

**THE PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT**

BUNDA DISTRICT COUNCIL

**FORM TWO PRE-NATIONAL ASSESSMENT
041 BASIC MATHEMATICS**

Time: 2½ hours

2024

INSTRUCTIONS

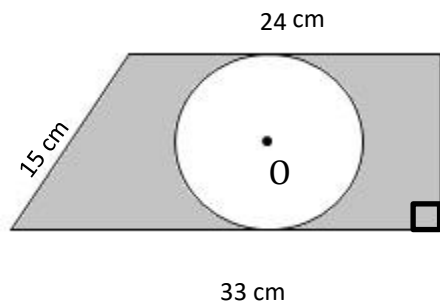
1. This paper consists of a total of 10 questions.
 2. Attempt all questions.
 3. Each question carries 10 marks.
 4. Mathematical tables and non-programmable calculators are not allowed
 5. Write your examination number on every page of your answer sheets
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1. (a) Two boys, Andrew and Aaron were to report to the headmaster's office. Andrew reports after every 30 minutes while Aaron reports after every 50 minutes. If both boys report together at 11:45 a.m , at what time will they next report together at the same time?

(b) In a school discipline committee, $\frac{2}{3}$ of members are male. If the committee has 60 members, find female members
 2. (a) (i) Find $8.129 \div 2$ correct to 4 significant figures

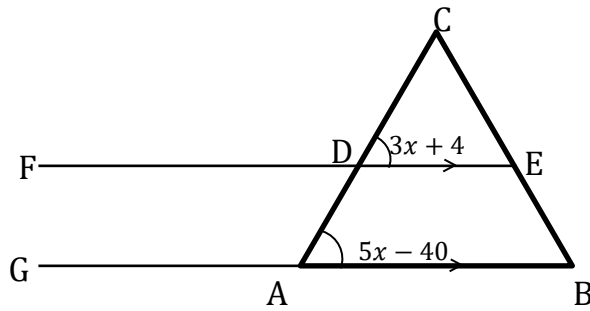
(ii) Round off 8.129 to the nearest hundredths

(b) (i) A lorry can take a load of 30 tonnes at once. How many trips can be made by a pick-up of capacity 6 000 kg to carry the same amount of load?

(ii) An airplane left an airport at 2030 hours. After six hours of flight, what was the time in 12 hours system?
 3. (a) Find the area of the shaded region in the following figure where O is the centre of circle O.
(Use $\pi = 3.14$)



- (b) Calculate $m\angle CDF$ in the following figure



4. (a) The sum of two numbers is 24. When three times one number is taken from twice the other number, the result is 8. Find the two numbers.

(b) Solve the following equation by completing the square:

$$\frac{2}{x} = \frac{3}{x-2} - 1$$

5. (a) A company borrowed 4 million from a bank that charges a simple interest rate of 6 % per annum. How much did the company pay after twelve months?

(b) If quantities A, B, and C shared 560 000 shillings in the ratio of 1: 3: 4, how much money did B get less than C?

6. (a) Given the following table of values for $y = mx + c$ as follows:

x	-1	0	1	2	3	4
y		-3				0

i. Fill in the given table

ii. Find the equation used to fill in the table in the form $y = mx + c$

(b) Find the image of B (4, 3) under a reflection on the y -axis then on the x -axis

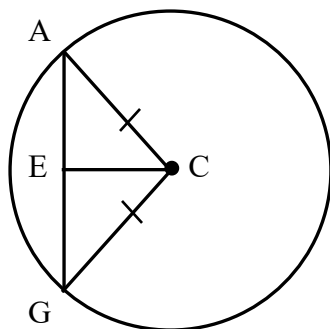
7. (a) (i) $2^x = 3$, find the value of 2^{-3x}

(ii) Rationalize the denominator and simplify the following surds expression

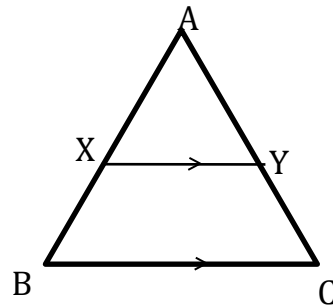
$$\frac{3a-3b}{\sqrt{a}+\sqrt{b}}$$

(b) Calculate y if $\log_2 48 - \frac{1}{3} \log_2 216 = y - 3 \log_2 2$

- 8 (a) Given: $\overline{AC} \cong \overline{GC}$, $\overline{EC}$ bisects $\overline{GA}$. Prove that $\triangle GEC \cong \triangle AEC$



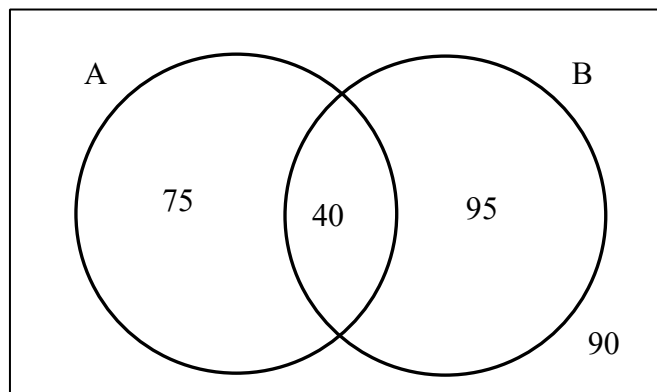
(b) Given the following figure: $AX:BX = 3:5$. Find the length of BC if the length of XY is 18 and the two triangles are similar.



9. (a) Evaluate x given that $\{9, x, 15\}$ is a Pythagorean triple

(b) Alice stands 200 m from the base of a tall building. The angle of elevation of the top of the building is $24^\circ 36'$. What is the height of the building?

10. (a) Find the number of elements in each of the indicated sets:



(i) $A \cap B$

(ii) $(A \cup B)'$

(iii) μ

(iv) $A' \cap B$

(b) A group of 28 students did a test in Biology. The marks obtained out of 50 marks were as follows:

34 40 30 43 33 41 25

32 30 33 15 34 23 28

47 20 33 23 39 24 36

21 23 43 42 33 16 23

- i. Prepare a frequency distribution table by using class mark 17, 22, 27, ...
- ii. Identify the class size and the modal class.