

**MAY 2023 BECE HOME MOCK**

**ENGLISH LANGUAGE 1 & 2**

**1 HR, 45 MINS**

Name.....

Index Number.....

**MAY 2023**

**MATHEMATICS**

**2 HRS**

*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.*

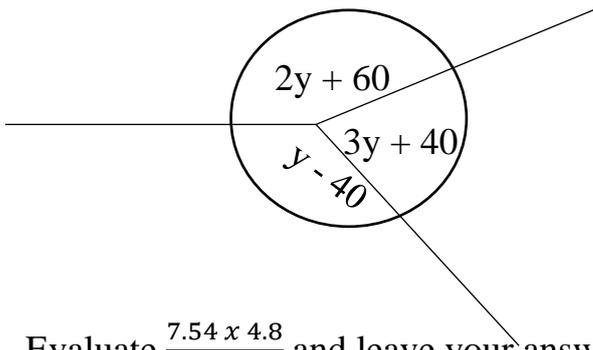
**VERY IMPORTANT INSTRUCTIONS**

- 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.*
- 7. Show workings in all instances in section B.*

SECTION B  
[60 MARKS]

Answer only **four** questions in all.

1. a) In a class of 47 pupils, 25 study Mathematics and 32 study English. 8 pupils do **not** study any of the two subject.
- I) Illustrate this information on a venn diagram.
- II) How many pupils study only one subject.
- b) Simplify the expression  $\frac{2a}{3} - \frac{a-b}{2}$
- c) Find the value of y in the diagram below.



2. a) Evaluate  $\frac{7.54 \times 4.8}{0.12}$  and leave your answer in the standard form.
- b) Factorize completely the expression  $2ap + aq - bq + 2bp$
- c) A water tank in a form of a cuboid of height 22cm and a rectangular base of length 7cm and width 5cm is filled with water. The water is then poured into a cylindrical container of diameter 14cm. Calculate the height of the water in the cylindrical container. [Take  $\pi = \frac{22}{7}$ ]
3. a) Francis bought 160 copies of books at GH¢ 3.50 per copy. He sold each of them at GH¢ 4.30. Find
- i) the total cost price
- ii) his percentage profit
- b) The circumference of a circle is 44cm. Find it's area.
- c) If  $p = \left(-\frac{2}{3}\right)$  and  $q = \left(-\frac{1}{6}\right)$ , find  $|3q - 2p|$

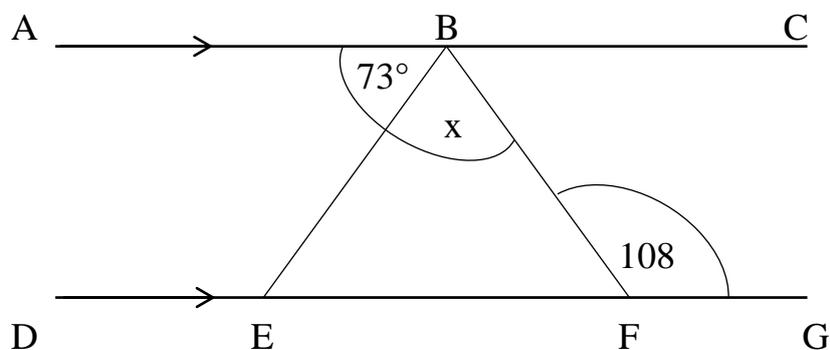
4. The marks obtained by 40 pupils in a test were as follows:

4 8 7 6 2 1 8 7 1 7  
1 7 4 3 7 3 1 2 3 8  
6 4 7 5 2 2 4 6 2 5  
7 5 4 8 3 7 3 5 4 1

- Construct a frequency distribution table for this data
- What is the mode of the distribution?
- Calculate the mean mark.
- What percentage of the pupils passed, if the pass mark is 5.
- What is the probability that a pupil selected at random scored not more than 4 marks.

