



THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
HANDENI DISTRICT COUNCIL
FORM THREE JOINT TERMINAL EXAMINATION-MAY 2025
BASIC MATHEMATICS



041

Time: 3:00 Hours

Instructions

- This paper consists of **TEN (14)** questions
- Answer all questions from all sections.
- Show your work clearly step by step in the space provided
- **NECTA Mathematical** tables, geometrical instrument and graph papers may be used
- All writing must be in **blue** or **black** ink **EXCEPT** diagrams must be in **pencil**.

SECTION A (60marks)

1. (a) Six years ago, Aisha was $\frac{2}{3}$ times as old as Baedd. After four years, Baedd will be $\frac{4}{3}$ times as old as Aisha. What is the age of Baedd.

(b) Solution A contains 65% of concentrated hydrochloric acid and Solution B contains 90% of the same acid. How many litres of each solution must be used to make 200 litres of 80% hydrochloric acid?

2. (a) (i) Determine the value of m from $(\frac{3}{4})^m = (\frac{4}{3})^{(2m-m)}$

(II) Simplify completely the expression $\frac{4^{-3} \times 16^3}{8^2 \times 32^{-1}}$

(b) Solve for y from $2\log_3 y - \log_3 5 + 2\log_3 2 = 0$

3. A test on three subjects Math, Biology and Kiswahili revealed the following

- 20 students passed Kiswahili
- 5 students all the three subjects
- 12 students passed Math and Biology and
- 16 Students passed Maths and Kiswahili

Each student passed at least two subjects

(I) How many students passed biology and Kiswahili

(II) How many students did the test

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4. (a) The arithmetic mean and Geometric mean of two numbers " m " and " n " are 15 and 9 respectively. Find the possible value of " m " and " n ".

(b) The second term and the fourth term of G.P are 6 and 54 respectively. Find the first term and Common ratio of a geometric progression.

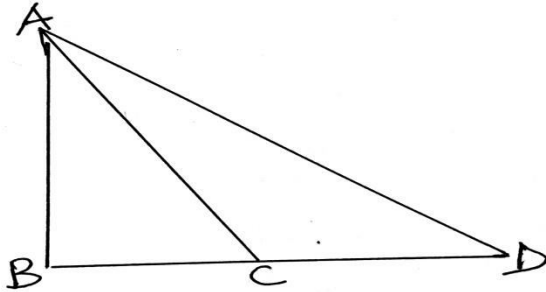
5. The pressure (P) varies inversely with the area (A) and directly proportional to the temperature

(I) Write down the mathematical formula to represent the statement

(II) Evaluate the proportional Constant. Given that $P = 20 \text{ mmHg}$, $T = 5^\circ \text{C}$ and $A = 4 \text{ mm}^2$

6. (a) A man is 4 times old as his Son. In 4 years, The product of their ages will be 520. Find the Son's present age.

(b) In figure below $AC = 17\text{cm}$, $BC = 8\text{cm}$ and $CD = 12\text{cm}$ Find AD



7. Record the following transaction in the ledger 2000 .Jan 1 Commenced business with cash Sh 600,000/=

Jan 2: Purchased goods for cash 300,000/=

Jan 4: Paid office cleaner. 2,000/=

Jan 5: Sold all the goods for cash 340,000/=

Jan 7: Purchased goods for cash 200,000/=

Jan 8: Paid carriage on goods on goods sold 4,000/=

Jan 10: Sold goods for cash 300,000/=

Jan 15: Paid wages 10,000/=

Prepare the cash Account and Balance it

8. Find the image of point (1, 2) after a reflection in the line $y = x$ followed by another reflection in the $Y = -X$

9. Simply the following without using table

(I) $\cos(22^\circ + 23^\circ) - \sin(67^\circ + 23^\circ)$

(II) $\tan 30^\circ \sin 60^\circ + \sin 30^\circ \cos 30^\circ$

10. (a) Solve the quadratic equation by completing square: $2x^2 + 3x - 2 = 0$

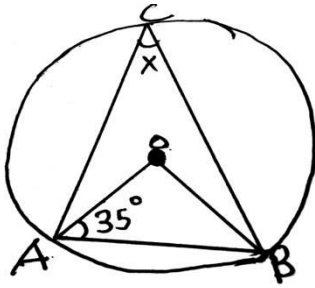
(b) You are asked to make a fence for a garden using a wire of 56m along. The fence should be rectangular in shape with an area of 171m^2 . What will be the dimensions of the fence enclosing the garden?

SECTION B (40marks)

11. (a) A and B are two points on the equator with longitude 40°W and 25°E respectively. Taking the Earth to be sphere of radius 6370km, Calculate the shorter distance in km along the equator between point A and B.

(b) A ship sail from point $P_1(10^\circ\text{S}, 40^\circ\text{E})$ to another point $P_2(10^\circ\text{N}, 40^\circ\text{E})$ at 20knots. If it leave point P_1 at 12:00 mid night on Wednesday, when will it arrive at point P_2 ?

12. Find the value of Angle X in the figure below



13. .The data below represent the mark obtained by 40 students in Mathematics examination.

42 39 49 57 72 63 51 35 31 40 37 27 25 63 20 25 32 72 42 71 64 28 35 31 23 57
56 48 39 35 67 37 69 49 44 37 47 25 66 47

(I) Prepare a frequency distribution table of class size 10 starting with 20 marks exclusively.

(II) Calculate the mode of the data

14. .The function f is defined as

$$f(x) = \begin{cases} -2 & \text{when } X \leq -1 \\ 0 & \text{When } X = -1 \\ X-1 & \text{When } X \geq -1 \end{cases}$$

(I) Sketch the graph of $f(X)$.

(II) Determine the domain and range

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