Candidate's Examination Number: ....

PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
MERU DISTRICT COUNCIL - FORM TWO MOCK EXAMINATION SEPTEMBER 2020
BASIC MATHEMATICS

CODE: 0041

TIME: 2:30 HOURS

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 drawing 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 unauthorized materials are not allowed in the examination room.

6. Write your examination number at the top right corner of every page.

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

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1. (a) Calculate the sum of the prime numbers between 70 and 90.

   (b) If x = 6, y= -14 and Z= 16 find the value of $Z\frac{x-y}{y+x}$

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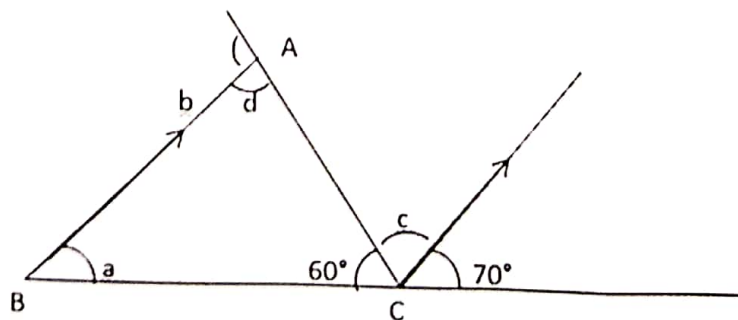
   (b) Covert $\frac{1}{3}$ into repeating decimal

3. (a) Substract:

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 6% per annum.

4. (a) Use the following figure to find the value of a + b + c

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(b) The perimeter of a triangle ABC is 16cm. If $\overline{AB}$ = (5 + x) cm, $\overline{AC}$ = (2 + x) cm and $\overline{BC}$ = 5cm, find the value of x and hence the actual lengths of $\overline{AB}$ and $\overline{AC}$

5. (a) Solve for x in the inequality 3x - 4 ≥ x + 16.

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(b) Solve the following pairs of simultaneous equations by the elimination method.

$$\begin{cases} 2x + y = 10 \\ 3x - 2y = 1 \end{cases}$$

6. (a) Find the equation of the straight line passing through the points (3, 5) and (7, 9). Express you 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.
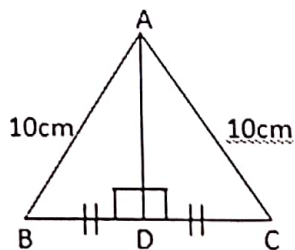
7. (a) Use the laws of exponents to simplify $\frac{2r^3)^2}{2r)^3}$

(b) If log2= 0.3010, log3= 0.4771 and log 7= 0.8451 find log 42.

8. (a) Factorize the expression $3x^2 + 7x - 6$.

(b) $[a + \frac{1}{a}]^2 = 14$, Find the value of $a^2 + \frac{1}{a^2}$

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

(b) Without using mathematical tables, find the exact value of;
$$\frac{\tan 45° + \tan 30°}{1 - \tan 45° \tan 30°}$$

10. (a) In a group of 40 people, 10 are health and every person of the remaining 30 has either high blood pressure, high level of sugar content in the body or both. If 15 people have high blood pressure and 25 people have high level of sugar content in their bodies have high blood pressure and high level of sugar content?

(b) The following table shows marks which were scored by Form Two students in a physics test at Sakweta Secondary School.

Marks %	40	45	50	55	60	65	70
Number of Students	6	8	M	5	9	4	3

From the Table, determine the value of M if the total number of students was 48, hence calculate the percentage of the students who scored at least 55 marks.

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