03004/2&1 BECE
June 2026
MATHEMATICS 2&1
Essay & Objective
2 hours

2&1

THE WEST AFRICAN EXAMINATIONS COUNCIL
GHANA

Basic Education Certificate Examination

June 2026 | MATHEMATICS 2&1 | 2 hours

ESSAY AND OBJECTIVE

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 for* **1** *hour.*

The use of calculators is **not** *allowed.*

PAPER 2 — 1 hour

Answer **four** *questions* **only**.

All *questions carry equal marks.*

All *working must be clearly shown. Marks will* **not** *be awarded for* **correct** *answers without corresponding working.*

1. (*a*) Given that $K = \{1, 2, 3, \ldots 11\}$:
   (i) list the prime numbers in K;
   (ii) find the probability that a number selected at random from the set K is **not** a prime number.

   (*b*) Factorize completely: $(x + y)(2m - n) - m(x + y)$.

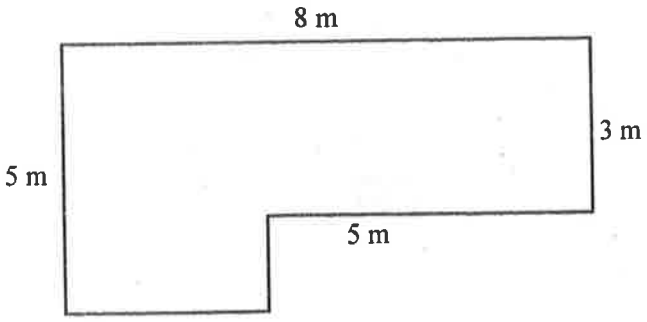
   (*c*) A typist charges GH¢ 68.00 for the first 8 sheets typed, and GH¢ 11.00 for **each** additional sheet. Calculate the amount earned if the typist typed a total of 35 sheets.

2. (*a*) The image of $P(2, 5)$ when translated by the vector $\boldsymbol{r}$ is $(-3, 8)$. Find:
   (i) $\boldsymbol{r}$;
   (ii) the image Q' of $Q(-4, -6)$ when translated by $\boldsymbol{r}$.

   (*b*) Joyce and Richard contributed GH¢ 10,000.00 and GH¢ 5,000.00 respectively to start a business. They agreed that Richard will be paid **one-third** of the profit as a manager and the rest of the profit will be shared in the ratio of their contributions. If the profit of GH¢ 9,000.00 was made, how much did:
   (i) Joyce receive;
   (ii) Richard receive in total?

3. (*a*) Asana was engaged to collect cashew-fruits on a farm and was paid a wage of GH¢ 25.00 a day. If the daily wage increased by 10% and she worked for 30 days, how much will she be paid?

   (*b*)



NOT DRAWN TO SCALE

The diagram shows the floor of a room with its dimensions. Find the:
(i) perimeter;
(ii) area;
(iii) cost of carpeting the floor if a carpet cost GH¢ 20.00 per square metre.

4. (*a*) In a school, the monthly income of three workers Aku, Brako and Dagadu are GH¢ 5,000.00, GH¢ 6,500.00 and GH¢ 4,200.00 respectively.
   (i) Calculate the yearly income of **each** worker.
   (ii) Find the yearly income difference **between** Aku and Dagadu.
   (iii) Find the total yearly income of **all** the three workers.

   (*b*) A painter places a ladder against a building at the window. The angle the foot of the ladder makes with the horizontal ground is 60°. If the distance from the foot of the ladder to the base of the building is 5 m:
   (i) illustrate the information in a diagram;
   (ii) find, correct to **one** decimal place, the:
      (α) length of the ladder;
      (β) distance between the window and the foot of the building.
      [Take $\tan 60^\circ = 1.732$, and $\cos 60^\circ = \frac{1}{2}$]

5. (*a*) Simplify $\frac{\sqrt{72}}{\sqrt{18}-\sqrt{12}}$, leave the answer in the form $a+b\sqrt{c}$, where a, b and c are integers.

   (*b*) Solve: $\frac{1}{2}(2x+1) \geq \frac{1}{3}x + 1\frac{9}{10}$.

