The United Republic Of Tanzania

President's Office

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

RUVUMA REGION

SC IL

FORM TWO ...IARCH 2024

041 BASIC MATHEMATICS

TIME: 2½ Hours **March, 2024**

Instructions

1. This paper consists of **ten (10) compulsory** questions.
2. Answer **all** questions
3. Each question carries ten (10) marks.
4. Show all the working and answers in the answer sheet (s) provided.
5. All writings must be in blue or black ink except for drawings which must be in pencil.
6. Calculators, cellular phones and any unauthorized materials are not allowed in the examination room.
7. Write your Examination number at the top right corner of every page of answer sheet (s)

This paper consists of 4 pages

1. (a) Three bells ring at intervals of 20 minutes, 30 minutes and 40 minutes. If they Start ringing together at 7:30 am.
   i) After how long will they ring together again?
   ii) At what time will this be?

   (b) Round off 349.678 to nearest
   i) Tens
   ii) Hundredth
   iii) One significant figure

2. (a) Write $0.1\dot{6}$ in form of $\frac{a}{b}$ where $b \neq 0$

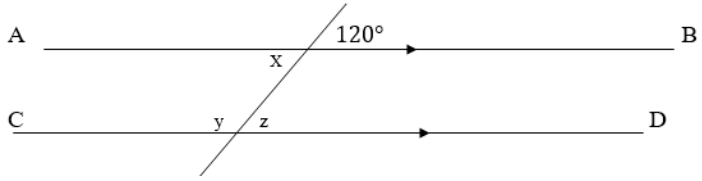
   (b) In a class of 40 students $\frac{3}{4}$ are boys. Two fifths of the girls wear spectacle. How many girls do not wear spectacles?

3. (a) Perform

km	m	cm
12	417	85
×		8

   (b) Find the time in which sh. 200,000/= will earn sh. 48,000/= at the rate of 4% interest per annum.

4. (a) Calculate the angles marked with letters x, y and z.



   (b) Find the area of rectangle whose perimeter is $30cm$ and its length and width are $(3w - 7)cm$ and $(w + 2)cm$ respectively.

5. (a) Factorize the expression $6x^2 - 11x + 4$ by splitting the middle term.
   (b)The sum and difference of the two numbers are 9 and 3 respectively. Find the possible numbers.

6. (a) (i) Find the equation of the straight line passing through (3,5) and (7,9)

(ii) Calculate the gradient and coordinates of the y-intercept of $2x + 3y = 12$

(b) Find the image of a point $(-4, 3)$ after reflection on y-axis followed by another reflection on $y = 0$

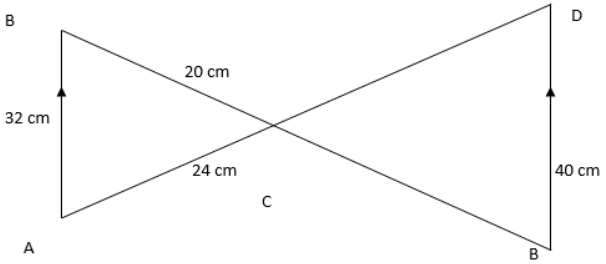
7. (a) If $\left(\frac{2}{3}\right)^{2x-1} \cdot \left(\frac{3}{2}\right)^{-4x+2} = \left(\frac{2}{3}\right)^{9}$

(b) Write $\frac{6}{3\sqrt{2}-2\sqrt{3}}$ in form of

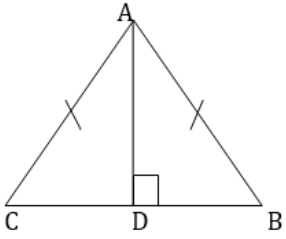
$a\sqrt{b} + c\sqrt{d}$ *where* $a, b, c,$ *and* d *are real numbers.*

(c) Given $\log log\ 2 = 0.3010$, $\log log\ 3 = 0.4770$ *and* $\log log\ 7 = 0.8451$ Find the value of $\log log\ 294$

8. (a)Calculate the length of CE and CD in the figure below



(b) Use the figure below to prove that triangle ADB ≡ triangle ADC.



9. (a) A rectangle has sides of $12mm$ and $16mm$. Calculate the length of one of its diagonals.

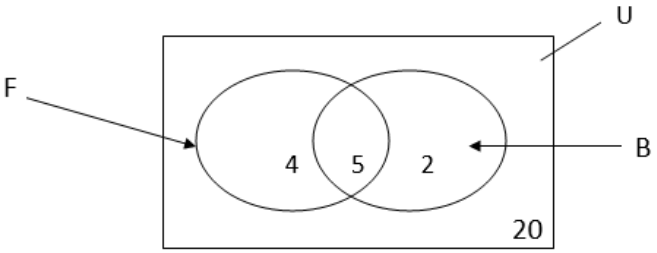
(b) Calculate the exact value of $\frac{\sin\sin 30° \cos\cos 30°}{\tan\tan 30°}$

10. (a) In the Venn diagram below

$U = \{Boys\ in\ form\ II\ at\ a\ certain\ secondary\ school\}$

$F = \{Members\ in\ the\ football\ team\}$

$B = \{Members\ in\ the\ basketball\ team\}$



i) How many boys are in the football?

ii) How many boys are in both teams?

iii) How many are in both football teams but not in the basketball team?

iv) How many are neither basketball nor football team?

v) How many boys of form II at the school?

(b) The table below shows the distribution of the score of 60 students in Mathematics test at MJI MWEMA secondary school.

Marks %	$45 - 55$	$56 - 66$	$67 - 77$	$78 - 88$	$89 - 99$
Number of students	11	15	x	17	10

i) Find the value of x

ii) Find the percentage of the student score who scored at most 77 marks