F1170REP

Candidate's Examination Number……

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

041 **BASIC MATHEMATICS**

Time: 2:30 Hours **Tuesday, 14th November 2017 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 and calculators 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		
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6		
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8		
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10		
TOTAL		

1 719041 100011

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1. (a) Find the LCM and GCF of 13, 52 and 104.

(b) Round off the number 568,356 to the nearest thousands and ten thousands.

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2. (a) Determine the improper fraction of $\frac{3}{5} \times 4\frac{1}{5} \div \frac{18}{25}$.

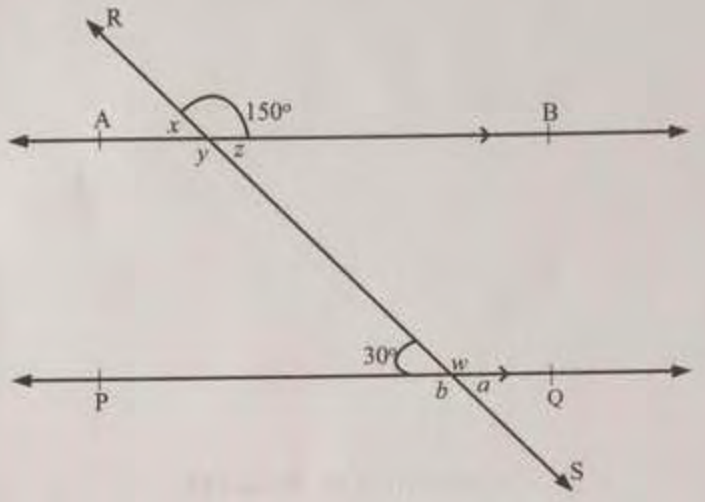
(b) Convert $\frac{1}{3}$ into a repeating decimal.

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3. (a) Change 15 km into centimeters.

(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 following figure, $\overline{AB}$ is parallel to $\overline{PQ}$ and $\overline{RS}$ is a transversal. Find the angles labeled a, b, w, x, y and z.



(b) Find the perimeter of a square, if its area is $25\ cm^2$.

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5. (a) Find the value of x in the equation $9 \times 3^{4x} = 27^{(x-1)}$.

(b) Factorize the expression $6x^2 - 11x + 4$ by splitting the middle term.

6. (a) Find the equation of the straight line passing through the points $(3, 5)$ and $(7, 9)$. (Express your answer in the form $y = mx + c$).

(b) The vertices of a triangle are A (2, 2), B (3, 4) and C (4, 3). If the triangle is reflected in the y-axis, write down the coordinates of the image of points A, B and C.

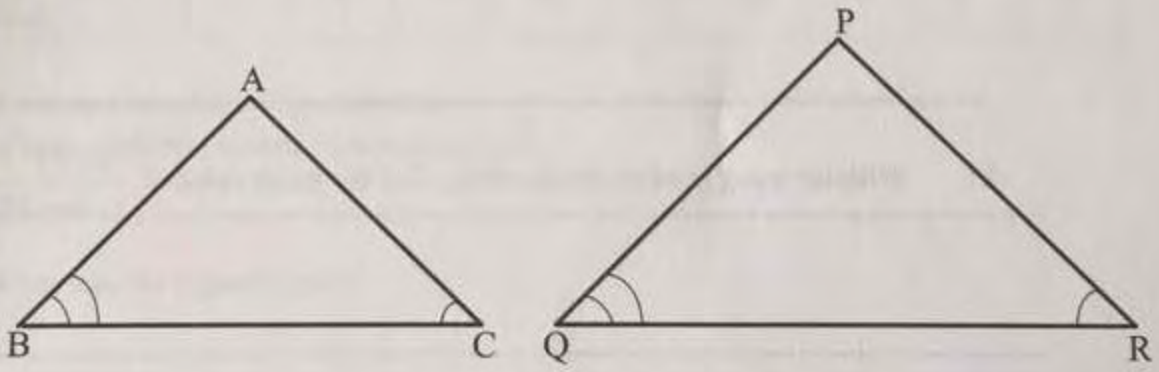
7. (a) Rationalize the denominator of $\frac{\sqrt{2}}{\sqrt{10}-\sqrt{2}}$.

(b) Without using mathematical tables, find the value of $3\log_{10} 5 + 5\log_{10} 2 - 2\log_{10} 2$.

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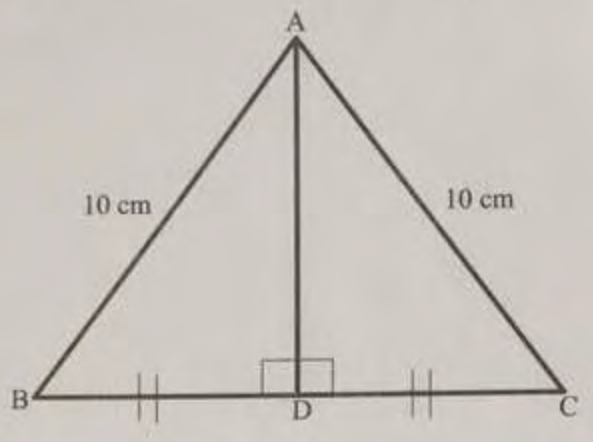
8. (a) PQR is an isosceles triangle whereby $\overline{PQ} = \overline{PR}$ and $\overline{QS} = \overline{SR}$. If S is a point between Q and R prove that $\Delta PQS \equiv \Delta PRS$.

(b) In the following figure, $\Delta ABC \sim \Delta PQR$, $\overline{AC} = 4.8$ cm, $\overline{AB} = 4$ cm and $\overline{PQ} = 9\ cm$. Find $\overline{PR}$.



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9. (a) The sides of an equilateral triangle ABC are 10 cm each. Find the length marked $\overline{AD}$ in surd form.



(b) Without using mathematical tables, find the exact value of $\dfrac{\tan 45^\circ + \tan 30^\circ}{1 - \tan 45^\circ \tan 30^\circ}$.

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

(b) The marks of 61 students are represented in the following table:

Marks in %	30	35	45	50	60	75	80	85	90
Number of students	3	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?