   (*c*) An athlete runs **four** times round a circular truck of radius 70 m. Find, in metres, the total distance covered by the athlete.[Take $\pi = \frac{22}{7}$]

6. The data shows the shoe sizes of learners in a school.

6	4	7	5	5	6
4	5	5	4	6	7
5	6	4	6	7	5
6	4	7	5	4	6
5	5	4	6	7	5

   (*a*) Construct a frequency distribution table for the data.

   (*b*) If the school supplies shoes to the learners:
   (i) which size should be purchased in large quantities?
   (ii) give reason for the answer in (*b*)(i);
   (iii) which size will be purchased in less quantities?
   (iv) give reason for the answer in (*b*)(iii).

   (*c*) Find, correct to the **nearest** whole number, the mean shoe size.

END OF ESSAY TEST

BLANK SHEET

DO NOT TURN OVER THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

YOU WILL BE PENALIZED SEVERELY IF YOU ARE FOUND LOOKING AT THE NEXT PAGE BEFORE YOU ARE TOLD TO DO SO.

PAPER 1 — 1 hour

OBJECTIVE TEST

Answer **all** *the questions on your Objective Test answer sheet.*

1. Use **2B** pencil throughout.
2. On the pre-printed answer sheet, check that the following details are **correctly** printed: your **surname** followed by your **other names**, the *Subject Name*, your *Index Number*, *Centre Number* and the *Paper Code*.
3. In the boxes marked *Candidate Number, Centre Number* and *Paper Code*, **reshade** each of the shaded spaces.
4. An example is given below. This is for a male candidate whose name is James Koku SEIDU. His *index number* is 772384188 and he is writing the examination at *Centre Number* 77234. He is offering *Mathematics* 1 and the *Paper Code* is 0301.

THE WEST AFRICAN EXAMINATIONS COUNCIL, GHANA
BASIC EDUCATION CERTIFICATE EXAMINATION
OBJECTIVE ANSWER SHEET

CANDIDATE NAME: SEIDU JAMES KOKU	SUBJECT: MATHEMATICS 1

1. Use 2B pencil, Press firmly.
2. Answer each question by choosing one letter and then , shade through the letter chosen like this ⊏A⊐ ⊏B⊐ ⊏C⊐ ⊏D⊐ ⊏E⊐
3. If you want to change an answer, erase your first mark completely.
4. If any four alternative answers are given for each question, ignore the letter E.
5. Your question paper may have fewer than 60 questions.

CENTRE NUMBER								
7	7	2	3	8	4	1	8	8

CENTRE NUMBER				
7	7	2	3	4

PAPER CODE			
0	3	0	1

For Supervisors only. If candidate is absent shade this space. ⊏ ⊐

Answer **all** *the questions.*

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

If $3n + 2 = 8$, find the value of n.

A. 10
B. 6
C. 3
D. 2

The correct answer is **2**, *which is lettered* **D** *and therefore answer space* **D** *would be shaded.*

⊏A⊐ ⊏B⊐ ⊏C⊐ ⊏D⊐ ⊏E⊐

Think carefully before you shade the answer spaces, erase your first answer completely and shade the appropriate space for the new answer.

Do all rough work in this paper.
Now answer the following questions.

1. Arrange the following: $\frac{3}{4}$, 0.8, $\frac{5}{8}$, 0.65 in descending order.

A. $0.8, \frac{3}{4}, 0.65, \frac{5}{8}$

B. $\frac{5}{8}, 0.8, \frac{3}{4}, 0.65$

C. $0.65, \frac{5}{8}, \frac{3}{4}, 0.8$

D. $\frac{3}{4}, \frac{5}{8}, 0.8, 0.65$

2. Mr Mensah left his house at 9:45 am and reached his village at 4:15 pm. Find the time spent.

A. 5 hours 30 minutes
B. 8 hours
C. 6 hours 30 minutes
D. 7 hours

3. In a test, $\frac{2}{3}$ of the learners passed. If the number of learners who failed was 69, how many passed?

A. 23
B. 138
C. 46
D. 207

4. Factorize: $3a^2b - 9ab^2$.

A. $3ab(a - 3b)$
B. $ab(3a - b)$
C. $3ab(b - 3a)$
D. $ab(3b - a)$

5. Find the volume of a cube with side 5 m.
   A. $10\ m^3$
   B. $75\ m^3$
   C. $25\ m^3$
   D. $125\ m^3$

6. A trader sold an article for GH¢ 126.00 marking a profit of 20%. Find the cost price of the item.
   A. GH¢ 100.50
   B. GH¢ 105.00
   C. GH¢ 100.80
   D. GH¢ 151.20

