

Answer **all** questions.

Each question is followed by four options lettered **A** to **D**. Find the **correct** option for **each** question and shade in **pencil** on your answer sheet the answer space which bears the same letter as the option you have chosen. Give only **one** answer to **each** question. An example is given below.

If $3n + 2 = 8$, find the value of n .

- A. 10
- B. 6
- C. 3
- D. 2

The correct answer is 2, which is lettered D and therefore answer space D would be shaded.

A B C D

Think carefully before you shade the answer spaces. Erase completely any answers you wish to change.

Do all rough work on this question paper.

Now answer the following questions.

1. Write 1930.54 in standard form.

- A. 1.93054×10^2
- B. 1.93054×10^3
- C. 1.93054×10^{-2}
- D. 1.93054×10^{-3}

2. For what value of x is $3^x = 81$?

- A. 2
- B. 4
- C. 27
- D. 9

3. A car travels 36 kilometres in an hour. Find its speed in metres per second.

- A. 10 m s^{-1}
- B. 100 m s^{-1}
- C. 20 m s^{-1}
- D. 200 m s^{-1}

4. If $\frac{n}{100} = 10.5$, find the value of n .
- A. 1050
B. 0.105
C. 105
D. 0.0105
5. If a trader made a profit of 10 % in selling a shirt for GH¢ 44.00, find the cost price.
- A. GH¢ 39.60
B. GH¢ 38.50
C. GH¢ 48.40
D. GH¢ 40.00
6. Simplify $1\frac{1}{5} \div 2\frac{1}{10}$.
- A. $\frac{4}{7}$
B. $2\frac{13}{25}$
C. $\frac{12}{63}$
D. $\frac{25}{63}$
7. The volume of a cylinder is $40\pi \text{ cm}^3$. If the height of the cylinder is 10 cm, find the base radius.
- A. 1 cm
B. 4 cm
C. 3 cm
D. 2 cm
8. The **longest** chord of a circle is the
- A. sector.
B. segment.
C. circumference.
D. diameter.

9. If $x = \frac{b^2 - 4ac}{2a}$, find x when $a = 2$, $b = -4$ and $c = -2$.

- A. 16
- B. 0
- C. 4
- D. 8

10. The ratio of farmers to children in a village is 13 : 11. If there were 312 farmers in the village, how many children were there?

- A. 143
- B. 169
- C. 264
- D. 48

11. Arrange the following fractions from the lowest to the highest: $\frac{3}{5}$, $\frac{1}{4}$, $\frac{2}{3}$.

- A. $\frac{2}{3}$, $\frac{1}{4}$, $\frac{3}{5}$
- B. $\frac{2}{3}$, $\frac{3}{5}$, $\frac{1}{4}$
- C. $\frac{1}{4}$, $\frac{3}{5}$, $\frac{2}{3}$
- D. $\frac{3}{5}$, $\frac{1}{4}$, $\frac{2}{3}$

