THE PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
UKEREWE DISTRICT COUNCIL

FORM THREE EXAMINATION

CODE: 041 BASIC MATHEMATICS

TIME: 3:00 hrs 2025

Instructions

1. This paper consists of two section A and B with a total of 14 questions
2. Answer All questions from each section
3. Section A carries 60 marks and Section B Carries 40 marks
4. Write your index number on every page of your answer sheet (booklet)
5. Mathematical tables and non-programmable calculators may be used

SECTION A (60 Marks)

1. (a) Mr Tumain Distributed Tshs 960,000/= awards to students who passed well in their examinations and their respective teachers as follow : 23% to all students who passed Arts Subject s ,15% to students who passed Mathematics and 27% to students who passed science subjects. The remained aamount was distributed to teachers .Find the amount that were awarded to teacher.

(b) Three bell Commence tolling together and toll at intervals of 8, 10 and 12 seconds respectively. How many times do they toll together in 50 minutes?

2 .(a)If $(3^{x+1}) \times (2^{2y+9}) = 69984$ *find the values of* $x + y$

(b) Solve the equation $\log_4 5x - \log_4(x+2) - \log_4 3 = 0$

3.(a).Given P={Multiples of 5} and Q={Even numbers between 10 and 22} .Find all the subsets of the set $P \cap Q$

(b)Out of 130 students of Beroya secondary school ,10 study physics and mathematics while 28 study neither of the two subjects .Those who study Physics only are three times as many as those who study mathematics only .How many students study mathematics(Use Venn diagram)

5. (a)A tourist from Sweeden wishes to exchange 100,000/=Kronor into Tshs .If Tsh.28256 is equivalent to 100 Sweeden Kronor.determine the amount he received.

(b) Given that x *varies directly as* y^2 *and inversely as* z *and* $x = 16$ *when* $y = 4$ *and* $z = 2$. *find* x *when* $y = 3$ *and* $z = 4$

6. (a) A piece of cloth 37.5 meters long was cut into equal pieces each measuring 75 centimeters long, how Many pieces were obtained?

(b)The ratio of the number of girls to that of boys in a school is 7:12. If the number of boys in the school is 1380. Find the number of girls in the school.

7. (a) A triangle ABC is such that $\bar{AC} = \bar{BC}$ and $\bar{DC}$ is a bisector of B$\hat{C}$A. prove that m($A\hat{D}C$) = $m(B\hat{D}C)$

(b) The right angled triangle has sides of length
$7x$,$24x$ *cm and hypotenuse of* $150cm$. *F ind*

(i) the value of x

(ii) the area of triangle

8. (a) A broken table was sold at loss of 25%, if the buying price is Tshs 40,000/=.find the selling price.

(b) John want to buy a phone which is selling at Tshs 140,000/=,the discount is 15%. How much did he pay?

8.(a) In a certain G.P the third term is 18 and the sixth term is 486.Find the first term and the sum of ten terms of this G.P

(b)The first term of AP is 2 and the common difference is 5.If the sum of the terms is 245.How many terms does the series have?

9.(a) If $5\sin A = 3, Find\ the\ value\ of\ (i) CosA\ \ (ii)\ \frac{\tan A - Sin\ A}{1 + Cos\ A}$

(b)The foot of a straight ladder is 3m from the bottom of vertical wall ,if the height of the wall is 4m . When the lower end of the ladder is pulled away from the wall by 1m ,the upper end slides down by 1m, find the length of the ladder

10.(a) solve for the equation $3x^2 - 7x - 6 = 0$ *by compieting the square*.

(b) Factorize the expression $a^2 - b^2$. *Use it to evaluate* $(1005)^2 - 995 \times 994$

SECTION B (40 Marks)

Answer all questions in this section

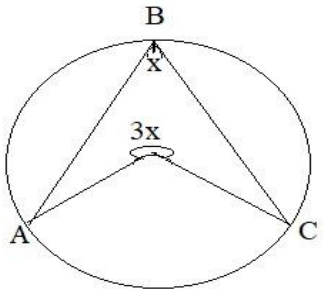
11. The mass in kilograms of 40 athletes were recorded as shown in the table below

Class interval (mass kg)	Class marks (x)	Frequency (f)	Deviations d = X-A	fd	Cf
	42		-10	-70	
	47		-5	-40	
	52		0	0	
	57		5	50	
	62		10	40	

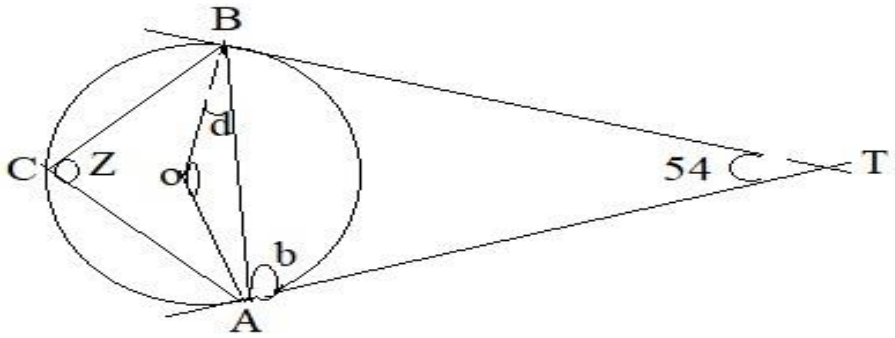
(i) If A=52 ,Find the value of frequency (f) at A

(ii)Complete the table by filling the columns of class interval ,frequency (f), and cumulative Frequency

12.(a) If O is the center of the circle .find the value of x



(b) Find the value of an angle $, z, b \ and \ d$.if O is the centre of the circle ,$\bar{}AT \ and \ BT$ are tangents of a Circle



13.(a) Consider the function $f(x) = -2x^2 + 12x - 16.$ $find$

(i) the axis of Symmetry

(ii) Maximum or Minimum

(iii) The turning point

(b) Given the function $f(x) = \sqrt{x-2}, find$

(i) $f^{-1}(5/2) and\ f^{-1}(\sqrt{3})$

(ii) the domain and range of $f^{-1}(x)$

14. Draw the graph of R and R^{-1} $the\ same\ set\ of\ axes\ R = \{(x, y): y = x^2\ and\ state\ its\ domain$ and range