7. Write 0.000437 in standard form.
   A. 4.37×10^{-4}
   B. 4.37×10^{-3}
   C. 4.37×10^{4}
   D. 4.37×10^{3}

8. Mary receives a commission of 15% on articles sold in a week. If her commission was GH¢ 60.00, how much sales did she make?
   A. GH¢ 900.00
   B. GH¢ 90.00
   C. GH¢ 400.00
   D. GH¢ 40.00

9. Simplify: $\sqrt{75} - \sqrt{18} - \sqrt{3} + \sqrt{2}$.
   A. $4\sqrt{3} - 2\sqrt{2}$
   B. $3\sqrt{3} - 2\sqrt{2}$
   C. $4\sqrt{3} + 2\sqrt{2}$
   D. $3\sqrt{3} + 2\sqrt{2}$

10. Theresa was asked to select at random a letter from the word **HAPPY.** What is the probability that she select the letter P?
   A. $\frac{1}{5}$
   B. $\frac{1}{2}$
   C. $\frac{2}{5}$
   D. $\frac{3}{5}$

11. Find the image of the point (2, −3) under the transformation $\begin{pmatrix} x \\ y \end{pmatrix} \rightarrow \begin{pmatrix} x \\ y-2 \end{pmatrix}$.

A. (2, 1)
B. (2, −1)
C. (2, −5)
D. (2, 5)

12. A square of area 144 cm^2 has the same perimeter as an equilateral triangle. Find the length of a side of the triangle.

A. 10 cm
B. 16 cm
C. 14 cm
D. 18 cm

13. Solve: $7 - 2x > 15 - 4x$.

A. $x < -4$
B. $x < 4$
C. $x > -4$
D. $x \geq 4$

14. Antwi has 20 mangoes and 20% are rotten. How many of them are **not** rotten?

A. 4
B. 12
C. 8
D. 16

15. A class of 42 learners shared some oranges and **each** received 11. If 22 learners shared the same number of oranges **equally**, how many will each get?

A. 15
B. 21
C. 20
D. 22

16. Make y the subject of the relation $p = \frac{r-4y}{3}$.

A. $y = \frac{1}{4}(3p - r)$

B. $y = \frac{1}{4}(r - 3p)$

C. $y = \frac{1}{4}(r + 3p)$

D. $y = \frac{1}{4}(r + p)$

17. A number is chosen at random from the set $P = \{1, 2, 3, 4, 5, \ldots 10\}$. What is the probability that the number is **greater** than 3?

A. $\frac{4}{5}$

B. $\frac{3}{10}$

C. $\frac{7}{10}$

D. $\frac{1}{5}$

18. Kofi paid an interest of GH¢ 30.00 on a loan he took for 4 years. If the rate was 3% per annum simple interest, find the amount borrowed.

A. GH¢ 360.00

B. GH¢ 250.00

C. GH¢ 280.00

D. GH¢ 90.00

19. A cyclist travelling at 20 km/h covered a distance in 35 minutes. What time will it take to cover the same distance travelling at 28 km/h?

A. 16 minutes

B. 48 minutes

C. 25 minutes

D. 49 minutes

20. Which of the following is **not** a composite number?

A. 24

B. 41

C. 39

D. 65

21. Kofi had 150 birds. He sold 26 of them and kept the rest equally in 4 cages. How many birds were kept in **each** cage?

A. 30

B. 35

C. 31

D. 36

22. If $(x + 2) : (x - 2) = 1 : 2$, find the value of x.

A. -2

B. -6

C. -3

D. -35

Turn over

23. Given that $\mu = \{1, 2, 3, \ldots 10\}$ and $M = \{2, 3, 5, 7\}$, where M is a subset of μ. List the members in μ that are **not** in M.

