

**2015 BECE MATHEMATICS 1**  
**MATHEMATICS 1**

1. List the members of the set  $Q = \{\text{prime factors of } 30\}$ 
  - A.  $\{2, 3, 5\}$
  - B.  $\{2, 6, 10\}$
  - C.  $\{3, 5, 15\}$
  - D.  $\{3, 6, 15\}$
  
2. Given that set  $P = \{m, n, o, p\}$ , find the number of subsets of  $P$ .
  - A. 4
  - B. 8
  - C. 10
  - D. 16
  
3. If  $M = \{\text{multiples of } 4 \text{ between } 10 \text{ and } 25\}$  and  $N = \{\text{even numbers between } 11 \text{ and } 23\}$ , find  $M \cup N$ 
  - A.  $\{12, 16, 20\}$
  - B.  $\{14, 18, 22\}$
  - C.  $\{12, 14, 16, 18, 22\}$
  - D.  $\{12, 14, 16, 18, 20, 22, 24\}$
  
4. What is the place value of 7 in 24.376 ?
  - A. Unit
  - B. Ten
  - C. Tenth
  - D. Hundredth
  
5. Find the Highest Common Factor of 24, 42 and 72
  - A. 4
  - B. 6
  - C. 7
  - D. 12
  
6. Express  $120_5$  as a number in base 10
  - A. 25
  - B. 27
  - C. 32
  - D. 35
  
7. If  $p \times q \times r = 1197$ , and  $p = 19$ ,  $q = 3$ , find  $r$ 
  - A. 21
  - B. 49
  - C. 57
  - D. 61
  
8. How many integers are within the interval  $-5 < x < 7$  ?
  - A. 10
  - B. 11
  - C. 12

- D. 13
9. Divide 1.612 by 0.4
- A. 4.3
  - B. 4.03
  - C. 0.403
  - D. 0.43
10. Arrange the following fractions in ascending order:  $\frac{5}{8}$ ,  $\frac{11}{20}$ ,  $\frac{7}{10}$
- A.  $\frac{5}{8}$ ,  $\frac{11}{20}$ ,  $\frac{7}{10}$
  - B.  $\frac{7}{10}$ ,  $\frac{5}{8}$ ,  $\frac{11}{20}$
  - C.  $\frac{11}{20}$ ,  $\frac{5}{8}$ ,  $\frac{7}{10}$
  - D.  $\frac{5}{8}$ ,  $\frac{7}{10}$ ,  $\frac{11}{20}$
11. Abena spent  $\frac{1}{5}$  of her money on sweets,  $\frac{4}{7}$  on provisions and the rest on gari. What fraction of her money did she spend on gari?
- A.  $\frac{27}{35}$
  - B.  $\frac{13}{35}$
  - C.  $\frac{8}{35}$
  - D.  $\frac{5}{35}$
12. 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. 14 days
  - B. 12 days
  - C. 10 days
  - D. 8 days
13. A man invested GHC 800.00 in a bank at a simple interest rate of 5% per annum. Find his total amount in the bank at the end of one year.
- A. GHC 840.00
  - B. GHC 860.00
  - C. GHC 900.00
  - D. GHC 960.00
14. John sold a car for GHC 60,000.00 and made a profit of 20%. What is the cost price of the car?
- A. GHC 48,000.00
  - B. GHC 50,000.00
  - C. GHC 72,000.00
  - D. GHC132,000.00
15. What is the value of x if  $10^x = 1000$ ?

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

16. Express 625.13 in standard form

- A.  $6.2513 \times 10^{-2}$
- B.  $6.2513 \times 10^{-4}$
- C.  $6.2513 \times 10^2$
- D.  $6.2513 \times 10^4$

17. Find the median of the numbers 17, 12, 15, 16, 8, 18, 13 and 14

- A. 8
- B. 12
- C. 14.5
- D. 15.5

18. The ages in years of 10 children at a party are 2, 3, 3, 3, 4, 4, 5, 5, 5 and 6. If a child is chosen at random, what is the probability that he / she is **not** less than 5 years old ?

