

THE UNITED REPUBLIC OF TANZANIA
PRIME MINISTER'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
MOSHI DISTRICT COUNCIL – TERMINAL EXAMINATION
FORM THREE

CODE: 041

BASIC MATHEMATICS

TIME: 3.00 HOURS

MAY, 2026

INSTRUCTIONS

MsomiBora.com

1. This paper consists of section A and B
2. Answer all questions in both sections A and B.
3. Each question in section A carries six (6) marks while each question in section B carries ten (10) marks.
4. All necessary working and answers for each question must be shown clearly.
5. NECTA Mathematical tables and non-programmable calculators may be used.
6. All communication devices and any unauthorized materials are not allowed in the examination room.
7. Write your index number on every page of your answer sheet provided

SECTION A: (60 MARKS)

1.
 - a) Four bells are set to ring at the interval 6, 8, 10 and 15 minutes. If they start together at 8:00am, at what time will they ring together again?
 - b) Round off the following as instructed
 - i. 0.00070482 correct to 3 significant figures
 - ii. 1233388 to the nearest ten thousands.
2.
 - a) Rationalize the denominator of $\frac{\sqrt{2} + 1}{\sqrt{2} - \sqrt{5}}$
 - b) Solve for x from $\log(7x + 3) + 2\log 5 = 2 + \log(x + 3)$
3.
 - a) In a village of 1200 people, all the people speak Kiswahili (K) or English (E) or both. Among them 97% speak Kiswahili and 64% speak English. By letting

on represent the percentage of people who speak both Kiswahili and English, find the number of people who speak English only.

- b) Write the expression $27^n \times 9^{2n} \times 3$ as a single exponent
4. a) If the exchange rate between Tanzanian shillings and the US dollar is 2300 Tanzanian shillings to 1 US dollar, convert 27,600,000 Tanzanian shillings into US dollars.
- b) The ratio of girls to boys in a school is 3:5, find the number of girls if the number of boys is 250.
5. a) A line passes through the points P (-4, 5) and Q (-2, 1). Find the equation of this line in the form of $ax + by + c = 0$
- b) A piece of wire is bent to form a circle of radius 42cm. The wire is then bent into a rectangular shape with the length of 80cm. Find the width of the rectangle formed.
6. a) Prove that the triangle ABC and MOP are the similar if in triangle ABC, AB = 1cm, BC = 2cm and AC = 3cm and in triangle MOP, MO = 3.5cm, OP = 7cm and MP = 10.5cm.
- b) In a school food store, there is enough food to feed 300 students for 17 days. For how long will food last if 40 more students join the group?
7. a) If $x = \frac{1}{t^5}$, express the equation $\frac{2}{t^{10}} - \frac{3}{t^5} + 1 = 0$ in quadratic form $ax^2 + bx + c = 0$
- b) Jamila bought a calculator for Tsh. 42,000/= and sold it at a loss of $6\frac{2}{3}\%$. How much did she sell the calculator?
8. a) If the assumed mean **A** is 49 and the four class intervals of scores of a certain class are given as 40 – 45, 46 – 51, 52 – 57 and 58 – 63 draw a simple table that displays the values of **d_i** for each score.
- b) A tree which is 8 meters high, casts the shadow with length 6 meters long. Find the distance between the end of the shadow and the top of the tree.
9. a) Find **a** and **b** if $9x^2 - 6x + a = (3x + b)^2$

- b) Angle A is an acute angle and if $\tan A = 2.4$, find the simplified form of $\frac{a}{b}$
the value of $\frac{2\cos A + \sin A}{\sin A - \cos A}$
10. a) Solve the equation $x(x + 3) = (x - 1)(2x - 1)$ by using general formula.
- b) What must be added to $x^2 + \frac{2}{3}x$ to make a perfect square?

SECTION B: (40 MARKS)

11. In a Biology examination done by 100 students in a certain school, the marks scored were grouped in the following distribution table

Marks %	65 - 69	70 - 74	75 - 79	80 - 84	85 - 89	90 - 94
Frequency	10	12	55	10	5	8

- a) Calculate the mode of the distribution above in two decimal places
- b) What is the Median of the distribution to the nearest whole number
12. a) If two typists in a typing pool can type 210 pages in 3 days, how many typists working at the same speed will be needed to type 700 pages in 2 days?
- b) From the table given below:

x		12	8	
y	6		1.5	0.8

- i. Is x and y directly or inversely proportional to each other? Why?
- ii. Find the equation relating the variables x and y above and fill the missing values
- iii. What is the value of the constant of proportionality?
13. a) Given the relation $R = \{(x, y): y = 4x^2\}$ Find the inverse of R and state its domain and range
- b) The relation $R = \{(x, y): y = 2x - 1\}$ for $-3 \leq x \leq 2$
- i Prepare a table of values for this relation

ii Represent this information in a pictorial diagram

14. a) Given the function below

$$f(x) = \begin{cases} 4 & \text{if } x < -2 \\ 2 & \text{if } -2 \leq x < 4 \\ -1 & \text{if } x \geq 4 \end{cases}$$

i Sketch the graph of $f(x)$

ii State the domain and range of $f(x)$

iii Is the function one to one? Why? Why not?

b) Find the values of

i $f(-2)$,

ii $f(10)$,

iii $f(100)$,

iv $f(\pi)$