THE UNITED REPUBLIC OF TANZANIA
THE PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

FORM TWO EXAMINATION

041 BASIC MATHEMATICS

Time: 2½ Hours

INSTRUCTIONS

1. This paper consists of a total of 10 questions.
2. Attempt all questions.
3. Each question carries 10 marks.
4. Mathematical tables and non-programmable calculators are not allowed
5. Write your examination number on every page of your answer sheets

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	**SCORE**	**EXAMINER'S INITIALS**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		
CHECKER'S INITIALS		

1. (a) Evaluate $8 - 8 \times \dfrac{2\frac{1}{5} - 1\frac{2}{7}}{2 - \frac{1}{6 - \frac{1}{6}}}$

(b) Find the sum of the LCM and GCF of all prime numbers between $30 - 40$

2. (a) A village has a population of 8 750 989. If youth population is 2 099 489, round off adults' population to the nearest hundred thousand.

(b) If $m = 0.\dot{2}$ and $m = 0.040404\ldots$ show that $m^2 = n\left(m + \frac{7}{7}\right)$

3. (a) The weight of the mother and her daughter is 112kg 70g. Find the weight of the mother if the daughter weighs 35g 59dag (leave the answer in kg and g)

(b) The ratio of the number of girls to that of boys at Seypalm Secondary School is 12:5. If the number of boys is 11 380, find:

(i) The number of girls

(ii) Total number of students in the school

4. (a) Calculate angle A in the following figure:

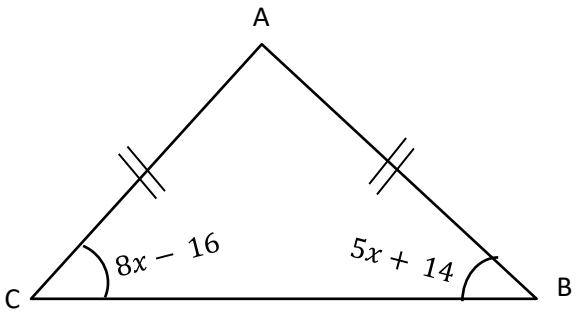

Figure 1

(b) Find the circumference of a quarter of a circle whose diameter is 14 cm.

5. (a) Completely factorize the following:

(i) $25 - 5x - 2x^2$

(ii) $81a^2 - 1$

(b) Seypalm has 83 000 Tanzanian shillings for shopping. If he buys 2 ties and 2 shirts, he remains with 9 000 Tanzanian shillings. If he buys 1 tie and 3 shirts, he spends all the money. Find the price of the tie and the shirt.

6. (a) Find the $y-$ intercept of an equation passing through points Q (-2, -1) and R (3, 9).

(b) In what quadrant is point Q (2, -7) located on xy plane and determine the consecutive point to point Q on x-axis to the right where points are integers.

7. (a) Solve: $(2^{x+y})\ (3^{2x-y}) = 96$

(b) Rationalize the denominator: $\frac{1}{(\sqrt{5}-\sqrt{3})^2}$

8 Simplify the following:

(i) $5\sqrt{8} \times 2\sqrt{32}$

(ii) $16\sqrt{2} + 3\sqrt{98} - 5\sqrt{32}$

(iii) $\left(\frac{2}{9}\right)^4 \times \left(\frac{81}{4}\right)^3$

(iv) $\frac{10^{-3} \times 10^{-4}}{10^{-11} \times 10^{-2}}$

9. (a)Graph the solution of $|7 - 3x| \leq 2$

(b) Find the simple interest earned on deposit of 4 million in a bank that offers a rate of 5% per annum after 2 years.

10. (a) Solve the following simultaneous equation:

$$\begin{cases} 3x - 2\,(y - 4) & = 16 \\ -5y + 6x & = 17 \end{cases}$$

(b) The legs of triangle PQR are 18 cm, 19 cm and 17 cm respectively. Find the area of a square whose perimeter is the same as that of triangle PQR.