

2010 BECE MATHEMATICS 1

MATHEMATICS 1

- Which of the following sets is well defined?
 - {Man, Kofi, Red, 14}
 - {Ink, Mango, Green, Nail}
 - {Car, Road, Glass, Book}
 - {Seth, Mary, Jacob, Evelyn}
- If set B is a subset of set A, then
 - sets A and B have the same number of elements
 - some members of set B can be found in set A
 - no member of set B is in set A
 - all the members of set B are in set A
- The leastcommon multiple (LCM) of 16, 30 and 36 is
 - 3
 - 6
 - 240
 - 720
- The sum of 5 and x divided by 4 is equal to 3.25. Find the value of x.
 - 8
 - 7
 - $2\frac{1}{4}$
 - $-3\frac{4}{13}$
- The numbers 32, 33, 34, ..., ..., 42 form a sequence in base 5.
Find the missing numbers
 - 35, 36
 - 30, 31
 - 40, 41
 - 31, 41
- Write down all the integers in the set $A = \{-10, -4, 0, \frac{1}{4}, 2\frac{1}{2}, 45, 100\}$
 - $\{-10, -4, 0, 45, 100\}$
 - $\{-10, -4\}$
 - $\{0, 45, 100\}$
 - $\{\frac{1}{4}, 2\frac{1}{2}\}$
- Find the total cost of 25 pens and 75 books if each pen costs GH¢ 0.20 and each book costs GH¢ 0.30.
 - GH¢22.50
 - GH¢23.50
 - GH¢27.50
 - GH¢50.00
- Simplify $-27 + 18 - (10 - 14) - (-2)$
 - 3
 - 7
 - 11
 - 35

9. Arrange the following numbers from the lowest to the highest: 0.5, 3, -5, 0.
 A) 0, 0.5, -5, 3 B) 0, -5, 0.5, 3 C) -5, 0, 0.5, 3 D) -5, 0.5, 0, 3
10. Find how many pieces of cloth $5\frac{1}{2}$ m long that can be cut from a roll of cloth 121 m long.
 A) $665\frac{1}{2}$ B) $115\frac{1}{2}$ C) 66 D) 22
11. Find the value of $124.3 + 0.275 + 74.06$, correcting your answer to one decimal place.
 A) 198.6 B) 198.7 C) 892.0 D) 892.4
12. Esi and Kwasi are 12 and 8 years old respectively. They share 60 mangoes in the ratio of their ages. How many mangoes does Esi get?
 A) 42 B) 40 C) 36 D) 18
13. It takes 6 students 1 hour to sweep their school compound. How long will it take 15 students to sweep the same compound?
 A) 24 minutes B) 12 minutes C) 3 hours D) 2 hours
14. A housing agent makes a commission of GH¢ 103,500 when he sells a house for GH¢ 690,000. Calculate the percentage of his commission.
 A) 15.0% B) 10.0% C) 7.5% D) 5.0%
15. A simple interest of GH¢ 37,500.00 is earned on an amount of GH¢ 500,000.00 for 3 years. Find the rate of interest per annum.
 A) 20.0% B) 10.0% C) 5.0% D) 2.5%
16. Simplify: $(8x^2y^3)(\frac{3}{8}xy^4)$
 A) $3x^3y^7$ B) $3x^2y^7$ C) $3x^3y^4$ D) $3xy$
17. The scores of 10 students in an examination are given as follows:
 45, 12, 75, 81, 54, 51, 24, 67, 19 and 39.
 What is the median of the scores?
 A) 39 B) 48 C) 51 D) 54
18. A pie chart is to be drawn from the data in the following table:

Cassava	20%
Yam	17%
Plantain	28%
Maize	35%

What will be the value of the angle of the sector for maize?

- A) 126.0° B) 100.8° C) 72.0° D) 61.2°

19. Eighteen cards are numbered from 11 to 29. If one card is chosen at random, what is the probability that it contains the digit 2?

- A) $\frac{3}{9}$ B) $\frac{7}{18}$ C) $\frac{5}{9}$ D) $\frac{11}{18}$

20. Find the value of x , if $\frac{x}{4} + 1 = 5$.

- A) 24 B) 20 C) 19 D) 16

21. Factorize: $xy + 5x + 2y + 10$

- A. $(x + 5)(2y + 10)$
 B. $(x + 2)(y + 10)$
 C. $(x + 5)(y + 2)$
 D. $(x + 2)(y + 5)$

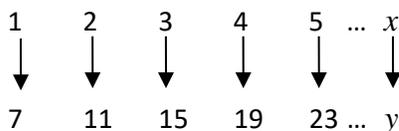
22. If $x \in \{2, 3, 4, 5\}$, find the truth set of $2x + 1 < 8$

- A. $\{2,3,4\}$ B. $\{2,3\}$ C. $\{3,4\}$ D. $\{4,5\}$

23. Solve the inequality: $7x - (10x + 3) \geq -9$

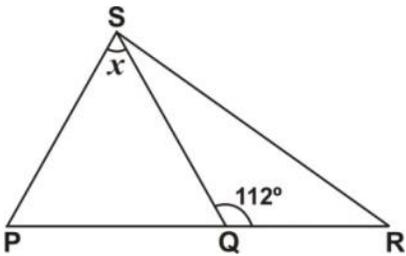
- A) $x \geq 2$ B) $x \leq 4$ C) $x \geq 4$ D) $x \leq 2$

