

MATHEMATICS

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FIRST TERM EXAMS
DECEMBER, 2025
MATHEMATICS (2&1)
Essay and Objective
2 hours
CLASS : BASIC 9

2 & 1

Name

Index Number.....

**ASSESSMENT FOR IMPROVING LEARNING
(C E P M E L I M I T E D)
FIRST TERM EXAMINATION**

Dec, 2025

MATHEMATICS (2&1) - BASIC 9

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. Answer Paper 2 which comes first, in your answer booklet and Paper 1 on your Objective Test answer sheet. Paper 2 will last 1 hour, after which the answer booklet will be collected. Do not start Paper 1 until you are told to do so. Paper 1 will last **60** minutes.*

FIRST TERM EXAMINATION
MATHEMATICS 2 - BASIC 9

Answer only four questions from this paper. All questions carry equal marks. All rough work should be done on the answer sheet and cancelled neatly afterwards.

1. a. One day a number of students arrived to take various examinations at a west African examination centre. Of these, half took the Accounting paper in the morning and 70 took the Economics paper in the afternoon. There were only 20 students who took both the Accounting paper and the Economics paper. Find how many of students
- Took the examination
 - Took the Accounting paper but not the Economics paper
- b. If $\frac{3m-n}{5m-n} = p$, express m in terms of p, q and n

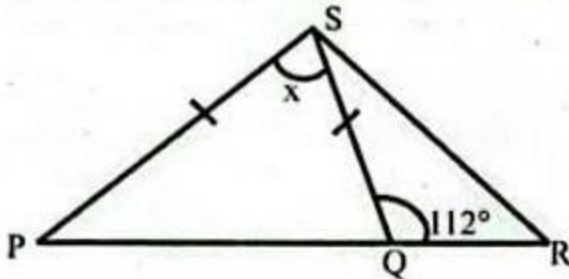
2. a. Simplify the expression $(2a + b)(a - b) + (2a - b)(a + b)$

b. Given that $m = -2$ and $n = \frac{3}{4}$, find the value of

i. $m^2(n-1)$

ii. $\frac{n^2 - \frac{3}{4}}{m}$

- c. In the diagram below, length of $PS =$ length of SQ and angle $SQR = 112^\circ$. Find the value of x .



3. a. Using a ruler and a pair of compasses only
- Construct a triangle PQR such that $|PQ| = 8\text{cm}$, $\angle RPQ = 90^\circ$ and $\angle PQR = 30^\circ$ measure $|RQ|$
 - Construct the perpendicular bisector of RQ. Let it meet RQ at O.
- b. With O as centre and OP, draw a circle. Measure $|OP|$
- c. What is the special name for the chord RQ?

4. The marks scored by some students in a mathematics text are as follows

3 3 5 6 3 4 7 8 3 4

5 4 7 4 3 7 4 6 4 8

4 5 6 3 8 4 5 6 4 5

- a. Construct a frequency distribution table of the scores

- b. Using the table, find:

i. Mode

ii. mean

iii. median correct to one decimal place

5. a. Mr Adu earned Gh¢460.00 moving laws in his neighborhood last week and Gh¢224.00 moving laws that this week. If Mr. Adu has spent only $\frac{1}{5}$ of this total earnings, how much money does he have now?

- b. Solve $\frac{1}{3}(x-1) - \frac{1}{2}(x-3) \leq 1\frac{1}{4}$ and illustrate your answer on the number line
- c. Factorize completely $2ap + aq - bq - 2bp$
6. a. Solve the pair of equations simultaneously using graph $x+y=6$ and $x-y=-4$
- b. If $p = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$, $q = \begin{pmatrix} 4 \\ 3 \end{pmatrix}$ and $r = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$ find $q-p+2r$

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FIRST TERM EXAMINATION
MATHEMATICS 1 - BASIC 9
OBJECTIVE TEST

Answer all questions in this paper by shading the correct answer on the shading sheet provided. Shade only one answer. Erase completely if you want to change the option selected.

