

**EDUCATION-NEWS CONSULT
2024 BECE HOME MOCK**

MATHEMATICS 1 & 2

2 HOURS

Name.....

Index Number.....



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SPECIAL PERFORMANCE BOOSTER – MOCK 3

JANUARY 2024

MATHEMATICS

2 HOURS

Do not open this booklet until you are told to do so. While you are waiting, read and observe the following instructions carefully. Write your name and index number in ink in the spaces provided above.

This booklet consists of two papers; I and II. Answer Paper 2 which comes first in your answer booklet and Paper 1 on your Objective Test answer sheet. Paper 2 will last for 1 hour, after which the answer book let will be collected. Do not start Paper until you are told to do so. Paper 1 will last 60 minutes.

VERY IMPORTANT INSTRUCTIONS

- 1. Read through the questions, brainstorm and plan your answers before you finally answer them. This is one of the good ways to manage your time in an exam and to do well.*
- 2. Write clearly, use simple expressions and provide the best answers possible.*
- 3. Write answers that provide additional information. If you just list answers or provide one to three worded answers, your will fail the paper.*
- 4. Do well to explain your answers to help earn full marks. Check your units of measurement, spellings, grammar and read over your work before submitting.*
- 5. Write question numbers boldly, start every new major question (answers) on a new page.*
- 6. Do not rewrite the full question before answering. Only write the question number.*
- 7. Show workings in all instances in section B if the question involves calculations.*

TURN OVER

PAPER 2 **1 HOUR**
[60 MARKS]

Answer four questions only. All questions carry equal marks.
All working must be clearly shown. Marks will be not be awarded for correct answer without corresponding working

QUESTION 1

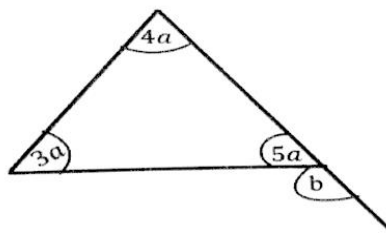
- a. A poultry farm has 35,467 boxes containing 678 white eggs. Find the number of eggs in the farm using lattice method.
- b. You have to buy two dozen of eggs priced at GH¢17.00, four loaves of bread at GH¢9.00 each, and 13 bottles of juice at GH¢14.70 per bottle. How much money will you need to buy these items?
- c. Find the truth set of $\frac{3x-5}{3} + \frac{4x-3}{6} - \frac{6x-2}{9} \geq 7\frac{1}{18}$

QUESTION 2

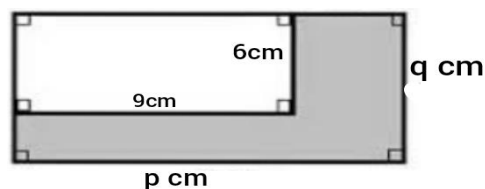
- a. Simplify $\frac{3\sqrt{7}}{7+\sqrt{11}}$
- b. If universal set $U=\{1 \leq x < 13\}$, subsets $A=\{\text{prime numbers}\}$ and $B=\{\text{composite numbers}\}$, list the elements of
- U, A and B
 - $A' \cup B$
 - $(A' \cap B')'$
- c. A light house tower is 30m above sea level. If the angle of depression of a boat from the top of the tower is 15° , how far is the boat from the light house
[Take $\tan 75^\circ = 3.73$]

QUESTION 3

- a. Calculate the sum of ***a*** and ***b*** in the diagram below.



- b. On a map, 1cm represents 4.5km. Calculate the actual distance between two towns which are 4cm apart on the map.
- c. Write an expression for the area of the shaded portion of the diagram below.



QUESTION 4

- a. Simplify $(15p^3q^2 \times 12x^5y^3) \div (36pq \times 45xy)$
- b. The ages of 5 singers are 55, 52, 50, y and 48. If their mean age is 47, find the value of y .
- c. The table shows the number of births recorded per month in two towns.

Months	January	February	March	April	May
Dobro	30	15	40	3	10
Adanse	45	13	50	5	10

Draw a double bar graph to represent the data.