5. a) Given that  $p = \binom{2x+4}{y-5}$  and  $q = \binom{8}{4}$ , find the values of  $x$  and  $y$  if  $p = \frac{1}{2}q$

b) In the diagram below  $|AC|$  is parallel to  $|DG|$  and angle  $BFG = 108^\circ$  and angle  $ABE = 73^\circ$



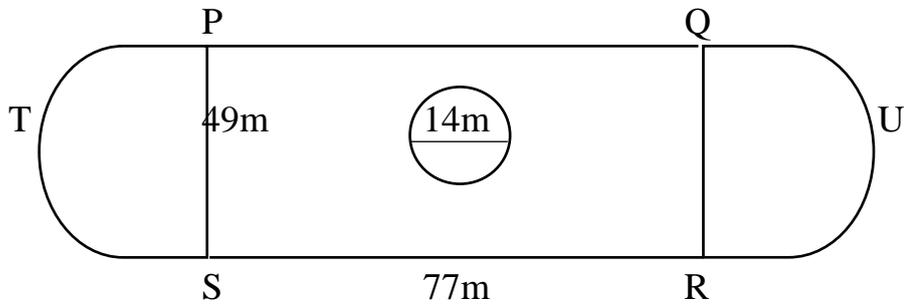
Find the value of

- Angle CBF
- $x$

d) Simplify  $\frac{x-5}{4} - \frac{3x-5}{2}$

6. Consider the diagram below representing a field PQURST with a circular pond of diameter 14m. find
- (a) the distance round the field
  - (b) the area of the field excluding the pond

[Take  $\pi = \frac{22}{7}$ ]



## SECTION A

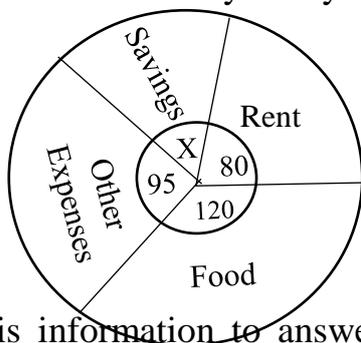
Each question is followed by four options lettered A to D. find the correct option for each question and shade in pencil on your answer sheet the answer space which bears the same letter as the option you have chosen. Give only one answer to each question.

1. Which of the following is a finite set?
  - A. {2, 4, 6, 8, .....}
  - B. {1, 2, 3, 4, .....}
  - C. {...2, 3, 5, 7}
  - D. {2, 6, 9, 12}
2. If  $p = \{2, 3, 4, 6, 8\}$  and  $Q = \{1, 2, 3, 4\}$  find  $P \cap Q$ 
  - A. {2, 3, 4}
  - B. {7, 9, 10}
  - C. {2, 3, 4, 6, 8}
  - D. {1, 2, 3, 4, 6, 8}
3. If  $21:2x = 7:12$ , find the value of  $x$ .
  - A. 10
  - B. 12
  - C. 15
  - D. 18
4. The sum of the interior angles of a regular polygon with 10 sides is
  - A. 1440
  - B. 144
  - C. 900
  - D.  $1800^\circ$
5. At a meeting attended by 23 people, the female were 7 more than the males. How many males were there?
  - A. 15
  - B. 8
  - C. 30
  - D. 16
6. Express  $\frac{10}{32}$  as a decimal fraction.
  - A. 0.3200
  - B. 0.3676
  - C. 0.3125
  - D. 0.322
7. Simplify:  $16 + 5.6 + 0.681$ 
  - A. 2.2281
  - B. 22.281
  - C. 222.81
  - D. 2228.1
8. What is the value of  $x$  if  $10^x = 1000$ ?
  - A. 3
  - B. 2
  - C. 100
  - D. 4
9. If 5 boys took 14 days to cultivate a piece of land, how long will it take 7 boys working at the same rate to cultivate the land?
  - A. 8 days
  - B. 14 days
  - C. 10 days
  - D. 12 days
10. Expand  $(2x + y)(2x - y)$ 
  - A.  $4x^2 + 4xy - y^2$
  - B.  $2x^2 - y^2$
  - C.  $2x^2 + 4xy - y^2$
  - D.  $4x^2 - y^2$
11. The point Q (-2, 3) is rotated anticlockwise about the origin through an angle of  $90^\circ$ . Find the coordinate of its image.
  - A. (-3, 2)
  - B. (-3, -2)
  - C. (3, -2)
  - D. (3, 2)