1. -2, 15 is in which of these sets of numbers?
I. Whole numbers
II. Integers
III. Rotational numbers
A. I only
B. II only
C. III only
D. I and II only
2. Factorize $a^2 - (a-b)^2$
A. $b(2a-b)$
B. $b(2a+b)$
C. $b(a+2b)$
D. $2b(a-b)$
3. If z is a set of whole numbers divisible by 4 and 9, which of the following numbers is an element of z ?
A. 4
B. 9
C. 18
D. 36
4. If $P = \{3, 4, 5, 6\}$, $Q = \{5, 6, 7, 8\}$ and $R = \{2, 3, 7, 9\}$ which of the following represents the sets $P \cap (Q \cup R)$?
A. $\{5, 6\}$ B. $\{3, 4, 5\}$
C. $\{3, 5, 6\}$ D. $\{3, 4, 5, 6\}$
5. The number of significant figures in 700.9×10^3 is.....
A. 2
B. 4
C. 6
D. 8
6. Which of the basic properties of rational numbers is used in the following operation?
 $(37 \times 24) + (13 \times 24) = 50 \times 24$
A. Commutative
B. Associative
C. Distributive
D. Identify
7. A man spent 58% of his income and the amount of money left was Gh¢21,000.00. Find his income
A. Gh¢27,619.05
B. Gh¢36,266.90
C. Gh¢40,384.62
D. Gh¢36206.90
8. What is the value of 4 in the number 0.00147?
A. 4 ten -thousandths
B. 4 thousandths
C. 4 hundredths
D. 4 tenths
9. Find the value of m given that
 $m = (3^6 + 3^4) \times 27$
A. 3^1
B. 3^2
C. 3^3
D. 3^4
10. If $r = \frac{m+1}{m-2}$, express m in terms of r
A. $m = \frac{2r+1}{r-1}$
B. $m = \frac{2r+1}{r+1}$
C. $m = \frac{2r-1}{r-1}$
D. $m = \frac{2r-1}{r+1}$
- Use the information below to answer Question 11 and 12.*
- Forty percent to students in a class speak Ga and seventy-five percent speak Twi. Each student speak at least one of the two languages
11. What percentage of the class speak both Ga and Twi?
A. 5%
B. 10%
C. 15%
D. 30%

12. If there are 40 students in the class, how many of them speak Twi?

- A. 10
- B. 16
- C. 24
- D. 30

13. How many lines of symmetry has a square?

- A. 2
- B. 3
- C. 4
- D. 1

14. What is the H.C.F of 18, 42 and 90?

- A. 21
- B. 18
- C. 9
- D. 6

15. Kofi and Ama share an amount of money in the ratio 3:2 respectively. If Kofi had Gh¢6000.00, how much was share?

- A. Gh¢3600. 00
- B. Gh¢4000. 00
- C. Gh¢9000. 00
- D. Gh¢10 000. 00

16. The difference between two numbers is 168. If the smaller number is 113, find the other number

- A. 223
- B. 271
- C. 281
- D. 291

17. The point (4,5) is translated to the point (3,1). What is the translation vector?

- A. $\begin{pmatrix} -1 \\ -4 \end{pmatrix}$
- B. $\begin{pmatrix} 1 \\ 4 \end{pmatrix}$
- C. $\begin{pmatrix} 1 \\ -4 \end{pmatrix}$
- D. $\begin{pmatrix} -1 \\ 4 \end{pmatrix}$

18. Given that $m = \begin{pmatrix} 3 \\ -1 \end{pmatrix}$, $n = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$ and $r = \begin{pmatrix} 18 \\ 6 \end{pmatrix}$

find $m+n+r$

- A. $\begin{pmatrix} 21 \\ 5 \end{pmatrix}$
- B. $\begin{pmatrix} 20 \\ 5 \end{pmatrix}$
- C. $\begin{pmatrix} 20 \\ 5 \end{pmatrix}$
- D. $\begin{pmatrix} 20 \\ 9 \end{pmatrix}$

19. The equation of a line is $y-5x-1=0$. Find the gradient of the line

- A. 5
- B. $-\frac{1}{5}$
- C. $\frac{1}{5}$
- D. -5

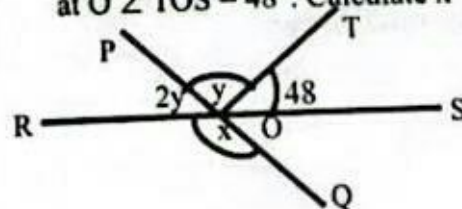
20. Simplify $\frac{x^2-y^2}{(x-y)^2}$ (where $x \neq y$)

- A. $\frac{x+y}{2xy}$
- B. $\frac{x+y}{xy}$
- C. $\frac{x-y}{2xy}$
- D. $\frac{x+y}{x-y}$

21. Evaluate the expression $(3ab)^2 - (2ab)^2$ when $a=2$ and $b=-2$

- A. 80
- B. 64
- C. -4
- D. -20

22. In the diagram below PQ and RS intersect at O $\angle TOS = 48^\circ$. Calculate x



- A. 44°
- B. 48°
- C. 88°
- D. 92°

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Use the mapping below to answer questions 23 and 24.