24. Find the rule of the mapping:



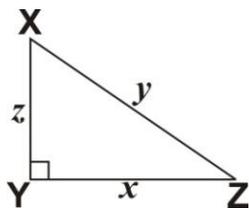
- A) $x \rightarrow 4x - 3$ B) $x \rightarrow 3 - 4x$ C) $x \rightarrow 4x + 3$ D) $x \rightarrow 4x + 5$

25. Find the circumference of a circle whose area is equal to $64 \pi \text{ cm}^2$.
- A) $32 \pi \text{ cm}^2$ B) $16 \pi \text{ cm}^2$ C) $8 \pi \text{ cm}^2$ D) $4 \pi \text{ cm}^2$
26. Which of the following geometric figures is the plane shape of a cube?
- A) Circle
B) Rectangle
C) Square
D) Triangle
27. How many lines of symmetry has a rectangle?
- A) 4 B) 3 C) 2 D) 1
28. A rectangular box has length 20 cm, width 6 cm and height 4 cm. Find how many cubes of side 2 cm that will fit into the box.
- A) 120 B) 60 C) 30 D) 15
29. The interior angle of a regular polygon is 120° . How many sides has this polygon?
- A) 3 B) 4 C) 5 D) 6
- 30.



In the diagram above, length of PS = length of SQ and angle SQR = 112° . Find the value of x .

- A) 68° B) 56° C) 46° D) 44°
31. XYZ is a right-angled triangle with length of sides as shown.



Which of the following equations gives the value of z^2 ?

- A) $z^2 = (x^2 + y^2)$

- B) $z^2 = (x - y)$
- C) $z^2 = (y^2 - x^2)$
- D) $z^2 = (x^2 - y^2)$

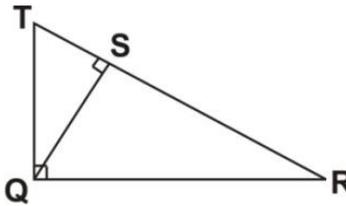
32. Express 7 min. 30 sec. as a percentage of 1 hour.

- A) 2.5%
- B) 7.5%
- C) 11.7%
- D) 12.5%

33. The point (4,5) is translated to the point (3,1). What is the translation vector?

- A. $\begin{pmatrix} -1 \\ 4 \end{pmatrix}$
- B. $\begin{pmatrix} 1 \\ 4 \end{pmatrix}$
- C. $\begin{pmatrix} 1 \\ -4 \end{pmatrix}$
- D. $\begin{pmatrix} -1 \\ -4 \end{pmatrix}$

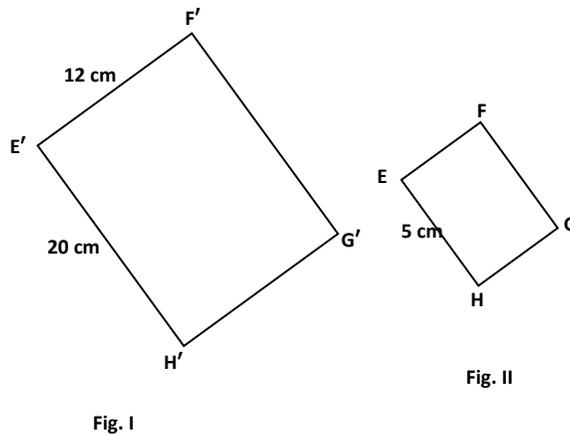
34. In the diagram below, triangle QRT is the enlargement of QST.



Which side of triangle QRT corresponds to side QT of triangle QST?

- A) TS
- B) TR
- C) QR
- D) SR

35.



Not drawn to scale

In the diagrams above Fig. I is an enlargement of Fig. II.

Find the side EF of Fig. II

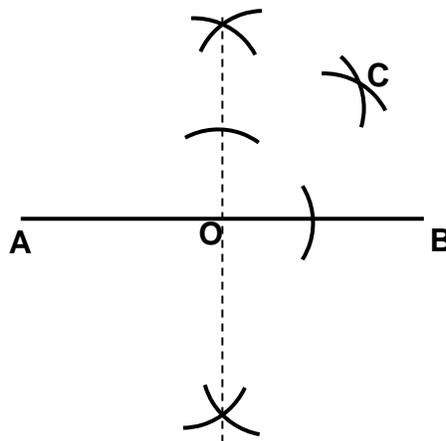
- A) 20 cm B) 5 cm C) 4 cm D) 3 cm

36. Express 4037 in standard form

- A) 4.037×10^{-4}
B) 4.037×10^{-3}
C) 4.037×10^3
D) 4.037×10^4

37. Which of the following angles can be constructed by using the arcs at point C in the diagram below?

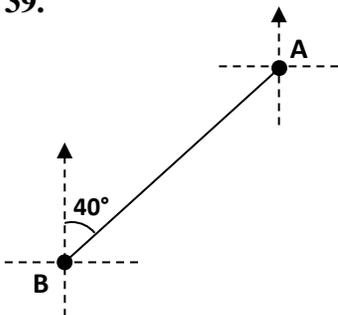
- A) 30° B) 45° C) 60° D) 75°



38. Given that vector $\mathbf{a} = \begin{pmatrix} -5 \\ 12 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} 10x \\ 12 \end{pmatrix}$ find the value of x if $\mathbf{a} = \mathbf{b}$.

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

39.



Not drawn to scale

In the diagram above, the bearing of point B from A is

- A) 340° B) 220° C) 140° D) 50°

40. Ama is 9 years older than Kwame. If Kwame is 18 years old, find the ratio of the age of Kwame to that of Ama.

A) 3 : 2

B) 1 : 3

C) 2 : 3

D) 2 : 1