12. A woman deposited an amount of GH¢ 50,000 at a bank for 2 years at a rate of 20% per annum. Find the simple interest.
- GH¢ 1,000
  - GH¢ 2,000
  - GH¢ 10,000
  - GH¢ 20,000
13. Given that  $a = \begin{pmatrix} 4 \\ -6 \end{pmatrix}$  and  $b = \begin{pmatrix} -4 \\ 6 \end{pmatrix}$  find  $a + b$
- $\begin{pmatrix} 0 \\ 0 \end{pmatrix}$
  - $\begin{pmatrix} -8 \\ 12 \end{pmatrix}$
  - $(-12)$
  - $\begin{pmatrix} -8 \\ 0 \end{pmatrix}$
14. A piece of cloth is 8.4m long. If 30cm is needed to sew a napkin, how many napkins can be sewn from this pieces of cloth.
- |       |       |
|-------|-------|
| A. 25 | C. 28 |
| B. 20 | D. 30 |
15. The instrument used to measure the angle between two lines that meet at a point is known as a \_\_\_\_\_
- protractor
  - pair of compasses
  - set-square
  - pair of dividers
16. The diagonal of a rectangle is 10cm long. If the length of the rectangle is 8cm, find its breath.
- 4cm
  - 3cm
  - 5cm
  - 6cm
17. Arrange the following integers from the least to the highest.  
-4, 9, -10, -7, and 2
- 2, -4, -7, 9, 10
  - 10, -7, -4, 2, 9
  - 10, 9, -4, 2, 7
  - 4, -7, -10, 2, 9
18. If 15% of the length of a rope is 75 cm, find half of the length of the rope.
- 500 cm
  - 250 cm
  - 150 cm
  - 100 cm
19. Simply :  $7\frac{1}{7} \times \left(\frac{1}{4} \div \frac{1}{2}\right) - \frac{1}{4}$
- $\frac{7}{2}$
  - $\frac{11}{16}$
  - $\frac{7}{32}$
  - $\frac{1}{2}$
20. Find the value of n, if  $25.003 = (2 \times 10) + (5 \times 1) + (3 \times n)$
- 0.001
  - 0.011
  - 0.01
  - 0.1
21. A hall which is 20m long is represented on a diagram as 10cm long. What is the scale of the diagram?
- 1 : 200
  - 1 : 250
  - 1 : 400
  - 1 : 500
22. What is the place value of 7 in 24.376?
- Unit
  - Ten
  - Tenth
  - Hundred

23. A pineapple which was bought for GH¢ 1.00 was sold at GH¢ 1.30. Calculate the profit percentage
- A. 10%                                      C. 20%  
 B. 30%                                      D. 23%
24. There are 20 identical balls in a box. Twelve are blue and the rest are green. If one ball is taken at random from the box, find the probability that the ball is green.
- A.  $\frac{1}{20}$   
 B.  $\frac{3}{5}$   
 C.  $\frac{3}{4}$   
 D.  $\frac{2}{5}$

The pie chart shows how Kwaku spends his monthly salary



Use this information to answer questions 25 to 27.

