

**2013 BECE MATHEMATICS 1**  
**MATHEMATICS 1**

1. If  $A = \{5, 10, 15, 20, 25, 125\}$  and  $B = \{5, 10, 15, 20, 25, 625\}$ , list the elements of  $A \cup B$

- A.  $\{5, 25\}$
- B.  $\{10, 20, 125, 625\}$
- C.  $\{5, 15, 25, 125, 625\}$
- D.  $\{5, 10, 15, 20, 25, 125, 625\}$

2. Express 1.25 as a percentage

- A. 25%
- B. 75%
- C. 125%
- D. 175%

3. Arrange the following in ascending order of magnitude: 0.301, 0.3, 0.33, 0.03

- A. 0.03, 0.3, 0.301, 0.33
- B. 0.03, 0.301, 0.3, 0.33
- C. 0.33, 0.3, 0.301, 0.03
- D. 0.33, 0.301, 0.3, 0.03

4. Evaluate  $53 - (-7) + (-15)$

- A. 31
- B. 45
- C. 61
- D. 75

5. Given that  $A = \{a, e, i, o, u\}$  and  $B = \{r, s, t\}$ . How many elements are in  $A \cap B$ ?

- A. 0
- B. 1
- C. 2
- D. 3

6. Convert  $2114_5$  to a base ten numeral.

- A. 194
- B. 280
- C. 284
- D. 300

7. Simplify  $\frac{2^2 \times 3^2}{4^2 \times 3^3}$

- A.  $1/12$
- B.  $1/6$
- C.  $1/4$
- D.  $1/3$

8. A car uses 150 litres of petrol in 45 minutes. How many litres of petrol will it use in 1 hour?

- A. 375 litres
- B. 230 litres
- C. 225 litres
- D. 200 litres

9. Simplify  $\frac{36a^3b^2x}{27ab^3y}$

- A.  $\frac{4a^2x}{3by}$
- B.  $\frac{4abx}{3y}$
- C.  $\frac{4a^2bx}{3y}$
- D.  $\frac{4a^4b^5x}{3y}$

10 Find the rule of the mapping

1	2	3	4	5	x
↓	↓	↓	↓	↓	↓
5	8	11	14	17	y

- A.  $x+2$
- B.  $x+4$
- C.  $2x+3$
- D.  $3x+2$

11. Given that  $-1 = 2 - m$ , find m

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

12. The perimeter of a rectangle is 48 cm. If the length is 14 cm, find its width.

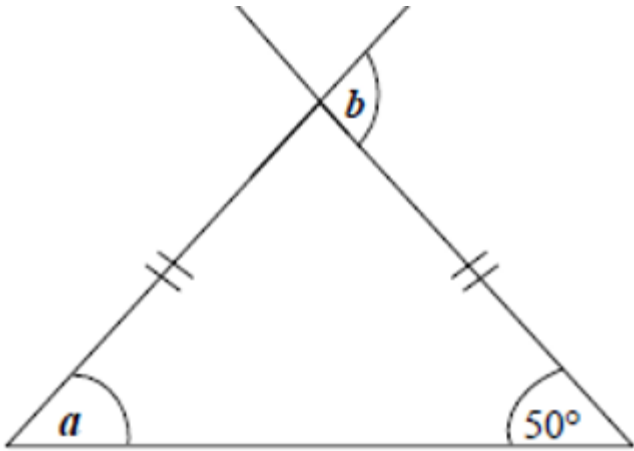
- A. 24 cm
- B. 20 cm
- C. 10 cm
- D. 3.4 cm

13. Make d the subject of the relation  $n=2d+3$

- A.  $d = \frac{3n}{2}$
- B.  $d = \frac{n+3}{2}$
- C.  $d = \frac{n-3}{2}$
- D.  $d = \frac{3-n}{2}$

14 Calculate the gradient of the straight line joining the points A(3, 5) and B(-2, 3)

- A  $5/2$
- B  $2/5$
- C  $-2/5$
- D  $-5/2$



Use the diagram below to answer Questions 15 and 16

15. Find the angle marked a

- A.  $70^\circ$
- B.  $50^\circ$
- C.  $40^\circ$
- D.  $30^\circ$

16. Find the angle marked b

- A.  $150^\circ$
- B.  $140^\circ$
- C.  $110^\circ$
- D.  $100^\circ$

17. If  $S = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ , find the probability that a number selected at random from S is odd.

