

ST. AUSTIN'S HIGH SCHOOL KAKUNYU WAKISO

SENIOR FIVE END OF TERM ONE 2025

PURE MATHEMATICS

45 MINUTES

INSTRUCTIONS:

- Attempt all items.

ITEM 1:

The school purchases a van Shs 40,000,000 on *2nd/January/2022*. The van increases in value by 10% per annum for the first 2 years due to its rarity in services and high demand. After the initial 2-year appreciation period, the van's value starts to depreciate at a rate of 5% per annum due to wear and tear.

Mr. Kalema is the head teacher of this school. He has got one preschooler child whose age in the year 2025 is modelled in two ways as:

(i) The cubic root of a number

(ii) and also two plus fifteen times the inverse of the model

in (i) respectively.

Task:

- a) Calculate the van's value after the initial 2-year appreciation period.

b) If the van's value depreciates to Shs 10,000,000 after a certain number of years following the initial 2-year appreciation period. On what date will its value be Shs 10,000,000?

c) Calculate the total percentage change in the van's value from the initial purchase price to its value after the years of depreciation.

d) What is the birth year of the child? (25 scores)

END