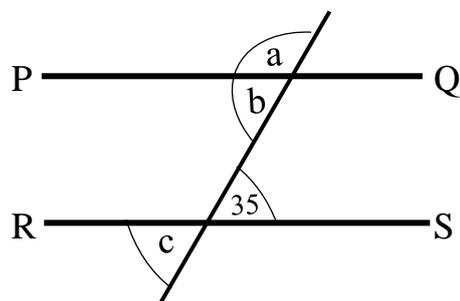
25. Find the value of x.
- A. 75                                      C. 85  
 B. 65                                      D. 100
26. What percentage of his salary does he spend on rent?
- A. 12.5%  
 B. 20%  
 C. 22.2%  
 D. 32.2%
27. Kwaku earns GH¢ 630 a month and spend  $\frac{1}{3}$  on food. How much of this does he spend on food.
- A. GH¢ 140                                      C. GH¢ 210

- B. GH¢ 157                                      D. GH¢ 350

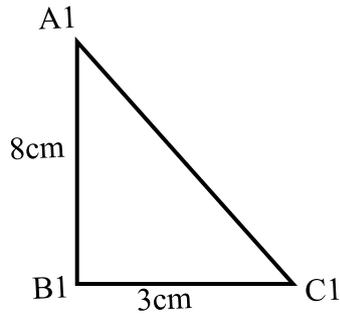
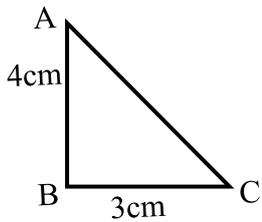
28. Simplify:  $\begin{pmatrix} 2 \\ -3 \end{pmatrix} - \begin{pmatrix} -1 \\ 5 \end{pmatrix}$
- A.  $\begin{pmatrix} -3 \\ -8 \end{pmatrix}$   
 B.  $\begin{pmatrix} 3 \\ -8 \end{pmatrix}$   
 C.  $\begin{pmatrix} -3 \\ 8 \end{pmatrix}$   
 D.  $\begin{pmatrix} 3 \\ 8 \end{pmatrix}$

29. Find the value of  $p^2 - 6p + 9$  when  $p = -2$
- A. -7                                      C. 12  
 B. 13                                      D. 25

In the diagram below, line PQ is parallel to RS and UV is a line drawn through PQ and RS. Use the diagram to answer questions 30 and 31



30. Find angle a.
- A. 135                                      C. 35  
 B. 55                                      D. 145
31. Angle b and angle C are called
- A. alternate angles  
 B. vertically opposite angles  
 C. corresponding angles  
 D. interior opposite angles
32. In the diagram below, triangle A, B, C, is an enlargement of triangle ABC. Determine the scale.



- A. 0.50  
B. 0.75  
C. 2.00  
D. 4.00
33. What is the value of the digit 9 in the number 624.93 ?  
A) 9 hundreds  
B) 9 tenths  
C) 9 units  
D) 9 tens
34. Solve the equation  
 $\frac{1}{5}(2 + y) = (y - 1)$   
A. -3  
B.  $\frac{-3}{4}$   
C.  $\frac{5}{3}$   
D. 3
35. The base of an isosceles triangle is 7cm long. Each of the other two sides is  $x$ cm long. What will be the expression for its perimeter?  
A.  $x + 7$   
B.  $x + 14$   
C.  $2x - 7$   
D.  $2x + 7$
36. The point P move in plane such that it is always at equal distance from two fixed points, A and B in the same plane. Which of these is the locus of the point P?  
A. The bisector of angle PAB  
B. A circle centre  
C. A circle with AB as the diameter  
D. The perpendicular bisector of line AB
37. Which of the following expression is illustrated on the number line below?  
  
A.  $x < -3$   
B.  $x \leq -3$   
C.  $x > -3$   
D.  $x \geq 3$
38. A mapping is defined by  $x \rightarrow x^2 - 1$ . What is the image of 3 under the mapping  
A. 5  
B. 6  
C. 7  
D. 8
39. Workers are required to pay 5% portions of their salaries into an education fund. A worker's salary is ₦ 120,000.00. How much does he pay into the education fund?  
A. ₦600.00  
B. ₦6000.00  
C. ₦60,000.00  
D. ₦10,800.00
40. Amina bought 4 books at an average price of ₦2,500. If the total cost of 3 books was ₦6,500. Find the cost of the fourth book.  
A. 3500  
B. 4300  
C. 6500  
D. 2500