PRESIDENT'S OFFICE
REGIONAL ADMINISTARATION AND LOCAL GOVERNMENT
KONDOA DISTRICT COUNCIL
FORM TWO MOCK EXAMINATION MAY 2021
BASIC MATHEMATICS

CODE: 041 **TIME: 2:30 HOURS**

INSTRUCTIONS

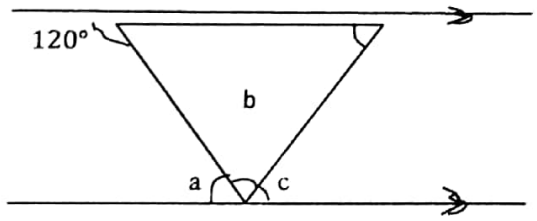
1. This paper consist of ten (10) compulsory questions
2. Show clearly all the working and answers in the space provided
3. All writing which must be in pencil
4. NECTA mathematical tables, geometric instrument and graph papers may be used where necessary
5. All communication devices and calculators are **NOT** allowed in the assessment room
6. Write your assessment number at the top right corner of every page.

1. a) Three pieces of length 18cm, 42cm, and 84cm are cut into pieces of equal length. Find the longest possible length of each piece
   b) Given 0.000537 write the number
   i) Correct to significant figures
   ii) Correct to five decimal places
   iii) Correct to one decimal place

2. a)Evaluate 4+3 – (5-3)+8÷(9-7)
   b) i) If 4/5 of all people in the village are women. What percentage of the people are men?

3. (a) Change 15 Km into centimetres.
   (b) Find the time in which $sh.$ 200,000 will earn $sh.$ 48,000 at the rate of 4 %interest per annum.

4. (a) In the figure below find the values of a, b *and* c.



   (b) A rectangle has 3 cm wide and 5 cm long. What its;
   i. Area
   ii. Perimeter.

5. (a) Solve the following simultaneous equation by elimination method;

$$\begin{cases} 2x + y = 20 \\ x - 35 = -3y \end{cases}$$

   (b) (i) If $9x^2 - 18x + k$ is a perfect square, find the value of k.
   (ii) Given that $x * y = xy + 2x - 3y$. Find the value of r if $5 * r = 20$.

(a) Given that $\log 2 = 0.3010$ and $log3 = 0.4771$, find the value of $2\frac{1}{4}$ without using mathematical table.

(b) If the slope of the straight line through the points $(7, 4)$ and $(-2, k)$ is 1, find the value of k.

7. (a) Given that $(2^{x-1})(3^{y+1}) = 2592$, find the value of;

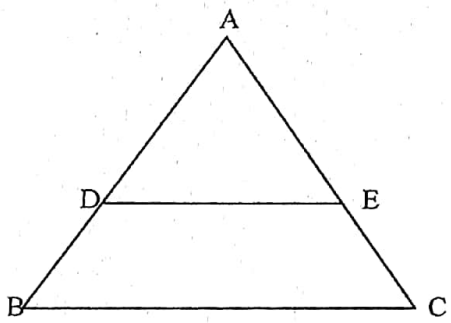
   i. $x + y$

   ii. $\frac{y}{2x}$

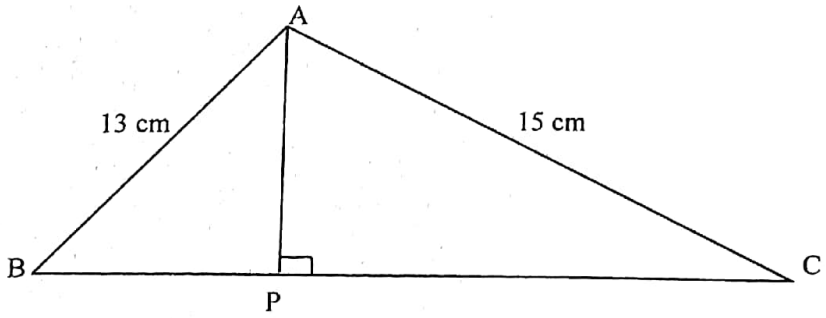
   (b) Express $\frac{3+\sqrt{5}}{2-\sqrt{5}}$ in the form $a + b\sqrt{c}$

8. (a) PQR is an isosceles triangle where by $\overline{PQ} = \overline{PR}$ and $\overline{QS} = \overline{SR}$. If S is a point between Q and R, prove that $\Delta PQS \equiv \Delta PRS$.

   (b) In the figure below, DE // BC. If $AD = 12\ cm, DB = 3\ cm$ and $BC = !0\ cm$. Find the length DE.



9. (a) In the following figure, $\overline{AP}$ is perpendicular to $\overline{BC}$, $\overline{AB} = 13\ cm, \overline{BP} = 5\ cm$ and $\overline{AC} = 15cm$.



Calculate the lengths of $\overline{AP}$ and $\overline{CP}$.

(b) Without using mathematical table evaluate $\frac{\tan 45°}{Cos\ 0°-\tan 60°}$

6) (a) In a primary school of 150 pupils 50 study Maths, 70 study Science and 40 study both subjects. By using the appropriate formula, calculate the number of pupils who study neither Maths nor Science.

(b) The marks of 61 students are represented into the following table;

Marks in %	30	35	45	50	60	75	80	85	90
Number of Students	5	5	7	10	18	9	4	3	2

From the table answer the following questions;

(i) Which mark was scored by few students?

(ii) What was the highest mark?

(iii) If 50% was the pass mark in the examination, how many students passed the examination?

(iv) Which mark was scored by many students?