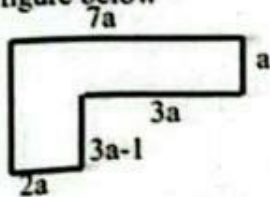
-2	-1	0	2	3	4	x
↓	↓	↓	↓	↓	↓	↓
y	-1	1	5	7	9	21

23. Find the value of x
 A. -7
 B. 5
 C. 6
 D. 10
24. Find the value of y
 A. -3
 B. -1
 C. 1
 D. 3
25. What is the mode of the following set of numbers. 4,5,3,3,4,2,7,6,5,4,4,17
 A. 3
 B. 4
 C. 5
 D. 6
26. Write 643.87 in standard form
 A. 6.4387×10^2
 B. 6.4387×10^3
 C. 6.4387×10^4
 D. 6.4387×10^5
27. Simplify $\frac{0.24 \times 14.3}{5.2}$
 A. 6.60
 B. 0.70
 C. 0.60
 D. 0.66
- The marks obtained by 10 boys in a test are 0,1,3,3,5,7,8,9,9,9. Use the information to answer Questions 28 to 29.*
28. Find the median score
 A. 5
 B. 6
 C. 7
 D. 8
29. Calculate the mean score
 A. 5.4
 B. 6
 C. 6.4
 D. 9
30. Simplify $17 - (17 - 5) + 14$
 A. 9
 B. 18
 C. 19
 D. 29
31. Find the product of 0.03 and 5.25
 A. 1.575×10^4
 B. 0.1575
 C. 15.75×10^1
 D. 0.001575
32. Solve the inequality: $2x + 2(x - 1) \leq 3x - (2 - 5x)$
 A. $x \leq 0$
 B. $x \leq 9$
 C. $x \leq -9$
 D. $x \geq 0$
33. Convert 0.25 to common fraction
 A. $\frac{1}{4}$
 B. $\frac{2}{5}$
 C. $\frac{3}{5}$
 D. $\frac{3}{4}$
34. The length of a square is 2y. Find the perimeter if $y = 4\text{cm}$
 A. 32cm
 B. 8cm
 C. 16cm
 D. 28cm
35. What is the value of 6 in 5641320?
 A. Six hundred thousand
 B. Sixty thousand
 C. Six thousand
 D. Six million
36. Simplify $\sqrt{9 \times 3 - 2}$
 A. 3
 B. 4
 C. 5
 D. 6

37. Find the number of Gh50 needed to make Gh¢6850

- A. 127 of Gh¢50 notes
- B. 137 of Gh¢50 notes
- C. 138 of Gh¢50 notes
- D. 147 of Gh¢50 notes

38. Find an expression of perimeter of the figure below



- A. $20a-2$
- B. $22a+2$
- C. $24a$
- D. $22a-2$

39. Given that

$$\text{Hexagon} + \text{Circle} + \text{Hexagon} = 15$$

$$\text{Circle} + \text{Circle} + \text{Circle} = 27$$

$$\text{Triangle} + \text{Circle} - \text{Hexagon} = 16$$

Find $\text{Hexagon} \times \text{Triangle} - \text{Circle}$

- A. 39
- B. 30
- C. 21
- D. 19

40. Given that $d = \begin{pmatrix} -3 \\ -4 \end{pmatrix}$ and $e = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$, find $\frac{1}{5}(2d-e)$

- A. $\begin{pmatrix} -5 \\ -10 \end{pmatrix}$
- B. $\begin{pmatrix} 1 \\ 2 \end{pmatrix}$
- C. $\begin{pmatrix} -5 \\ 2 \end{pmatrix}$
- D. $\begin{pmatrix} -1 \\ -2 \end{pmatrix}$

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