

**P425/1**  
**PURE MATHEMATICS**  
**Paper 1**  
**APRIL 2025**

$1\frac{1}{2}$  hour



**LIGHT EXAMINATIONS BUREAU**  
**Uganda Advanced Certificate of Education**  
**PURE MATHEMATICS**  
**E.O.T 1 ASSESSMENT 2025**

**S.5**

***Paper 1***

**1 hour 30minutes**

***INSTRUCTIONS:***

*Answer **all** Items in this paper*

*Begin each question on a fresh sheet of paper*

*Silent, non-programmable scientific calculators and mathematical tables with a list of formulae may be used.*

**TURN OVER**

## ITEM 1

A treasure map uses a coordinate grid to help adventures locate hidden treasures in Mubende District. The grid is labelled with coordinates (x,y), where each point represents a specific location. Two equations are used for safety of the treasures but the travellers have no knowledge of how to identify the coordinates. The equations are;

$$5^{x+2} + 7^{y+1} = 3468 \quad \text{and} \quad 7^y = 5^x - 76$$

### Task

Help them identify the location

## ITEM 2

A health food company is creating a new herbal drink that requires an exact measurement of a rare extract. The amount of extract needed for one bottle is  $-7 \left( \frac{(\sqrt{5}-2)^2 - (\sqrt{5}+2)^2}{8\sqrt{5}} \right)$  milliliters. To ensure precision in production, the machine can only handle rational numbers. The company wants to produce 50 bottles.

### Task

Help the company to find the total amount of extract needed.

## ITEM 3

A cinema sells snacks in Combo deals;

Combo A includes 1 tin of popcorn, 1 drink and 1 chocolate bar all at a total cost of UGX.26,250.

Combo B includes 2 tins of popcorn, 1 drink and 2 chocolate bars all at a total cost of UGX.43,750.

Combo C includes 1 tin of popcorn and 2 drinks all at a total cost of UGX.28,000. Your friend wants to buy 3 tins of popcorn, 2 drinks and 1 chocolate bar for both of you but not sure of how much to pay for all of them.

### Task

Use your knowledge of mathematics to save your friend from being cheated.

## ITEM 4

During your first term holiday in senior five you decide to visit your uncle in the village having taken long not seeing him. He wishes to plant trees around his plot of land whose length is 2 metres longer than its

width. The total area of the plot is 35 square metres according to the land tittle .He plans to use a spacing of 1m from each tree that but doesn't know how much money he will spend on buying the trees .

Hint; Each tree costs UGX 2,500

### Task

Help your uncle to determine the total amount of money needed to be spent on buying trees.

### ITEM 5

Your class teacher loses her phone after being stolen by thugs while coming to school. She decides to go police so that the phone can be tracked using GPS coordinates. The phone's location at different times is recorded and the police are trying to find its movement pattern. The tracking device uses a logical operation given simultaneously as;

$\log_2 x + 2\log_4 y = 4$  and  $xy = 16$  when they got so close to the phone but couldn't tell the coordinates to locate the phone with ease. The coordinates are in metres and one point gives the position of those with the tracking device, the other point gives the position of the phone.

### Task

- (a) Help them find the coordinates.
- (b) What is the distance between the two points?

### ITEM 6

Mr Otim plans to put pavers in the diagonal path of his rectangular flower garden that measures  $(5+\sqrt{5})$  m by  $\sqrt{5}$ m. He consults an engineer who tells him that the whole path requires 1,000 pavers which makes Otim doubtful thinking that the engineer wants to cheat him. Mr Otim contacts you to come and help him clear his doubt by at least finding the number of pavers per metre.

### Task

Help Mr. Otim to clear his doubt even though he asks you to only use a calculator at the last step of the solution since he targets to avoid errors as much as possible and wants the number of pavers rounded to the nearest whole number

**END**