THE UNITED REPUBLIC OF TANZANIA
PRIME MINISTER'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
TABORA MUNICIPAL COUNCIL
FORM TWO DISTRICT ASSESSMENT
MATHEMATICS

041
TIME2:30HRS

SEPTEMBER,2026

INSTRUCTIONS

1. This paper consists of **ten (10) compulsory questions**.
2. Answer **all** questions, showing clearly your working and answers in the spaces provided.
3. Each question carries **ten (10) marks**.
4. All writing must be in **blue or black ink**, except for drawings and graphs which must be in pencil.
5. mathematical tables, geometric instruments, and graph papers may be used where necessary.
6. **Calculators, cellular phones**, and any unauthorized materials are strictly prohibited in the assessment room.

1. (a) The projected population of a certain district in Mwanza region is 254,968.

   i. Round off this population to the nearest thousands.

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   ii. Express the exact population figure in standard form $A \times 10^n$.

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(b) Three cargo boats arrive at the Mtwara port facility at regular intervals. Boat X arrives every 12 days, Boat Y every 18 days, and Boat Z every 24 days. If they all docked at the port together today, after how many days will they next dock together at the port?

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2. (a) An entrepreneur at Kariakoo Market spends ¼ of her monthly profit on shop rent, 2/5 of the profit on restocking goods, and saves the remaining TZS 350,000 in her bank account. Compute her total monthly profit.

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(b) A wholesaler bought a sewing machine for TZS 150,000 and marked its price up by 20%. During an end-of-year sale, he offered a 5% discount on the marked price to a customer. Find the actual profit made by the wholesaler in Tanzanian Shillings.

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3. (a) A topographical map of Mount Kilimanjaro is drawn to a scale of 1:250,000. If the

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distance between two base camps measures 5.6 cm on the map, calculate the actual distance on the ground in kilometers km.

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(b) The electrical resistance (R) of a wire varies directly as its length (L) and inversely as the square of its radius (r). If a wire of length 10 m and radius 2 mm has a resistance of 5 Omega, find the resistance of a wire made of the same material with a length of 15 m and a radius of 3 mm

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4. (a) In a construction project, two parallel structural beams are crossed diagonally by a reinforcement pillar. If the consecutive interior angles formed between the parallel beams and the pillar are represented by $4x + 20)°$ and $(2x + 10)°$, find the value of x and determine the size of the smaller angle.

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(b) Calculate the size of each interior angle of a regular octagon (an 8-sided polygon), and determine the sum of all its interior angles.

5. (a) At a local stationery shop in Dodoma, the total cost of 4 mathematical sets and 3 rulers is TZS 13,500. The cost of 2 mathematical sets and 5 rulers of the same type is TZS 8,500.

i. Formulate a pair of simultaneous equations to represent this information.

ii.

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iii. Solve the equations to find the unit price of a mathematical set and a ruler.

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(b) Find the solution set of the linear inequality $3(x - 2) < 5x + 4)$ and indicate your final solution on a neatly drawn number line.

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6. (a) A straight highway passes through an entry checkpoint at coordinate point P (1, -2) and an exit checkpoint at coordinate point Q (5, 6) on a digital survey grid map.

i. Find the gradient (slope) of the highway pathway.

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ii. Determine the equation of this straight-line highway in the form $y = mx + c$.

(b) Find the coordinates of the point where this highway crosses the x-axis (the x intercept).

7. (a) Evaluate the following mathematical expression without using mathematical tables, giving your answer in its simplest radical (surd) form: $\sqrt{75} - \sqrt{27} + \sqrt{12}$

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(b) Solve for the real value of y in the logarithmic equation:

$\log_{10}(y+4) + \log_{10}(3) = \log_{10}(5y+2)$

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8. (a) A rectangular vegetable garden at a secondary school in Shinyanga has an area of 84 m^2. If the length of the garden is 5 meters longer than its width:

   i. Formulate a quadratic equation representing the dimensions of the garden.

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ii. Use the **method of completing the square** to solve the equation and determine the exact dimensions (length and width) of the garden.

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(b) Solve the quadratic equation $3x^2 - 10x + 3 = 0$ using the factorization method.

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9. (a) A technician places a utility ladder against a vertical electrical pole to repair a line. The top of the ladder reaches a point 8 meters up the pole. If the foot of the ladder is positioned safely 6 meters away from the base of the pole, calculate the exact length of the ladder.

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(b) A surveyor stands a horizontal distance of 30 meters from the base of a cellular tower. The angle of elevation from the surveyor's instrument on the ground to the top of the tower is 60°. Calculate the exact height of the tower, leaving your answer in radical form.

10. (a) In a sample survey of 50 farmers in a village in Tabora, 30 farmers cultivate maize, 25 cultivate cassava, and 12 cultivate both crops.

i. Represent this information on a well-labeled Venn diagram.

ii. Find the number of farmers who cultivate neither maize nor cassava.

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(b) The test scores of 6 Form Two students in a mock mathematics quiz are: 55, 72, 64, 55, 80, and 70. Determine the:

i. Mean score.

ii. Median score.

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