

**PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
ITILIMA DISTRICT COUNCIL**

FORM TWO MOCK- EXAMINATION: AUGUST 2020

041

BASIC MATHEMATICS

TIME 2:30 HRS

Tuesday 4TH August 2020 am

Instructions

- ☐ Answer all questions

1. (a) Write the number 0.002758 correct to

(i) 3 significant figures (ii) 2 decimal places (iii) mathematical notation

(b) Convert 0.853 as fraction

2. (a) solve the inequality: $|5 - 3x| \geq 2$

(b) Evaluate $(90 \times 0.25) + 3.5 \div 7 - 10$

3. (a) Find the y – intercept of line passing through point (3,7) and (5,2)

(b) The middle angle of a triangle exceeds the smallest angle by 20° If the largest angle is twice the middle

Angle, determine the size of the largest angle

4. (a) A certain amount of money was divided in the ratio of 2:3:5, if the difference between the largest share and the smallest share was Tsh 7500, find the largest share

(b) At what rate will the principle of Tsh 80,000 yield on an amount of Tsh 100,000 in 5 year?

5. (a) Find the area of the shaded region from the figure below. If AB is the diameter of the semi circle ABC, given AB = 20cm, AC = 8cm and CB is 12cm (use $\pi = 3.14$)

C

A

B

(b) If $a * b$ is defined as $\frac{1}{2}(a+b)$, find $(5 * - 2) * (3 * 4)$

6. (a) Find the value of K from $8^K \left(\frac{1}{16}\right)^{2K+3}$

(b) Factorize completely $5a^2 + 6ab + b^2$

7. (a) Solve the equation $\log(3x + 17) = \log(x + 1) + 1$

(b) If A is an acute angle and $\cos A = \frac{12}{13}$, find $\tan A$ and $\sin A$

8. (a) In the figure below, prove that $\triangle BDF$ is congruent to $\triangle ADB$ given $\overline{AB} = \overline{FD}$

C

F

A

B

D

(b) A triangle has vertices (1,1), (2,4) and (3,7), find the coordinate of the image of its vertical if it is rotated through 90° clockwise about the origin

9. (a) An observer on top of the cliff 25m above sea level views a boat on the sea at an angle of depression of 35° . How far is the boat from the top of the cliff?

(b) In a class of 30 students, 20 students are taking physics, 12 taking both chemistry and physics. Use Venn diagram to find the number of students in this class takes neither physics nor chemistry, if the number of students who taking chemistry is 16

10 (a) The frequency table below gives the marks obtained in an exam by 200 candidates

Marks	0 - 19	20 - 39	40 - 49	60 - 69	80 - 100
Frequency	7	X	83	52	X + 10

- Find the value of x
- Draw a cumulative frequency curve
- From your curve, find the number of students who scored less than half marks.

(b) The sum of two numbers is 12 and the sum of their square is 74. Let the number be x, find the quadratic equation and solve for it