QUESTION 5

- a. Mansa had 2,850 bags of rice in stock for sale. In January, she sold $\frac{2}{3}$ of it. In February, she sold $\frac{3}{5}$ of what is left.
- i. What fraction of the stock of rice did she sell
(α) in February
(β) in January and February
- ii. How many bags of rice were left unsold by the end of February
- b. The table below gives the number of malaria cases recorded in five hospitals in Western Region of Ghana.

Hospitals	Number of cases
Effia-Nkwanta	55
Westview	95
Jemima Crentsil	235
Nagel Memorial	170
Cloverleaf	165

Draw a pie chart to represent the data above

QUESTION 6

- a. Copy and complete the table of values for the relations $y_1 = 2x - 3$ and $y_2 = 2 - 4$ for x from -4 to 3.

x	-4	-3	-2	-1	0	1	2	3
$y_1 = 2x - 3$	-11		-7				1	
$y_2 = 4 - x$		7				3		1

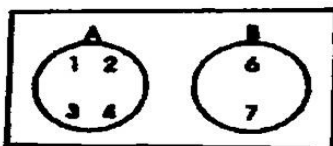
- b. i. Using a scale of 2cm to 1unit on the x -axis and 2cm to 2units on the y - axis, draw two perpendicular axes Ox and Oy on a graph sheet.
ii. On the same graph sheet, draw the graphs of the relations, $y_1 = 2x - 3$ and $y_2 = 4 - x$
- c. Using the graph, find
- the value of y when $x = -1.5$ on y_1
 - the gradient of y_2 that passes through the points

OBJECTIVE TEST

1 HOUR

Each question is followed by four options lettered A to D. Find out the correct option for each question and shade in pencil on your answer sheet the answer space which bears the same letter as the option you have chosen. Give only one answer to each question

1. What is 85.356 to 1 decimal place?
A. 85.4 B. 85.36 C. 85.3 D. 85
2. In the commutative property of addition, which statement holds true?
A. Changing the order of numbers does not change the sum.
B. Changing the order of numbers changes the sum.
C. Changing the order of numbers only works with specific integers.
D. Commutative property does not apply to addition.
3. Round 1,207 to 3 significant figures.
A. 1,210 B. 1,210.0 C. 1,21 D. 1,210.00
4. In the expression $2 \times (6+7)$, which property is illustrated?
A. Commutative property of multiplication
B. Associative property of multiplication
C. Commutative property of addition
D. Associative property of addition
5. Express 0.00564 to 2 significant figures.
A. 0.0056 B. 0.006 C. 0.005 D. 0.00564
6. Jenny bought a dress for \$45.98 and a pair of shoes for \$32.50. How much did she spend in total?
A. \$78.50 B. \$78.4 C. \$78.00 D. \$78.48
7. A car travels at a speed of 55 miles per hour for 2.5 hours. How far does it travel?
A. 137.5 miles B. 132 miles C. 139 miles D. 140 miles
8. What is the rule for multiplying surds with the same root?
A. Add the radicals.
B. Subtract the radicals.
C. Multiply the radicals.
D. Divide the radicals.
9. Identify the simple surd $\sqrt{16}$
A. $\sqrt{8}$ B. 4 C. $2\sqrt{4}$ D. 3
10. Given that $2^2 \times 3^2 \times 7 = 252$, find the least number that should be multiplied by 252 to make the product a perfect square.
A. 2 B. 3 C. 6 D. 7
11. Find the number that can be added to 207 to make the sum divisible by 17.
A. 3 B. 13 C. 14 D. 30
12. Which of the following describes the relationship between the sets A and B in the Venn diagram below?



- A. $A \subset B$ B. $A \cap B = 5$ C. $A \cap B = \emptyset$ D. $A \cup B = \{1, 2, 3, 4, 5, 6, 7\}$

13. By how much is $\frac{5}{6}$ greater than $\frac{3}{4}$?

- A. $\frac{1}{12}$ B. $\frac{1}{6}$ C. $\frac{5}{12}$ D. $\frac{2}{3}$

14. Simplify $-13 - 3 + (-10)$.

- A. -26 B. -20 C. -10 D. -6

15. Which of the following is an integer?

- A. $-\frac{5}{4}$ B. $-\frac{2}{3}$ C. 0.5 D. 1

16. What is the value of four in the number 7073.48?

- A. Four tenth. B. Four C. Forty D. Four hundred.

