*Student's Assessment Number*_____

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
FORM TWO NATIONAL ASSESSMENT

043

MATHEMATICS
(VOCATIONAL STREAM)

(For Both School and Private Students)

Duration: 2:30 Hours **Year: 2025**

Instructions

1. This paper consists of **ten (10)** questions.
2. Answer **all** questions showing clearly all the working and answers in the space provided.
3. Each question carries **ten (10)** marks.
4. All writing must be in **blue** or **black** ink, **except** drawings which must be in pencil.
5. Non-programmable calculators, geometrical instruments and graph papers may be used where necessary.
6. Communication devices and any unauthorised materials are **not** allowed in the assessment room.
7. Write your **Assessment Number** at the top right corner of every page.

FOR ASSESSOR'S USE ONLY		
QUESTION NUMBER	**SCORE**	**ASSESSOR'S INITIALS**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		
CHECKER'S INITIALS		

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*Student's Assessment Number*_____

1. (a) Covert $2.1\dot{3}$ into fraction.

(b) (i) A village has 150 people, of which 80 are women and the rest are men. What is the ratio of men in the village?

(ii) If $a:b=21:45$, express $(2a+b):(a+2b)$ in its lowest form.

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2. (a) How much is 136 USD worth in Tanzanian Shillings if 1 USD = Tshs 2,650?

(b) A truck travels 600 kilometres in 10 hours while a bus travels the same distance in 7.5 hours.

(i) Calculate the speed of each vehicle.

(ii) Which vehicle travels faster?

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3. (a) (i) Subtract 35.4 from 234 and give the answer to the nearest hundreds.

(ii) Estimate the cost of 27 kg of meat sold at Tshs 8,150 per kilogram.

(b) A vehicle consumes 1.13 litres of fuel to cover a distance of 11.65 km.

(i) Estimate the rate of fuel consumption of the vehicle in km per litre.

(ii) Estimate the amount of fuel the vehicle will have consumed if it travelled 35.78 km.

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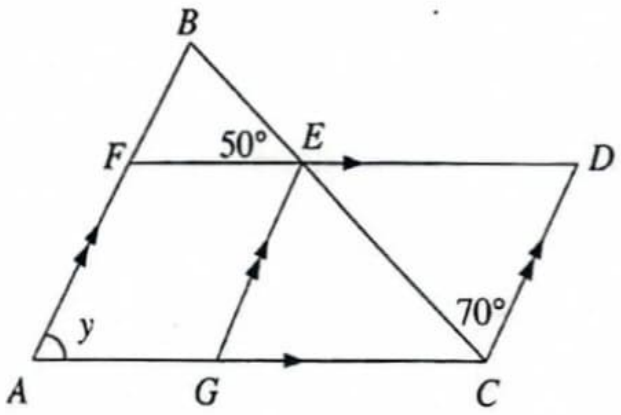
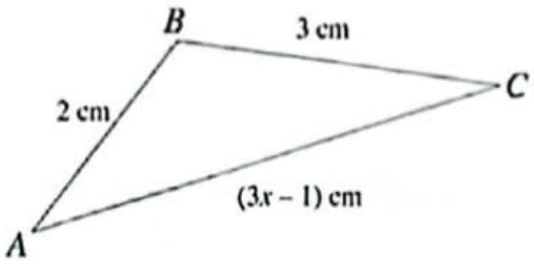
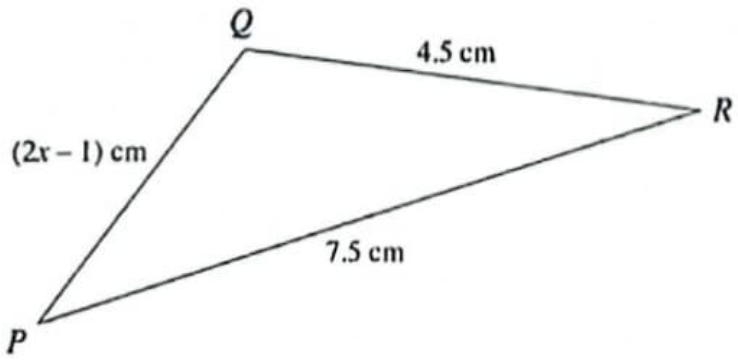
4. (a) Find the value of y in the following figure:



(b) In the following figures, ΔABC is similar to ΔPQR. Find the value of x.





5. (a) Write each of the following numbers in standard form:

(i) 29814

(ii) 0.0136

(b) Given that $\log 2 = 0.3010$, $\log 3 = 0.4771$, and $\log 5 = 0.6990$, find the value of $\log 90$.

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6. (a) Solve the inequality $\frac{2x+8}{-3} < 20$.

(b) Find the solution of the following simultaneous equations by elimination method: $\begin{cases} a+2b=1 \\ 3a-4b=8 \end{cases}$

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7. (a) How many subsets does each of the following sets contain?

(i) $A=\{a, b, c\}$

(ii) $B=\{1, 2, 3, 4\}$

(b) Given the universal set $\mu = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and the subsets $P = \{1, 2, 3, 4, 5, 6\}$ and $Q = \{5, 6, 7, 8\}$. Find;

(i) $P' \cap Q$

(ii) $P' \cup Q'$

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8. (a) Draw Venn diagrams and shade the regions representing the following sets:

(i) $X \cup Y$

(ii) $X \subset Y$

(b) In a certain meeting, 40 people drank water, 70 drank soda and 35 drank both water and soda. Assuming that each person drank water or soda, use a formula to find the number of people who attended the meeting.