- A  $3/8$
- B  $1/4$
- C  $1/2$
- D  $5/8$

18. Find the vector which translates the point (4, -5) to (3, -2)

- A.  $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$
- B.  $\begin{pmatrix} -1 \\ 3 \end{pmatrix}$

$$C. \begin{pmatrix} -1 \\ 7 \end{pmatrix}$$

$$D. \begin{pmatrix} 7 \\ 4 \end{pmatrix}$$

19 Factorize completely the expression  $2xy-6y+7x-21$

A  $(x-3)(2y+7)$

B  $(x+3)(2y-7)$

C  $(y+3)(2x-7)$

D.  $(y+3)(2x-7)$

20. The area of a circle is  $154 \text{ cm}^2$ . Find the diameter. [Take  $\pi = 22/7$ ]

A 7 cm

B 14 cm

C 21 cm

D 49 cm

21. Maame Esi rides her bicycle to school and back everyday. If the distance from her home to the school is 2345 m, how many kilometers does she cover everyday?

A. 4.98 km

B. 4.69 km

C. 3.96 km

D. 3.68 km

22. The length of a rectangular fence is 25 m. The ratio of the length to the width is 5:3. Find the width of the rectangular fence.

A. 9 m

B. 13 m

C. 15 m

D. 16 m

23. Evaluate  $\frac{20}{a} - b$ , if  $a = 30$  and  $b = 1$ .

A.  $-1\frac{2}{3}$

B.  $-\frac{1}{3}$

C.  $\frac{1}{3}$

D.  $1\frac{2}{3}$

24. How many 15Gp Christmas cards can be bought with GH¢18.00?

A. 120

B. 150

- C. 180
- D. 270

25 If  $u = \begin{pmatrix} 6 \\ 9 \end{pmatrix}$  and  $v = \begin{pmatrix} 4 \\ -5 \end{pmatrix}$ , find  $u+v$

A.  $u = \begin{pmatrix} -2 \\ 2 \end{pmatrix}$

B.  $u = \begin{pmatrix} 2 \\ -4 \end{pmatrix}$

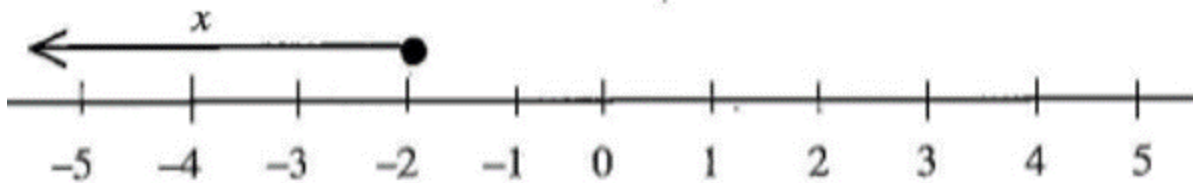
C.  $u = \begin{pmatrix} 10 \\ -14 \end{pmatrix}$

D.  $u = \begin{pmatrix} 10 \\ 4 \end{pmatrix}$

26. If  $4956 \times 25 = 123,900$ , evaluate  $495.6 \times 2.5$  leaving the answer in standard form.

- A.  $1.239 \times 10^2$
- B.  $1.239 \times 10^3$
- C.  $1.239 \times 10^4$
- D.  $1.239 \times 10^5$

27 Which of the following expressions is illustrated on the number line?



- A.  $x \leq -2$
- B.  $x < -2$
- C.  $x \geq -2$
- D.  $x > -2$

28. If 180 oranges were shared among Kwame and Ama in the ratio 7:5, respectively, how many oranges did Ama receive?

- A. 45
- B. 60
- C. 75
- D. 90

29. Calculate the simple interest on GH¢ 450.00 for 2 years at 12% per annum.

- A. GH¢ 191.00
- B. GH¢ 108.00
- C. GH¢ 54.00
- D. GH¢ 27.00

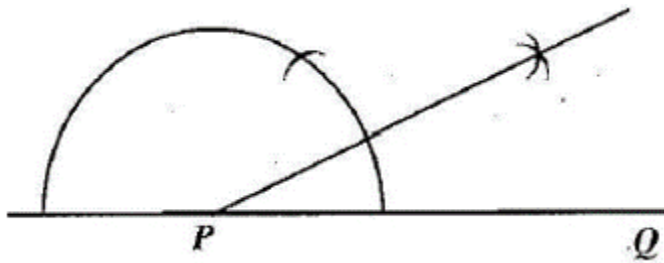
30. If 15% of the length of a rope is 75 cm, find half of the length of the rope.

- A. 500 cm
- B. 250 cm
- C. 150 cm
- D. 100 cm

31. In an office,  $\frac{2}{3}$  of the telephone bill is paid by Tom, by  $\frac{1}{5}$  by Azuma and the remaining by Tina. What fraction is paid by Tina?

