

S6 SUBSIDIARY MATHEMATICS HOLIDAY WORK

Attempt the 3 questions

1. There are 154 supporters of a soccer team who have Shs 200,000. All the supporters have to accompany their team for a match. They are to hire a bus and a taxi. The capacity of the bus is 42 people while that of the taxi is 14 people. Each trip on the bus and the taxi costs shs 30,000 and shs 20,000 respectively. The number of trips made by the taxi must exceed those made by the bus by at least 3.

If x and y are the number of trips made by the bus and taxi respectively.

- Write down all inequalities representing the information.
 - By shading the unwanted region show the region satisfying all the inequalities.
 - Use your graph to determine the number of trips that each vehicle should make so as to spend the least amount of money.
2. The table below shows the monthly sales of bags of sugar by a certain wholesale shop in the year 2020.

Month	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Sales	160	180	220	200	210	250	230	250	290	270	290	330

- Calculate the three-monthly moving totals and hence the three-monthly moving averages for the data.
 - On the same axes, draw graphs of moving averages and actual sales. Comment on the sales over the period.
 - Determine the number of bags of sugar expected to be sold in January 2021.
3. a) Sketch the curve $y = x(4 - x)$.
- b) find the area between the curve and the x-axis from $x = 0$ to $x = 5$.