HERITAGE GLOBAL ACADEMY

2, Ola Iya Close, Off Okiki Street, Isawo Road, Owutu Agric-Ikorodu, Lagos.

Third Term (2023/2024 Session) Examination

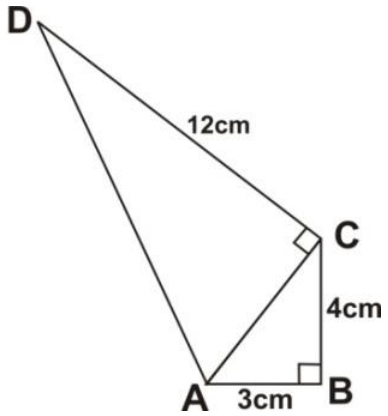
Subject: MATHEMATICS

Class: JS3 **Time: 1½ HOURS**

THEORY

INSTRUCTION: ANSWER ANY FIVE QUESTIONS FROM THIS SECTION

1. (a) Find the sum of 2,483.65, 701.532 and 102.7, giving your answer to one decimal place. (1 mark)



(b) In the quadrilateral ABCD above, |AB| = 3 cm, |BC| = 4 cm, |CD| = 12 cm and angle ABC = 90°. Calculate:
(i) the perimeter of ABCD (3 marks)
(ii) the area of ABCD (2 marks)

(c) Solve: $\frac{4x-3}{2} = \frac{8x-10}{8} + 2\frac{3}{4}$ (2 marks)

2. (a) Evaluate: $\frac{2^7 \times 3^4 \times 5^3}{2^3 \times 3^2 \times 5^2}$, leaving your answer in standard form. (2 marks)

(b) Kwame rode a bicycle for a distance of *x* km and walked for another ½ hour at a rate of 6 km/hour. If Kwame covered a total distance of 10 km, find the distance *x* he covered by bicycle. (2½ marks)

(c) A rectangular tank of length 22 cm, width 9 cm and height 16 cm are filled with water. The water is poured into a cylindrical container of radius 6 cm. Calculate the:
(i) volume of the rectangular tank (2½ marks)
(ii) depth of water in the cylindrical container. [Take $\pi = {}^{22}/_{7}$] (3 marks)

3. (a) The area of a trapezium is 31.5 cm^2. If the parallel sides are of lengths 7.3 cm and 5.3 cm, calculate the perpendicular distance between them. (3 marks)

(b) A bookseller bought 80 copies of books at GH¢ 3.50 per copy. He sold each of them at GH¢ 4.20. Find
(i) the total cost price (2 marks)

(ii) his percentage profit (2½ marks)

(c) Make h the subject of $v = \frac{1}{3}\pi r^2 h$ (2½ marks)

4. The table below shows the frequency distribution of the number of letters in the surnames of some students in a school.

No. of letters	4	5	6	7	8	9	10
No. of students	7	3	2	8	5	3	1

(a) From the distribution, determine

(i) the mode (2 marks)

(ii)the mean (2 marks)

(b) If a student is selected at random, find the probability that his/ her name will contain more than 7 letters. (2 marks)

(c) Draw a bar chart for the distribution. (4 marks)

5. (a) Using a ruler and a pair of compasses only, construct triangle ABC such that |AB| = 8cm, angle CBA = 45° and CAB = 60°. The bisector of angle ACB to meet AB at T.

Measure:

(i) |CT|

(ii) angle CTB. (5 marks)

(b) A boy spent $\frac{3}{8}$ of his money and had GH¢ 15.00 left. How much did he have? (3 marks)

(C) Simplify $(\frac{2}{15} + \frac{2}{5}) + (\frac{9}{10} \times \frac{4}{3}) + (\frac{1}{5} \div \frac{1}{4})$ (2 marks)

6. (a) The perimeter of a rectangular plot of land whose length is (2x+5) m and width (x – 10) is 80 m.

Find the

(i) value of x; (2 marks)

(ii) area of the plot; (1½ marks)

(iii) cost of weeding the plot at GH¢ 0.24 per m^2. (1½ marks)

(b) The number of pupils in a primary school is given in the table below:

Class	One	Two	Three	Four	Five	Six
Number of pupils	24	35	35	20	21	45

(i) Find the number of pupils in the school (1 mark)

(ii) What is the mean number of pupils in a class? (2 marks)

(iii) What percentage of pupils is in class six? (2 marks)