17. Find the value of $124.3 + 0.275 + 74.06$, correcting your answer to one decimal place.

- A. 198.6 B. 198.7 C. 892.0 D. 892.4

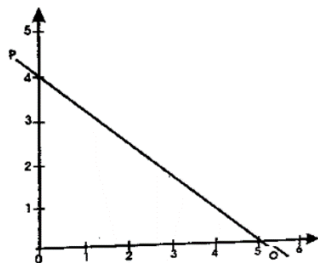
18. Identify the compound surd $\sqrt{6} \times \sqrt{5}$

- A. 11 B. $\sqrt{30}$ C. $3\sqrt{2}$ D. $7\sqrt{2}$

19. If $2025 = 3^4 \times 5^2$, find the square root of 2025.

- A. 3×5 B. $3^2 \times 5$ C. 3×5^2 D. $3^2 \times 5^2$

20. From the graph below, find the equation of the line PQ .



- A. $3y + 4x - 12 = 0$
 B. $3y + 4x - 4 = 0$
 C. $3y - 4x - 12 = 0$
 D. $5y + 4x - 20 = 0$

21. Write 1.02616 correct to 3 significant figures.

- A. 1.03 B. 1.02 C. 1.026 D. 1.0262

22. What property of addition does the statement $a + (b + c) = (a + b) + c$ illustrate where a , b and c are real numbers?

- A. Distributive. B. Commutative C. Closure D. Associative

23. Evaluate $1\frac{2}{3} - \left(1\frac{3}{4} \div 2\frac{5}{8}\right)$

- A. 2 B. 1 C. $\frac{2}{3}$ D. $\frac{1}{3}$

24. Identify the simple surd $\sqrt{9}$

- A. $\sqrt{8}$ B. $3\sqrt{3}$ C. 27 D. 3

25. Write 57774, correct to three significant figures.

- A. 57800 B. 57700 C. 5780 D. 578

26. Evaluate $(64)^{\frac{5}{6}}$

- A. 4 B. 8 C. 16 D. 32

27. Simplify $\frac{1}{\sqrt{2}}\left(\sqrt{2} + \frac{1}{\sqrt{2}}\right)$

- A. 1 B. $1\frac{1}{4}$ C. $1\frac{1}{2}$ D. 2

28. Simplify $-25 - (-5) + (-20)$

- A. -40 B. -20 C. 7 D. 40.

29. In an examination, 64 pupils out of 80 passed. What percentage of the pupils failed?

- A. 16% B. 20% C. 25% D. 80%

30. If $b = 2p^2(p - 3) \div 7p$; find b when $p = 10$

- A. 4 B. 20 C. 29 D. 40

31. If $2^{m-2} = 32$, find the value of m .

- A. 4 B. 5 C. 6 D. 7

32. Express 0.75 as fraction in the lowest form.

- A. $\frac{3}{5}$ B. $\frac{4}{3}$ C. $\frac{5}{3}$ D. $\frac{3}{4}$

33. Find the value of $5 + 2^0 - 1$

- A. 3 B. 4 C. 5 D. 6

34. Simplify $(3m)^2 - 3m^2$

- A. $3m$ B. $3m^2$ C. $6m$ D. $6m^2$

35. A rectangular garden has a length of 12.5 meters and a width of 8.3 meters. What is the area of the garden?

- A. 104 square meters
B. 116.5 square meters
C. 103.75 square meters
D. 99.6 square meters

36. The product of two numbers is 48. If one of the numbers is 6, what is the other number?

- A. 8 B. 10 C. 12 D. 16

37. The product of two consecutive even integers is 168. What are the integers?
A. 12 and 14 B. 14 and 16 C. 10 and 12 D. 16 and 18
38. The sum of a number and its double is 27. What is the number?
A. 9 B. 6 C. 8 D. 7
39. Correct 0.02751 to three decimal places
A. 0.027 B. 0.028 C. 0.03 D. 0.28
40. By how much does $(a + 2b - c)$ exceeds $(2b - a - c)$?
A. $2a + 2b$ B. $2a$ C. $2a + 4b$ D. $4b$