

**MKALAMA DISTRICT COUNCIL
FORM THREE TERMINAL EXAMINATIONS
BASIC MATHEMATICS**

TIME: 3:00HRS

MAY 2025

INSTRUCTIONS

1. This paper consists of section A and B making a total of fourteen (14) questions.
2. Answer all questions in section A and B.
3. Each question in section A carries six (06) marks while each question in section B carries ten (10) marks.
4. All communication devices, programmable calculator and any unauthorized materials are not allowed in the examination room.
5. Write your examination names on every page of your answer sheet (s) provided.

SECTION A: (60 MARKS)

1. (a) Mwajuma deposited Tsh.360, 000 in a bank account. The bank charges Tsh.1, 000 for every withdrawal. How much money remained in her account if she withdraws Tsh.106, 000 two times?

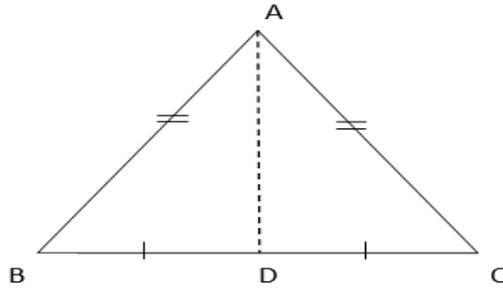
(b) Write 2.4333333333....as a mixed fraction.
2. (a) Without using table evaluate $4 \log \log 5 - \frac{1}{2} \log \log 16 + 6 \log \log 2$

(b) Find the of x given that : $\frac{5^{x+3}}{25^{2x-3}} = 1$
3. (a) In a class of 100 students, 45 students study physics subject, 40 students study chemistry and 5 students study both physics and chemistry. How many students study none of these subjects?

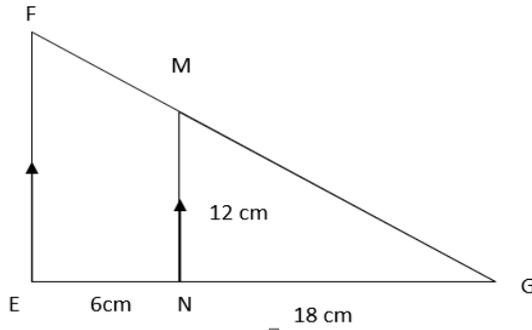
(b) Three fifth of students in form three class are male and the rest are female. If there are 36 female students, how many male students are in this class?
4. (a) If the line whose equation is $y = 3x - p$ passes through the point (6, 10) and(q , 22) find value of p and q where p and q are integers.

(b) A line has a gradient of $\frac{3}{4}$ and passes through point(- 1, 2) find its equation.
5. (a) Let $U = \{2, 3, 5\}$ and $V = \{6, 7, 10, 60\}$. Draw a pictorial diagram between U and V to illustrate the relation ‘‘ is a factor of ‘‘

(b) If $R = \{(x, y): x + y \leq 2 \text{ and } y \leq 2\}$ is a relation of real numbers. Draw a graph of R and state the domain and range.
6. (a) Triangle ABC is isosceles triangle in which \overline{AB} and \overline{AC} are equal. If D is the midpoint of \overline{BC} , Prove that $\triangle ABD \cong \triangle ACD$



(b) State with reasons, the pair of similar triangles hence determine the length of side \overline{FE} . In the figure below



7. (a) If x varies direct as $2y + 7$ and $x = 5$, when $y = 4$, find the value of y when $x = 6$.
 (b) Nine workers work 8 hours a day to complete a piece of work in 52 days, how long will it take 13 workers to complete the same job by working 6 hours a day?
8. (a) The n th term of a certain sequence is 2^{n-1} , find the sum of 5th and 10th terms.
 (b) Each year a coconut tree produces 3 more coconut than it did the previous year. If it produced 10 coconuts in 1985, find a total number of coconuts produced from 1985 to 2000.
9. (a) Given $f(x) = x^2 + 6x - 7$, find;
 - (i) The axis of symmetry.
 - (ii) Maximum or minimum value.
 (b) Solve the equation $x^2 + 6x - 7 = 0$ by completing the square
10. (a) A ladder 7m long leans against a vertical wall with its foot 4m away from the wall on a horizontal floor. How high above the floor the point is where the ladder meets the wall?
 (b) From the top of the tower, the angle of depression of a point on the ground 10m away from the base of the tower is 60° . How high is the tower?

SECTION B: (40 MARKS)

11. The following were scores of 35 students in a mathematics mock examination.

7	19,	78	53	43	67	12
54	27	22	33	80	23	58
50	36	65	33	16	19	34

20	55	27	37	41	04	32
48	28	70	31	61	08	35.

- a) Prepare a frequency distribution table using the class size of 10 and start with a class interval of 0 – 9.
- b) Calculate median
- c) Calculate mean using assumed mean method (use assume mean A=34.5)

$$-3 \text{ if } x < -2$$

12. Given that;

$$g(x) = x + 1 \text{ if } -2 \leq x < 1$$

$$4 \text{ if } x \geq 1$$

- (i) Sketch the graph of $g(x)$
- (ii) Compute $g(-5)$ and $g(10)$
- (iii) State the domain and range of $g(x)$

13. (a) Factorize: $p^2 - q^2$

(b) Use the results obtained in part 13(a) above, Find the value of; $1024 - 64$.

(c) Factorize completely: $6x^2 - 11xy - 10y^2$.

14. (a) Given the following ordered pairs (1, 2), (2, 1), (-3, 4), (-3, -5), (2, 2), (-5, 0), (-8, -3)

(i) Which ordered pairs belong to the relation $R = \{(X, Y): Y > X\}$

(ii) State domain and range

(b) A student has two plants seedlings, she measured the rate at which the seedlings were growing.

Seedling A grew 5cm in 10 days and seedling B grew 8cm in 12 days, which seedling was growing more quickly?