Candidate's Examination Number.....

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

041

BASIC MATHEMATICS

Time: 2:30 Hours **Tuesday, 13th November 2018 a.m.**

Instructions

1. This paper consists of **ten (10) compulsory** questions.
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. Four figure 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 examination room.
6. Write your **Examination Number** at the top right corner of every page.

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

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1. (a) A block is cut into equal units of 10 g, 20 g and 35 g. Use prime factorization method to find the smallest possible mass of the block from which the pieces can be cut.

(b) Evaluate $0.864 \div 0.0246$ giving your answer correct to 2 significant figures.

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2. (a) Find out which of the two fractions, $\frac{5}{7}$ or $\frac{6}{9}$ is greater.

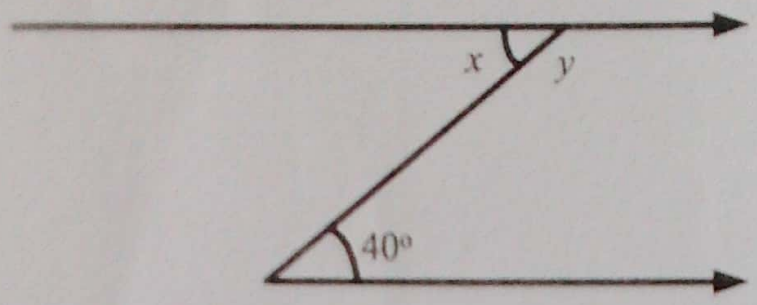
(b) If 0.125 of all students in a mixed class are girls, what percentage of the students are boys?

3. (a) Subtract:

	m	dm	cm	mm
	10	9	31	2
-	8	9	38	9

(b) Find the simple interest on sh. 10,000,000 invested for 5 years at the rate of 6% per annum.

4. (a) Calculate the size of angle x and y in the following figure:



(b) Find the perimeter of a right angled triangle whose base is $(4-\sqrt{2})$ cm and height is $(4+\sqrt{2})$ cm.

5. (a) Solve $\begin{cases} 2x + y = 20 \\ x = 35 - 3y \end{cases}$ by the elimination method.

(b) Solve the equation $4(p+1)(1-p) = 3$.

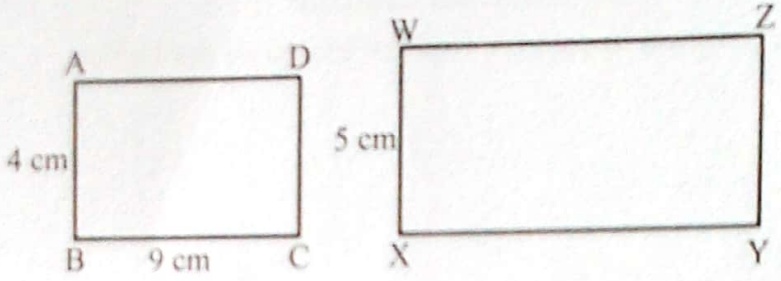
6. (a) If the slope of the straight line through the points (7, 4) and (-2, k) is 1, find the value of k.

(b) By using a sketch, find the image of the point $A(5, 2)$ under a reflection in the line $y = 0$, followed by another reflection in the line $y = x$.

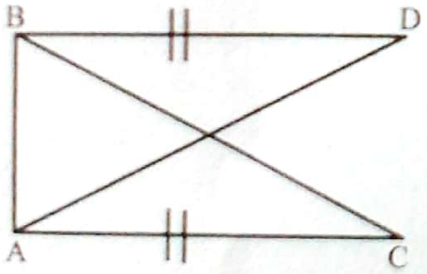
7. (a) Use laws of exponents to simplify $\frac{(2r^3)^2}{(2r)^3}$.

(b) If $\log 2 = 0.3010$, $\log 3 = 0.4771$ and $\log 7 = 0.8451$, find $\log 42$.

8. (a) Rectangle $ABCD$ is similar to rectangle $WXYZ$. If $\overline{BC} = 9cm$, $\overline{AB} = 4\ cm$ and $\overline{WX} = 5\ cm$; Calculate the length of $\overline{XY}$.



(b) The figure below shows that $\overline{AC} = \overline{BD}$. Prove that $A\hat{C}B = A\hat{D}B$.



9. (a) A ladder on the ground leans against a vertical wall whose height is 5 metres. The ground distance between the ladder and the wall is 12 metres.

(i) Draw a diagram to represent this information.

(ii) Using the diagram in part (i), find the length of the ladder.

(b) Given that $\sin A = \frac{3}{5}$ where A is an acute angle, find without using mathematical tables the values of:

(i) $\cos A$

(ii) $\tan A$

(iii) $\frac{1 - \sin A}{1 - \cos A}$

10. (a) In a class of 32 students, 18 play golf, 16 play piano and 7 play both golf and piano. Use a formula to find the number of students who play neither golf nor piano.

(b) A survey was done among students in a certain school in order to find the most popular subject. In this survey each student voted once and the results were as follows:

Subject	Mathematics	English	Biology	History	Geography	Physics
Number of Pupils	50	80	120	40	80	30

Show this information in a pie chart.