12. What is the length of the side of a square of area 225 cm²?

- A. 15.00 cm
- B. 56.25 cm
- C. 12.00 cm
- D. 112.50 cm

13. The rule of a mapping is $x \rightarrow 2x^2 - 1$. What number does $x = 2$ map to?

- A. 3
- B. 9
- C. 7
- D. 8

14. Express 108 as a product of prime factors.

- A. $2^3 \times 3$
- B. 2×3^4
- C. $2^3 \times 3^2$
- D. $2^2 \times 3^3$

15. Express 15 : 12 in the form 1 : n .

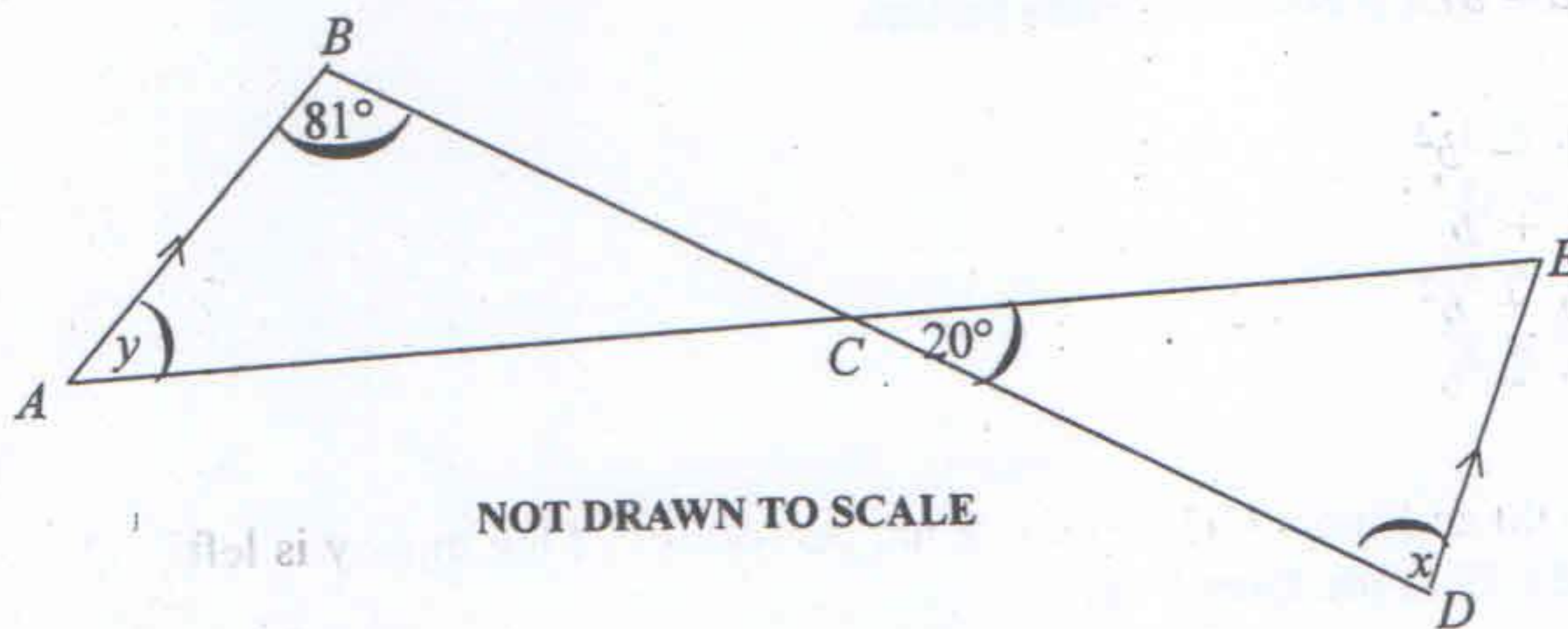
- A. 1 : 12
- B. 1 : 15
- C. 1 : 1.2
- D. 1 : 0.8

16. Given that $P(3, -2)$ and $Q(-2, 4)$ are points in a plane, find the gradient of the line joining P to Q .

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

17. A shop is rented at GH¢ 9.00 per month. How much money is paid in $1\frac{1}{2}$ years?

- A. GH¢ 162.00
- B. GH¢ 13.50
- C. GH¢ 135.00
- D. GH¢ 6.00



In the diagram, AB is parallel to DE , angle $ABC = 81^\circ$ and angle $DCE = 20^\circ$.
Use the information to answer questions 18 and 19.

18. What is the value of x ?

- A. 20°
- B. 101°
- C. 81°
- D. 61°

19. Find the value of y .

- A. 101°
- B. 20°
- C. 79°
- D. 81°

20. What is the probability that a number greater than 5 shows up when a die is thrown?

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

21. A mother has GH¢ 5.00 and gives **each** of her 3 children GH¢ 1.50 as pocket money. How much is left for her?

- A. GH¢ 4.50
- B. GH¢ 0.50
- C. GH¢ 0.15
- D. GH¢ 3.50

22. Expand: $(2a - b)(a - b)$.

- A. $2a^2 - 3ab - b^2$
- B. $2a^2 + 3ab + b$
- C. $2a^2 - 3ab + b^2$
- D. $2a^2 + 3ab - b$

23. Peter had GH¢ 200.00 and spent GH¢ 83.00. What percentage of the money is left?

- A. 29.06 %
- B. 70.94 %
- C. 41.50 %
- D. 58.50 %

The stem and leaf plot shows the weights (kg) of cocoa bags weighed in a week.
Use the information to answer questions 24 to 26.

