeping and printing activities.

*The*

Invoice 1: 3 reams of paper and 2 bottles of ink cost UGX 103,000

Invoice 2: 5 reams of paper and a bottle of ink cost UGX 132,000

The administrator needs to establish the individual cost of a ream of paper and a bottle of ink.

The SACCO uses these items for record keeping, printing statements, and preparing member reports. The administrator must determine the cost of one ream of paper and one bottle of ink to update the monthly operational budget.

**Task:**

- (a)
  - (i) Formulate an equation representing the SACCO's original contribution plan.
  - (ii) Modify the equation to reflect the members who dropped out and the increased monthly contribution.
  - (iii) Determine the original number of SACCO members.
- (b) Help the administrator to determine the cost of each item.

## SECTION B

*This Section has two Parts; I and II*

### Part I

*Answer one item from this part*

**Item 3.**

A survey was conducted in your area to analyze electricity usage across households in the community. The number of electricity units purchased by each household was recorded (data provided below). The objective is to identify usage patterns and estimate the average usage using an assumed mean of 47 units.

50	71	40	48	61	70	30	62
44	63	60	51	55	25	32	65
54	62	65	50	45	40	25	45
48	45	30	38	30	28	24	48
30	48	28	35	50	48	50	60

The Energy Department is also considering reducing the price per unit of electricity if the probability of a randomly selected household using between 30 and 44 units is above 65%.

**Task:**

Help the electricity department to:

- (a) Summarize the data using class intervals of 5 and estimate the mean using an assumed mean