Student's Assessment Number.....

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
FORM TWO NATIONAL ASSESSMENT

041

BASIC MATHEMATICS

Time: 2:30 Hours **Year: 2022**

Instructions

1. This paper consists of **ten (10) compulsory** questions. Each question carries **ten (10)** marks.
2. Show clearly all the working and answers in the space provided.
3. All writing must be in blue or black ink **except** drawings which must be in pencil.
4. NECTA mathematical tables, geometric instruments and graph papers may be used where necessary.
5. All communication devices, calculators and any unauthorised materials are **not** allowed in the assessment room.
6. Write your **Assessment Number** at the top right corner of every page.

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



1 (a) Mwajuma deposited Tsh. 360,000 in her bank account. If the bank charges Tsh. 1,000 for every withdrawal, calculate the amount of money remained in her account if:

(i) she withdrew Tsh. 106,000.

(ii) she makes a further withdrawal of Tsh. 50,000 from the remained amount.

(b) Rewrite $2.4\dot{3}$ as a mixed fraction.

2. (a) (i) A dog, a cat and a goat have masses of 30.7 kg, 13.44 kg and 18.26 kg respectively. Calculate the total mass of all three animals, giving the answer to the nearest whole number.

(ii) Round off the mass of dog to the nearest ones, the mass of cat correctly to one decimal place and goat to 3 significant figures.

(b) (i) Add the following units:

	km	m	mm
	8	799	400
+	5	300	609

(ii) Convert the answer you obtained in 2 (b) (i) into metres.

3. (a) Draw a circle with center O and hence indicate the following:
   (i) Arc AB
   (ii) Chord $\overline{CD}$
   (iii) Sector AOB
   (iv) Radius $\overline{AO}$

   (b) The side of a square carpet is 14 m. If a designer decides to make the largest possible circular carpet;
   (i) what will be the area of the formed circular carpet?
   (ii) find the area of the remaining part of the carpet.

4. (a) Solve $\begin{cases} \frac{a}{2} - \frac{b}{5} = 1 \\ 3b = 24 + a \end{cases}$ by using elimination method.

(b) The length of a book exceeds its width by 5 cm. Calculate the dimensions of the book given that its area is 50 cm^2.

5.

5. (a) Asha and Juma received 630,000 shillings from their father. The father wanted to give Asha twice as much money as the amount that could be given to Juma. How much did Asha receive?

(b) Mr. and Mrs. Juma deposited some money in a bank that pays a simple interest of 3% per annum. After 4 years they earned an interest of 900,000 shillings. Determine the amount of money:

(i) deposited initially.

(ii) accumulated after a period of four years.

(a) If the line whose equation is $y = 3x - p$ passes through the points (6,10) and (q, 22), find the value of p and q where p and q are integers.

(b) A mason wants to design a small room 500 cm by 200 cm.

(i) Draw a diagram of the room at a scale of 1:100

(ii) Calculate the area of the room using the result of 6 (b) (i).

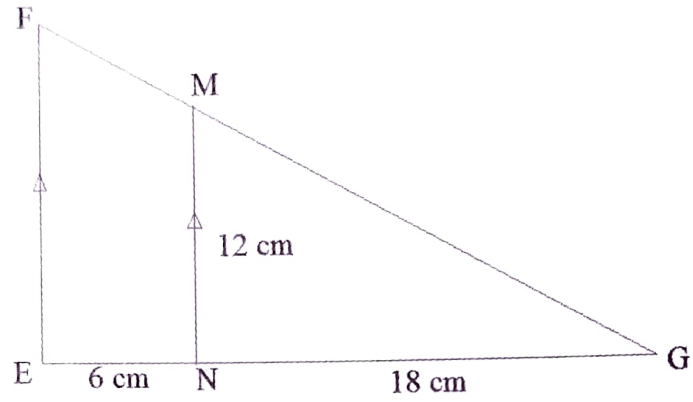
7. (a) Two quantities P and Q are such that $P = \sqrt{2} - 3$ and $Q = \sqrt{2} + 1$. Use these quantities to show that;

(i) $PQ = -1 - 2\sqrt{2}$

(ii) $\frac{P}{Q} = 5 - 4\sqrt{2}$

(b) Express x in terms of p and q from the formula $p = \sqrt{q + x}$. Hence, find the value of x if $p = 3$ and $q = -1$.

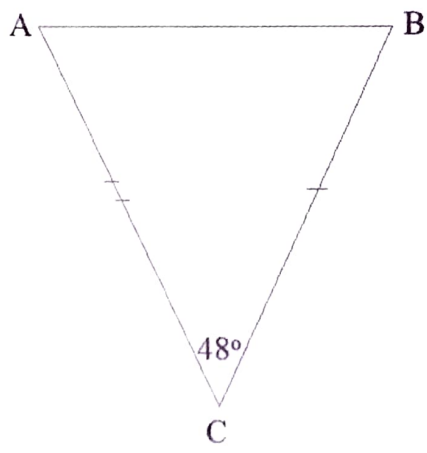
8. (a) A young designer has designed a building whose side view structure is represented by the following figure:

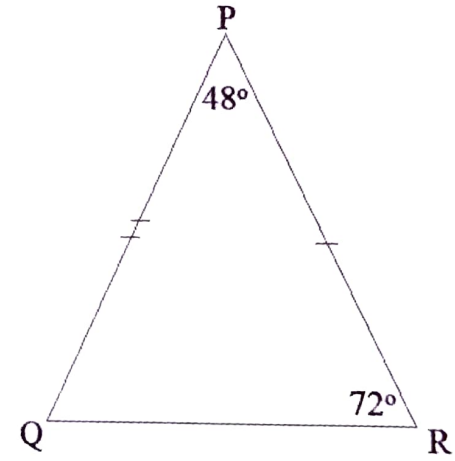


(i) State with reasons the pair of similar triangles.

(ii) Determine the length of side $\overline{FE}$.

(b) Form Two students were challenged on the use of corresponding angles and sides to prove for the congruence of triangles. One student managed to draw triangles of the same size and shape as follows:





Using the figures,

(i) state why triangles ABC and PQR are congruent.

(ii) calculate the value of the angle RQP.

9. (a) A photograph which has a diagonal of 7.8 cm long is to be fitted in a frame. Show whether the photograph will fit in the frame measuring 6 cm long and 5 cm wide.

(b) A square tile whose diagonal is 8 cm long makes an angle of 45° with a side of the tile. Evaluate the length of the side of the tile.

10. (a) In a village of 1500 villagers, 600 keep goats, 700 keep cows and 300 do not keep any of these animals. Use a Venn diagram to find the number of villagers who keep;

(i) both goats and cows.
(ii) goats only.
(iii) cows only.
(iv) goats or cows.

(b) The grades on a Mathematics test taken by 100 students are as shown in the following distribution table:

Marks	50 - 59	60 - 69	70 - 79	80 - 89	90 - 99
Number of students	3	21	32	27	17

(i) What is the size of each class interval of this distribution?
(ii) Which class interval had the highest number of students?
(iii) Find the class mark of the highest class interval.
(iv) Find the number of students who passed if the pass mark was 70.
(v) Use the condition given in 10 (b) (iv), find the number of students who failed the test.