

2016 BECE MATHEMATICS 1
MATHEMATICS 1

1 Hour

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. {3, 6, 9, 12}

2. Given that $M = \{a, b, c\}$, find the number of subsets of M
 - A. 3
 - B. 2
 - C. 2

 - D. 8

3. 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}

4. A boy bought 3 pairs of socks at GHc 17.50 per a pair and paid with two GHc 50.00 notes. How much change was he given?
 - A. GHc 27.50
 - B. GHc 37.50 C. GHc 47.50 D. GHc 48.50

5. Find the least Common Multiple (LCM) of the numbers 5, 10 and 12
 - A. $2 \times 3 \times 5$
 - B. $2 \times 3^2 \times 5$
 - C. $2^2 \times 3 \times 5$
 - D. $2^2 \times 3^2 \times 5^2$

6. Correct 48,947.2547 to the nearest hundred.
 - A. 490
 - B. 48,900
 - C. 48,950

 - D. 49,000

7. Simplify: $16 + 5.6 + 0.681$
 - A. 2.2281 B. 22.281 C. 222.81
 - D. 2228.1

8. Evaluate: $\frac{4}{5} - \frac{1}{3} + \frac{2}{9}$
- A. $\frac{5}{11}$
- B. $\frac{11}{45}$
- C. $\frac{31}{45}$
- D. $\frac{41}{45}$
9. Arrange the following integers from the least to the highest - 4, 9, - 10, - 7 and 2.
- A. -10, -7, -4, 2, 9
- B. -10, 9, -7, -4, 2 C. -4, -7, -10, 2, 9
- D. 2, -4, -7, 9, -10
10. Simplify: $(46 \times 102) + (102 \times 54)$
- A. 1,020
- B. 10,200
- C. 102,000
- D. 1,020,000
11. Correct 5178.3426 to two decimal places
- A. 5178.00 B. 5178.30 C. 5178.34 D. 5178.35
12. Find the simple interest on GHc 120,000.00 for 5 months at 12% per annum.
- A. GHc 6,000.00
- B. GHc 7,200.00
- C. GHc 50,000.00
- D. GHc 72,000.00
13. Fifteen boys took 12 hours to weed a plot of land. If nine boys work at the same rate, how long will it take them to weed the plot of land?
- A. 6 hours
- B. $7\frac{1}{5}$ hours
- C. $11\frac{1}{4}$ hours
- D. 20 hours
14. A car cost GHc 12,500.00. A discount of 9% is given for cash payment. Find the cost of the car when payment is made by cash.
- A. GHc 10,250.00 B. GHc 11,250.00 C. GHc 11,375.00
- D. GHc 13,625.00
15. Simplify: $5^2 \times 2^2 \times 5^2 \times 2$
- A. $2^2 \times 5^2$ B. $2^2 \times 5^4$ C. $2^3 \times 5^2$
- D. $2^3 \times 5^4$

The table shows the marks of some students in a test.

Marks	0	1	2	3	4	5	6	7	8	9	10
Number of students	3	4	5	4	5	4	7	3	4	2	2

Use the information to answer questions **16** and **17**

16. What is the modal mark?

- A. 2
- B. 5
- C. 6
- D. 10

17. How many students failed the test, if the pass mark was 4?

- A. 4
- B. 6
- C. 16
- D. 21

18. What is the probability of obtaining 4, when a fair die is tossed once?

- A. $\frac{1}{6}$
- B. $\frac{1}{2}$
- C. $\frac{2}{3}$
- D. $\frac{5}{6}$

19. Make P the subject of the relation, $R = (P+Q)^2$

- A. $P = Q - 2R$
- B. $P = 2R - Q$
- C. $P = 2R + Q$
- D. $P = 2Q + R$

20. Given that $t = p^2 + 1$, find p when $t = 10$.

- A. 3.0
- B. 4.5
- C. 11.0
- D. 81.0

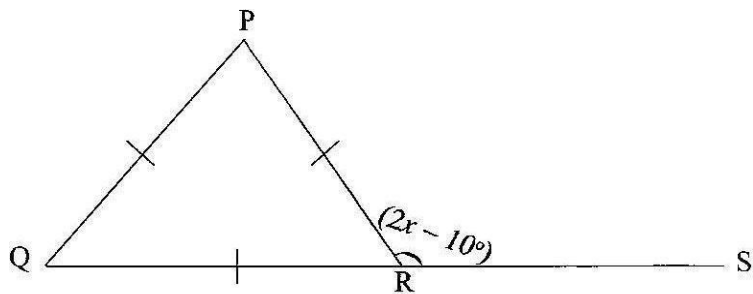
21. Simplify: $4(x + 2) - 3(x + 1)$.