A. $\{1, 4, 6\}$
B. $\{2, 4, 6, 8, 10\}$
C. $\{2, 4, 6, 8\}$
D. $\{1, 4, 6, 8, 9, 10\}$

24. If $2^{2m} = 8$, find the value of m.

A. 2.0
B. 1.0
C. 1.5
D. 0.5

25. A boy spends $\frac{1}{4}$ of his pocket money on books and $\frac{1}{3}$ on pens. What fraction remains?

A. $\frac{5}{6}$
B. $\frac{5}{12}$
C. $\frac{7}{12}$
D. $\frac{1}{6}$

26. Two sets which have the same number of members are ... sets

A. equal
B. intersecting
C. equivalent
D. union

27. Change 25% to a fraction in its lowest form.

A. $\frac{1}{2}$
B. $\frac{1}{8}$
C. $\frac{1}{4}$
D. $\frac{5}{6}$

28.

x	1	2	3	4	5
$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$
y	3	6	9	12	15

What is the rule for the mapping?

A. $x \rightarrow 3x$

B. $x \rightarrow 4 - x$

C. $x \rightarrow x + 2$

D. $x \rightarrow 2x + 1$

29. Find the circumference of a circle whose area is 100π cm^2.

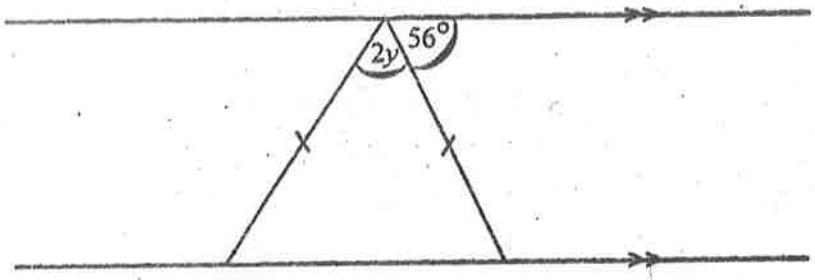
A. 5π cm

B. 15π cm

C. 10π cm

D. 20π cm

30.



NOT DRAWN TO SCALE

Find the value of y in the diagram.

A. $60°$

B. $30°$

C. $34°$

D. $28°$

31. Given the sequence $-9, -5, m, 3, 7, 11$, find the value of m.

A. -3

B. -1

C. -2

D. 1

32. The marks obtained by 11 learners in a test are: 2, 5, 5, 6, 7, 7, 8, 8, 8, 9, 10. What is the modal mark?

A. 2

B. 8

C. 7

D. 9

33. If $a = \begin{pmatrix} 3 \\ 1 \end{pmatrix}$ and $b = \begin{pmatrix} -2 \\ 1 \end{pmatrix}$, evaluate $6b + 2a$.

A. $\begin{pmatrix} -1 \\ 3 \end{pmatrix}$

B. $\begin{pmatrix} -6 \\ 8 \end{pmatrix}$

C. $\begin{pmatrix} 1 \\ 3 \end{pmatrix}$

D. $\begin{pmatrix} 6 \\ 8 \end{pmatrix}$

34. Evaluate: $p^2(q - 1)$ when p = 2 and $q = \frac{3}{4}$.

A. −2

B. 1

C. −1

D. 2

35. Ivy and Abbey share an amount of GH¢ 30.00 in the ratio 3 : 2 respectively. Find Abbey's share.

A. GH¢ 10.00

B. GH¢ 15.00

C. GH¢ 12.00

D. GH¢ 18.00

Mark	0	1	2	3	4	5
Frequency	1	2	7	5	4	3

The table shows marks scored by a group of learners in a test.
Use this information to answer questions **36** *and* **37**.

36. Find the median mark.

A. 1

B. 3

C. 2

D. 4

37. Find the probability that a learner selected at random scored 2.

A. $\frac{1}{22}$

B. $\frac{2}{22}$

C. $\frac{7}{22}$

D. $\frac{4}{22}$

38. If $\frac{3}{4}x = 2 + \frac{1}{4}$, find the value of x.

A. 1
B. 4
C. 3
D. 5

39. The product of three numbers is 90. If two of the numbers are 6 and 3, find the **third** number.

A. 18
B. 9
C. 15
D. 5

40. Simplify: $x - 5(3 - 2x) - 12x + 7$.

A. $x + 8$
B. $-21x + 8$
C. $-21x - 8$
D. $-x - 8$

END OF PAPER