Stem	Leaf
4	0, 5, 7, 9
5	1, 3, 4, 5, 7, 8
6	0, 2, 3, 4, 4, 4, 4, 5, 6, 8
7	1, 2, 3, 4, 5, 8, 8, 9
8	2, 3, 5, 6, 9
9	4, 5

24. What is the modal weight of the bags of cocoa?

- A. 60 kg
- B. 68 kg
- C. 65 kg
- D. 64 kg

25. What is the median weight of the bags of cocoa?

- A. 65 kg
- B. 62 kg
- C. 61 kg
- D. 68 kg

26. How many bags of cocoa were weighed in the week?

- A. 41
- B. 35
- C. 29
- D. 6

27. Simplify: $-15 - (-20) + (-10)$.

- A. -45
- B. -25
- C. -5
- D. 5

28. Given that $\vec{PQ} = \begin{pmatrix} -3 \\ 8 \end{pmatrix}$, find \vec{QP} .

- A. $\begin{pmatrix} -3 \\ 8 \end{pmatrix}$
- B. $\begin{pmatrix} -3 \\ -8 \end{pmatrix}$
- C. $\begin{pmatrix} 8 \\ -3 \end{pmatrix}$
- D. $\begin{pmatrix} 3 \\ -8 \end{pmatrix}$

29. Which of the following is **not** a quadrilateral?

- A. Parallelogram
- B. Rhombus
- C. Triangle
- D. Rectangle

30. Express $\frac{3}{8}$ as a decimal fraction.

- A. 0.429
- B. 0.375
- C. 0.625
- D. 0.365

31. Factorize completely $xy - xm - my + m^2$.

- A. $(y - m)(m - x)$
- B. $(m - y)(m - x)$
- C. $(x - m)(y - m)$
- D. $(m - y)(x - m)$

32. Adwoa travelled 12 km due north and 5 km due east. How far was she from her starting point?
- A. 13 km
B. 7 km
C. 17 km
D. 60 km
33. A certain number is subtracted from 12 and the result is multiplied by 3. If the answer is 21, find the number.
- A. 4
B. 8
C. 6
D. 5
34. A football match starts at 2.20 p.m. and lasts for 1 hour 50 minutes. At what time will the game end?
- A. 3.10 p.m.
B. 5.10 p.m.
C. 4.10 p.m.
D. 6.10 p.m.
35. Given that $117(12 + 18) = 117(15 + k)$, find the value of k .
- A. -30
B. 30
C. 15
D. -15
36. If $\mathbf{a} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} -2 \\ 3 \end{pmatrix}$, find $\mathbf{a} + \mathbf{b}$.
- A. $\begin{pmatrix} 4 \\ 0 \end{pmatrix}$
B. $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$
C. $\begin{pmatrix} 0 \\ 0 \end{pmatrix}$
D. $\begin{pmatrix} 0 \\ 6 \end{pmatrix}$

37. Solve: $(x - 1) = \frac{1}{2}(x + 2)$.

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

B. 0

C. $1\frac{1}{2}$

D. 4

38. The point $S(4, 3)$ is reflected in the y -axis. Find the coordinates of the image of S .

A. $(-3, 4)$

B. $(3, -4)$

C. $(-4, 3)$

D. $(4, -3)$

39. Solve: $5x - (7x - 3) \leq 9$.

A. $x \geq -3$

B. $x \leq 3$

C. $x \geq -6$

D. $x \leq -3$

40. Which of the following is the **largest** set?

A. {Natural numbers}

B. {Composite}

C. {Integers}

D. {Whole numbers}

END OF PAPER