- A.  $\frac{2}{3}$
- B.  $\frac{2}{5}$
- C.  $\frac{3}{10}$
- D.  $\frac{1}{2}$

19. Expand  $(2x + y)(2x - y)$

- A.  $2x^2 - y^2$
- B.  $4x^2 - y^2$
- C.  $2x^2 + 4xy - y^2$
- D.  $4x^2 + 4xy - y^2$

20. Find the value of n, if  $25.003 = (2 \times 10) + (5 \times 1) + (3 \times n)$

- A. 0.001
- B. 0.011
- C. 0.01
- D. 0.1

21. Evaluate  $(3m)^2 - 3m^2$ , when  $m = 2$ .

- A. 12
- B. 18
- C. 20
- D. 24

22. A wrist watch is priced GHC 2,000.00. A shopkeeper allows a discount of 2% on the cost price. Find the discount on 20 of such wrist watches.

- A. GHC 500.00
- B. GHC 600.00

- C. GHC 800.00
- D. GHC 1,000.00

23. Find the value of  $m$ , if  $4(m + 4) = -8$ .

- A. -6
- B. -2
- C. 2
- D. 6

24. Find the rule for the following mapping

$x$	1	2	3	4	5
$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$
$y$	1	4	9	16	25

- A.  $y \rightarrow x+2$
- B.  $y \rightarrow 2x$
- C.  $y \rightarrow x^2$
- D.  $y \rightarrow 2x+2$

25. How many vertices has a cuboid?

- A. 6
- B. 7
- C. 8
- D. 14

26. The circumference of a circle is 440 m. Find the area of the circle. [Take  $\pi = \frac{22}{7}$ ]

- A. 14,400 m<sup>2</sup>
- B. 15,400 m<sup>2</sup>
- C. 16,400 m<sup>2</sup>
- D. 18,000 m<sup>2</sup>

27. What name is given to a triangle which has all its sides equal?

- A. Isosceles triangle
- B. Scalene triangle
- C. Equilateral triangle
- D. Right-angle triangle

28. At eight o'clock, which of the following is the angle between the hour and the minute hands of the clock?

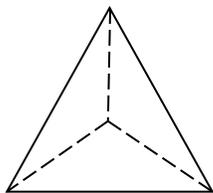
- A. 150°
- B. 120°
- C. 90°
- D. 60°

29. A rectangular field 50 m wide and  $y$  m long requires 260 m of fencing. Find  $y$ .

- A. 15 m
- B. 40 m
- C. 80 m
- D. 105 m

30. Which of the following best describes the statement: 'The locus of a point which moves so that its distance from two fixed points are always equal'?
- Bisector of an angle
  - Perpendicular bisector
  - Circle
  - Two parallel lines
31. The point K (1, 5) is rotated through  $90^\circ$  anti-clockwise about the origin. Find the coordinates of the image of K.
- (5, -1)
  - (-5, 1)
  - (-1, 5)
  - (1, -5)
32. Kwame is facing west. Through how many degrees should he turn anti-clockwise to face north?
- $90^\circ$
  - $180^\circ$
  - $270^\circ$
  - $360^\circ$
33. Given that vectors  $\mathbf{u} = \begin{pmatrix} -3 \\ 5 \end{pmatrix}$  and  $\mathbf{v} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}$ , find  $2\mathbf{v} - \mathbf{u}$
- $\begin{pmatrix} 1 \\ -1 \end{pmatrix}$
  - $\begin{pmatrix} -1 \\ 1 \end{pmatrix}$
  - $\begin{pmatrix} -7 \\ -11 \end{pmatrix}$
  - $\begin{pmatrix} 7 \\ -11 \end{pmatrix}$

34.



What is the name of the figure above?

- Cuboid
- Kite
- Triangle
- Pyramid

13	12	17
E	F	10
11	16	G

Use the magic square above to answer questions 35 to 37

35. Find the value of F

- A. 14
- B. 15
- C. 18
- D. 23

36. Find the value of E.

- A. 14
- B. 15
- C. 18
- D. 23

37. Evaluate E + G

- A. 29
- B. 30
- C. 33
- D. 38

38. The hypotenuse and a side of a right-angled triangle are 13 cm and 5 cm respectively. Find the length of the third side.

- A. 8 cm
- B. 9 cm
- C. 12 cm
- D. 17 cm

39. Find the missing number in the sequence below:

11, 16, 22, 29, \_\_, 46, 56

- A. 30
- B. 36
- C. 37
- D. 39

40. A hall which is 20 m long is represented on a diagram as 10 cm long. What is the scale of the diagram?

- A. 1:200
- B. 1:250
- C. 1:400
- D. 1:500