- A. $x + 5$
- B. $x + 11$
- C. $7x + 5$
- D. $7x + 11$

22. When a number is doubled and the result is decreased by 9, the answer is 19. Find the number.

- A. 5

- B. 7
C. 14
D. 16
23. Solve the inequality $2x + 10 \geq \frac{7}{2}x - 5$
A. $x \geq 10$ B. $x \leq 10$ C. $x \leq 40$
D. $x \geq 40$
24. Find the image of 5, under the mapping $x \rightarrow 4x - 7$
A. 3
B. 13 C. 20
D. 27
25. An angle which is greater than 180° but less than 360° is
A. a right angle
B. an acute angle
C. an obtuse angle
D. a reflex angle
26. How many lines of symmetry has a rectangle?
A. 1 B. 2 C. 3
D. 4
27. The perimeter of an isosceles triangle is 45 cm. Find the length of the third side, if each of the equal sides is 14 cm long.
A. 11 cm B. 14 cm C. 17 cm
D. 31 cm
28. Find the area of a circle whose diameter is 7cm. [Take $\pi = \frac{22}{7}$]
A. 11 cm^2
B. $38 \frac{1}{2} \text{ cm}^2$
C. $44 \frac{1}{2} \text{ cm}^2$
D. 54 cm^2
29. The mean of three numbers is 12. If two of the numbers are 14 and 16, find the third number.
A. 6
B. 12 C. 30
D. 36
30. The sum of the interior angles of a regular polygon is 540° . Find the number of sides of the polygon.
A. 7 B. 6 C. 5 D. 4
31. The figure QPR is an equilateral triangle. If angle PRS = $(2x - 10^\circ)$, find the value of x.



NOT DRAWN TO SCALE

- A. 55° B. 65° C. 85°
 D. 95°

32. The diagonal of a rectangle is 10 cm long. If the length of the rectangle is 8 cm, find its breadth.

- A. 2 cm B. 3 cm C. 5 cm
 D. 6 cm

33. In an enlargement, $XY \rightarrow X_1 Y_1$. If $|XY| = 24$ cm and $|X_1 Y_1| = 8$ cm, calculate the scale factor of the enlargement.

- A. $\frac{1}{32}$
 B. $\frac{1}{24}$
 C. $\frac{1}{8}$
 D. $\frac{1}{3}$

Study the triangle of odd numbers and use it to answer Questions 34 and 35.

$$\begin{array}{cccc}
 13 & \mathbf{b} & \mathbf{c} & 19 \\
 & 7 & 9 & \mathbf{a} \\
 & & 3 & 5 \\
 & & & 1
 \end{array}$$

34. Evaluate: $13 + b + c + 19$.

- A. 62
 B. 64
 C. 74
 D. 76

35. Evaluate: $a + b + c$

- A. 24
 B. 29
 C. 36
 D. 43

36. Simplify: $(^{-3}) + (^2)$
 $5 \quad -7$

- A. $\frac{(-1)}{2}$
- B. $\frac{(-5)}{12}$
- C. $\frac{(-1)}{-2}$
- D. $\frac{(-5)}{-12}$

37. The bearing of X from Y is 196° . What is the bearing of Y from X?

- A. 016° B. 074° C. 106°
- D. 244°

38. If $a = -4$ and $b = 3$, evaluate $\frac{3a+2b}{ab}$

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

39. The point P $(-3, 7)$ is reflected in the x-axis. Find its image.

- A. $(-3, -7)$
- B. $(-3, 7)$ C. $(-7, 3)$ D. $(3, -7)$

40. The instrument used to measure the angle between two lines that meet at a point is known as a

- A. pair of compasses
- B. set-square
- C. protractor
- D. pair of dividers