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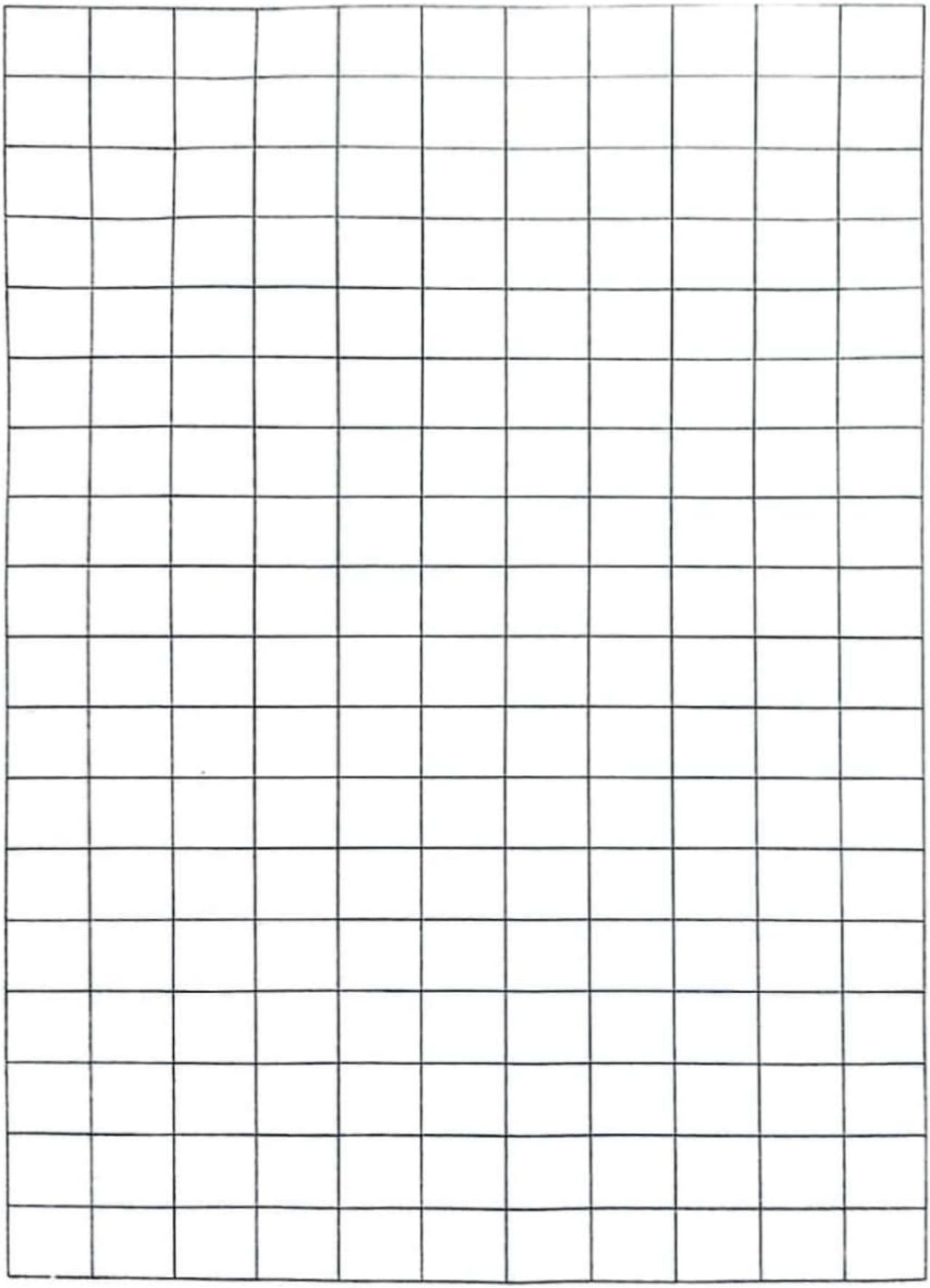
9. (a) Find the gradient of a straight line passing through the points A (1, 3) and B (4, 5).

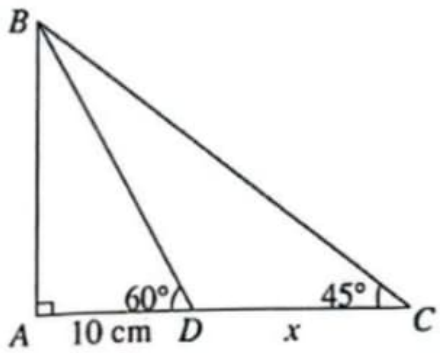
(b) Solve graphically the following pair of simultaneous equations:

$$\begin{cases} 2x + y = -5 \\ -x + y = -2 \end{cases}$$



10. (a) (i) Use $\sin\theta = \frac{4}{5}$ to find the values of $\cos\theta$ and $\tan\theta$.

(ii) Find the value of x in the following figure (Leave the answer in surd form):



(b) A painter needs to reach a point 4 m high on the vertical wall using a ladder whose length is 4.5 m. Find the angle of elevation the ladder makes with the horizontal ground (Express the answer in one decimal place).