- A  $\frac{2}{15}$
- B  $\frac{1}{4}$
- C  $\frac{1}{3}$
- D  $\frac{7}{15}$

32.



Which of the following best describes the construction?

- A. Constructing a perpendicular at P
- B. Constructing the bisector of line PQ
- C. Constructing an angle of  $30^\circ$  at P
- D. Constructing an angle of  $45^\circ$  at P

33. Express 0.055 as a common fraction

- A  $\frac{11}{40}$
- B  $\frac{5}{18}$
- C  $\frac{1}{40}$
- D  $\frac{11}{200}$

The table below shows the distribution of workers in some trades

Trade	Shoe making	Mining	Road transport	Agriculture	Manufacturing goods
<b>Number of workers</b>	300,000	25,000	160,000	225,000	165,000

Use this information to answer Questions 34 and 35

34. Which trade employed the most number of workers?

- A. Agriculture
- B. Manufacturing goods
- C. Shoe making
- D. Road transport

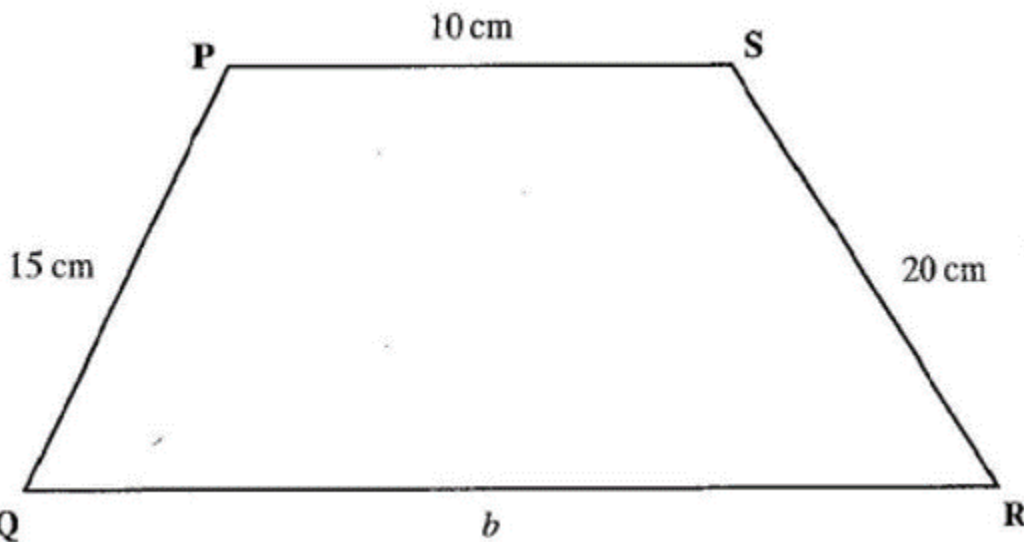
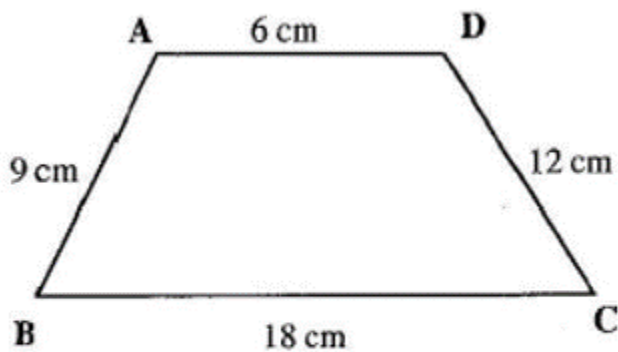
35. How many people are employed under all the trades?

- A. 325,000
- B. 485,000
- C. 650,000
- D. 875,000

36. Aba bought a carton of fish at GH¢ 80.00 and sold it at a profit of GH¢ 13.60. Find the selling price.

- A. GH¢ 66.40
- B. GH¢ 93.60
- C. GH¢ 103.60
- D. GH¢ 144.00

37.



If the two figures ABCD and PQRS are similar, find the value of  $b$ .

- A. 60 cm
- B. 40 cm
- C. 33 cm
- D. 30 cm

38. A man shared an amount of money between his two children, Esi and Ato in the ratio 2:3 respectively. If Ato received GH¢ 45.00, what was the total amount shared?

- A. GH¢ 18.00
- B. GH¢ 27.50
- C. GH¢ 75.00
- D. GH¢ 112.50

39. How many edges has a cuboid?

- A. 16
- B. 12
- C. 8
- D. 4

40. Two sets whose intersection is an empty set are

- A. disjoint sets
- B. equivalent sets
- C. finite sets
- D. empty sets